

INSTALLATION  
MANUAL FOR  
FACADE TILES

metal framework – cross grid



If you come across an insoluble situation when installing facade tiles, not described in this manual, do not hesitate to contact us at: +420461722585, we will be happy to help.

The STAVOBLOCK facade system is manufactured in compliance with the ETAG 034 standard.

If you have purchased the integrated system, it is necessary to get the statistical calculation of anchoring from our technical advisor.

The Manufacturer is not liable for any potential damage to property or health caused by failure to follow the recommended installation manual.



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	cement efflorescence	

# 1. COMPLETE SET OF FACADE INSTALLATION COMPONENTS

## FACE COMPONENTS



STAVOBLOCK  
FASADE BRICK  
470x100x30



WINDOW SILL  
470x30x200/300

## FASTENERS



LAG BOLT  
M8x12 Zn  
DIN 603-4,6

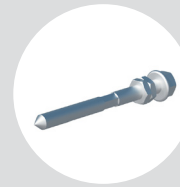


NUT 6HR M8  
with serrated  
flange, Zn

## STEEL GRID COMPONENTS



MUNGO DOWEL  
MN 12x60



THREADED ROD  
8.8 Zn M8  
2x NUT with serrated  
flange

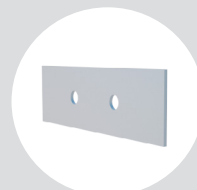


THERMOSTOP  
25x100x5, PVC



SUPPORTING PROFILE  
steel, surface working Zn

## OTHER COMPONENTS



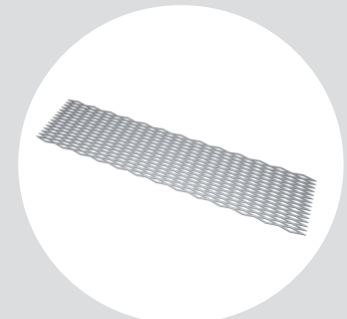
CONNENTING  
PIECE OF OMEGA  
BARS



CONNENTING  
PIECE OF BRICKS

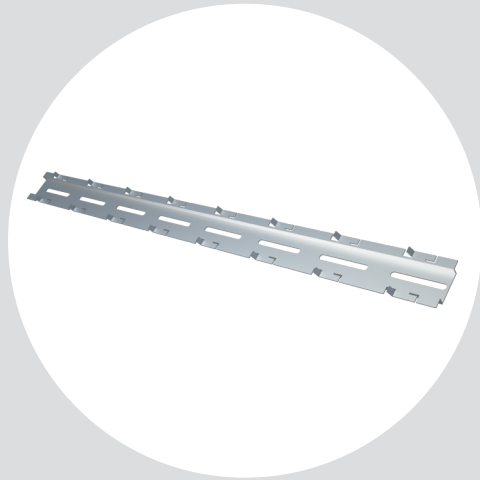


ADJUSTABLE  
EXTENSION L 100/50  
steel,  
surface working Zn

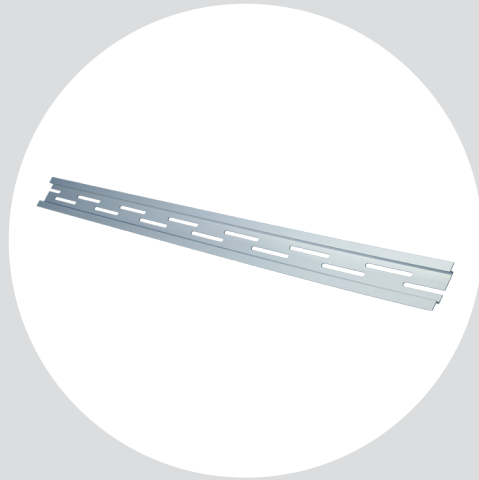


EXPANDED METAL  
/rodent control/

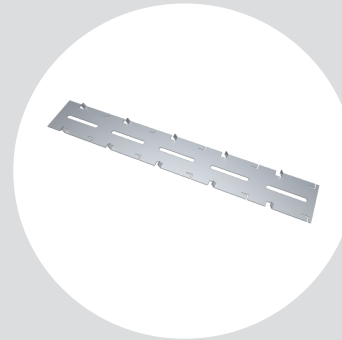
COMPONENTS OF BEARING GRID



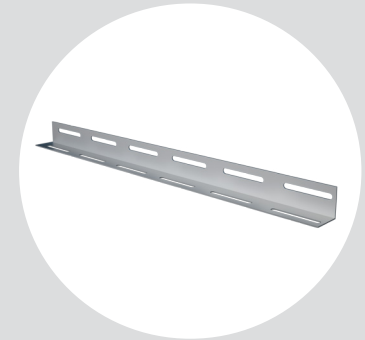
SUSPENDED OMEGA BAR  
length 2120 MM  
(vertical)  
steel, surface working Zn



BEARING OMEGA BAR  
length 2110 MM  
(horizontal)  
steel, surface working Zn

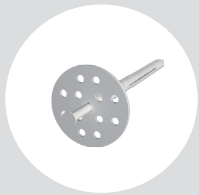


WINDOW PROFILE  
length 1500 MM



PARAPET PROFILE  
length 2120 MM

HEAT INSULATION



DISC SHEAR PLATE  
with nylon dowel



ROTAFLEX SUPER  
FD 01

RECOMMENDED TOOLS



SCAFFOLDING



WATER LEVEL  
/laser/



PLUMB BOB



TAPE MEASURE



SNAPPING LINE



ELECTRONIC  
IMPACT DRILL



TUNGSTEN CARBIDE  
DRILL  
Ø 12 MM



BATTERY OPERATED  
SCREWDRIVER



ANGLE GRINDER



TABLE DIAMOND  
TILE CUTTER  
Ø 180- 200 MM



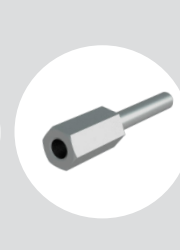
SIDE CUTTING  
PLIERS



SPANNER  
No.13-2x



SOCKET WRENCH  
No.13  
with power screwdriver  
adaptor



TIGHTENING BIT  
M8 for Threaded  
rod



HAMMER



MAMUT, Den Braven  
(GLUE)  
pure (Crystal)  
white (Hi-Tech)



PISTOL  
FOR PUTTY



MOUNTING  
FOAM



ZINC  
SPRAY



SNAP-OFF  
KNIFE

PROTECTIVE EQUIPMENT



SAFETY HELMET



WORK  
GLOVES



PROTECTIVE  
GOGGLES



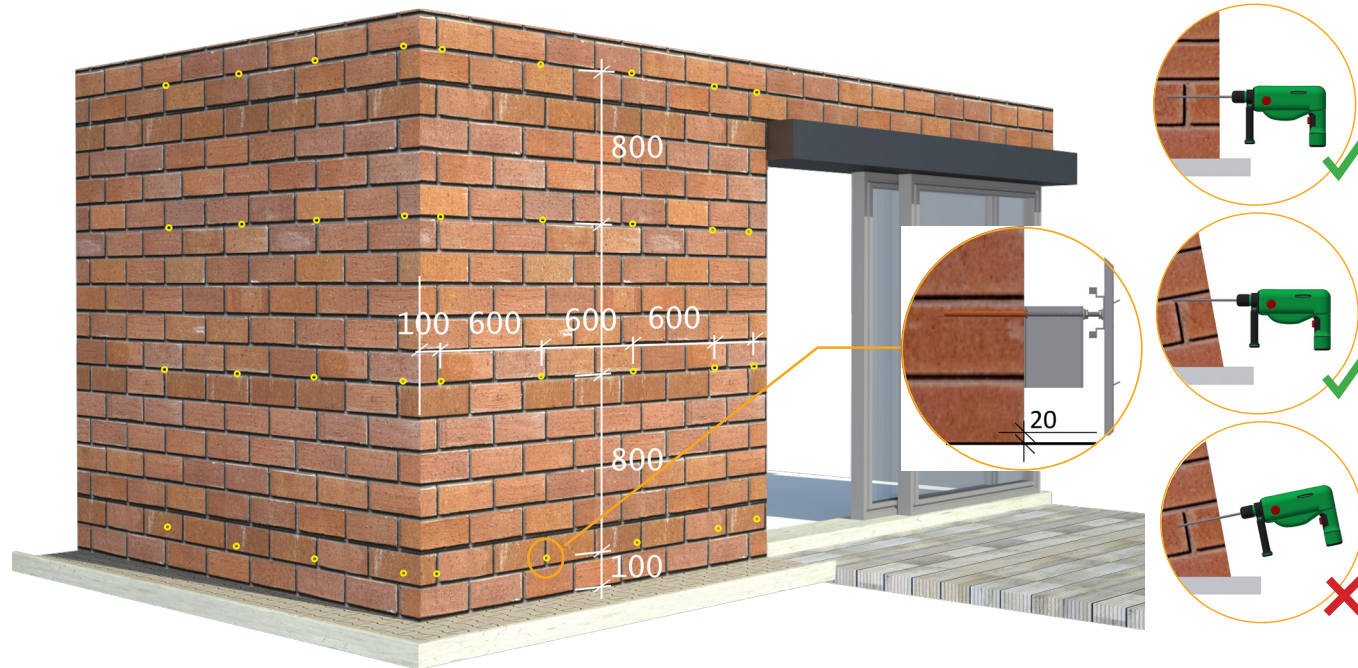
RESPIRATOR

## 2. METAL FRAMEWORK INSTALLATION – CROSS

Determine the vertical planeness of the façade wall using a water gauge or plumb line. The length of the supporting profiles for mounting the steel grid depends on the heat insulation thickness and on the planeness of the façade wall.

The arrangement of the supporting profiles, or threaded rods for mounting the distance grid is determined by a statistical calculation. When the statistical calculation does not determine any other dimension, the horizontal spacing of the supporting profiles / threaded rods is 600 mm and the vertical spacing is 800 mm. The first supporting profile is placed at least 100 mm above the ground /pic.2/.

Always drill holes for dowels horizontally to the wall /pic.3/



Pic.1- rule for the arrangement of supporting profiles / threaded rods on the wall surface  
Pic.3- holes always drilled horizontally

Pic.2- position of vertical Omega bar 20 mm above the ground

## MOUNTING METHODS

Insert dowels into the drilled holes. Screw the red part of the threaded rod /diameter 8 MM/ into the fitted dowels using the M8 tightening bit/pic. 4/- see pic. 12.

Choose a suitable type of mounting the cross spacing grid according to the required insulation t tal) Omega  
bars using:

- Mungo MN 12x60 dowels
- 8.8 Zn M8x140 mm threaded rods
- 2x M8 flanged nuts /pic.5/

b) When the bricks are more than 100 mm away from the wall, mount the Omega bars using:

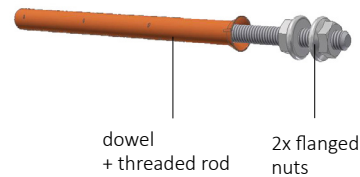
- Mungo MN 12x60 dowels
- 8.8 Zn M8x200 mm (300 mm) threaded rods
- 2x M8 flanged nuts
- supporting profiles /pic.6/

When the supporting profile touches the current wall of the building, you have to insert Thermostop  
- to break the thermal bridge.

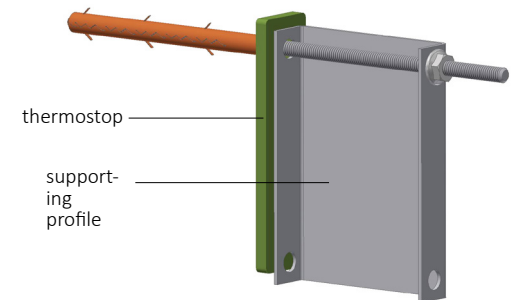
Use M8 tightening bit to tighten the threaded rod /pic. 4 /.



Pic.4- threaded rod tightening detail

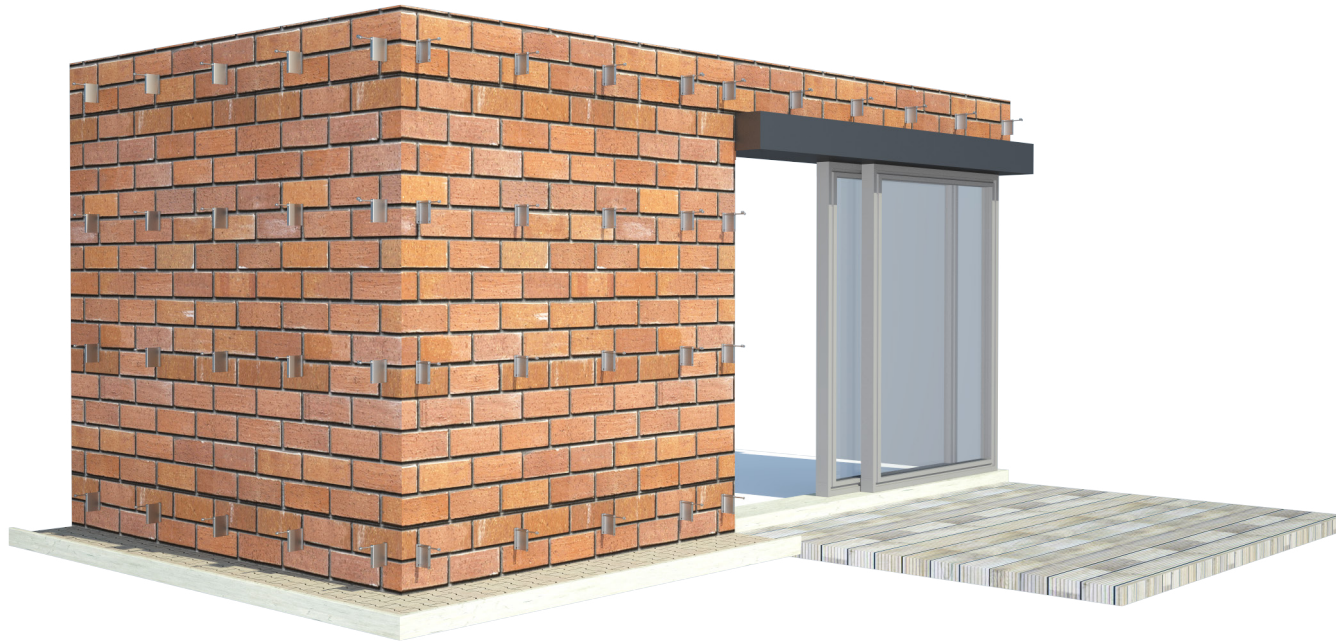


Pic.5- threaded rod



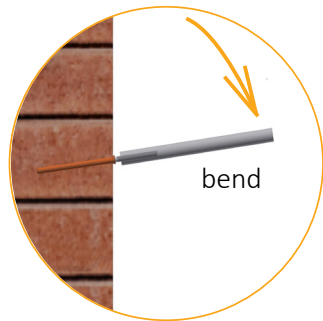
Pic.6- supporting profile with Thermostop



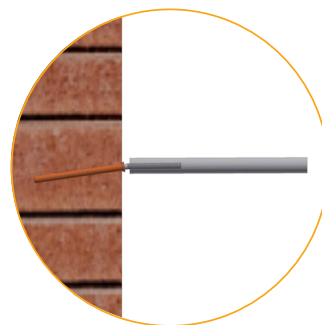


Pic.7- supporting profiles mounted to the wall

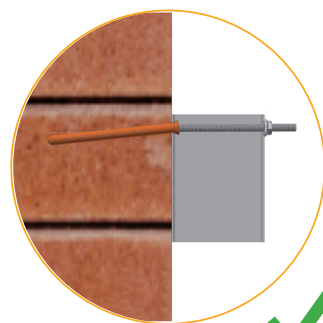
Note: When the drilled hole for dowels is not horizontal to the wall, the threaded rod has to be bent into a horizontal position using an auxiliary tool, such as a hollow rod with a length of about 500 mm,  $\varnothing$  8mm /pic.9/.



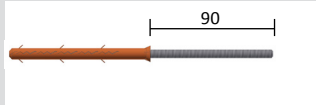
Pic.8- tightening the supporting profile



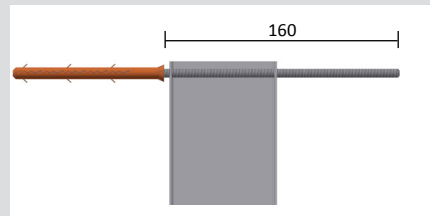
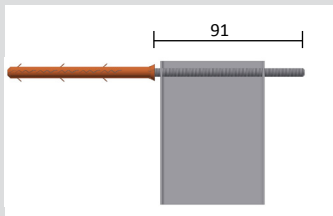
Pic.9- bending the threaded rod



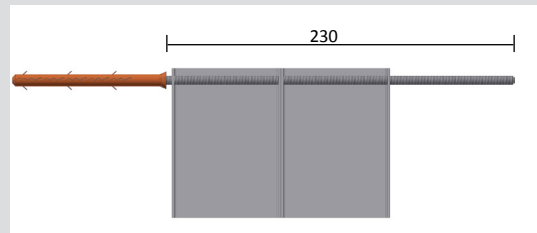
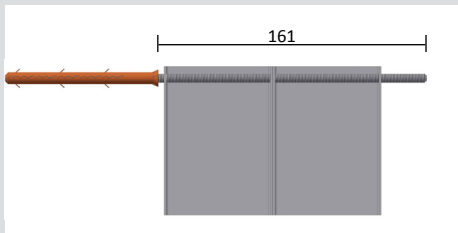
### SUPPORTING PROFILE LENGTHS



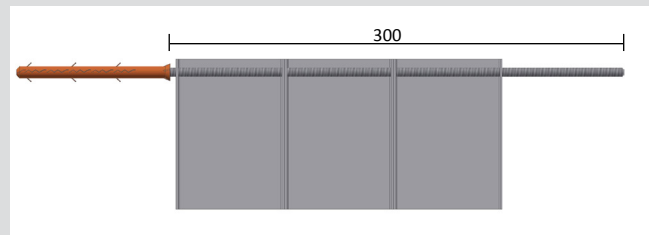
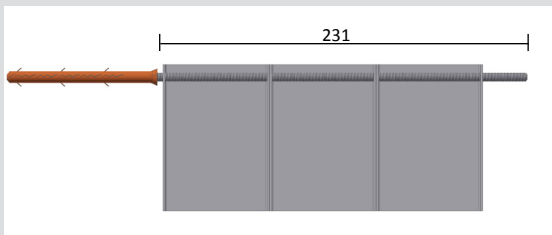
**THREADED ROD** for installation range of up to 90 mm



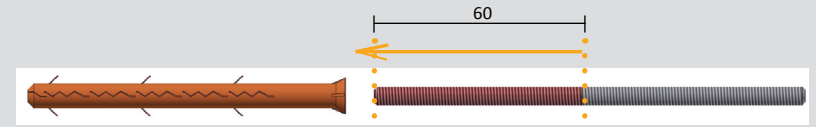
**SUPPORTING PROFILE L70** for installation range from 91 to 160 mm



**2X SUPPORTING PROFILE L70** for installation range from 161 to 230 mm



**3X SUPPORTING PROFILE L70** for installation range from 231 to 300 mm



Pic.10 - the threaded rod part marked in red is to be screwed into a Mungo dowel



Pic.11 - Mungo dowel flush-mounted in the wall at full length

## MOUNTING OMEGA BARS - CROSS GRID

### LOAD-BEARING OMEGA BARS – horizontal

The centre-to-centre distance of horizontal Omega bars is determined by the spacing of the supporting profiles, i.e. it is 800 mm /pic.19/. Screw the horizontal Omega bars onto the mounted threaded bars using the M8 flanged nuts and adjust the required distance from the wall.

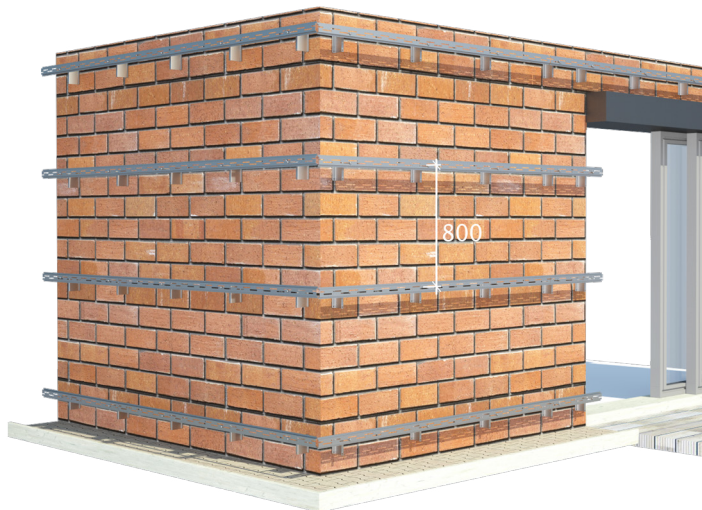
You can now insert the heat insulation. More information on how to use the air gap as insulation with sealing the air channel is provided on page 16.

### CORNER

Attach the first vertical Omega bar 50 mm from the point of contact of two horizontal Omega bars. Connect the vertical corner bars with a 100/50 adjustable extension. The first adjustable extension is placed 500 mm above the ground, every other extension is placed at the centre-to-centre distance of 1000 mm. /pic.20/. The facing installed on the corner must always be suspended on two fixtures. Note: the lining of openings is done in the same way.

### SUSPENDED OMEGA BARS – vertical

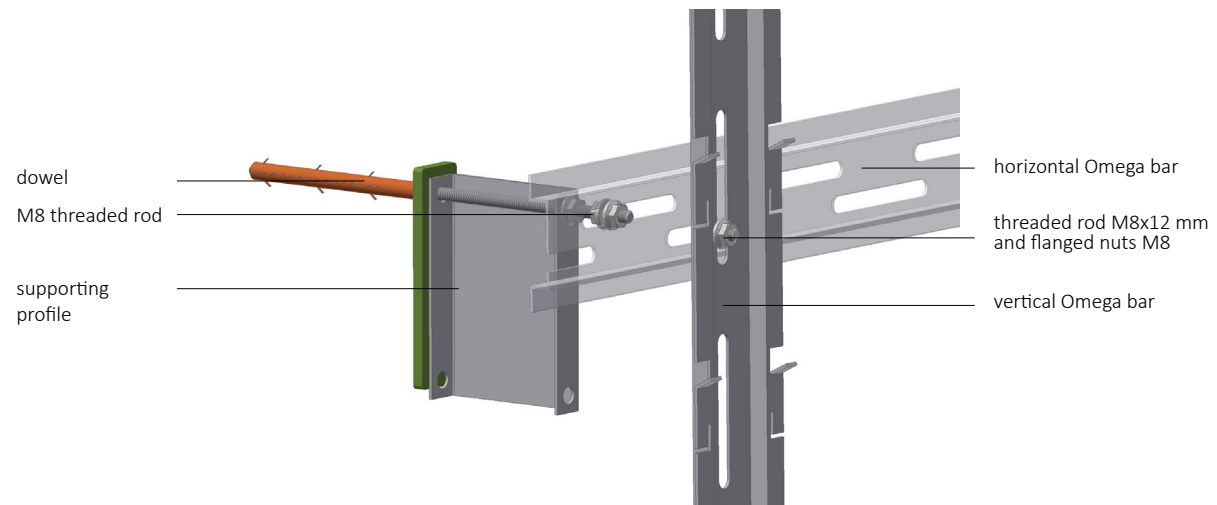
The distance of the first two Omega bars from the corner is always 235 mm, then continue with a constant axial distance of vertical Omega bars 470 mm / pic.20 /.



Pic.19- centre-to-centre distance of horizontal Omega bars

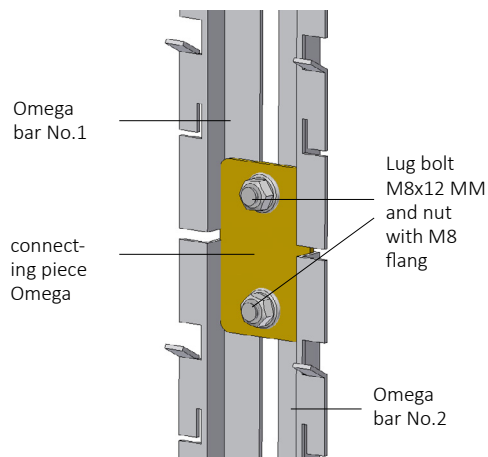


Pic.20- mounting vertical Omega bars

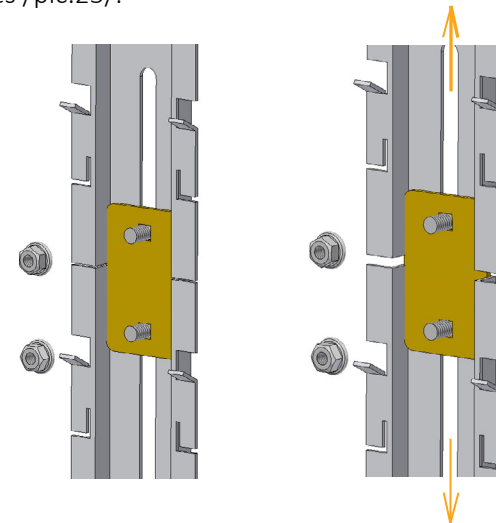


Pic.21- mounting Omega bars to the threaded rod

The basic length of an Omega bar is 2120 mm. Use the Omega bar connecting piece to connect Omega bars vertically / longitudinally. Insert the connecting piece into the “groove” at the end of the Omega bar and screw it to the other Omega bar using M8x12 lug bolts and a flanged nut /pic.24/. Spread the Omega bars from one another end-to-end and tighten the lug bolt nuts inserted onto the connecting pieces /pic.25/.

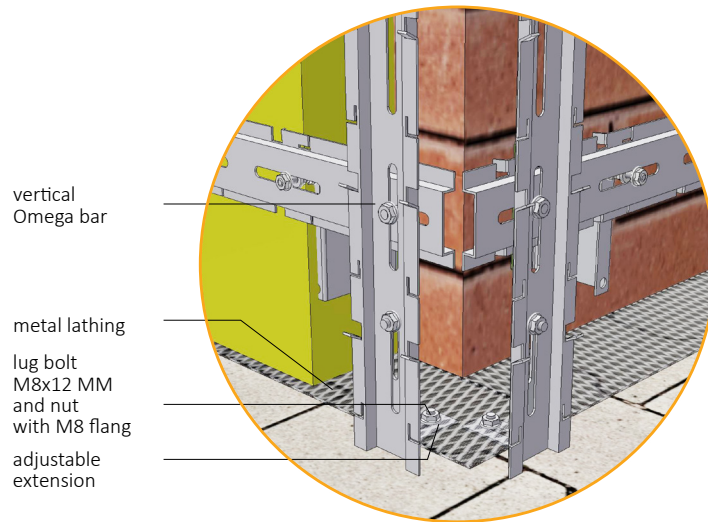


Pic.24- connecting two Omega bars with a connecting piece

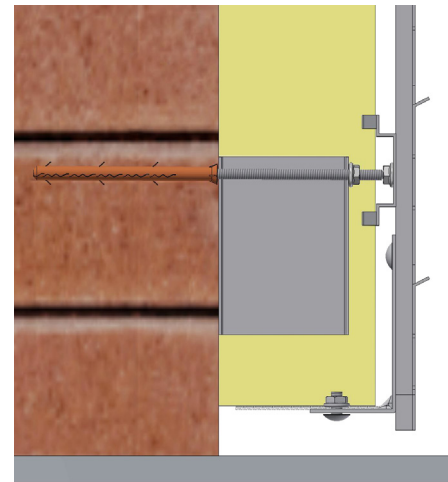


Pic.25- tightening bolts

Secure the recommended protection against the collapse of the heat insulation and rodent infiltration into the façade casing with metal lathing /width according to the heat insulation thickness/- /pic.24,25/.



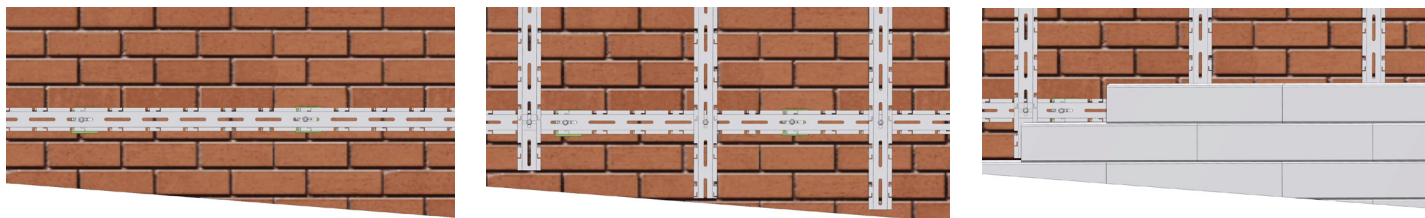
Pic.24- detail of attaching metal lathing to the bottom part of the Omega bar



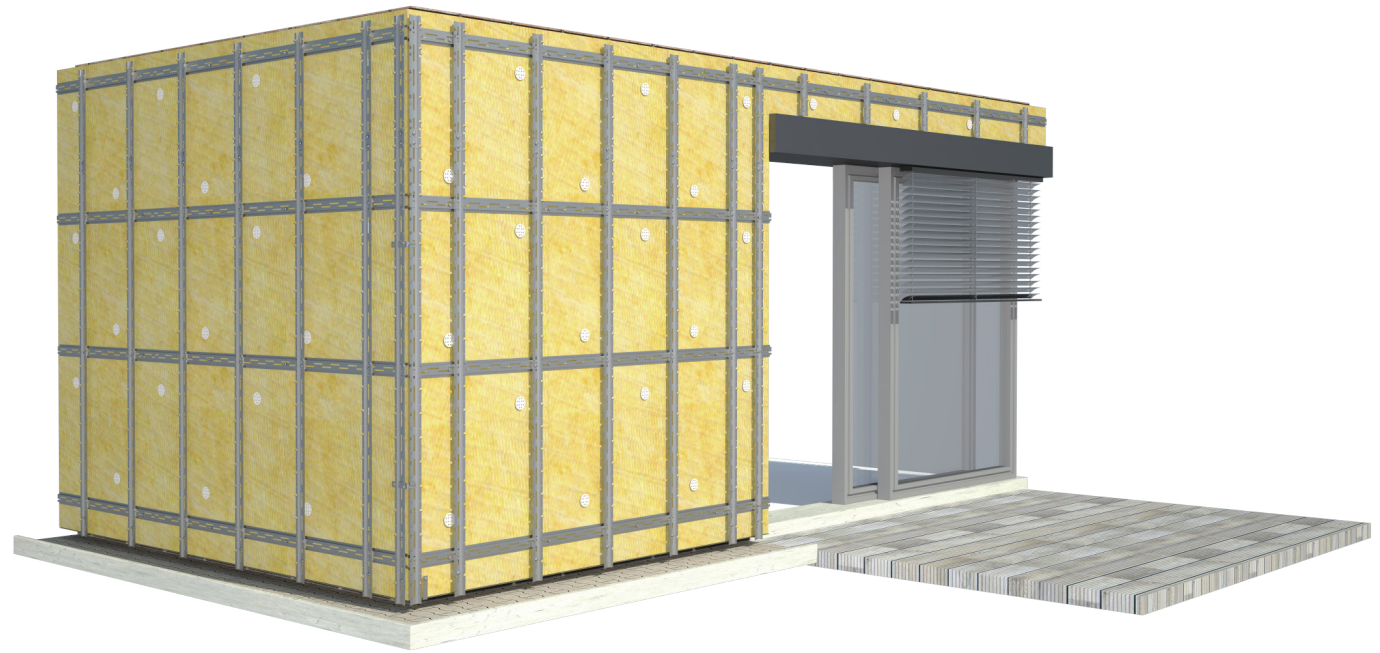
Pic.25- detail of attaching metal lathing

### SETTING UP THE CROSS GRID ON STEEP GROUND

Facing a slant surface above a steep ground does not differ from the procedure for facing a surface above a flat ground. Screw the horizontal bars to the supporting profiles using a bolt and a flanged nut. Then, attach vertical bars to the horizontal bars and shorten the bars according to the slope so that the individual beaks maintain a horizontal level /i.e., at the water level/. The Omega bar set-off distance from the ground is 20 mm.



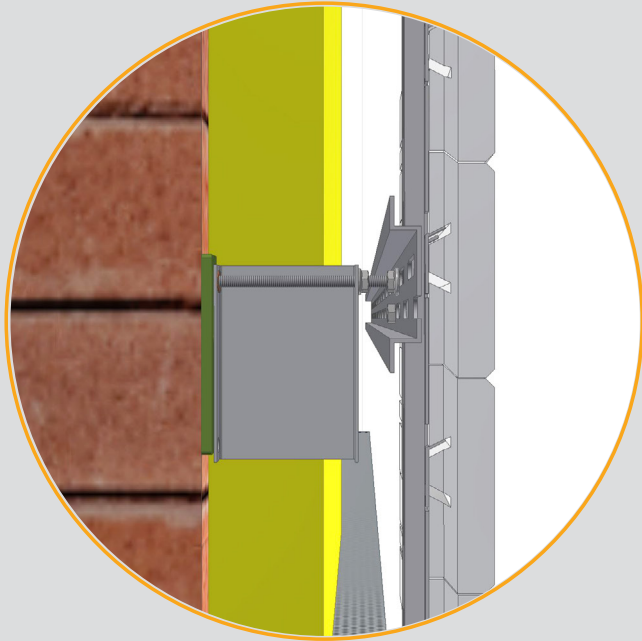
Pic.26- setting up the cross grid on steep ground



Pic.27- steel grid with heat insulation prepared to be tiled with bricks

### 3. ENSURING AN AIR GAP

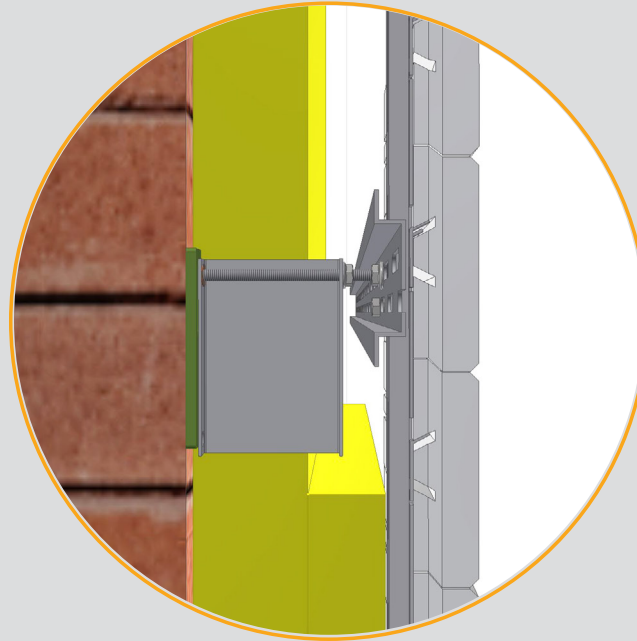
#### DIFFUSION-OPEN HEAT-INSULATING FAÇADE WITH AN OPEN AND CLOSED AIR GAP



Pic.28- open air gap

#### **VENTILATED FAÇADE**

Excessive moisture is removed from the façade casing to the external environment by air circulating in the air gap /pic. 28/.



Pic.29- sealed air gap

#### **DIFFUSION-OPEN FAÇADE**

Excessive moisture from the façade casing goes through the facing into the external environment.

##### a) no air gap

In this case, the insulation touches the façade bricks directly.

##### b) air gap as an insulator

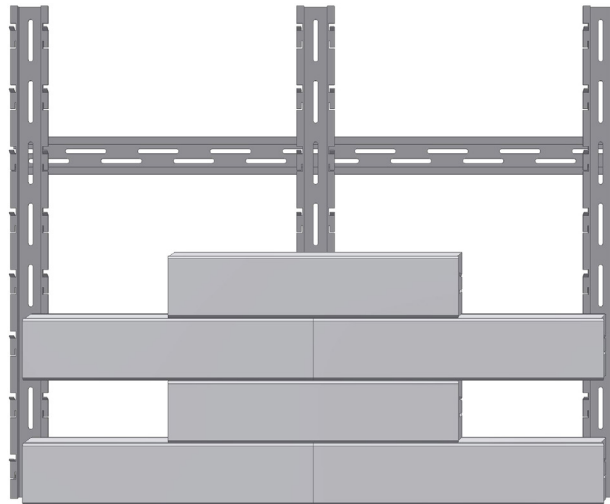
The air gap is used as an insulator, however, it has to be sealed properly to prevent any air flow inside.

Sealing is provided by inserting heat insulation into the bottom part behind the first row of bricks to seal off the air channel /pic.29/.

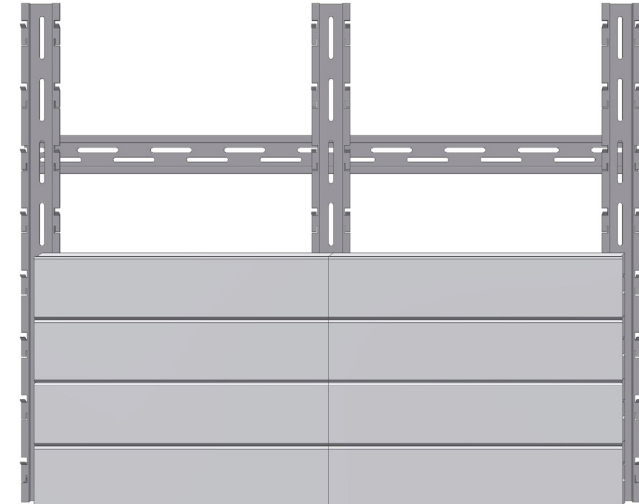
## 4. FAÇADE COMPONENTS INSTALLATION

### FAÇADE BRICK INSTALLATION

Bricks can be mounted using two types of bonding /pic. 30,31/.



Pic.30- facing bond



Pic.31- no-bond design – to cut

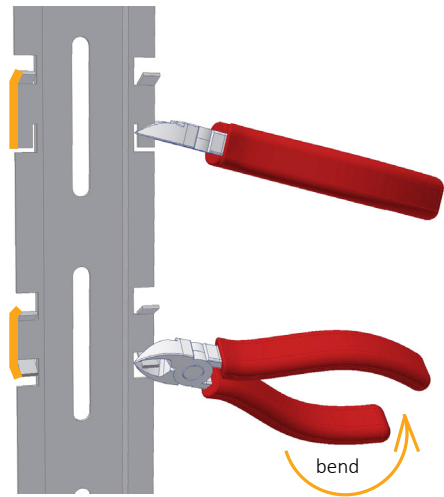
The individual rows of the facing can be “LOCKED” to the load-bearing Omega bar by bending the bottom mount of the Omega bar using side cutting pliers. That prevents any vertical movement of the facing /pic.32/.

IT IS RECOMMENDED TO LOCK EVERY **FIFTH** AND LAST ROW /finishing/.

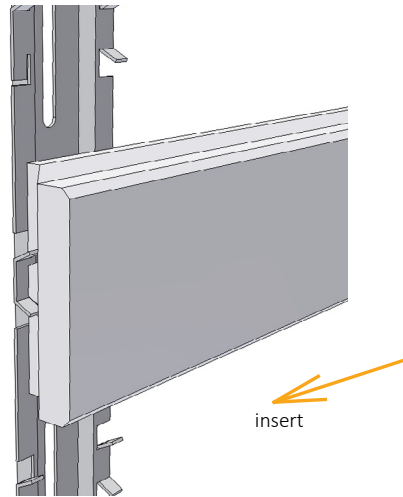
When laying bricks on the wall, alternate between various pallets. You achieve better identity of colour. Check the planeness during installation using the water level.

When the load-bearing grid is complete, you can lay the first row of bricks. The following rows of bricks are simply laid one on another by securing the Omega bar mount to the groove on the back of the brick. In case of locking, the bricks are inserted in a horizontal direction /pic.33/.





Pic.32- bending the Omega bar mount using side by cutting pliers



Pic.33- inserting the row of bricks onto locked by Omega bar mounts

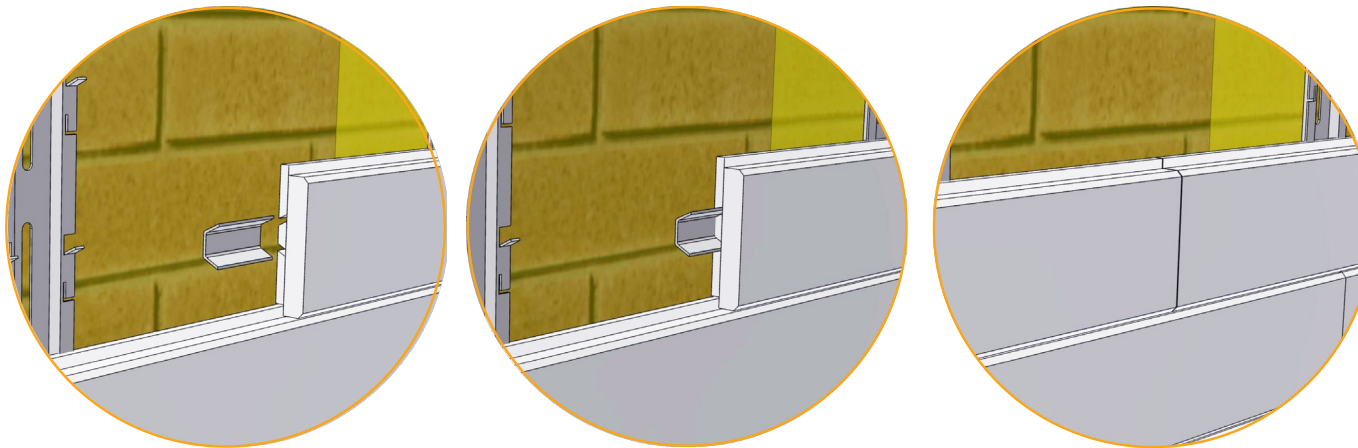


Pic.34- proper bricklaying

It is important that the bricks are properly laid to prevent penetration of rainwater into the façade casing.

Proper bricklaying: the top brick part is the tongue and the bottom part is the groove /pic.34/.

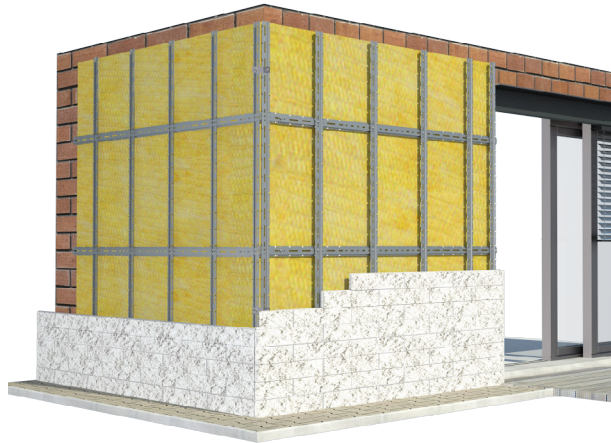
Use a brick connecting piece at each contact point of bricks that is not secured with Omega bar suspension /pic.35-37/.



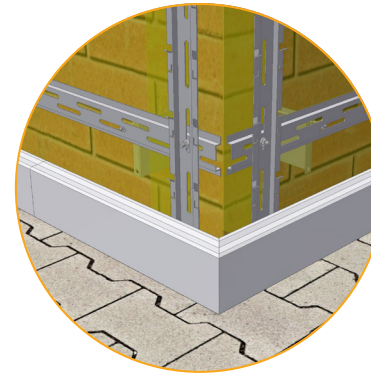
Pic.35,36,37 - brick connecting piece connecting two adjacent bricks

## OUTER ANGLE INSTALLATION

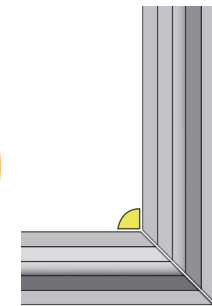
The corner is solved by cutting two bricks at the angle of 45° using the table saw. Such cut bricks can be secured with a layer of Sikaflex cement or Mamut glue applied on the interior – behind the facing /pic. 39,40/



Pic.38- outer corner facing



Pic.39- detail of the outer corner solution



Pic.40- Mamut glue on the back part of the bricks

## BUILDING APERTURE SOLUTIONS



Pic.41- a) lining  
b) head-sill  
Pic.42- c) sill



## LINING INSTALLATION

There are two methods for lining openings:

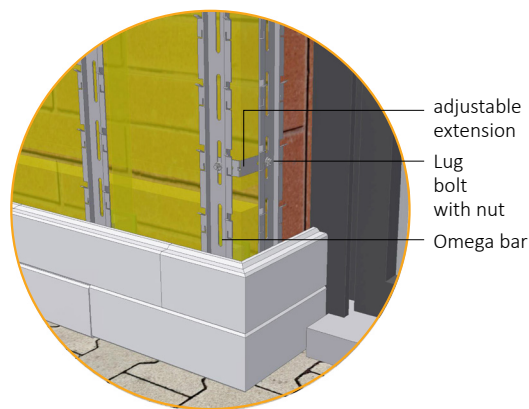
a) using an Omega bar (when lining is not straight)

Screw an adjustable extension using a lug bolt to the closest corner Omega bar so that the extension shape traces the corner to be tiled. The centre-to-centre distance of the individual adjustable extensions located on the vertical Omega bar is 1000 mm. Screw a vertical Omega bar using lug bolts to the other part of the adjustable extension /on the side of the lining/ /pic.42/.

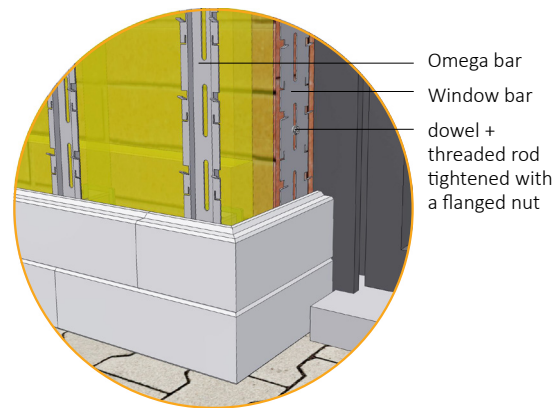
b) using a window profile

Mount the window profile onto the lining of the opening using a dowel and threaded rod, tighten with a flanged nut. A groove needs to be cut out on the back of the bricks that are in contact with the nut /pic.47/.

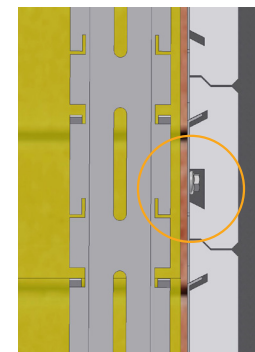
Cut the bricks that form the corner at an angle of 45°. Attach the contact area of the cut surfaces using the Mamut - glue crystal (clear).



Pic.43- lining using Omega bar



Pic.44- lining using window profile



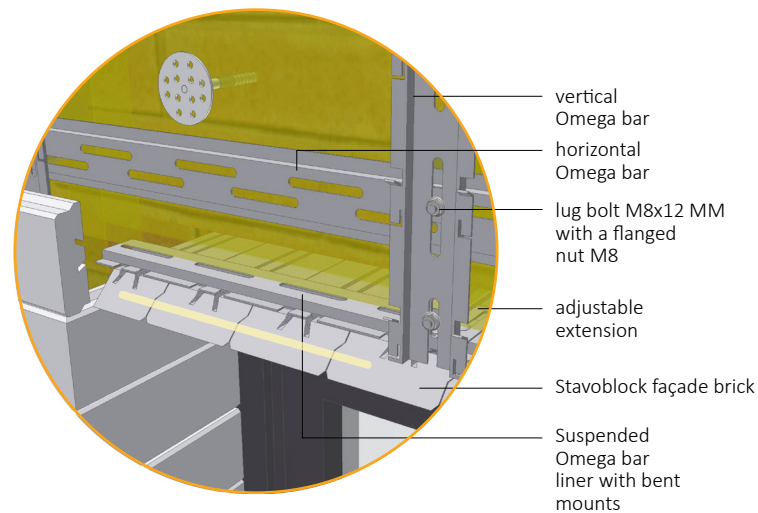
Pic. 45- groove for the flanged nut

## UNDERSIDE INSTALLATION

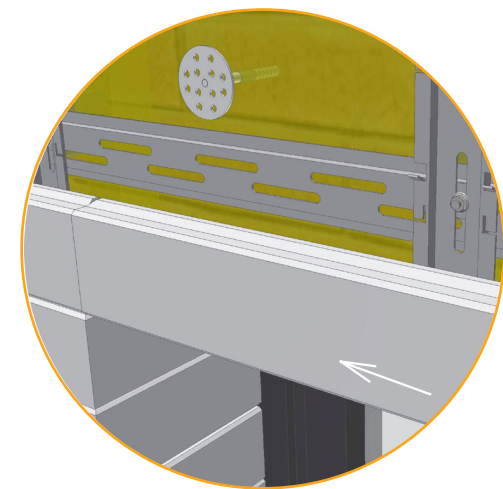
The head-sill can be mounted in two ways.

Screw an adjustable extension using a lug bolt with a nut onto the back side of the Omega bar above the opening. Mount another Omega bar onto the adjustable extension in parallel to the width of the opening using a lug bolt. Bend all the mounts of the horizontal liner Omega bar using side cutting pliers /pic. 34/. Then cut the sides of the brick that form the right angle to 45° using the angle grinder. Then, simply insert bricks from the underside, apply the Mamut glue onto the contact area and cover this part by facing on the front /pic. 46, 47/.

### a) Horizontal head-sill /pic.46, 47/



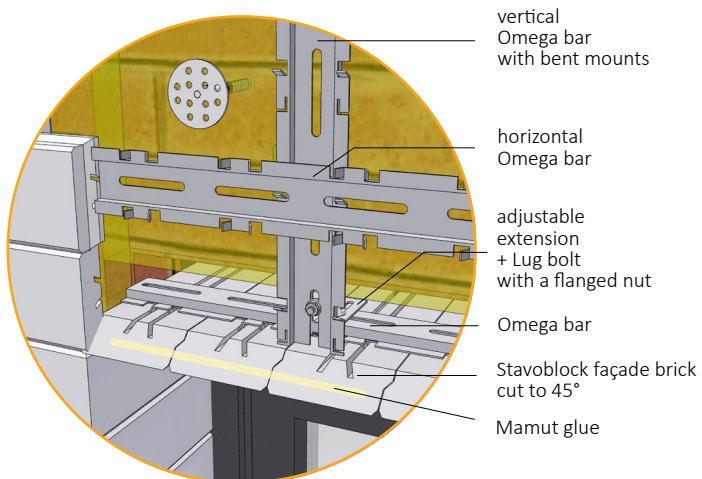
Pic.46- detail of the underside solution



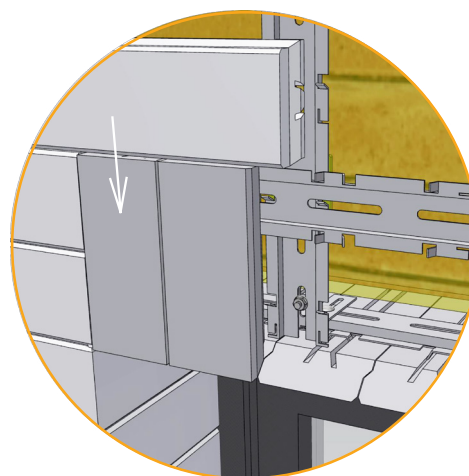
Pic.47- covered underside

### b) Vertical head-sill - the vertical bricks are slightly offset /pic.48, 49/

Cut the required length of the Omega bar according to the opening width. Screw the Omega bar horizontally using a lug bolt with a nut to the vertical Omega bars above the opening. Bend all the mounts using the side cutting pliers. Then cut the sides of the brick that form the right angle to 45° using the angle grinder. Then, simply insert bricks from the underside, apply the Mamut glue onto the contact area and cover this part from the front by facing placed upright /pic.48, 49/.



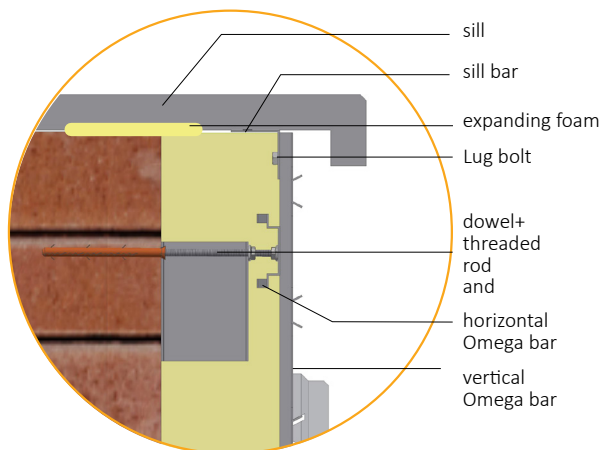
Pic.48 - detail of the underside solution



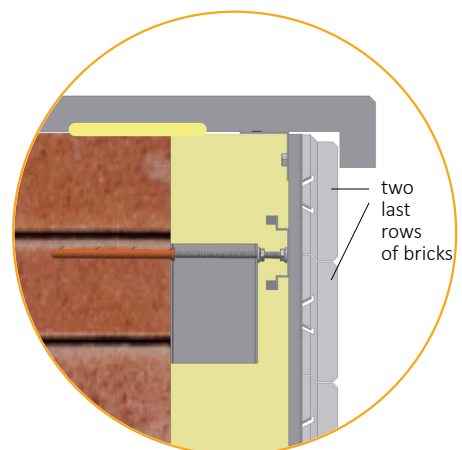
Pic.49- covered underside

### WINDOW SILL INSTALLATION / FOOTING FINISH

Screw the sill bar to the back side of the vertical Omega bar using a lug bolt and a flanged nut. Adjust the sill bar length so that it supports the entire window sill. Mount the second side of the window sill using expanding foam.



Pic.50- sill design detail

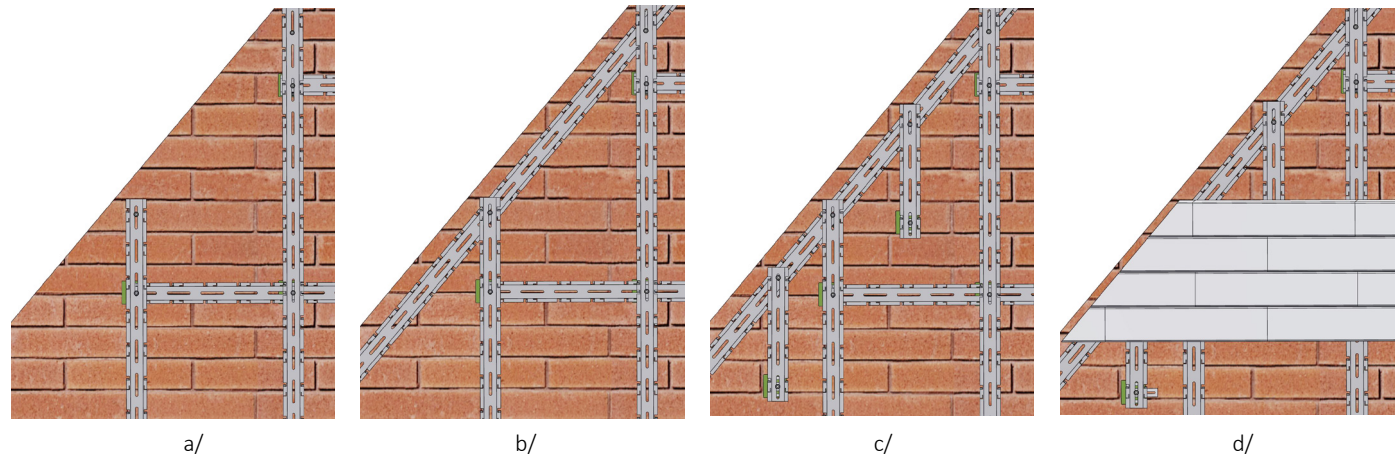


Pic.51- sill cover detail

NOTE: To make the installation of the window sill easier, leave the last two rows of bricks free /pic. 50/. You can insert them after the window sill has been installed. INSTALL THE WINDOW SILL TOGETHER WITH THE SURFACE BRICK INSTALLATION.

### **FACING INSTALLATION ON A SLANT SURFACE /gabled roof/**

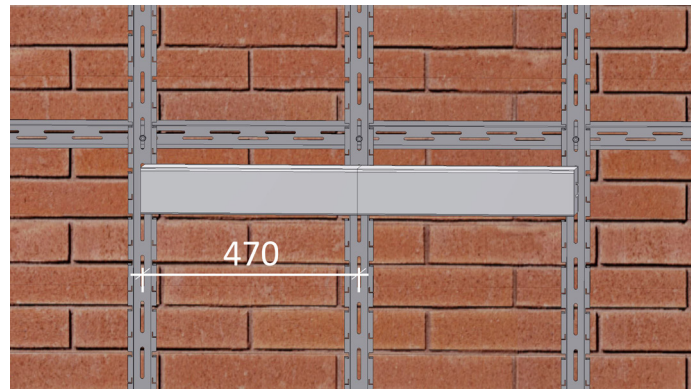
Continue using the standard cross grid on the façade below the gabled roof /pic.52 a/. A supporting grid for suspending the bricks has to be created for short bricks below the slant surface. Mount another Omega bar below the cross grid in parallel with the roof angle /pic.52 b/. Mount the Omega bar using a lug bolt and a flanged nut to the vertical Omega bars of the basic cross grid. Mount the supporting vertical Omega bars to the angled Omega bar /length as required to mount the facing/. Anchor the bottom part to the wall using threaded rods, attach the top part to the angled Omega bar using a lug bolt and a flanged nut. Then, continue with facing.



Pic.52- detail of facing on a slant surface

## 5. GRID VARIANTS

When installing the Stavoblock facade, you may encounter a different type of grate in different parts of the house. As a rule, you will encounter the **classic cross grate** to the greatest extent, which has the axial distance of the vertical omega bars **470 mm** /Pic. 53 a/. Furthermore, at the corners and windows of the house, it is necessary to reinforce the grate - so a **dense cross grate** is created, which has an axial distance of vertical omega bars of **235 mm** /Pic.53 b/. In the case of a **simple compressed grate**, the axial distance of the vertical omega bars remains **235 mm** (horizontal omega bars are not used here) /Pic. 53 c/.



a/ classic cross grate



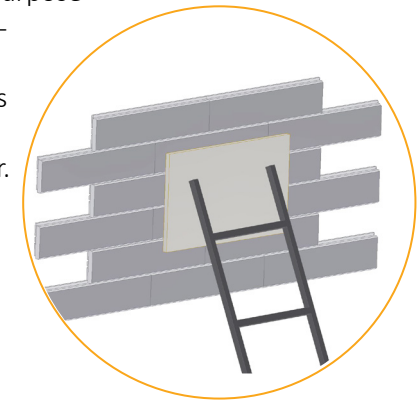
Pic.53- b/ dense cross grate



c/ simple compressed grate

## 6. MAINTENANCE

- STAVOBLOCK façade does not require any coating. The façade brick is fully coloured.
- Any polluted façade surface can be washed with pressure water. Do not aim a stream of pressure water at one point when cleaning, never use a rotary pressure nozzle. Use a dispersed water jet.
- In the case of cement efflorescence, clean the façade with Betoncleaner /manufactured by Stachema Kolín/ and apply the product according to the instructions /also see Cement Efflorescence below /.
- Façade can also be cleaned using dry sand blasting or brushing. Consult the procedure with the seller or manufacturer.
- To increase the resistance of façade against pollution, you can apply surface sealer coating. Always consult the intended type of varnish with the façade manufacturer.
- The façade surface may also be treated with a nano-technological multipurpose coating. The coating causes immediate reaction of most oxidizable microscopic particles /such as the molecules of chemical substances, dust, viruses, bacteria, spores/ with atmospheric oxygen, in which the particles are completely burned. This product is also effective against mould and algae. Information on the product is available at the façade manufacturer.
- If you need to replace one or more damaged bricks, carefully cut out the corner component in the concerned row, replace the damaged bricks with new ones, and proceed according to the instructions for installing new bricks, including the corner component.
- Use a ladder propped against a profile, e.g. polystyrene, to repair façade at height /pic. 54/
- We recommend checking the façade after the end of winter. If you find any suspicious change, do not hesitate to contact your supplier, or the manufacturer.



Pic.54- ladder propped against a profile

### CEMENT EFFLORESCENCE

Cement efflorescence in concrete products is not considered to be a defect and it is not a reason for complaint as the product is manufactured from natural materials bonded with cement. Cement efflorescence is only lime released from cement that washes away during rain. It is possible to use Betoncleaner for a fast and immediate elimination of cement efflorescence.







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Manufacturer and supplier: STAVOBLOCK system, s.r.o., Lezník 133, 572 01 Polička  
The installation instructions were prepared according to the manufacturer's requirements 2017