

WWW.STOFIX.CO.UK

# DESIGN & INSTALLATION MANUAL



**STOFIX**

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# WELCOME TO STOFIX

This manual forms the basis for installing the Stofix system, and also details our 20-year warranty.

## 1. GENERAL



Stofix is the only mechanically fixed brick slip cladding system that is fire rated over 18M and allows architects and designers to select specific bricks. Stofix can utilise almost any high quality, weatherproof, kiln-fired brick manufactured by reputable brick suppliers. Choose your size, colour, texture or bond.



Stofix brick cladding is a combined structure of burnt brick, polymer-modified mortar and a pressed metal frame. All Stofix brick panels are designed and manufactured to order, and all materials noted below are supplied.



The completed panels are delivered direct to building sites ready to be installed quickly and efficiently using a unique modularised mounting system. The installed panels and brick slips require minimal pointing. Using this system, savings can be made with regards to time and labour.



The Stofix system is a ventilated and separated structure. The brick cladding is mounted on the rails of the Stofix system, which leaves a wall-wide cavity between the insulation or the load-bearing wall.

Please note, any deviation from the installation process may deem the warranty null and void



# PROJECT DESIGN

**The Stofix end to end design service encompasses all the designs of the Stofix panels and backing structure based on fully dimensioned drawings to be provided by the Contractor/Architect. Design includes all panels, rails, brackets and connecting bolts/screws needed to install the complete system. Stofix do not include any insulation or fire-break design as part of its design, and those elements should always be installed according to the manufacturers' installation instructions.**

**The following details should be considered when installing Stofix;**

- The minimum distance between the ground and the lower end of the cladding should be 150mm.
- Cavities must not be blocked with any material and a consistent gap of 38mm should be maintained behind the Stofix panel.
- Panels of less than 500mm with no lateral bonding must have supports at the top and bottom.
- Up to 1800mm above ground level should have AK25 horizontal rails at 300mm centres also on balcony areas.
- Lights, signage and alarm parts up to 10kg/m<sup>2</sup> can be fixed directly to the Stofix panel. Please refer to Stofix design for consultation and advice.
- Heavier appliances such as fire ladders, or anything over the above limit, should be fixed back to the substrate or other supporting steelwork. Please refer to Stofix design for consultation and advice.

Separate drawings defining the types and sizes of panels and backing structure will be produced for every project. The largest panels in production for a stretcher bond panel in UK size brick is 1125mm x600mm, however all panels are designed to be installed in the most cost-effective way. Corner panels, reveals and soffits will be specifically designed, and special panels will be manufactured to suit.



## **BBA BUILDING REGULATIONS STATES:**

- 4 General 4.1 The Stofix Brick Cladding System, when installed in accordance with this Certificate, is satisfactory for use as a protective and decorative cladding on external walls of domestic and commercial buildings of masonry, steel and timber frame construction above the damp-proof course (dpc) level.
- 4.2 It is important for designers, planners, contractors and/or installers to ensure that the installation of the system is in accordance with the Certificate holder's instructions and the information given in this Certificate. All design aspects should be checked by a suitably qualified and experienced individual in accordance with the requirements of the relevant Building Regulations and Standards.

For further information please visit the download section on our website, BBA Certificate page 10.

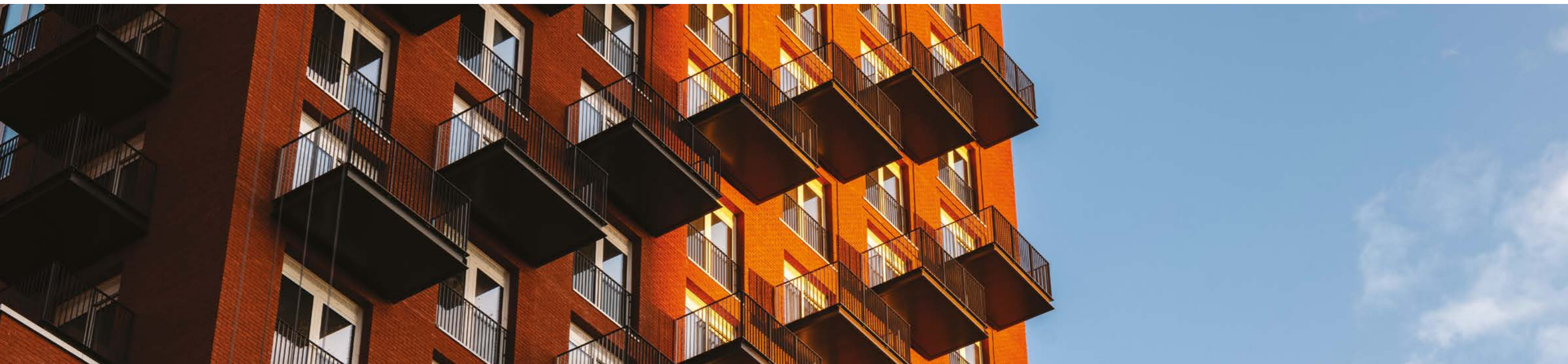


# TECHNICAL SPECIFICATIONS

FAÇADE SURFACE	BRICK OR BRICK SLIP
<b>Panel dimensions (max)</b>	1125mm x 600mm in stretcher bond UK sized bricks (215mm x 65mm)
<b>Joints</b>	Cement-based, polymer-modified mortar
<b>Joint surface material</b>	Sand
<b>Jointing temperature</b>	>+5 degrees C, fully cured in 3 days
<b>Frame material</b>	Hot-dip galvanized steel – 275-350 g/m <sup>2</sup>
<b>Surface area of largest panel</b>	0.72 m <sup>2</sup>
<b>Height</b>	600mm
<b>Width</b>	1125mm
<b>Thickness</b>	19-40mm
<b>Weight</b>	38-65kg/m <sup>2</sup>
<b>Wall bracket material</b>	Hot-dip galvanized steel – 275 g/m <sup>2</sup> , 2.0mm thick
<b>Mounting rail material</b>	Hot-dip galvanized steel – 275-350 g/m <sup>2</sup> , 1.25mm thick
<b>Brick bond patterns</b>	Stretcher, Soldier, Flemish, English, Stack
<b>Thermal expansion</b>	0.5mm/lin mt. (from 20deg C to 50 deg C)
<b>Minimum cavity</b>	38mm
<b>Additional insulation capacity</b>	Up to 340mm
<b>Expansion joints</b>	At 7.5m intervals when length/height exceeds 12m

*\*Mounting System also available in stainless steel and Magnelis*

PANEL TYPE	BRICK CODE	BRICK SIZE (MM)	MAX PANEL SIZE (MM)	BRICK SLIPS (UNITS/M <sup>2</sup> )
Stofix UK WDF	WDF	215 x 65 x 20	1125 x 600	59.3
Stofix Finnish 1/3	MTL85	285 x 85 x 20	1200 x 600	33.3
Stofix Finnish 1/2	MTL85	285 x 85 x 20	1200 x 600	33.3
Stofix Finnish Stock	MTL85	285 x 85 x 20	1200 x 600	33.3
Stofix Finnish Nom 1/2	NTL75	270 x 75 x 20	1120 x 525	40.8
Stofix German DF	DF	240 x 52 x 20	1000 x 496	64.5
Stofix German NF	NF	240 x 71 x 20	1000 x 486	49.4
Stofix LDF	LDF	290 x 52 x 20	1200 x 536	49.8
Stofix LDF Silesian	LDF	290 x 52 x 20	1200 x 536	49.8
Stofix WF	WF	210 x 50 x 20	1100 x 600	75.8
Stofix Norweigan	NOR	226 x 62 x 20	1200 x 600	55.6
Stofix Sweden	SWE	250 x 62 x 20	1040 x 600	51.3
Stofix Denmark	DNF	228 x 54 x 20	1200 x 534	62.5
Stofix Rustic	RTL60	270 x 60 x 20	1132 x 581	48.7



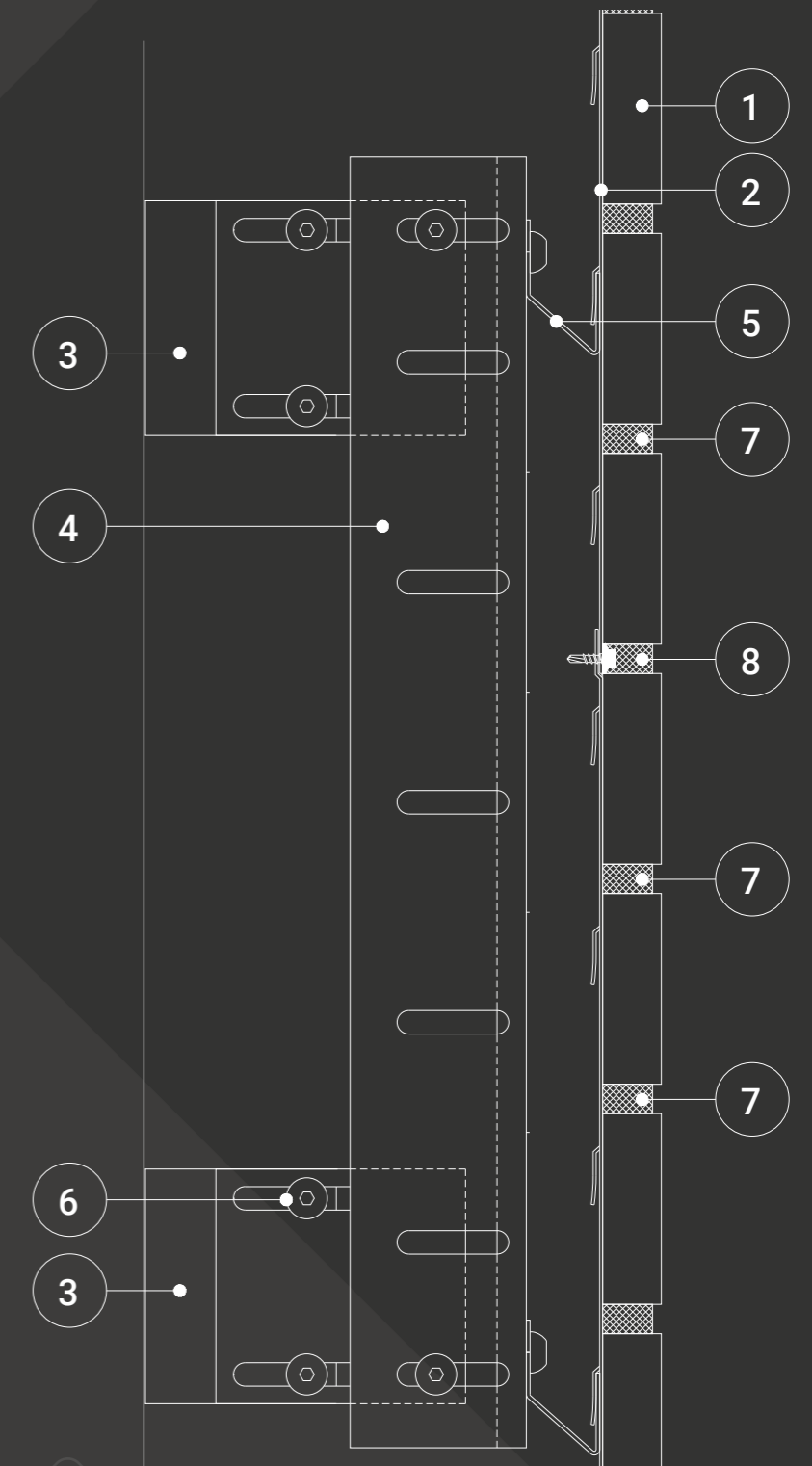
# MANUFACTURING SPECIFICATIONS

## MATERIALS

## SPECIFICATION

- 1. BRICK SLIPS** Clay kiln-fired bricks slips manufactured to BS EN 771-1: 2011 and with the following dimensions: In heights ranging from 30-190mm, in lengths ranging from 20-390mm and in thicknesses ranging from 19-40mm.
- 2. STEEL SHEET** The steel sheet is made from galvanized steel with a hot-dip zinc coating (600 g·m<sup>-2</sup>) of grade DX51D Z600 or S220GD Z600 manufactured to BS EN 10346: 2015; galvanized steel with a hot-dip magnelis coating (310 g·m<sup>-2</sup>) of grade DX51D ZM 310 or S220GD ZM310 manufactured to EN 10346: 2015; or ferritic stainless steel with minimum tensile strength of 400 MPa, minimum grade 1.4521 and minimum pitting resistance equivalent number (PREN index) 24.6 in accordance with BS EN 10088-1 : 2014, and BS EN 10088-2 : 2014. The steel sheet includes protruding tabs for keying into the mortar joints and cut outs on the reverse face for hanging onto the horizontal rails, and has a standard size of 1125 x 600mm with a thickness of 0.7mm.
- 3. SK AND JK BRACKETS** 2.0 mm thick, made from galvanized steel with a hot-dip zinc coating (600 g·m<sup>-2</sup>) of grade DX51D Z600 or S220GD Z600 manufactured to EN 10346: 2015; galvanized steel with a hot-dip magnelis coating (310 g·m<sup>-2</sup>) of grade DX51D ZM310 or S220GD ZM310 manufactured to EN 10346 : 2015; or ferritic stainless steel with minimum tensile strength of 400 MPa, minimum grade 1.4521 and minimum PREN index (Pitting resistance equivalent number) 24.6 in accordance with BS EN 10088-1 : 2014, and BS EN 10088-2 : 2014.
- 4. J60 VERTICAL RAIL** 1.25 mm thick, made from galvanized steel with a hot-dip zinc coating (600 g·m<sup>-2</sup>) of grade DX51D Z600 or S220GD Z600 manufactured to EN 10346 : 2015; galvanized steel with a hot-dip Magnelis coating (310 g·m<sup>-2</sup>) of grade DX51D ZM310 or S220GD ZM310 manufactured to EN 10346 : 2015; or ferritic stainless steels with minimum tensile strength of 400 MPa, minimum grade 1.4521 and minimum PREN index 24.6 in accordance with BS EN 10088-2 : 2014, and BS EN 10088-2 : 2014. The J60 vertical rails have a weight of 0.8 kg·m<sup>-1</sup>. The Z rails have a weight of 0.5 to 0.9 kg·m<sup>-1</sup>
- 5. AK HORIZONTAL RAIL** 1.25 mm thick, made from galvanized steel with a hot-dip zinc coating (600 g·m<sup>-2</sup>) of grade DX51D Z600 or S220GD Z600 manufactured to EN 10346: 2015; galvanized steel with a hot-dip Magnelis coating (310 g·m<sup>-2</sup>) of grade DX51D ZM310 or S220GD ZM310 manufactured to EN 10346 : 2015; or ferritic stainless steel with minimum tensile strength 400 MPa, minimum grade 1.4521 and minimum PREN index in accordance with BS EN 10088-1 : 2014, and BS EN 10088-2 : 2014.
- 6. M8 CONNECTING BOLTS** M8 hex-socket bolts and nuts - used to attach the horizontal rail to the vertical rail and the vertical rail to the bracket/extension bracket. The bolts have a diameter of 8 mm and length of 12 mm and are zinc plated to ISO 7380. The nuts are zinc plated to DIN 985.
- 7. FACTORY APPLIED MORTAR** Cement-based, polymer-modified mortar of class M20, manufactured to BS EN 998-2 : 2016, for embedding the brick slips to the backing steel sheet during panel assembly at the factory.
- 8. SITE APPLIED MORTAR** Cement-based, polymer-modified site-applied mortar of class M10 for filling the joints of the cladding panels on site, manufactured to BS EN 998-2 : 2016.

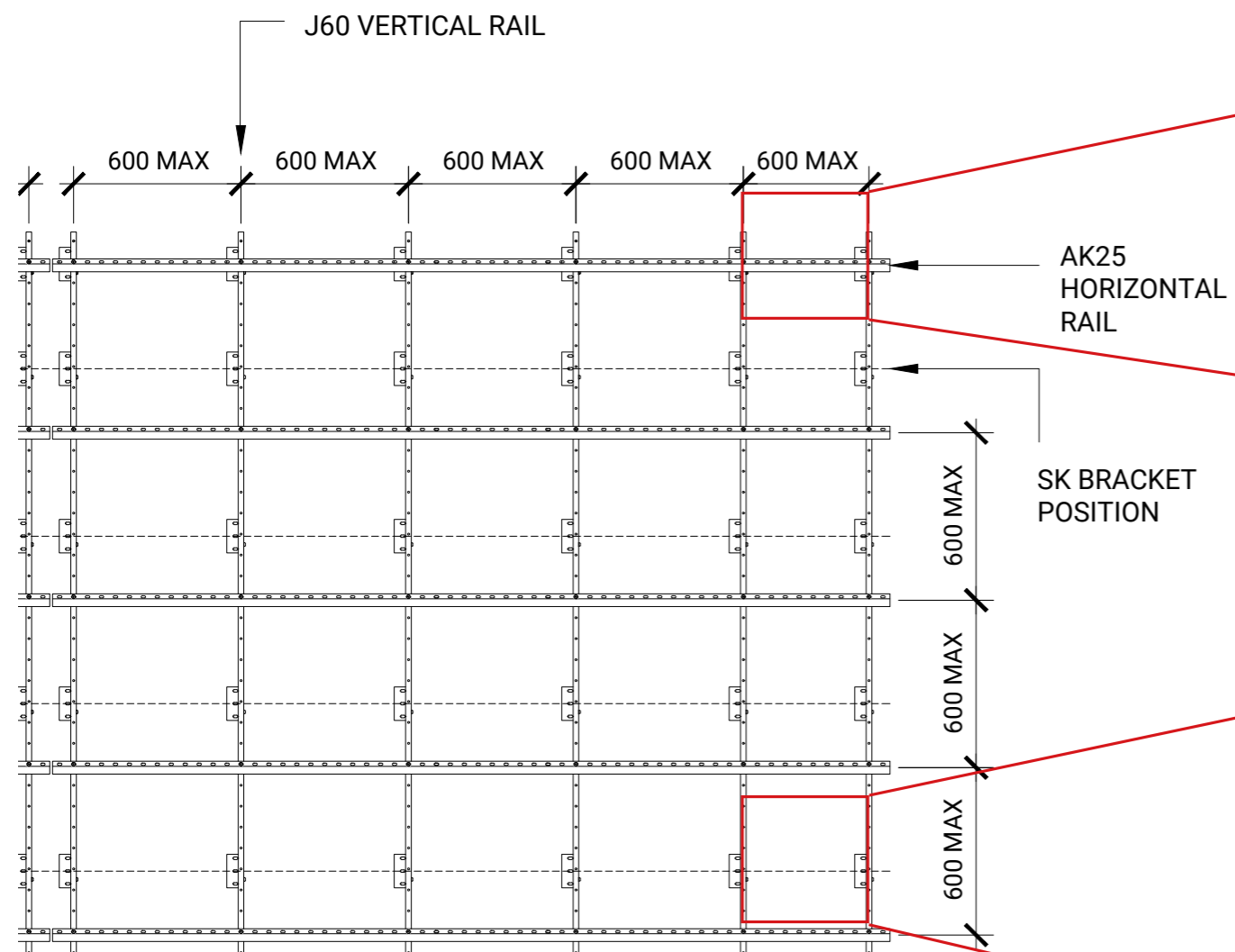
## PANEL JOINT



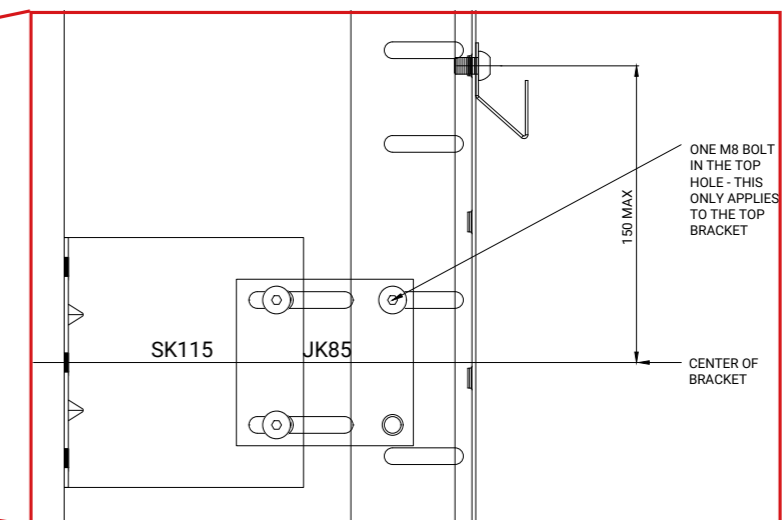
- 1. BRICK SLIPS**
- 2. STEEL SHEET**
- 3. SK & JK BRACKETS**
- 4. J60 VERTICAL RAIL**
- 5. AK HORIZONTAL RAIL**
- 6. M8 CONNECTING BOLTS**
- 7. FACTORY APPLIED MORTAR**
- 8. SITE APPLIED MORTAR**

# MANUFACTURING SPECIFICATIONS

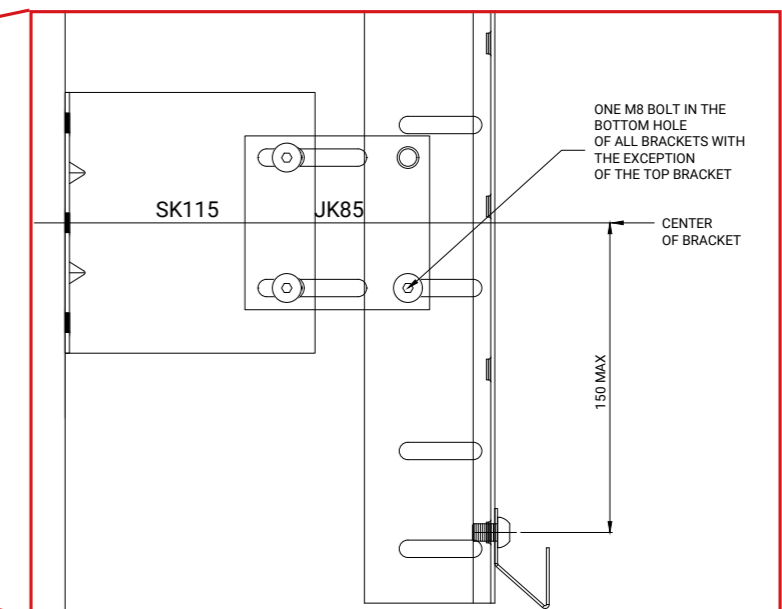
TYPICAL MOUNTING SYSTEM LAYOUT



UPPER CANTILEVER

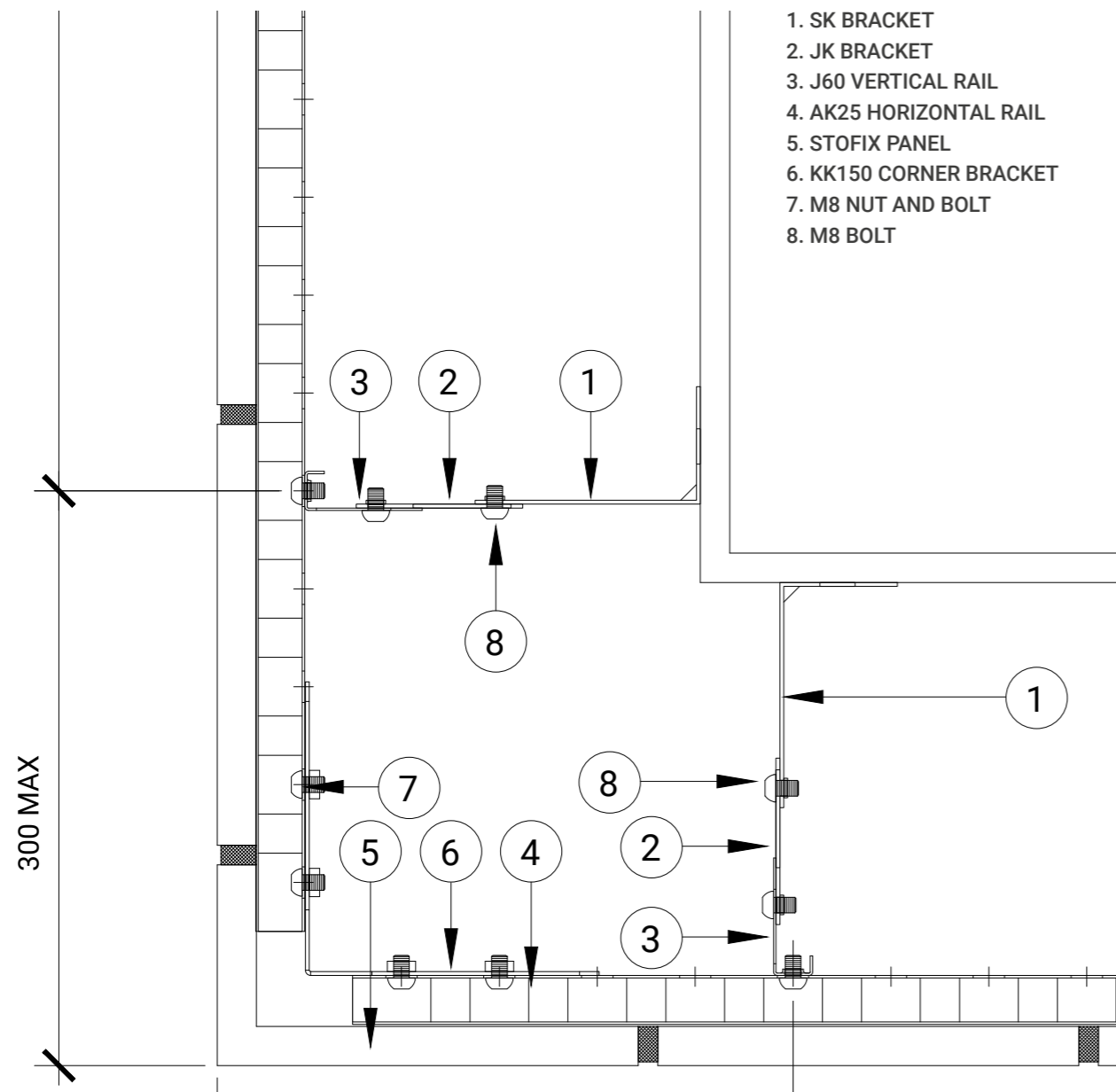


LOWER CANTILEVER

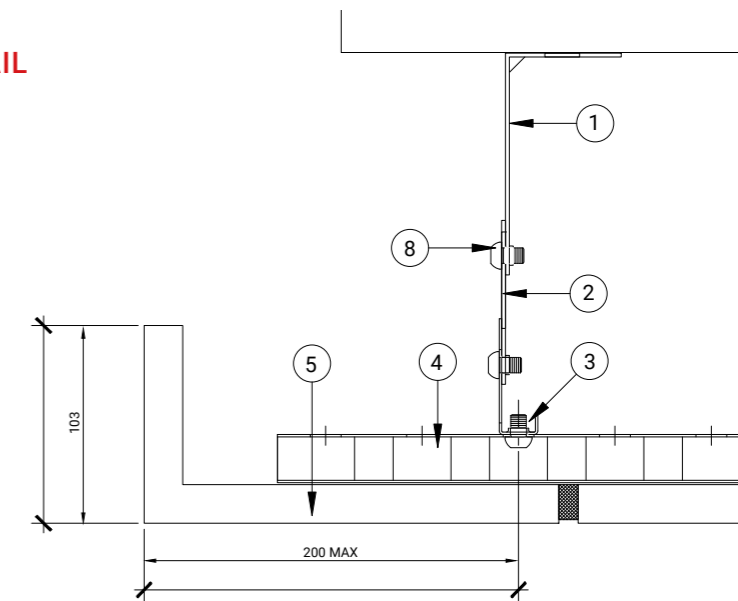


# MANUFACTURING SPECIFICATIONS

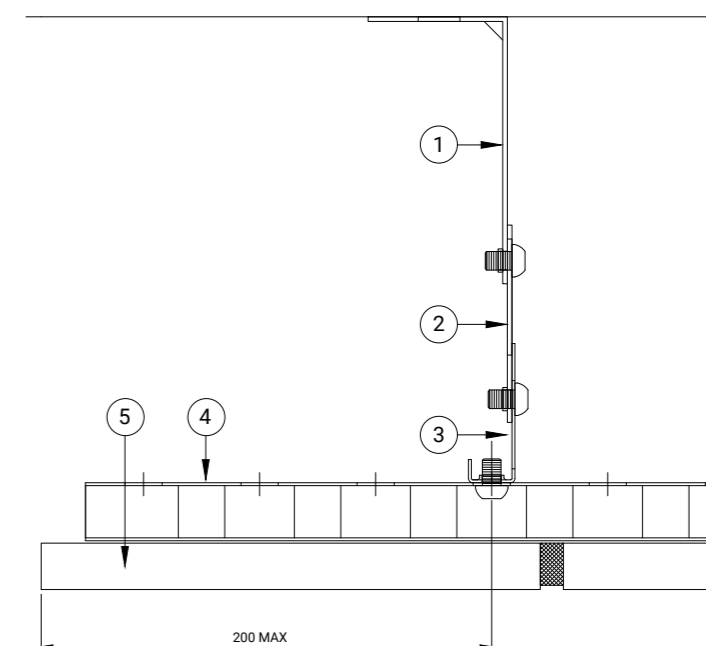
**TYPICAL CORNER DETAIL**



**HALF BRICK RETURN DETAIL**



**PANEL EDGE DETAIL**



# INSTALLATION

## 3.1 PREPARATION

The Stofix system can be installed by using most access methods, i.e., scaffold, MEWPS, but particularly useful are Mast Climbers.

Before you start, remove any equipment or accessories that may have to be reinstalled, including any drainage pipes etc. Temporary spouts should be installed to deflect any rainwater.

## 3.2 STORAGE

Stofix brick panels are delivered in wooden crates. These crates are covered in plastic and tightened with a strap. They should never be stacked on top of each other and should always be stored on a flat level surface at an adequate distance from the constructed wall. All panels should be stacked and picked up/handled vertically to minimise damage, and under no circumstances should panels be laid flat.

Packs of rails should be stacked horizontally on sufficient bearers to prevent damage and distortion. Care needs to be taken when handling long lengths of rail, particularly at height, as the edges can be sharp. Rails will be supplied cut to length so they will need to be packed separately on site to prevent the wrong lengths being used in the wrong areas.

Mortar will be packed in plastic lined paper sacks and must be stored in dry conditions, protected from moisture, frost and excessive heat. Please ensure mortar is used within the date indicated on the packaging or the supplier's guidelines.

Manual handling guidance should be followed at all times. All pallets and packaging materials must be disposed of by the customer in the correct manner following waste disposal regulations. Stofix are not responsible for any items once delivered to site.



## 3.3 INSTALLATION OF THE STOFIX MOUNTING SYSTEM USING J RAIL HELPING HAND SYSTEM

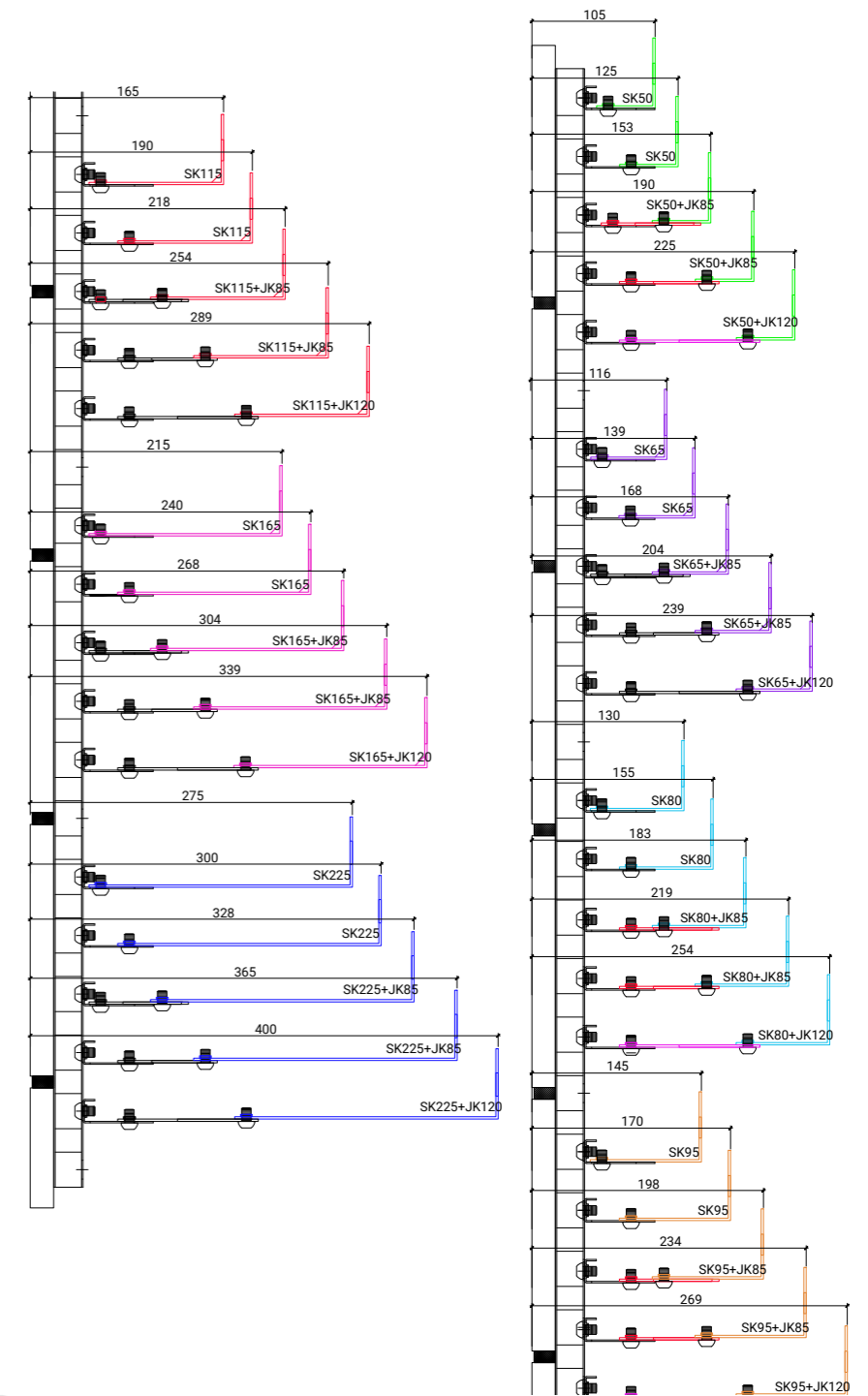
### 3.3.1 WALL BRACKETS

When installing the wall brackets, use a laser measuring device or plumb line to ensure that the wall brackets follow a straight line. Proceed from left to right and bottom to top.

Install the lower edge of the first wall bracket as shown (140mm above the desired bottom line of the first panel).

When starting from a corner, the first wall bracket must be installed at a distance of no more than 300mm from the outside of the finished corner. Attach the next wall brackets horizontally with 600mm spacing (subject to design drawings). Any extension brackets (JK brackets) should be installed using 8mm bolts (supplied) and connected using both holes.

Vertical spacing for the brackets should be 600mm (subject to design drawings) and sometimes, using a J Rail with the upper SK brackets loosely fixed can help as a guide for installing the brackets vertically.





# INSTALLATION



## 3.3.2. INSTALLATION AND ADJUSTMENT OF INSULATION J RAILS

Attach the J60 rails to the wall brackets using the supplied 8mm hex socket bolts, using the lower of the two holes, adjust the rails to be level and plumb, and tighten the screws. **25.4Nm of torque should be applied to all m8 bolts.**

The J Rails should always be stopped below and restarted above all expansion joints and horizontal cavity barriers. To help align rails to the correct dimensions, a small piece of J rail, (using the slotted holes and fixed at 180 degrees into the face of the lower rail) gives you the perfect setting out dimension for the rail above.

## 3.3.3 INSTALLATION OF HORIZONTAL RAIL

Attach the lowest mounting rail to the first hole from the bottom of the J Rail with an 8mm bolt (supplied). From bottom to top, the first spacing between the rails should be 525mm for full height panels and subsequent rails at 600mm centres, until there is a break in the horizontal rails, and always as per supplied design drawings.

For horizontal expansion joints, the brick panels must be supported at both top and bottom edges and the design drawings will show this.

## 3.4 INSTALLATION OF THE STOFIX MOUNTING SYSTEM USING Z RAIL SYSTEM

3.4.1 Starting from the bottom left of the elevation, install the first Z Rail to the substrate so that the first rail connection hole is positioned 59mm above the desired bottom line of the first panel. Ensure all subsequent rails are installed vertically using a laser line or spirit level. Rails will be installed generally at 600mm centres but should be as per the design drawings.

3.4.2 Attach the lowest mounting rail to the second hole from the bottom of the Z Rail with an 8mm bolt (supplied). From bottom to top, the first spacing between the rails should be 525mm and subsequent rails at 600mm centres, (for full height panels) until there is a break in the horizontal rails, and always as per supplied design drawings.

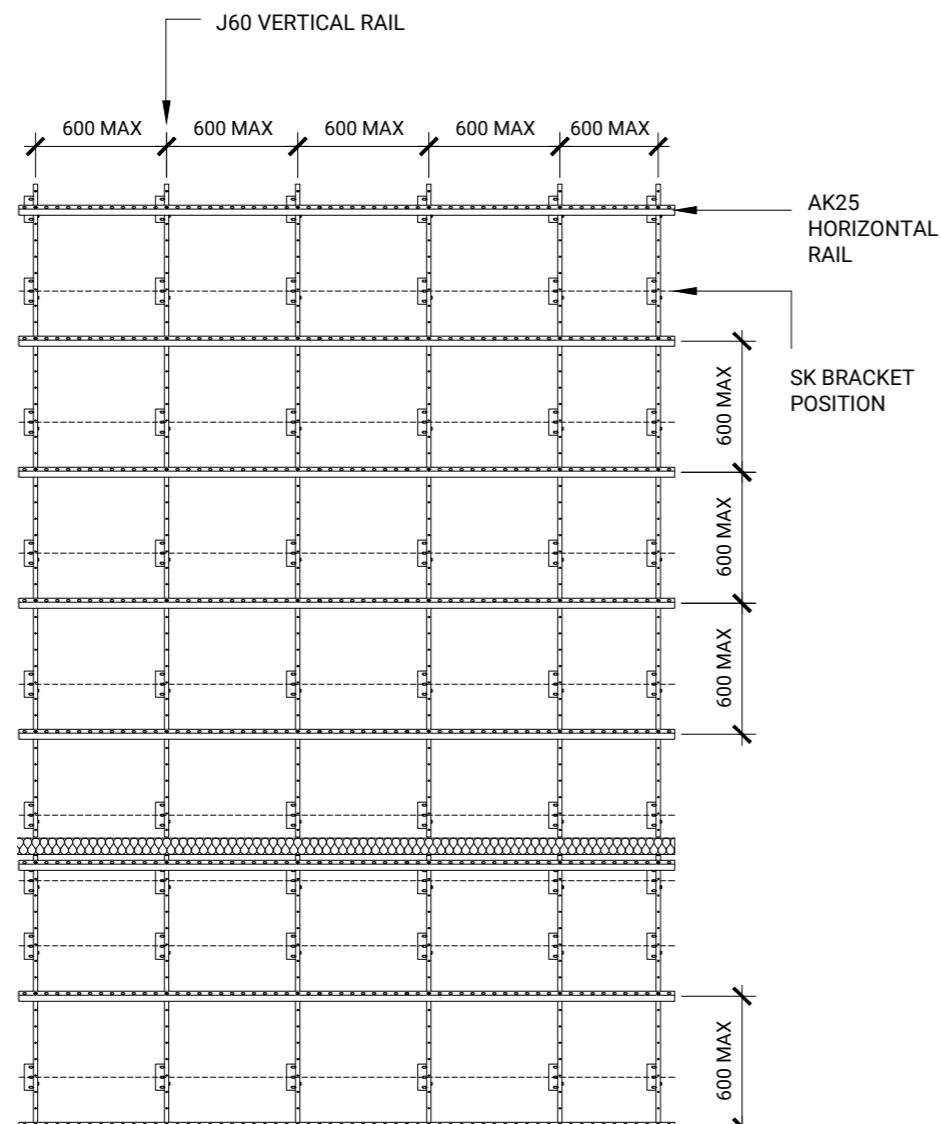
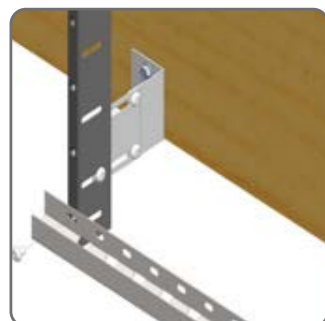
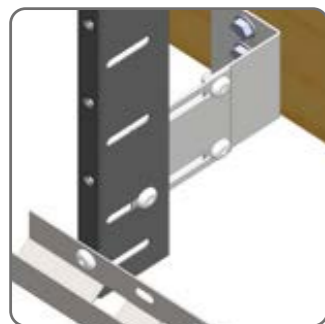
For horizontal expansion joints, the brick panels must be supported at both top and bottom edges and the design drawings will show this.

## 3.5 INSTALLATION OF STOFIX PANELS

Installation should start at the bottom left corner of the wall. When starting from a corner, use the relevant corner element. It should be noted that corner elements should be at least 300mm wide.

### 3.5.1 PANEL INSTALLATION

Lift the brick panels of the bottom row onto the mounting rail ensuring the panel is supported from both top and bottom rails. For panels above the bottom row, they will only hang from one row of horizontal rails, at the top of the panel, until you reach a break in the vertical rails.



# INSTALLATION

## 3.5.2. JOINING THE PANELS

Ensure the panels overlap each other with the same gap as the specified mortar joint width and secure them to each other with the self-drilling screws provided. There should be a fixing every 300mm both vertically and horizontally.

Please consider your safety and the safety of others and wear the correct PPE whilst cutting panels. Brick dust can be dangerous when inhaled and steel sparks can cause fire risk. We recommend that cut galvanized surfaces should be re-finished in a suitable manner to prevent corrosion.



Please consider your safety and the safety of others and wear the correct PPE whilst cutting panels.

## 3.5.3. CUTTING PANELS

Should there be a need to cut panels, for example, around balcony brackets, or pipework, the brick panels should be cut with a diamond wheel cutter and the backing sheet with a steel cutting disc.

- Cut the brick face of the panels first and turn it round to cut the steel backing sheet afterwards.
- Ensure all cut galvanized steel edges are subsequently protected with a corrosion treatment paint.

Please consider your safety and the safety of others and wear the correct PPE whilst cutting panels. Brick dust can be dangerous when inhaled and steel sparks can cause fire risk. We recommend that cut galvanized surfaces should be re-finished in a suitable manor to prevent corrosion.



## 3.5.4. POINTING THE JOINTS

Mix the mortar in a clean bucket using clean water following the supplied instructions.

Mix with a mixing whisk for about two minutes and let the mortar stand for approx. 5 minutes, continuing to mix afterwards for another 30 seconds.

Using an extruder gun, apply the mortar into the open joints between the panels so that the surface of the mortar is 3-4mm below the level of the brick face (for a recessed joint) filling the vertical joints first, then the horizontal joints. You may tool the surface of the mortar with a tuck pointer should you need to so that it matches the factory applied mortar.

## SITE POINTING EQUIPMENT

The following equipment will be required for all site based pointing.

Please note this can be externally sourced and will not be supplied by Stofix UK.



Clarke or Similar Air Texture Gun GTC8



Roughneck or similar Mortar Gun



Electric / Petrol Air Compressor

# INSTALLATION

## 3.5.5. EXPANSION JOINTS

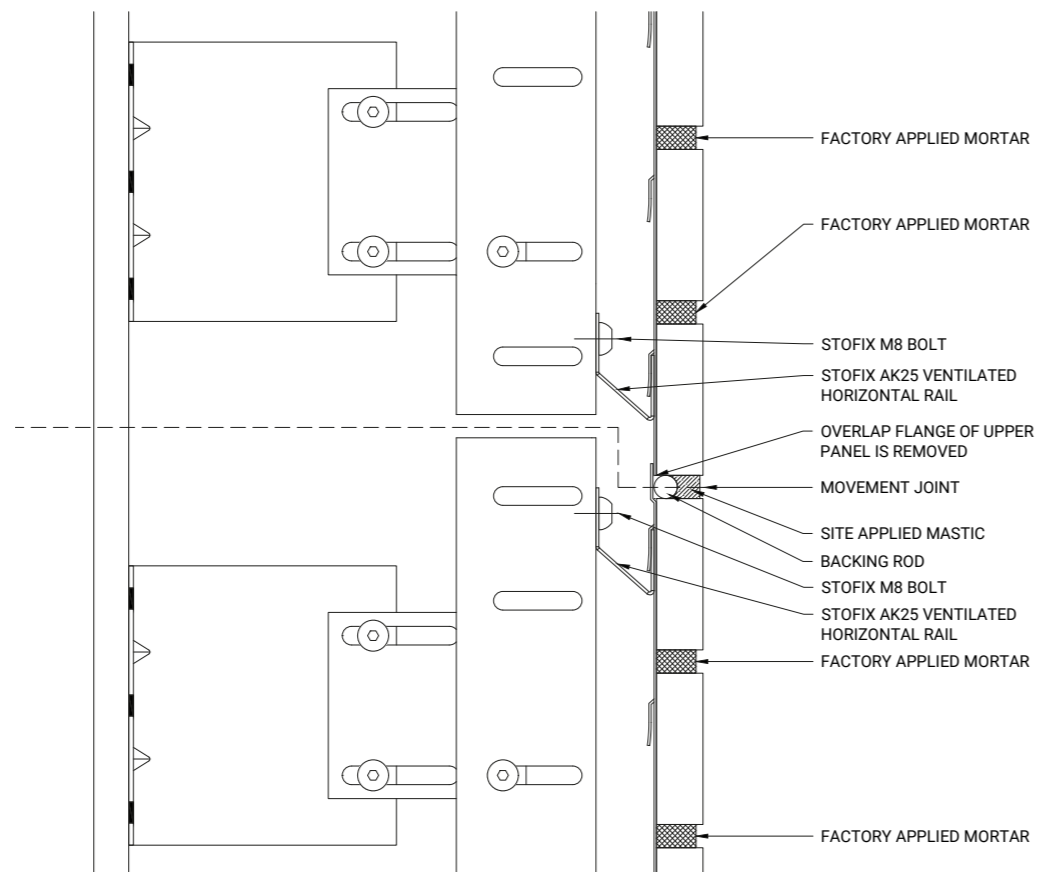
The minimum spacing between expansion joints is 7.5 m if the width or height exceeds 12m (for example, a wall of 12m x 12m or less does not need expansion joints).

- Panels do not get fixed together at the horizontal expansion joints.

A compressible expansion filler should be placed into the back of the joint and the polysulphide/silicon specified should be pointed into place. At this point, you could also spray the joint with Stofix micro-stone/sand to mimic the mortar joints.



## MOVEMENT JOINT



# MAINTENANCE

## 4.1. MAINTENANCE SCHEDULE

A maintenance schedule for the installed system should be implemented, which should include regular visual inspections of:

- The brick slips - for any signs of damage or disbandment. If so, they should be repaired/replaced using the correct methods.
- The sealant around openings and service entry points.
- Flashings and architectural details designed to shed water to ensure they are working correctly.
- Downpipes and gutters to ensure water is not penetrating the façade.

Maintenance should include the replacement and resealing of joints, for example between the Stofix panels and window and door frames. Materials that show signs of damage and/or corrosion must be replaced with Stofix approved materials to ensure the warranty is valid. Please note, Stofix do not take responsibility for any non-system materials.



# MAINTENANCE

## 4.2 REPLACING DAMAGED SLIPS

Damaged slips can be replaced by grinding out the surrounding joints with a diamond disc, taking care not to damage all the pegs in the mortar joints. Once the slip has been removed and the joints cleaned up, a new slip can be installed and pointed in place.

### GENERAL

- All work must be carried out by Stofix trained installers.
- All replacements must be inspected and signed off by Stofix representative.
- All replacement works are carried out in the same manner as the building of the panel in the factory.
- The mortar used is a factory match and the "Microstone" finish ensures that the completed replacement does not have the appearance of a repair.
- When carried out in accordance with this document the warranty on the Stofix panel is unaffected.

### CAUSES

- The packing of the Stofix product is designed to avoid unnecessary stress or damage to panels, however due to the unsupported sawtooth slip joint it is possible for a small number of slips to crack thus requiring remedial attention.
- Stofix often utilizes bricks of a hand-made rustic manufacture with a high accepted tolerance of up to +/- 3mm. Therefore, even though bricks are within accepted tolerance in manufacture, this can have an extreme effect on the sawtooth joint reducing the mortar joint to an unacceptable size. In some instances, this will necessitate replacement.
- Despite all site protection issues impact damage can occur to installed panels necessitating the replacement of broken/damaged slips.

### REMEDIAL WORK

- Where possible attempts should be made to provide the required finish without the replacement of the slip.
- This can be affected by opening the mortar joint with the use of a cutting blade.
- A nominal 10mm joint should be within the range of 8-12mm after the use of this method.

### SLIP REPLACEMENT

- Where slips cannot be rectified then they can be individually removed and replaced as follows:
- With a cutting disc remove the adjacent mortar paying particular attention to avoiding causing damage to the mortar attachment pegs in the backing sheet.
- Carefully remove the slip avoiding damage to any adjacent slips.
- Position the replacement slip with a temporary bond of high tack adhesive mastic.
- Mortar the joint surrounding the slip and apply the "Microstone" finish.
- When replaced in accordance with this method the performance of the replacement is equal to that of the factory assembled panel and the Stofix warranty is unaffected.

## 4.3 REPLACING DAMAGED PANELS

Damaged panels can be replaced in a similar way. The mortar joints surrounding the panels should be ground out and the self-drill screws taken out for the damaged panel and the surrounding panels. The new panel can be positioned in place and all the surrounding self-drill screws replaced and the joints repointed.

# INSTALLATION OF HARDWARE ON STOFIX PANELS

**ANY ITEMS TO BE FIXED TO THE SURFACE OF THE BRICK SLIPS SHOULD BE COORDINATED AND APPROVED BY STOFIX UK'S TECHNICAL TEAM.**



# APPENDIX

Please visit the download section on our website for more info.

## CERTIFICATION

### Environmental Product Declaration

This declaration is the Environmental Product Declaration (EPD) based on ISO 14067:2018. Greenhouse gases – Carbon footprint of products – Requirements and guidelines for quantification and verified according to ISO 14025 by an external auditor. It contains the information on the carbon impacts (as GWP indicator) of the declared construction materials on the environment. Their aspects were verified by the independent body according to ISO 14025. Basically, a comparison or evaluation of EPD data is possible only if all the compared data were created according to EN 15804 and ISO 14067:2018.

Stofix Planning and Installation Guide

Stofix BBA No.5377

Stofix BRE Classification

Stofix CWCT

Stofix Declaration of Performance

Stofix European Technical Approval ETA 130624

Stofix ISO 9001

Stofix ISO 14001

Stofix VTT Additional load resistance tests

Stofix VTT Windload Suction Resistance

VTT Climate Classification



## COSHH DATA SHEETS

Stofix Site Bonding Grout

Stofix Factory Bonding Grout

MSDS Coloured Q-sand

# NOTES

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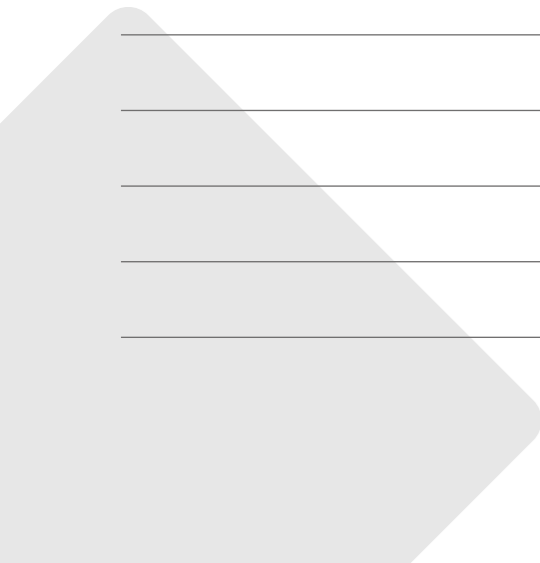
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# NOTES

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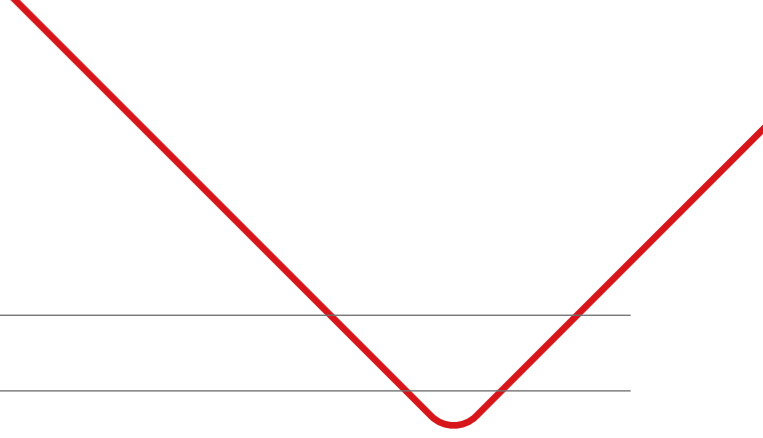
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UNIT A10B LAKESIDE BUSINESS PARK  
BROADWAY LANE, SOUTH CERNEY,  
GL7 5XL

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 STOFIX-UK