ASH & LACY

Technical Resource

Installation Instructions
NaturAL-X

Technical Resource
Version: 1.0 / Last Updated: 15.11.2021

Preface

The purpose of this document is to assist the project designer and installer in producing the respective documentation for any project under consideration.

Rules (recommendations/advice/instructions) contained in this document are for general indication and individual project may require further consideration.

The Installation Manual is provided in good faith for use at the discretion of the respective design consultants, which can be amended and edited as required to suit the particular project requirements.

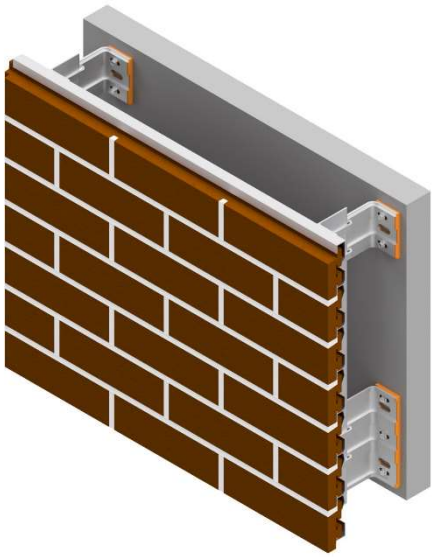
It is not the intention for this manual to relate to any particular project, but to provide a general overview to illustrate construction assemblies and installation principles incorporating NaturAL-X products.

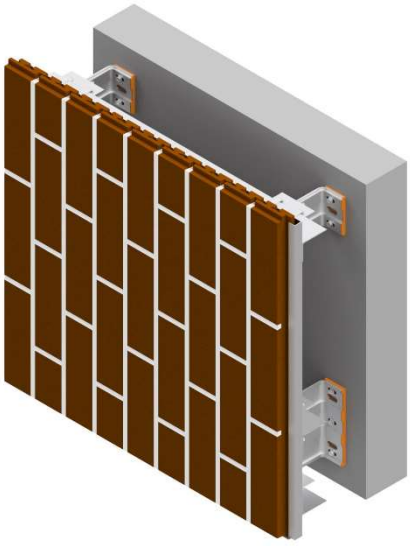
Great attention was taken during the drafting of this document. However, due to our continuous product and system developments this document may be subjected to continuous review and update.

Any technical queries relating to the façade system should be directed to the Ash & Lacy Technical Department.

Contents

NaturAL-X Installation Instructions





Warranty

Note: All system must be installed according to NaturAL-X Typical Details and Ash & Lacy recommendations. All fixings should be stainless steel and supplied/approved by Ash & Lacy in order to validate the product guarantee.

Item Checklist

	Qty:.....No	Type: .....
Fixings – mullion to brackets	Qty:.....No	Type: .....
Brackets	Qty:.....No	Type: .....
"L" rails	Qty:.....No	Type: .....
"T "rails	Qty:.....No	Type: .....

The System

NaturAL-X is a mechanically fixed brick slip cladding system. The brick slips used in this system are purpose made clay extruded and are installed on aluminium brick rails. All brick rails are fixed to helping hand system using stainless steel fixings. Depending on required brick slip finish, two different helping hand systems can be used.

For traditional (horizontal) brick work, vertical helping hand system AxiAL AX1 must be used (for AX1, please refer to AX1 installation manual).

For standing soldier (vertical) brick work, horizontal helping hand system AxiAL AX2 must be used (for AX2, please refer to AX2 installation manual).

Technical Support

Ash & Lacy offers various technical support for commercial projects. That include:

- 2D CAD Typical Details
- Inventor Model Solutions
- Bespoke Detail Design
- Indicative Layout Drawings
- Indicative Static Calculation
- Basic U-Value Calculation
- General Technical Advice
- Full Static Calculation (limited by two wall built-ups)*
- Full U-Value Calculation (limited by two wall built-ups)*
- On-Site Pull Out Tests*

** paid service (for prices, please contact our support team)*

Contact our support team:

Technical Support Engineer – Evaldas Juska	E: Evaldas.Juska@ashandlacy.com
Business Development Managers:	
Paul Shuttleworth – Midlands and South West	E: Paul.Shuttleworth@ashandlacy.com
Mo Ebzary – South East (South of Thames)	E: Mo.Ebzary@ashandlacy.com
Mick Lane – South East (North of Thames)	E: Mick.Lane@ashandlacy.com
Gerry Allen – Scotland and North East	E. Gerry.Allen@ashandlacy.com

0121 525 1444 / Opt 4

bricks@ashandlacy.com

For more information:

https://www.ashandlacy.com/products/facade/natural-x/

In order to provide accurate support for project, as first step it is required to fill in Project Checklist. Contact our support team.

Ash & Lacy will use the information contained in this form to calculate the maximum bracket centres and achievable spans for this project.

Project drawings must be included with checklist submission

SECTION 1

Contact Details:	
Your name:	Telephone number:
Company name:	Email Address:
Office Address:	Relationship (Customer/Distributor):

Project Details:	
Project name:	Building height & storey height:
Project address:	Building substructure:
Project postcode:	Project start date:

Cladding Details:	
Panel material:	Panel fixing method:
Panel thickness (mm):	Cladding area (m^2):
Panel size (width x height):	Insulation material & thickness:

Please complete the additional information in Section 2 as accurately as possible and where applicable. Unless full detail is provided, this data will be estimated and therefore must be verified by the customer prior to installation. Highlighted red fields are mandatory.

SECTION 2

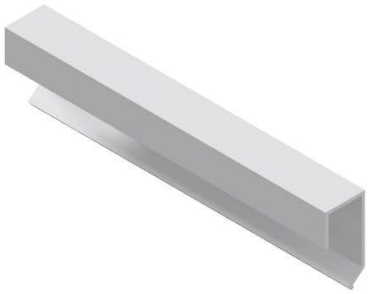
Additional information:	
Panel weight (kg/m^2):	AxiAL System Required:
Cladding zone (mm):	
Maximum wind pressure (kN/m^2)	Substructure material:
Maximum wind suction (kN/m^2)	Strength/Gauge (Steel only):
Maximum deflection ratio: L/	Size/Grade (Timber only):
Maximum allowable fixing centres (mm):	Strength/Grade (Concrete only):
Maximum desired vertical rail centres (mm):	Max vertical spacing (Steel/Timber):
Point thermal transmittance of bracket required (Y/N)?	Max horizontal spacing (Steel Timber):

NaturAL-X System Components

Brick Rails

Aluminium Brick Start Rail

Aluminium Brick Rail - Intermediate



Aluminium Brick Top Rail

Stainless Steel Start Brick Rail

Stainless Steel Top Brick Rail

Aluminium Base Angle 25x25x1.5mm (used in standing soldier application

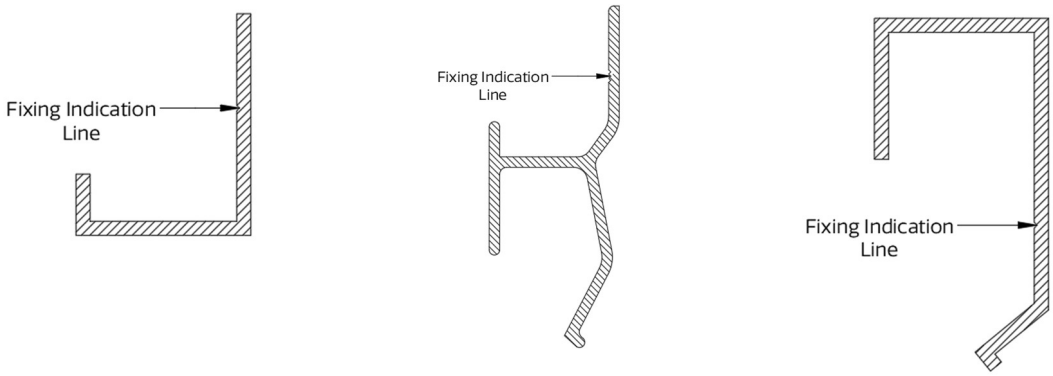
Standard aluminium brick rails are used to support brick slips for all applications above damp-proof course (DPC). They are anodised 6063 T6 grade aluminium and are available as:

Brick Starter Rail – used on base, window head, movement joint details – on all areas, where brick slip wall starts;

Brick Top Rail – used on every parapet, window cill details – in places, where wall needs to end;

Brick Rail (Intermediate) – used on all areas between starter and top rails.

All three aluminium brick rails have indication lines that show where fixings should be installed vertically in order to keep 10mm minimum edge distance for the fixings.

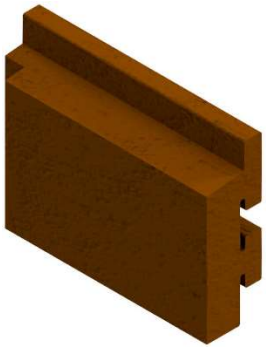


Fixing Indication Lines

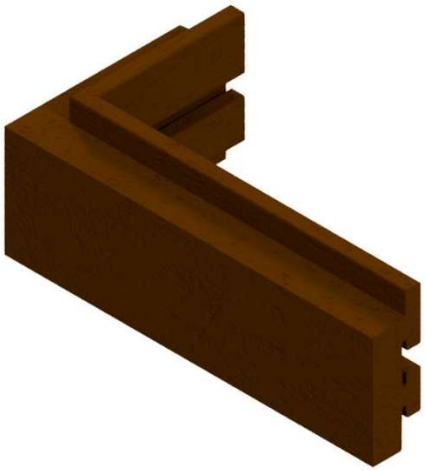
Stainless steel brick rails are used on areas, where NaturAL-X system must be installed below DPC. For these areas we have starter and top rails. Where the stainless steel intermediate brick rail is needed, a combination of starter and top rail is used to form it.

Brick Slips

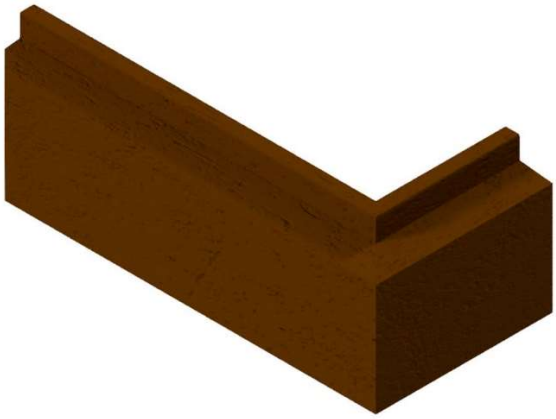
Stretcher



Header



Left Hand Corner Brick Slip



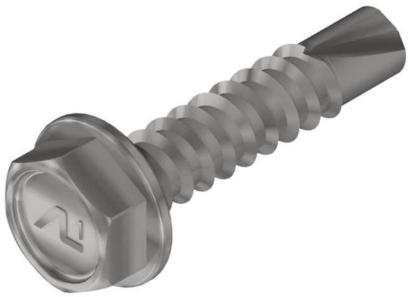
Right Hand Corner Brick Slip

Standing Soldier Corner Brick Slip

NaturAL-X brick slips are formed by extruding natural clay. Section of the brick slips is designed and engineered in shape, that allows seamless fixing to the brick rail system. Corner returns are cut and bonded to form corner brick slips with angle of 90°-135°.

NaturAL-X have wide colour range. All brick slip catalogue can be reviewed at:
https://www.ashandlacy.com/finishes/?_sfm_finishes_material=Brick

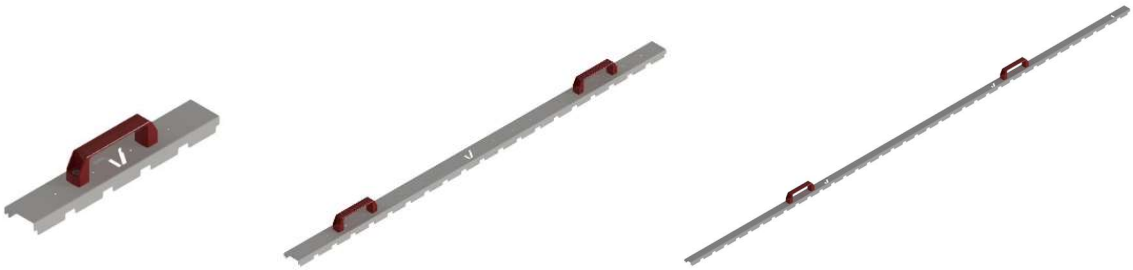
Fixings



SS-LS22

Standard fixing to fix brick rails to mullions is SS-LS22 – 4.8x22mm stainless steel A2, self-drilling screw.

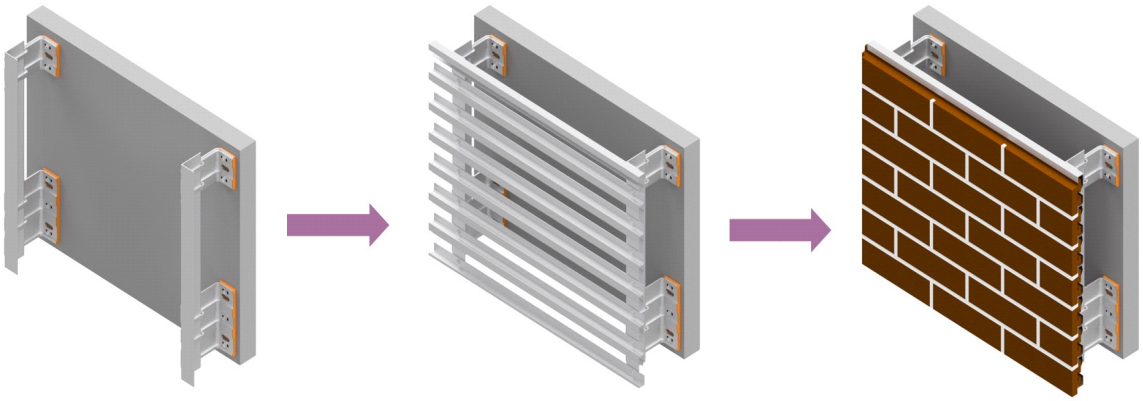
Brick Rail Installation Tool



One of the main elements for fast and easy NaturAL-X system installation is to use brick rail installation tools (gauging tools). There are two standard length of these tools: 1495mm and 373mm.

We also offer gauging tools with legth of 1495-2980mm – these tools are designed and manufactured on project basis to cover full floor height.

System Installation



AXIAL
Support System

Aluminium Brick Rails

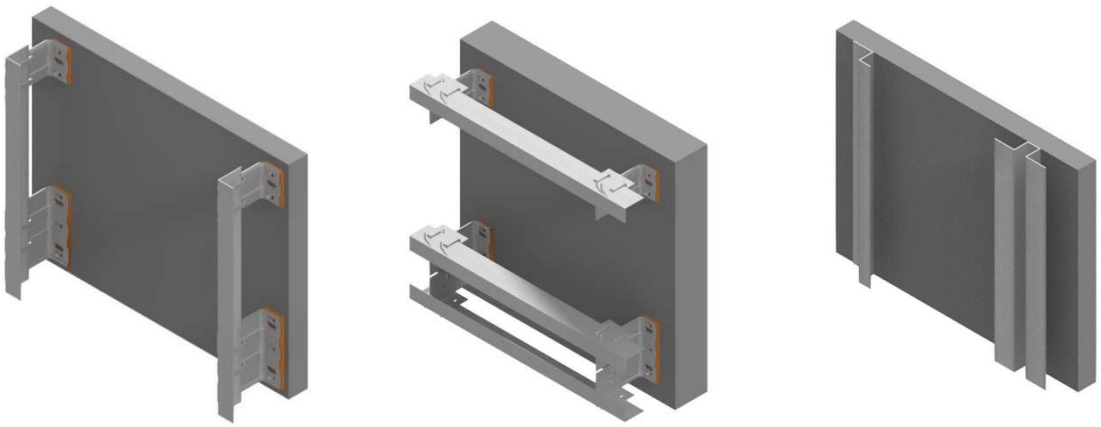
NaturAL-X
Brick Slips

Installation process of Mechslip brick slip cladding system can be split into three main stages:

- AxiAL support system installation;
- Brick rail installation;
- Brick slip and mortar installation.

AxiAL Support System Installation

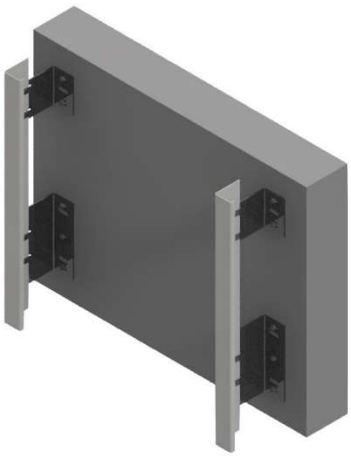
The main structural element in NaturAL-X is the AxiAL support system. There are 5 main support systems that can be used with NaturAL-X depending on required façade finish, cladding zone depth and material of helping hand elements.



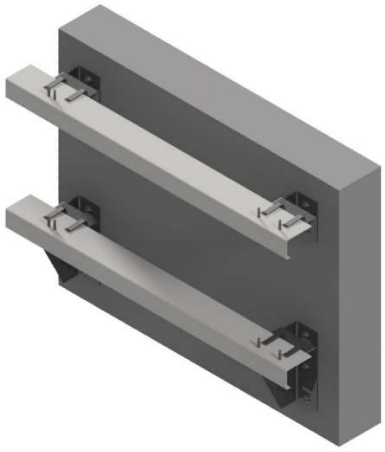
AxiAL AX1

AxiAL AX2

AxiAL AX3



AxiAL AXR1



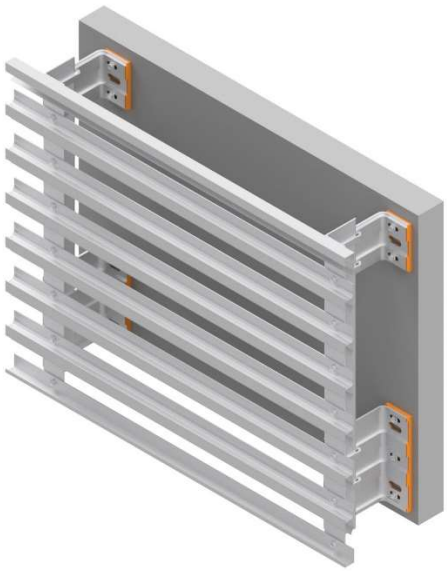
AxiAL AXR2

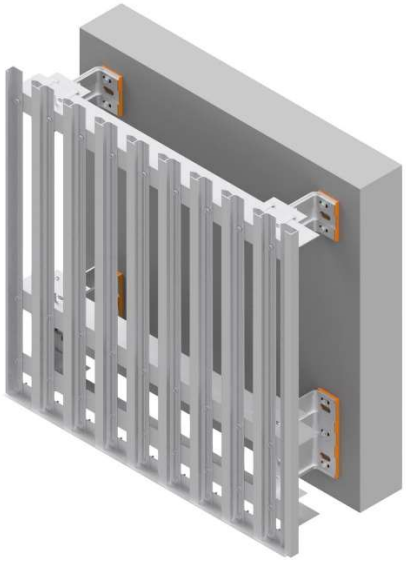
1. AxiAL AX1 – Aluminium vertical support system. This support system is used when a horizontal brick slip bond is required and cladding zone (from substrate to external face of vertical mullion) is deeper then 45mm (to get full installation instruction for AX1 system, please refer to AxiAL AX1 Installation Manual);
2. AxiAL AX2 – Aluminium horizontal support system. It is used when a vertical (standing soldier) brick bond is required and cladding zone is deeper then 45mm (to get full installation instruction for AX2 system, please refer to AxiAL AX2 Installation Manual);
3. AxiAL AX4 – Aluminium support system with a shallow cladding zone and no adjustability requirement in the cladding zone.
4. AxiAL AXR1 – Stainless steel vertical support system. Used as alternative for AX1 system when a lower U-Value of build-up needs to be achieved (to get full installation instruction for AXR2 system, please refer to AxiAL AXR1 Installation Manual).
5. AxiAL AXR2 – Stainless steel horizontal support system. Used in alternative for AX2 system when a lower U-Value of build-up needs to be achieved (to get full installation instruction of AXR2 system, please refer to AxiAL AXR2 Installation Instruction).

Max recommended bracket and mullion centres is 600mm. Anything greater than that must be checked and confirmed by static calculations.

Max recommended mullion cantilever (distance from last fixing to the end of the mullions) is 150mm. Anything greater than that must be checked and confirmed by static calculation.

Brick Rail Installation





After AxiAL helping hand system is installed, moving to brick rail installation.

Depending on the helping hand system orientation brick rails can be installed:

- Horizontally to support horizontal brick slip application (on vertical helping hand system);
- Vertically to support vertical brick slip application (on horizontal helping hand system).

When installing brick rails (horizontally or vertically), max recommended cantilever of the brick rails (distance from last fixing that connects brick rails to support system to the end of the brick rail) is 150mm. Anything greater than that must be checked by further engineering.

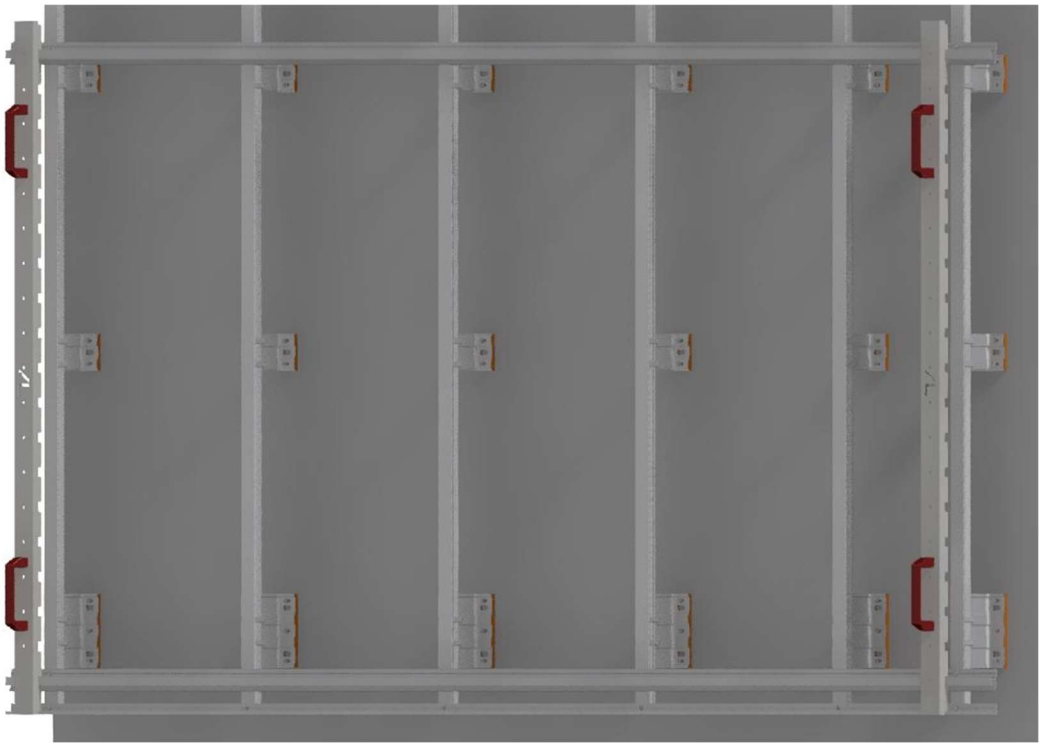
For horizontal brick slip build-up:

- Install the brick starter rail at the location of the first brick course. The rail must be lined and levelled. Brick starter rail must be fixed to the vertical mullions using SS-LS22 fixings at the recommended support centres;

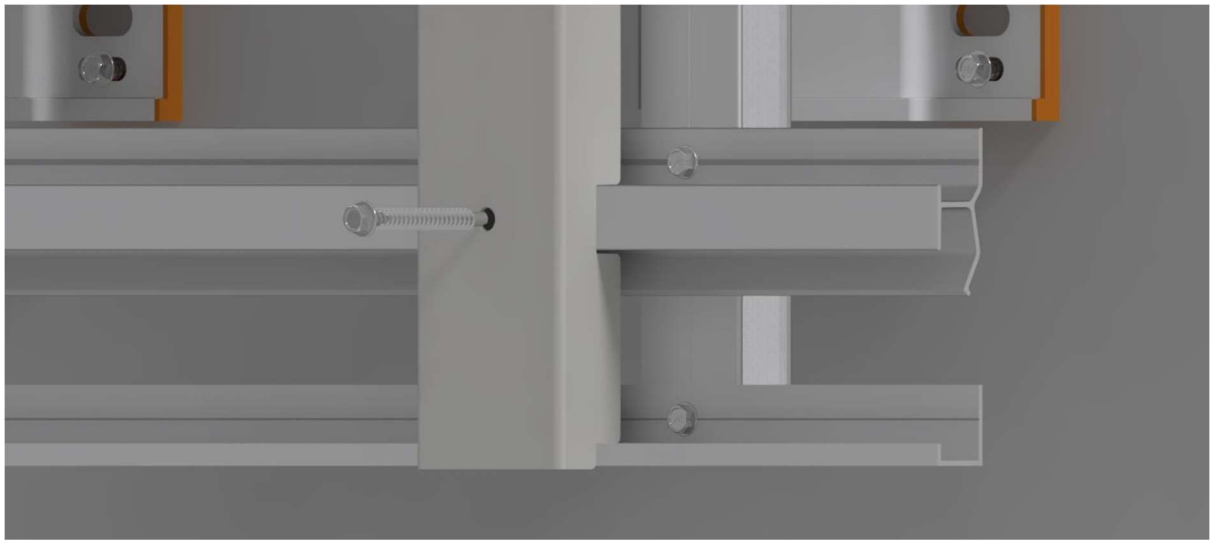
- With the starter rail installed, align the bottom slot of the gauging tool so that it's in full contact with the starter rail at each end of the full rail length (generally approx. 3m). Two fixers and two gauging tools are required at this stage, one at each end of the length of brick rail.

- Next, use the top slot of the gauging tool to locate the position of an intermediate brick rail, lining up at both ends of the rail so that it is straight. Fix this intermediate rail back to the vertical support rails using SS-LS22 fixings.

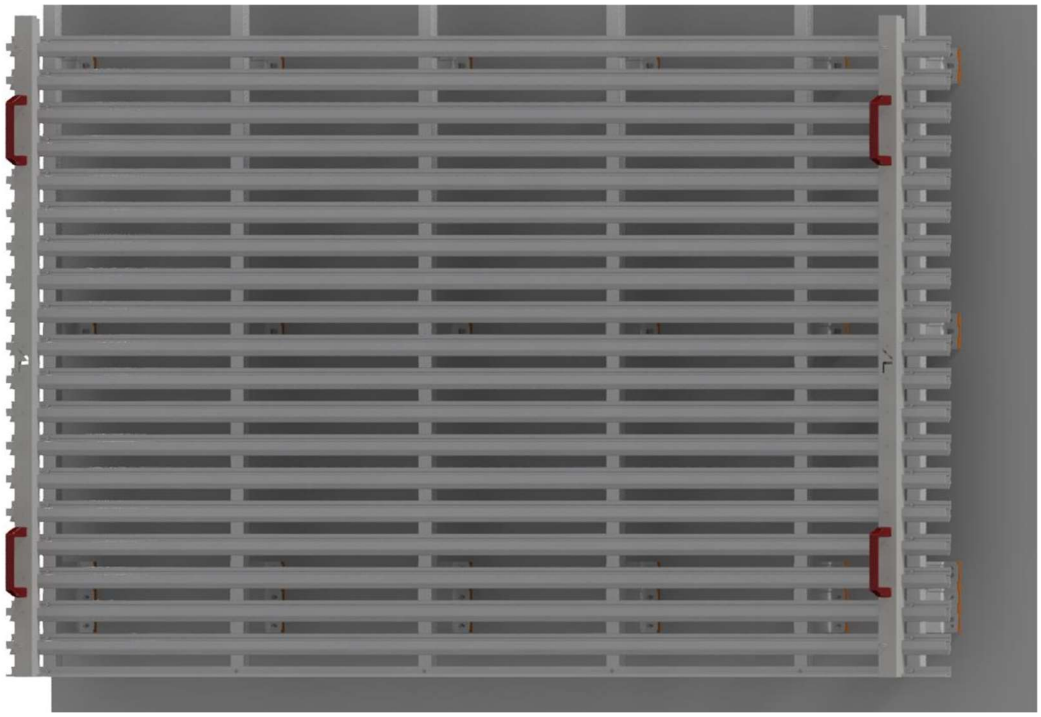
- Install intermediate brick rail into bottom slot of the gauging tool (1st above starter brick rail) and fix it to vertical support mullions next to gauging tools.



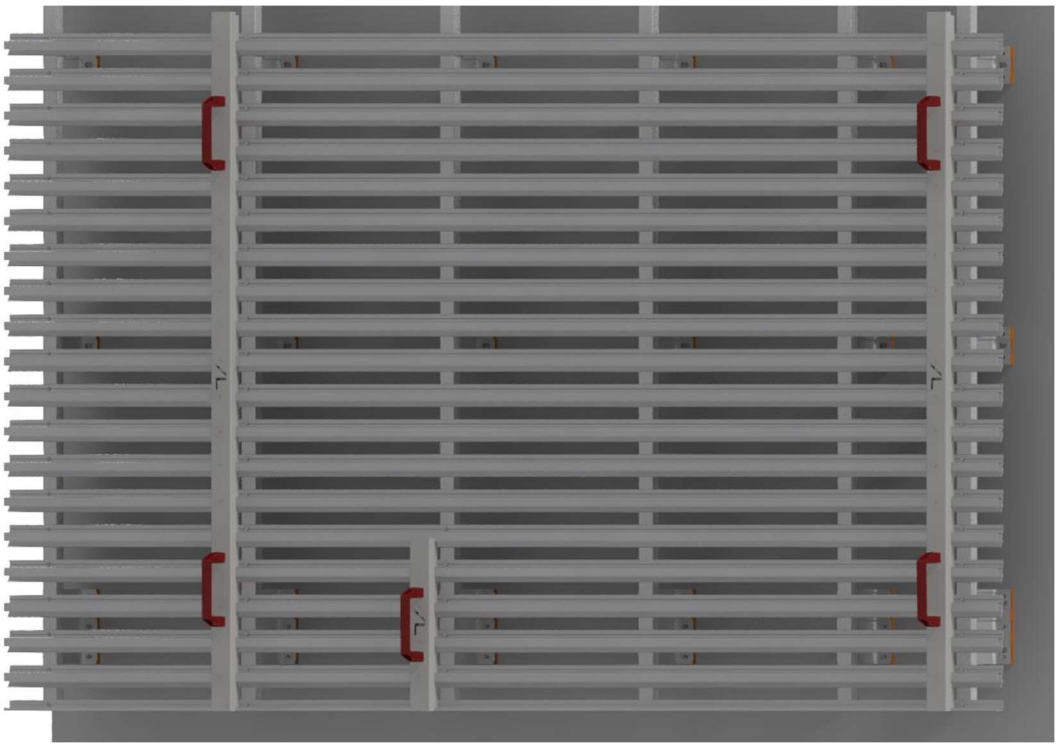
- In order to keep gauging tool in position, clamp it to the fixed intermediate brick rails or use existing holes in gauging tool and fix it to intermediate brick rails with screws (If gauging tool over 1495mm length is used, fix it not only at the ends, but also in the middle of the tool).



- The following step is to slide all remaining intermediate brick rails into position. The gauging tool will ensure that these rails are automatically spaced at 75mm increments vertically for 65mm tall brick slip (depending on brick slip height gauging tool can be made with different spacings). Once in position, fix all intermediate brick rails at each of their ends (next to gauging tools).

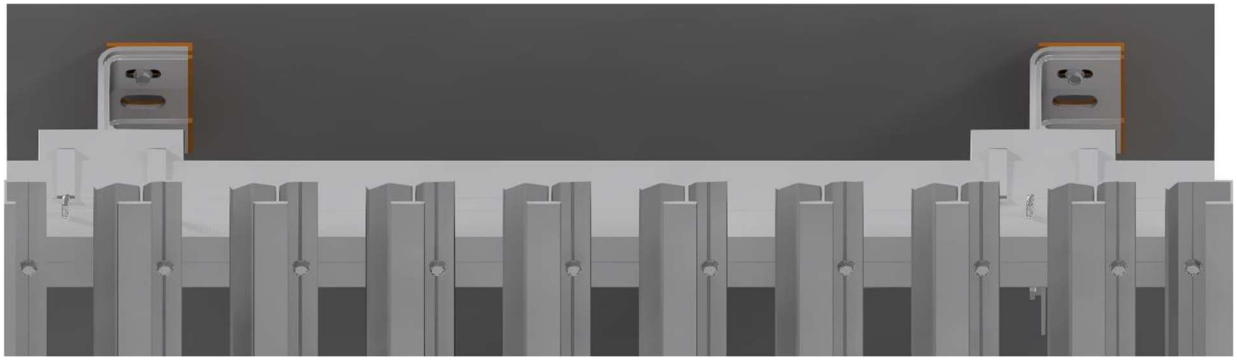


- Before fixing brick rail to intermediate vertical mullions, make sure that gauging tool is pushed along the intermediate rails (left to right/right to left) or use short gauging tool to prevent any bowing/flexing in brick rail.

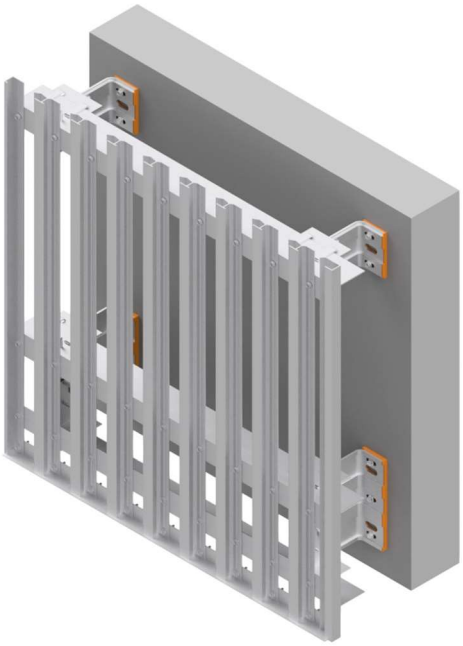


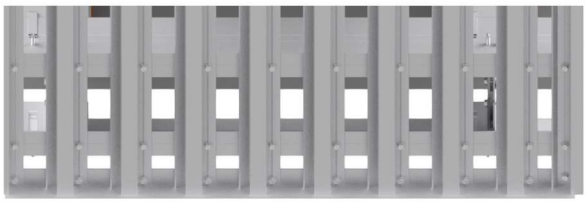
- If 1495mm gauging tool (and not gauging tool for full floor height) is used, before moving gauging tool upwards, check level of topmost rail and repeat process, locating the bottom slot of the gauging tool to the topmost rail.
- When fixing brick top rail, make sure that it is pressed downwards in gauging tool slot.

When installing brick slip system vertically (vertical brick slip application), all NaturAL-X system, starting with helping hand mullions will be rotated 90° clockwise. It means that brick starting rail will be installed on the left and brick top rail will be installed on the right.



For vertical brick rail installation and preparation for vertical brick slip installation, one additional rail is required in order to stop the brick slip from sliding down. That is 25x25x1.5mm 6063 T6 grade extruded aluminium angle which is installed on every base detail, above openings and horizontal movement joints. This angle must be fixed to each vertical brick rail.



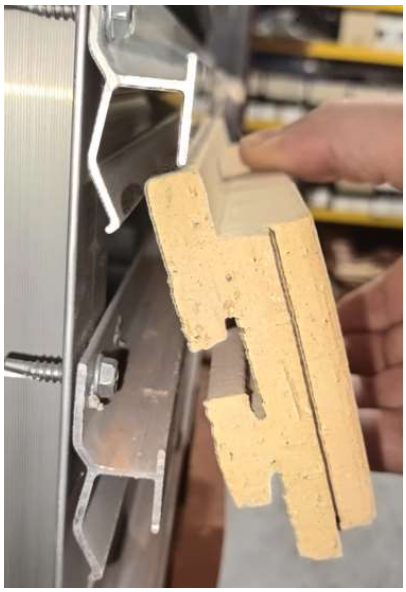


Brick Slip Installation

Once brick rails are installed, brick slips can be fitted in any order (top-down, bottom-up, left-right, right-left, but always starting from the corner), leaving access to any area of the façade for services or similar. For vertical brick slip application installation order top-down is not recommended.

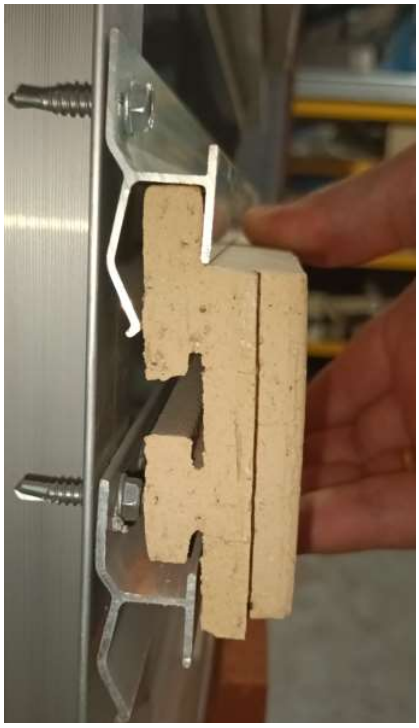
When installing brick slips horizontally:

- Brick slips are installed between the rails by slotting the top profile of the brick slip into the underside of the brick rails above it, tilted at 15°-25° angle;

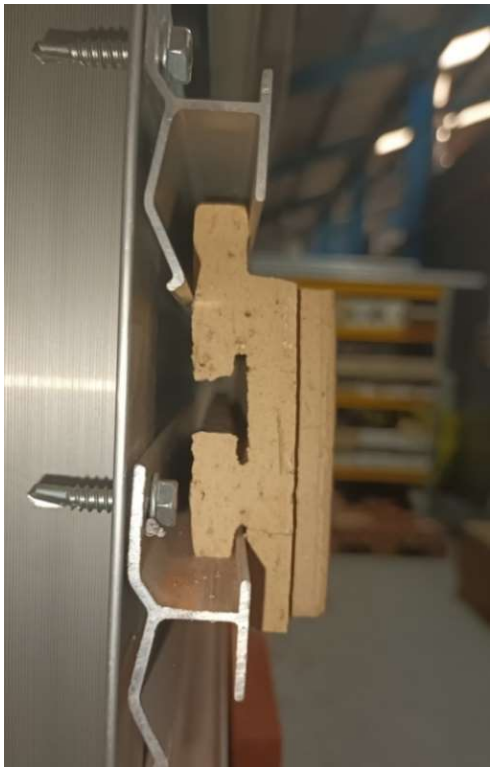


- Push it upwards while rotating it to flat position at the same time;

- Locate the lower rear profile of the brick slip onto the topside of the intermediate or star brick rail directly below it;



- Lower or tap brick slip down into a level position. The brick slip should now be secured between the rails immediately above and below it.



- Repeat the process for remaining brick slips, installing the brick slips next to the first one, ensuring that rebated vertical joint profile abuts to another brick slip and fully close vertical joint between them.
- 10mm wide vertical (perp) joints will be created by vertical groove on front left side of the brick slips and will also keep mortar from falling in the cavity. 10mm wide horizontal (bed) joint is created by profile of the brick rail.

- In order to remove brick after fitting, lift it upwards approx. 5mm so that the bottom slot disengages from the brick rail beneath it, tilt bottom edge outwards approx. 15°–25° and remove it.

For standing soldier (vertical) brick slip installation need to make sure that:

- Brick slips (same as brick rails) are rotated 90° clockwise. Therefore the top profile of the brick slip must be on the right. 1st standing brick slip must be fully lowered onto the base angle.

All NaturAL-X brick slips are formed by extruding natural clay. In order to be able to use the brick slips in the NaturAL-X system, they must be T2 tolerance. That gives full length of brick slip 215±4mm and height of it of 65±2mm.

Even though the NaturAL-X system is a façade cladding system, the brick slip installation should be treated as brickwork. Therefore:

- Installation of brick slips should start from corners towards centre of the wall.
- 1 in 5 perpendicular joints must be lined up.
- Brick slips should be mixed when installed from at least 3 different packs (better 4 to 5) to ensure finished appearance is uniform and without patches or bands of colour.

Mortar Installation

Final step of NaturAL-X system is mortar installation.

Based on our testing and certification we recommend to use Parex Historic mortar. Colour depends upon specifier's choice.

Mortar should be injected deep into the joint, providing a complete fill and a degree of flexibility. Mortar is porous, allowing the passage of water through the mortar joints.

Joints can be tooled with flash or bucket handle joint. Bucket Handle joint is recommended, however for certain products a slightly recessed joint (no more than 3mm) may be more aesthetically suitable.

Movement Joint

NaturAL-X system is designed to be freely expandable. Because of that thermal movement joints must be applied every 6m both horizontally and vertically. Leaving a 10mm gap between brick rails, omit the pointing mortar. Place a 20mm low density, compressible, closed cell polyethylene filler at a depth of 10mm and seal with suitable coloured low modulus neutral cure silicone sealant (such as Silicon Sealant Arbosil 1090). This does not cover structural movement joints.

If a structural movement joint is required, NaturAL-X system must be discontinued on these locations. The gap between mullions and brick rails must accommodate required structural movement joint.

If there are any queries with fixing or any of the system's components, they must be checked with the system layout and detail drawings first and then raised with Ash & Lacy before commencing installation.

This installation manual should be used in conjunction with fallowing documents:

- NaturAL-X Technical Guide;
- NaturAL-X Installation Guide
- NaturAL-X Typical Details (TD.NX.H1.G/TD.NX.V2.G);
- NaturAL-X Component Drawing (CD.NX);

End of Procedure

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A selection of product and system guides, test reports, quality certificates and other resources are available to download from our website.