

Insulation for use in Rainscreen Cladding Systems

Rainscreen Design & Installation Guide
URSAPAN





URSA. Insulation for a better tomorrow.

URSA have been specialists in innovative, award-winning insulation since 1959 - and a leading European manufacturer of glass mineral wool for over 50 years.

Our headquarters are in Madrid, Spain, although our business spans more than 40 countries, with 11 production sites and over 1,500 employees. We have a team in the UK, dedicated to providing glass mineral wool insulation for rainscreen projects.

Generating a positive impact

URSAPAN is deemed non-combustible with a fire classification of Euroclass A1 (the highest possible rating) when tested to EN 13501-1:2018 Reaction to Fire. It is CE marked and Declaration of Performances (DoP) are available - so you can be sure of their thermal properties.

URSAPAN is manufactured from up to 73% recycled glass and come in a compressed pack to reduce transport miles, as well as having a generic BRE Green Guide rating of A+ and being ISO 14001:2015 certified.

Part of the Etex Group

In 2022 URSA became part of Etex - a global Group comprising of 160 facilities across 45 countries and the name behind many other construction product brands in the building materials sector including Superglass, a leading UK glass mineral wool insulation manufacturer. In 2025, the Superglass and URSA brands came together to form Etex UK Insulation Ltd.

URSA TERRA

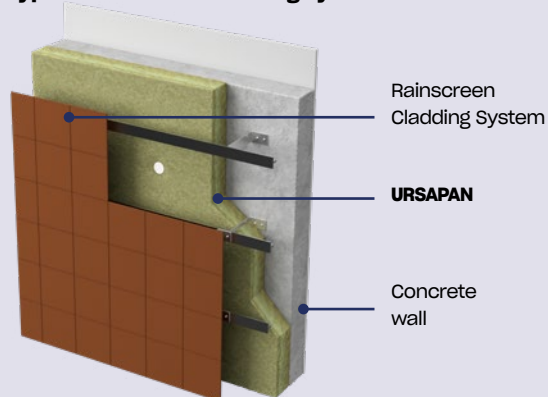
Developed in 2009, URSA TERRA showcases the latest in glass mineral wool technology. Our distinctive production methods and product formulation define the character of our extensive insulation product range.

Rainscreen cladding is a non-load bearing system attached to the outside of a building using a bracket and rail system.

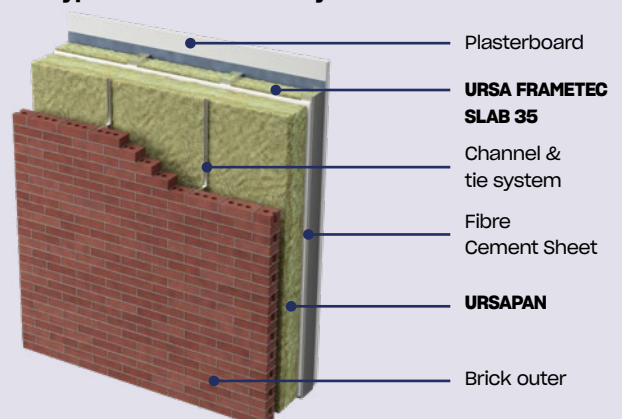
It provides protection from wind and rain, improves the thermal performance and limits solar gains, with a ventilated void – typically 50mm – behind the cladding keeping the system dry. A wide range of external finishes are available, from plain and coloured metals, embossed metal and terracotta to fibre reinforced cement sheet, natural and artificial stone and more.

Some systems also offer a traditional brick or block outer leaf with a 50mm clear residual cavity; these have special wall tie systems that use restraint channels and matching ties (see Figure 1b).

**Figure 1a -
Typical Rainscreen Cladding System**



**Figure 1b -
Typical Brick Outer Leaf System**



Design

URSAPAN is a non-combustible approved glass mineral wool insulation slab. It is treated with a silicone-based water repellent and features a clear glass fibre tissue facing on one side which is applied during the manufacturing process.

Thermal

Rainscreen cladding systems may be used in both new build and refurbishment schemes to achieve the required U-values (see 'Heat Loss Calculations' later in this brochure).

URSAPAN has a thermal conductivity of 0.035 W/mK, providing a continuous envelope of insulation around the building.

Fire

The ventilated cavity behind the cladding system means cavity barriers are needed to prevent the spread of fire and/or smoke. Horizontal cavity barriers should be installed at floor level and at roof level, and if required a vertical barrier should be added to further sub-divide the cavity at compartment walls. Details can be found in Approved Document B (England & Wales) and the Fire Section of the Technical Handbooks (Scotland). Similarly, all openings should be correctly fire stopped to prevent a fire from inside the building being able to break into the cavity.

The Approved Document B for England & Wales requires insulation products in high rise cladding systems (11 metres or higher) to be of 'limited combustibility' or better, and in Scotland the insulation should be totally 'non-combustible'. The cavity barriers should also be 'non-combustible', penetrate the full depth of the wall insulation and be securely fixed to the main structural wall. If they're in a ventilated rainscreen cladding system, they should also incorporate an intumescent strip to fully close the cavity in the event of a fire.

URSAPAN is deemed non-combustible with a fire classification of Euroclass A1 (when tested to EN 13501-1:2018 Reaction to Fire), and therefore do not add any fire load to the building or prejudice the overall fire performance of the wall.

Condensation Risk

A continuous layer of insulation external to the main structural wall means the construction is inherently safe from condensation risk. Confirmation of the risk can be provided by URSA's Technical Department.

Rainwater Penetration

While the cladding system provides the building's primary weather protection, some systems have open joints. In these cases, rainwater penetrating the system either drains down the back of the cladding panels or is removed by ventilation in the void.

Acoustics

URSAPAN slabs improve the acoustic performance of the wall, adding acoustic absorption to the mass of concrete walls and enhancing URSA glass mineral wool already between the studs in framed walls.

Thermal Bridging

As the insulation is applied in a continuous layer, thermal bridging at junctions of internal and external walls, intermediate floors and the wall/roof can be largely mitigated. These design recommendations show compliance with the relevant sections of the Building Regulations and NHBC Standards.

On-site Storage

URSAPAN slabs should be stored and handled properly so they remain clean and undamaged. The shrink-wrapped pallets they're supplied on only provide short-term protection, and once on site the product should be stored indoors or under cover and off the ground; do not leave the slabs exposed to the elements permanently.

If the main hood is removed or damaged, keep the remaining packs under cover indoors or protect them with a weatherproof cover. In coastal areas with more extreme weather and common bird damage, use extra covering or store the product indoors; it must be protected from prolonged exposure to sunlight and stored dry and flat.

Handling

Take care to avoid crushing the edges or corners of slabs. If the product is damaged, contaminated or wet, it should be discarded.

During construction, always cover exposed areas of the slabs at the end of the day or during heavy rain, using polyethylene covers to prevent them from becoming saturated.

Personal Protective Equipment (PPE)

The following PPE is recommended when handling the product:

- Dust mask (minimum FFP1)
- Gloves
- Safety glasses

It's also advisable to wear dust masks, gloves, and long-sleeved clothing during cutting and handling of the product.



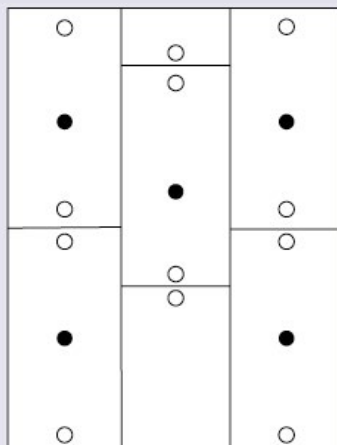
Installation – Rainscreen Cladding

URSAPAN can be fixed to masonry, timber frame and light metal frame walls. Slabs should be mechanically attached to the wall structure between the brackets used to support the cladding system.

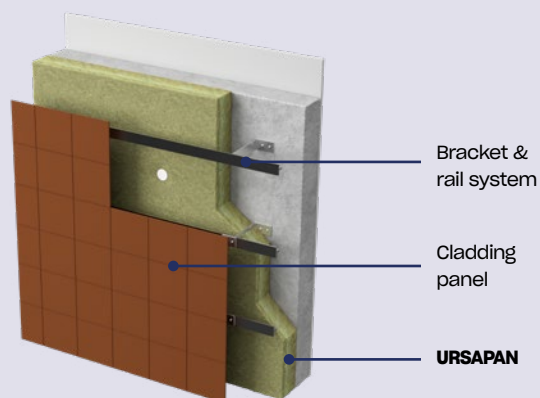
The standard procedure is:

1. Timber and metal stud framed walls should include a suitable air and vapour control layer on the inner surface behind the plasterboard. Timber frame walls should also include a breather membrane external to the sheathing.
2. Cladding system brackets are fixed to the main structural wall in accordance with the manufacturer's instructions.
3. Fix the **URSAPAN** slabs to the wall in a staggered pattern. Installation may start below DPC level to help insulate the edge of the floor slab. Slabs may be fitted either landscape or portrait format, but ensure all joints are tightly butted together and that the slabs are cut accurately and tightly around the brackets so there are no gaps. Leaving the slabs slightly oversize makes sure the fibres will 'knit' together. The slabs can be cut easily with a sharp knife.
4. The insulation slabs are mechanically fixed to the wall using suitable insulation retaining fixings (with a minimum head diameter of 70mm), depending on the substrate. A minimum fixing pattern is shown in Figure 2 – the central fixing in each slab must be metal rather than plastic. Alternatively, in areas of very high wind loading use a plastic fixing at the corner of each slab with a metal fixing at the centre. Don't overdrive the fixings, and maintain the same fixing density for cut sections of slab, including at least one metal fixing.
5. If required, **URSAPAN** may be installed in more than one layer. Install the first layer of slabs using one mechanical fixing per board. Make sure the position of this fixing does not interfere with the final fixing pattern for slabs, then position the second layer – ideally with staggered joints – and install the final fixings as (4). Alternatively position both layers of slabs against the wall, ideally with joints staggered, and hold in position while drilling for the central metal fixing. Secure through both layers using the central fixing, and add further fixings as (4).
6. Ensure cavity barriers are installed in accordance with the Building Regulations. In high rise this would be at every compartment floor level and the top of the cavity. Also make sure external openings are correctly sealed.
7. **URSAPAN** is robust enough to be left exposed and will withstand short term, intermittent wetting. However, if prolonged bad weather (rain, snow, high winds or freezing conditions) is predicted fit just enough slabs that can be covered and protected by the cladding on the same day; otherwise you'll need to provide temporary weather protection. If the slabs get wet, allow them to dry naturally – they'll retain their original thermal performance – and replace damaged slabs.
8. Once the insulation is fitted, the external cladding work may proceed in accordance with the manufacturer's instructions.
9. For more detailed fitting instructions see the Installation Guide Appendix at the end of this brochure.

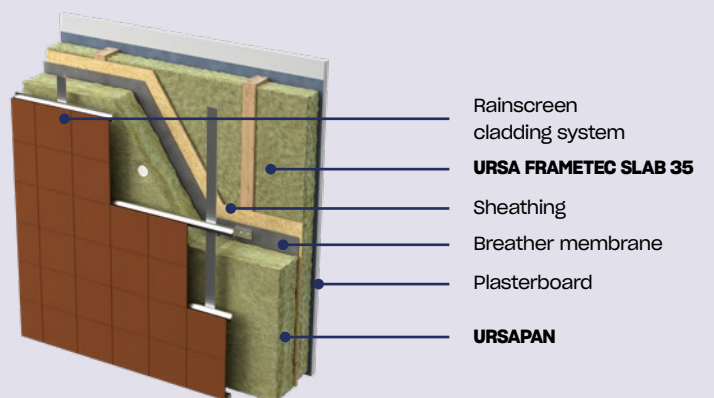
**Figure 2 -
Fixing Pattern**



**Figure 3 -
Rainscreen Cladding on Concrete Wall**



**Figure 4 -
Rainscreen Cladding on
Timber Framed Wall**



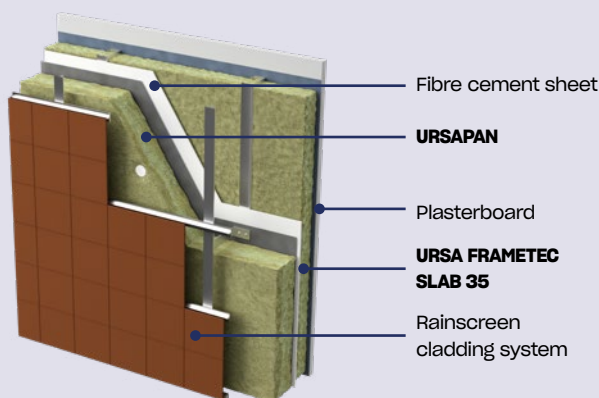
Installation – Brick Outer Leaf

URSAPAN can be fixed to masonry, timber frame and light metal frame walls.

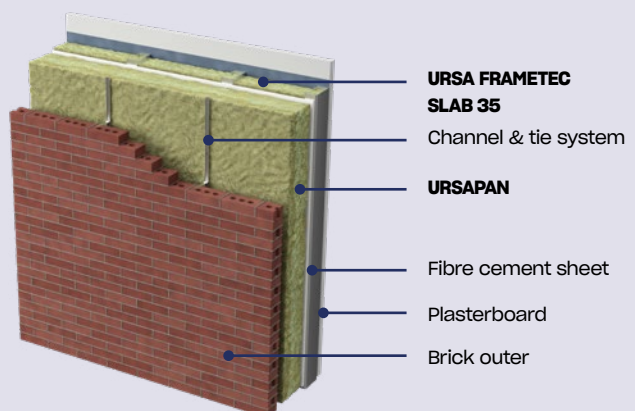
The standard procedure is:

1. Fit the **URSAPAN** slabs horizontally in a staggered, brick bond pattern. Make sure all joints are tightly butted together and the slabs are cut accurately – leaving them slightly oversize makes sure there are no gaps. Installation may start below DPC level to help insulate the edge of the floor slab.
2. To help installation, slabs may be initially fixed to the wall using suitable retaining fixings (with minimum head diameter of 70mm) depending on the substrate. One fixing per slab (or part slab) is normally sufficient.
3. If required, **URSAPAN** may be installed in more than one layer. Install the first layer of slabs using one mechanical fixing per board. Alternatively position both layers against the wall, ideally with joints staggered, and hold in position while drilling for a central fixing.
4. Ensure cavity barriers are installed in accordance with the Building Regulations. In high rise this would be at every compartment floor level and the top of the cavity. Also make sure external openings are correctly sealed.
5. Once the insulation is fitted, install the channel restraint system, normally at 600mm horizontal centres using suitable bolts or screws depending on substrate and making sure the fixings give a positive stand-off or incorporate a compression sleeve. Follow the manufacturer's instructions.
6. Alternatively, the channels and associated compression sleeves (to suit insulation thickness) and screw fixings may be installed before the insulation. The channels must be accurately set out at 600mm horizontal centres and the insulation slabs fitted vertically, slotting them between the channels before adding two mechanical fixings on the centre line and 200mm-250mm from each end of the slab.
7. The insulation slabs may be installed vertically between cranked wall ties with suitable retaining collars. If necessary slit the slab edges with a knife to enable them to fit neatly around the wall ties. There is no need for separate mechanical fixings.
8. The brick or block outer leaf is built in accordance with good practice.
9. **URSAPAN** is robust enough to be left exposed and will withstand short term, intermittent wetting. However, if prolonged bad weather (rain, snow, high winds or freezing conditions) is predicted fit just enough slabs that can be covered and protected by the cladding on the same day; otherwise you'll need to provide temporary weather protection. If the slabs get wet, allow them to dry naturally – they'll retain their original thermal performance – and replace damaged slabs.
10. For more detailed fitting instructions see the Installation Guide Appendix at the end of this brochure.

**Figure 5 -
Rainscreen Cladding on
Light Steel Frame Wall**



**Figure 6 -
Rainscreen Cladding
with Brick Outer Leaf**





Heat Loss Calculations

The normal method of calculating U-values in floors, walls and roofs is the Combined Method (see BS EN ISO 6946). As well as assessing the thermal bridge effect of mortar joints, timber studs and so on, it accounts for air gaps in the insulation and mechanical fasteners penetrating the insulation.

Calculating U-values for rainscreen cladding systems is further complicated by the amount of thermal bridging due to the fixing brackets, and with some systems the fixing rails too. There are a number of ways to approach this:

- Use the point thermal transmittance for the particular fixing bracket along with the number of brackets per square metre of wall.
- Use the 3D numerical analysis method contained in BS EN ISO 10211.
- In the absence of the above, BR443 uses a default correction to the overall U-value of $+0.30 \text{ W/m}^2\text{K}$. This option is not recommended as the U-value can never be lower than the $0.30 \text{ W/m}^2\text{K}$.

When using a brick or block outer leaf, the normal method of calculating U-values accounting for more discrete mechanical fasteners penetrating the insulation may be used.

In ventilated façade rainscreen systems the calculations assume standard aluminium brackets. If lower U-values are required, consider the use of stainless steel brackets, particularly with masonry or concrete walls.

The Building Regulations no longer use the Elemental U-value Method as a means of showing compliance. Instead this is shown by limiting overall CO₂ emissions from the building - this gives considerable design flexibility but there are no specific U-values except the worst allowable that must be achieved.

In dwellings, U-value of $0.18 \text{ W/m}^2\text{K}$ - $0.20 \text{ W/m}^2\text{K}$ or better will help ensure Building Regulation compliance. In non-dwellings aim for $0.22 \text{ W/m}^2\text{K}$ or better.

If you require any calculations, please contact the URSA Technical Team at technicalursa.uk@etexgroup.com

Appendix

Rainscreen Slab Installation Guide

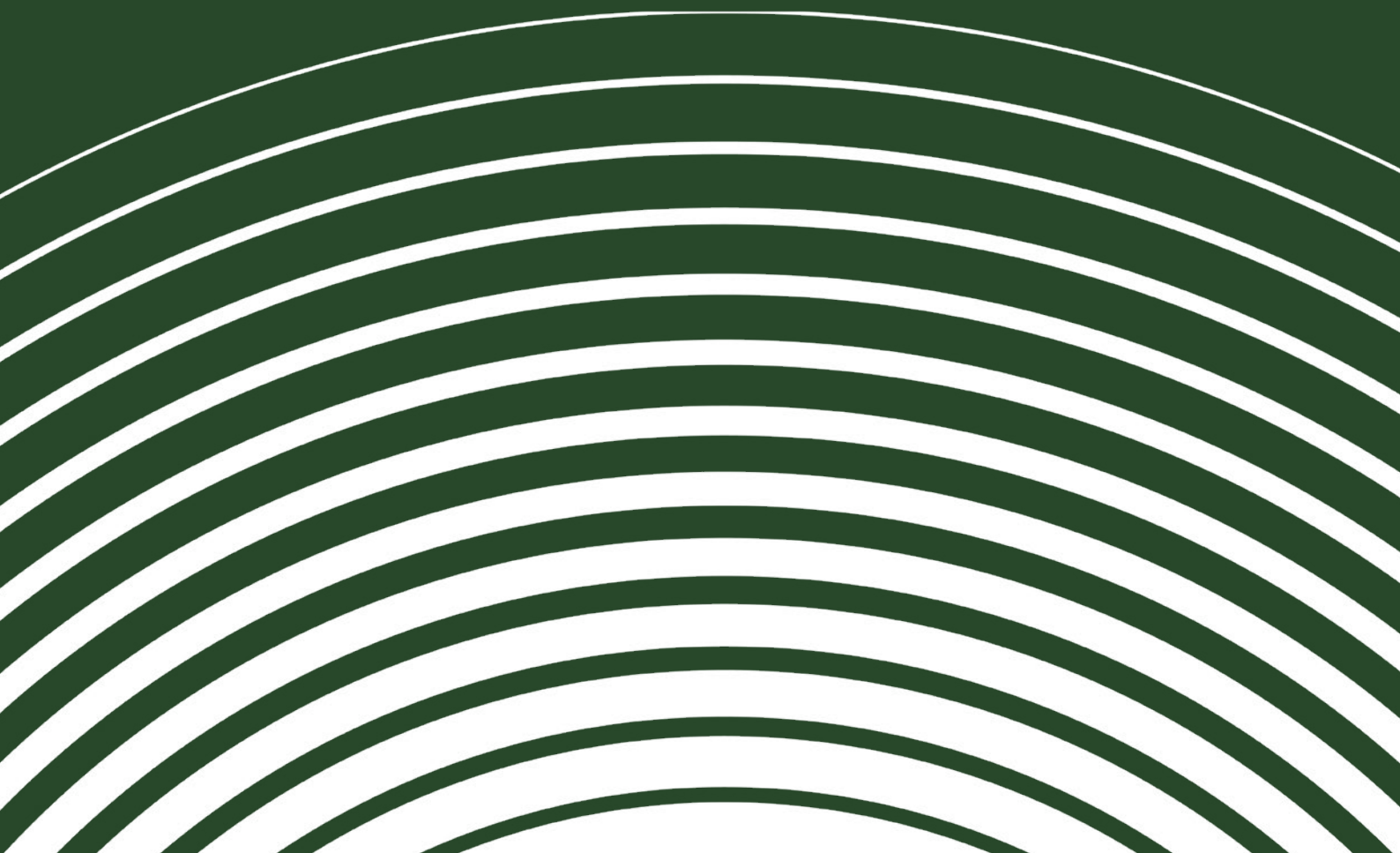
There are two main types
of rainscreen system:

Ventilated Façade

Ventilated Façade systems use large brackets (and rails) to hold the cladding panels. There are numerous cladding types available including flat and profiled metal, reconstituted stone, brick slips, terracotta and more.

Masonry External Leaf

The masonry outer leaf is normally built onto a framed construction with partial-fill cavity insulation. There are several different ways of installing this type of system.



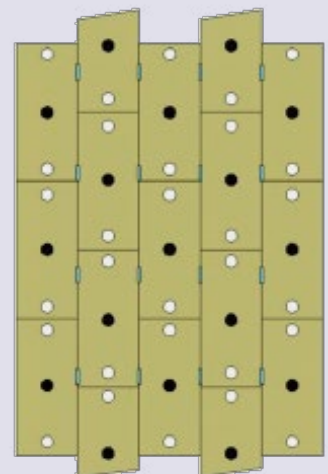
Ventilated Façade Rainscreen Systems

1. The cladding system brackets are fixed to the main structural wall in accordance with the manufacturer's instructions.
2. Fit the **URSAPAN** slabs between the brackets. Fix each row in a staggered pattern.
3. Installation may start below DPC level to help insulate the edge of the floor slab.
4. The slabs are normally fitted in portrait format but may be fitted landscape if this suits the brackets. Make sure all joints are tightly butted together and the slabs are cut accurately and tightly around the brackets with no gaps. Leaving slabs slightly oversize makes sure the fibres 'knit' together. The slabs cut easily with a sharp knife.
5. **URSAPAN** slabs are mechanically fixed to the wall using suitable retaining fixings (with a minimum head diameter of 70mm) depending on the substrate. A minimum fixing pattern is shown below - the central fixing in each slab must be metal. Alternatively, in areas of very high wind loading, use a plastic fixing at the corner of each slab with a metal fixing at the centre. Don't overdrive the fixings. Edge or corner fixings should be within 75mm-150mm of the edge or corner. Maintain the same fixing density for cut sections of slab and include at least one metal fixing. At external corners, or around openings avoid using cut pieces of slab less than 200mm wide. Cut the adjacent slab short and use a larger infill piece.
6. If required, **URSAPAN** may be installed in more than one layer. Install the first layer of slabs using one mechanical fixing per board. Ensure the position of this fixing does not interfere with the final fixing pattern for slabs, then position the second layer - ideally with staggered joints - and install the final fixings as (5) Alternatively position both layers of slabs against the wall, ideally with joints staggered, and hold in position while drilling for the central metal fixing. Secure through both layers using the central metal fixing, and add further fixings as (5).

(See Figure 1)

**Figure 1. -
Fixing Pattern**

- Metal Fixing
- Plastic Fixing
- Rainscreen Bracket

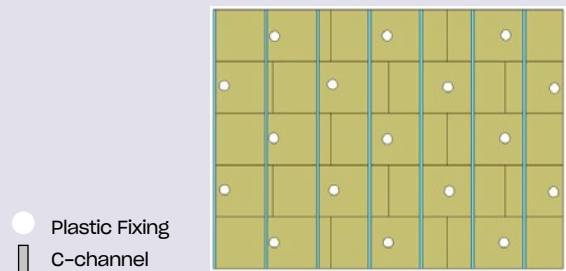


Masonry External Leaf Rainscreen Systems

Fixing Option 1 - Channel & Tie (Preferred Option)

1. Fix the **URSAPAN** slabs to the wall in a staggered, brick bond pattern. Slabs are normally fitted in landscape format but may be fitted portrait if this suits the installation. Make sure all joints are tightly butted together and slabs are cut accurately with no gaps. Leaving the slabs slightly oversize makes sure the fibres will 'knit' together. The slabs cut easily with a sharp knife.
 2. Installation may start below DPC level to help insulate the edge of the floor slab.
 3. Two or more layers may be used if a very low U-value is required.
 4. To make installation easier, initially fix the **URSAPAN** slabs with one central mechanical fixing (with a minimum head diameter of 70mm). Make sure cut sections of slab include one fixing. While slightly more complex, it's equally acceptable to install the slabs and C-channels at the same time.
 5. The C-channels are normally fixed at 600mm horizontal centres - check structural requirements with the manufacturer.
 6. Use a long insulation knife/saw to cut a narrow horizontal slot to accept the screw and compression sleeve (at centres dictated by the structural requirements). Alternatively pierce the insulation with one of the screw fixings to allow the compression sleeve to be pushed through. Fit the compression sleeves through the insulation, position the C-channel over the sleeves and screw fix to the structure behind.
 7. If the insulation slab is behind at least two C-channels the initial mechanical fixing may be removed. Cut sections of slab behind only one length of C-channel should include one mechanical fixing. At external corners and around openings, avoid using cut pieces of slab less than 200mm wide. Cut the adjacent slab short and use a larger infill piece.
 8. The wall tie system must allow for a 50mm minimum clear cavity.
- (See Figure 2)

**Figure 2. -
Fixing Pattern**



Fixing Option 2 - Channel & Tie

1. Fit the C-channels using screws and compression sleeves at centres to suit the structural requirement. The C-channels must be fixed accurately at 600mm horizontal centres.
2. Fit the **URSAPAN** slabs vertically between the C-channels. Make sure all joints are tightly butted together and slabs are cut accurately with no gaps. Leaving the slabs slightly oversize makes sure the fibres will 'knit' together. The slabs cut easily with a sharp knife.
3. Installation may start below DPC level to help insulate the edge of the floor slab.
4. Two or more layers may be used if a very low U-value is required.
5. Add two mechanical fixings per slab on the centre line and at 1/3 slab length. Use at least one fixing for smaller, cut sections of slab. At external corners and around openings, avoid using cut pieces of slab less than 200mm wide. Cut the adjacent slab short and use a larger infill piece. Cut the adjacent slab short and use a larger infill piece.
6. The wall tie system must allow for a 50mm minimum clear cavity.

(See Figure 3)

Fixing Option 3 - Cranked Wall Tie

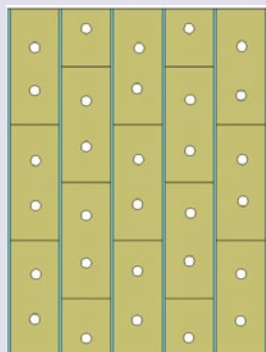
1. Screw the wall ties to the background using suitable screw fixings. The wall ties must be fixed accurately at 600mm horizontal centres horizontally and 455mm centres vertically.
2. Fit the **URSAPAN** slabs vertically between the wall ties. Make sure all joints are tightly butted together and slabs are cut accurately with no gaps. Leaving the slabs slightly oversize makes sure the fibres will 'knit' together. The slabs cut easily with a sharp knife. If necessary, slit the slab edges with a knife to enable them to fit neatly around the wall ties.
3. Installation may start below DPC level to help insulate the edge of the floor slab.
4. Two or more layers may be used if a very low U-value is required.
5. The insulation slabs are secured using plastic retaining collars supplied with the wall ties.
6. Small cut sections of insulation may need to be secured using a mechanical fixing. At external corners and around openings, avoid using cut pieces of slab less than 200mm wide. Cut the adjacent slab short and use a larger infill piece.
7. The wall tie system must allow for a 50mm minimum clear cavity.

(See Figure 4)



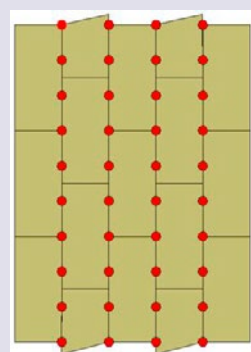
**Figure 3. -
Fixing Pattern**

- Plastic Fixing
- ▮ C-channel



**Figure 4. -
Fixing Pattern**

- Wall tie & retaining collar





Some Dos and Don'ts

Don't overdrive fixings.

Ensure slabs fit tightly against each other, around fixings and brackets, around openings and any other obstructions. Gaps are not acceptable.

Ensure slabs are in full contact with the substrate to avoid air movement behind them.

When cutting slabs to fill in around openings and other obstructions cut the insulation about 5–10mm oversize.

The brick bond pattern normally has a half slab overlap. This may not always be possible but ensure at least 150mm overlap.

Maintain the same fixing density, equivalent to 3 fixings/m², for cut sections of slab and include at least one metal fixing.

At external corners and around openings, avoid using cut pieces of slab less than 200mm wide. Cut the adjacent slab short and use a larger infill piece.

URSAPAN is robust enough to be left exposed and will withstand short term, intermittent wetting. However, if prolonged bad weather (rain, snow, high winds or freezing conditions) is predicted fit just enough slabs that can be covered and protected by the cladding on the same day; otherwise you'll need to provide temporary weather protection. If the slabs get wet, allow them to dry naturally – they'll retain their original thermal performance – and replace damaged slabs.

The notes above for the installation of channel and tie systems are for guidance only. Follow the manufacturer's instructions.



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