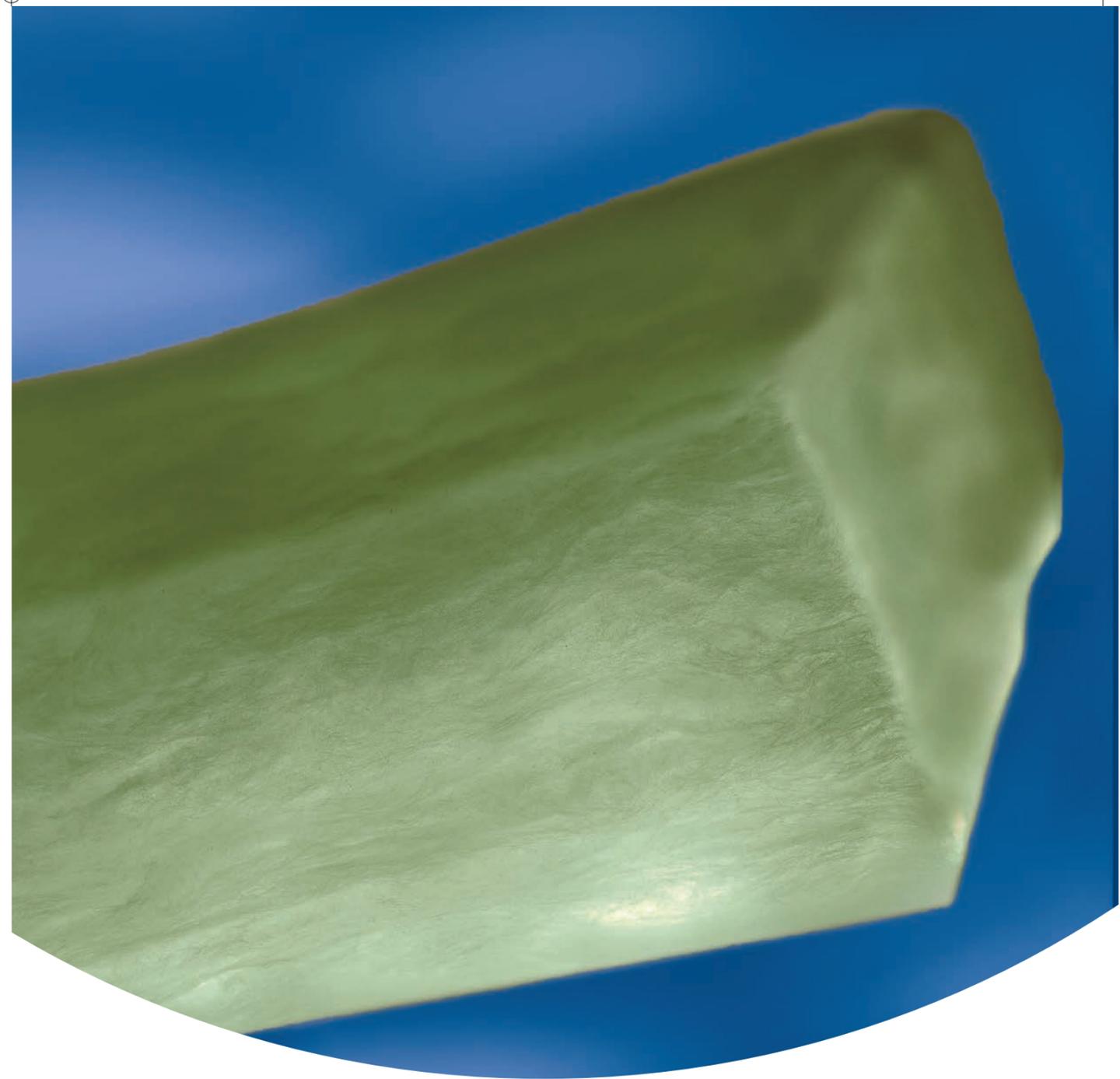


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**URSA** MINERAL WOOL  
URSA Façade N32 & Façade N35

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Insulation for use in Rainscreen Cladding Systems



# The Company

As a leading supplier of insulation and insulating systems, **URSA** has succeeded in fully addressing user requirements for thermal and acoustic insulation. Quality products for every application and excellent customer support are the cornerstones of the corporate culture.

**URSA** is the number two manufacturer of glass wool and extruded polystyrene products in Europe. At 13 production sites, **URSA** has 2,000 employees generating sales revenues of over €500 million.

**URSA mineral wool** is manufactured in Spain, France and Belgium, at two sites **URSA** has in Germany, in Slovenia, Hungary and Poland as well as in two Russian plants. Our closely-woven network of sales offices stretches across Europe and Russia. Almost everywhere **URSA** is amongst the market leaders.

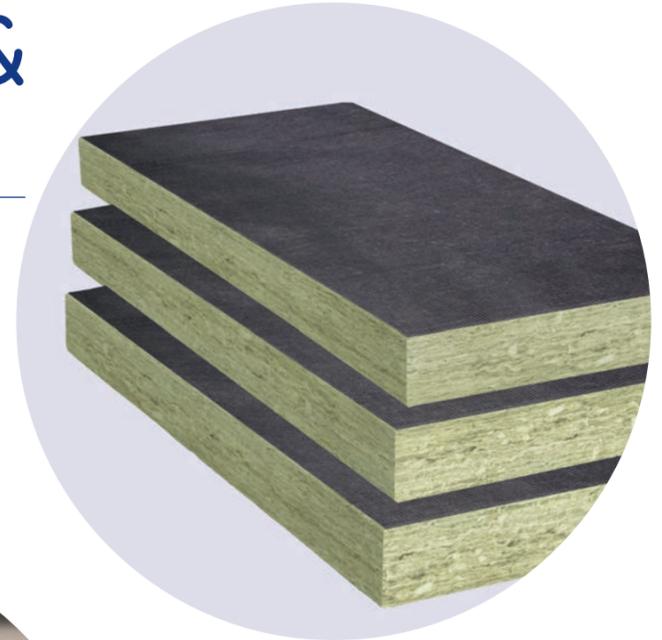
In Russia and in a number of other Eastern European countries, we are number one in the glasswool segment. We have also enjoyed a strong position particularly on the growth markets of the new EU partner countries from the very beginning.

## URSA Façade N32 & Façade N35

**URSA Façade N32 & Façade N35** are lightweight, non-combustible, semi-rigid glass mineral wool slabs treated with silicon based water repellent. They are faced with a black glass fibre tissue on one side. They are for use behind rainscreen cladding systems both new build and refurbishment.

**URSA Façade N32** has a thermal conductivity of 0.032 W/mK.

**URSA Façade N35** has a thermal conductivity of 0.035 W/mK.



### Global warming potential

**URSA Façade** does not use chemical blowing agents and so the Global Warming Potential (GWP) arising from it is zero.

### User friendly

Our new generation **URSA TERRA** mineral wool has a 'soft touch' feel making it easier to handle and install whilst still maintaining its excellent mechanical properties.

### Acoustic

**URSA Façade** has excellent sound insulation characteristics and helps to enhance the acoustic comfort of the building.

### Reduced risk of condensation

Insulating the wall structure externally creates evenly warm conditions so reducing the risk of condensation.

### Handling

**URSA Façade** slabs are lightweight yet tough, resilient and easy to install. They are easily cut using a sharp knife.

### Durability

**URSA Façade** slabs are rot-proof, durable and maintenance free. They are non-hygroscopic and will not slump in normal use.

All of our products carry the CE Mark to show compliance with the harmonised European Standard BS EN 13162 and are quality assured to ISO 9001.

## Benefits

### Quality

Outstanding product quality manufactured to ISO 9001 Quality Systems.

### Fire performance

**URSA Façade** has a fire rating of Euroclass A1 making it totally non-combustible and fire safe behind cladding systems.

### Environment

**URSA mineral wool** is manufactured from an abundant, sustainable resource and utilises at least 50% glass waste.

### Black facing

The black glass fleece tissue facing means that **URSA Façade** can be used behind open joint cladding without being seen.

- Headquarters
- Bran
- Production site mineral wool
- Production site extruded polystyrene



# Design

Rainscreen cladding is a lightweight, non-load bearing system attached to the outside of a building using a bracket and rail system. The cladding system provides protection from wind and rain, improves the thermal performance and limits solar gains. 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, terra cotta, fibre reinforced cement sheet, natural and artificial stone etc.

## Thermal

Rainscreen cladding systems may be used in both new build and refurbishment schemes in order to achieve the required U-value. See 'Heat Loss Calculations' later in this brochure.

The class leading performance **URSA Façade N32**, thermal conductivity 0.032 W/mK, provides a continuous envelope of insulation around the building. Alternatively **URSA Façade N35**, thermal conductivity 0.035 W/mK, may be used.

The ventilated cavity and external insulation protect the building from summer overheating whilst during the heating season advantage can be taken of the high thermal mass of concrete framed buildings.

## Fire

**URSA Façade** is totally non-combustible, Euroclass A1, so does not add any fire load to the building or prejudice the overall fire performance of the wall.

The presence of the ventilated cavity behind the cladding system means that cavity barriers are required to prevent the spread of fire and/or smoke. It is recommended that horizontal cavity barriers are installed at every compartment floor level, at roof level and if required a vertical barrier to further sub-divide the cavity at compartment walls. See 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.

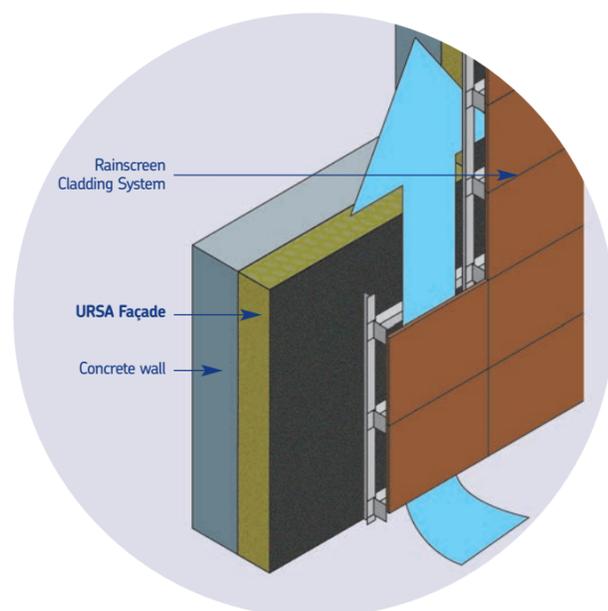
It should be noted that the Approved Document B for England & Wales recommend insulation products in high rise (18m or more) cladding systems be of 'limited combustibility' or better. In Scotland the insulation should be totally 'non-combustible'.

The cavity barriers should be 'non-combustible', penetrate the full depth of the wall insulation, be securely fixed to the main structural wall and if in a ventilated rainscreen cladding system should incorporate an intumescent strip in order to fully close the cavity in the event of a fire.

## Condensation Risk

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

Figure 1 – Typical Rainscreen Cladding System



## Rainwater Penetration

The cladding system provides the main weather protection. Some systems have open joints; rainwater penetrating these systems either drains down the back of the cladding panels or is removed by the ventilation in the void.

## Acoustics

The **URSA Façade** slabs will add to the acoustic performance of the wall. It adds acoustic absorption to the mass of concrete walls and adds to the URSA mineral wool already between the studs in framed walls.

## Thermal Bridging

As the insulation is applied in a continuous layer thermal bridging at the junction of internal and external walls, at the junction with intermediate floors and at the wall/roof junction can be largely mitigated.

# Installation

**URSA Façade** is mechanically fixed to the wall structure between the brackets used to support the cladding system.

## The usual procedure for construction 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. The cladding system brackets are fixed to the main structural wall in accordance with the manufacturer's instructions.
3. Fix the **URSA Façade** slabs, black face outermost, to the wall in a staggered pattern. Ensure all joints are tightly butted together and that the slabs are cut accurately and tightly around the brackets ensuring that there are no gaps. Leaving the slabs slightly oversize ensures that the fibres will 'knit' together. The slabs cut easily with the use of a sharp knife.
4. The **URSA Façade** slabs are mechanically fixed to the wall using suitable insulation retaining fixings (with a minimum head diameter of 70mm) depending upon the substrate. A minimum fixing pattern is shown in Figure 2 – the central fixing in each slab must be metal rather than plastic. Alternatively use a plastic fixing at the corner of each slab with a metal fixing in the centre. Do not overdrive the fixings.
5. Ensure that cavity barriers are installed in accordance with the Building Regulations. In high rise this would include at every compartment floor level and at the top of the cavity. Ensure external openings are correctly sealed also.
6. **URSA Façade** is robust enough to be left exposed during good weather and will withstand short term, intermittent wetting. If bad weather (rain, snow, high winds, freezing conditions) is predicted fit only sufficient slabs that can be covered and protected by the cladding on the same day otherwise provide temporary weather protection.
7. Once the insulation is fitted the external cladding work may proceed in accordance with the manufacturer's instructions.

Figure 2 – Fixing Pattern

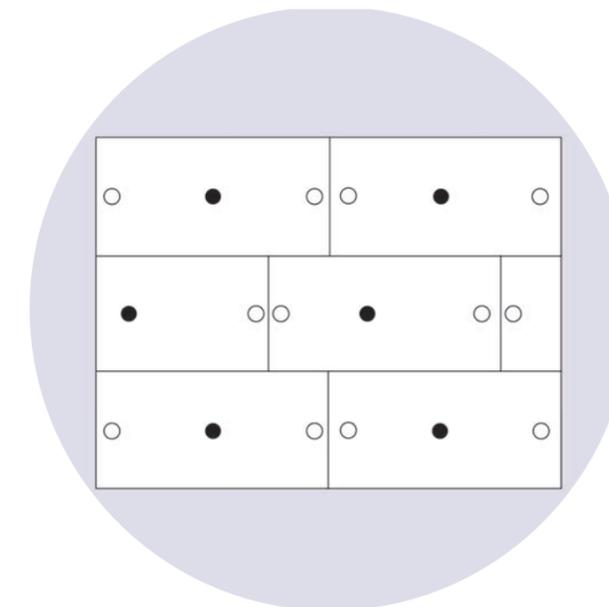
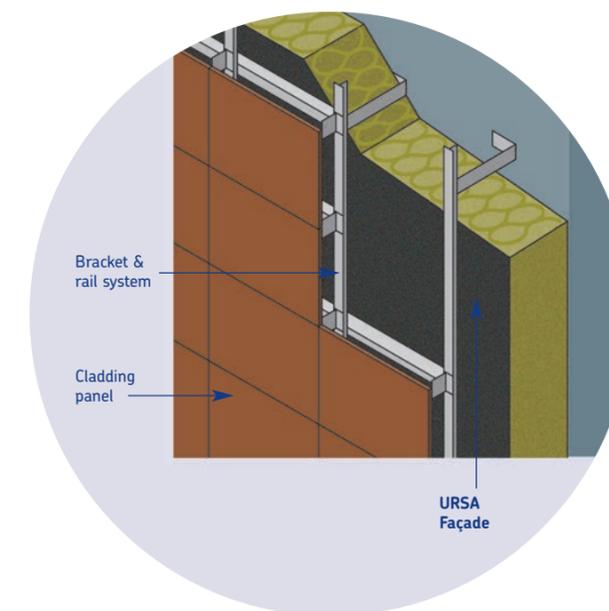


Figure 3 – Rainscreen Cladding on Concrete Wall



# Installation

Figure 4 – Rainscreen Cladding on Timber Framed Wall

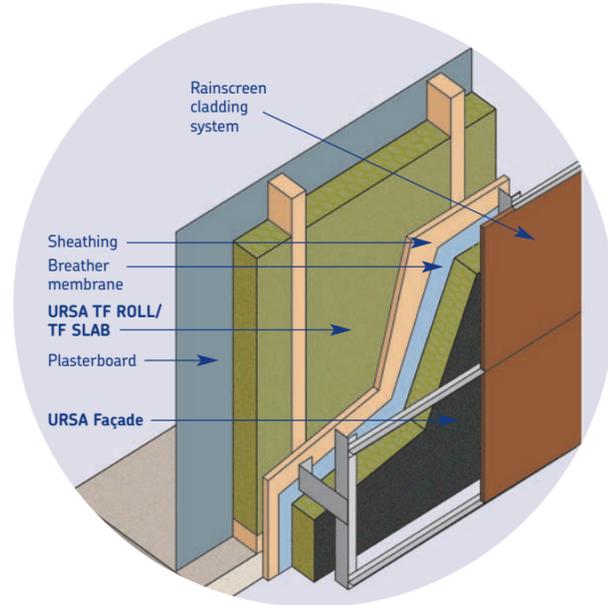
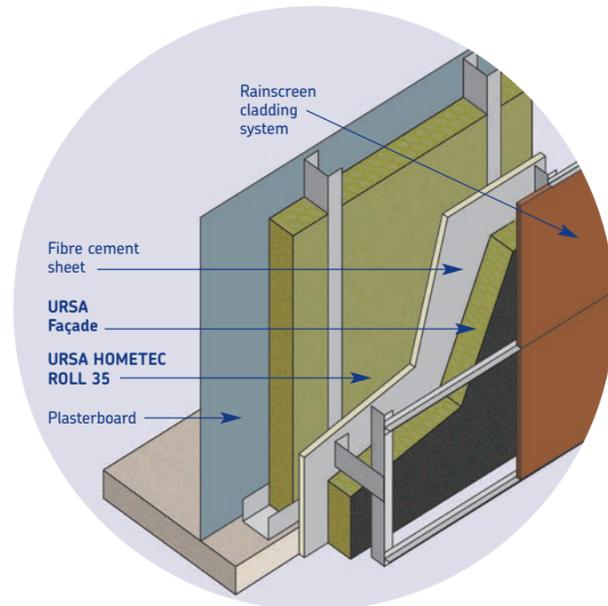


Figure 5 – Rainscreen Cladding on Light Steel Frame Wall



# Heat Loss Calculations

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

The calculation for the U-value of 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 approaches;

- 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 W/m<sup>2</sup>K. This option is not recommended as the U-value can never be lower than the 0.30 W/m<sup>2</sup>K.

The Building Regulations no longer use the Elemental U-value Method as a means of showing compliance. Instead compliance is shown by limiting overall CO<sub>2</sub> 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 new build a U-value of 0.25 W/m<sup>2</sup>K will help ensure compliance. In extensions a U-value of 0.28 W/m<sup>2</sup>K is required and in refurbishment work 0.30 W/m<sup>2</sup>K is required. The Building Regulations (Scotland) require a U-value of 0.22 W/m<sup>2</sup>K or better for dwellings and 0.27 W/m<sup>2</sup>K or better for other buildings. The Building Regulations (Wales) require a U-value of 0.21 W/m<sup>2</sup>K or better for dwellings; 0.26 W/m<sup>2</sup>K will help ensure compliance for other buildings.

The following U-values are indicative only and can vary depending upon the cladding system and the brackets and rails used. Consult the cladding manufacturer for more specific information.

## Typical Construction – Concrete Wall

Cladding Panel  
Ventilated Cavity

**URSA Façade**  
150mm Concrete  
12.5mm plasterboard on dabs

Correction for brackets based on point thermal transmittance of 0.036 W/m<sup>2</sup>K and 2 brackets/m<sup>2</sup>.

Thickness (mm)	U-Value (W/m <sup>2</sup> K)	
	URSA Façade N32	URSA Façade N35
100	0.35	0.37
120	0.31	0.32
140	0.28	0.29
160	0.25	0.27
180*	0.23	0.25
200*	0.22	0.23

\*Double layer

# Heat Loss Calculations

## Typical Construction – Timber Framed Wall

Cladding Panel  
Ventilated Cavity

### URSA Façade

Breather Membrane  
9mm OSB/plywood sheathing

**140mm URSA Timber Frame Roll/Slab 35** (15% bridged proportion)

Air & Vapour Control Layer  
12.5mm Plasterboard

Correction for brackets based on point thermal transmittance of 0.036 W/m<sup>2</sup>K and 2 brackets/m<sup>2</sup>.

Thickness (mm)	U-Value (W/m <sup>2</sup> K)	
	URSA Façade N32	URSA Façade N35
100	0.22	0.23
120	0.21	0.22
140	0.20	0.21
160	0.19	0.20
180*	0.18	0.19
200*	0.17	0.18

\*Double layer

## Typical Construction – Light Steel Stud Framed Wall

Cladding Panel  
Ventilated Cavity

### URSA Façade

10mm fibre reinforced cement sheet sheathing

**140mm URSA HOMETEC ROLL 35** (between studs)

Air & Vapour Control Layer  
2 x 12.5mm Plasterboard

Correction for brackets based on point thermal transmittance of 0.036 W/m<sup>2</sup>K and 2 brackets/m<sup>2</sup>.

Thickness (mm)	U-Value (W/m <sup>2</sup> K)	
	URSA Façade N32	URSA Façade N35
100	0.24	0.25
120	0.22	0.23
140	0.22	0.22
160	0.20	0.20
180*	0.19	0.19
200*	0.19	0.19

\*Double layer

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# Technical Details

## Specification Clause

The rainscreen cladding insulation shall be .....mm thick **URSA Façade N32/URSA Façade N35** semi-rigid mineral wool slab. Insulation to be installed as work proceeds in accordance with URSA UK Ltd instructions and with reference to the rainscreen cladding system manufacturer's requirements.

## Thermal Conductivity

The declared thermal conductivity of **URSA Façade N32** is 0.032 W/mK when tested to BS EN 13162.

The declared thermal conductivity of **URSA Façade N35** is 0.035 W/mK when tested to BS EN 13162.

## Density

Nominal density of **URSA Façade N32** is 35 kg/m<sup>3</sup>.

Nominal density of **URSA Façade N35** is 22 kg/m<sup>3</sup>.

## Reaction to Fire

Euroclass A1 (non-combustible) to BS EN 13501-1.

## Moisture Vapour Transmission

**URSA Façade** has a minimal resistance to the passage of water vapour thus allowing the wall to breathe. A practical value for the moisture vapour resistivity is 5 MNs/gm.

## Specific Heat Capacity

The specific heat capacity is 0.84 kJ/kgK.

## Designation Code

**URSA Façade N32 & Façade N35**  
MW – EN 13162 – T3 – WS – MU1.

## URSA Façade

Dimensions		
Thickness (mm)	Length (mm)	Width (mm)
100*, 120, 140* & 160 (*Façade N32 = 101mm & 141mm)	1350	600

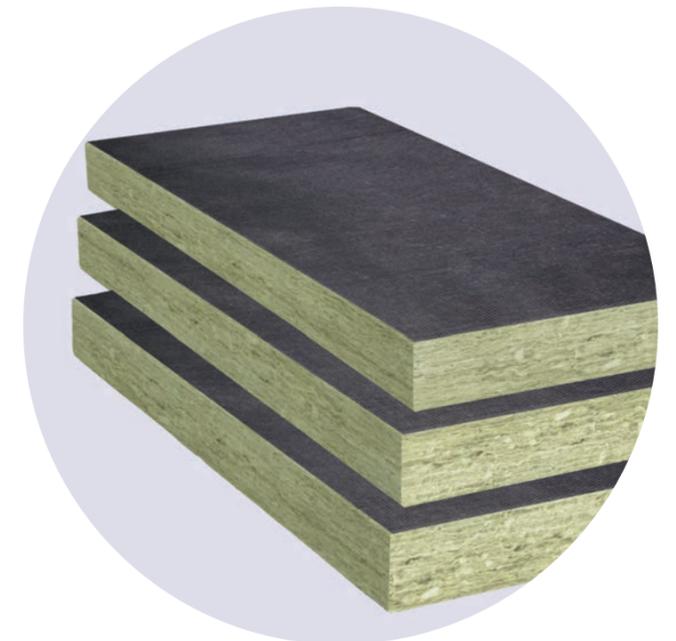
## Environmental Information

### BRE Green Guide

All URSA mineral wool products achieve the best possible 'A+' rating under the BRE Green Guide.

Manufactured to BS EN ISO 14001.

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**Durability**

When correctly installed URSA mineral wool products are maintenance free and have an indefinite life at least equal to that of the building.

**Storage**

URSA mineral wool products are supplied wrapped in polythene to provide short-term protection. On site the products should be stored clear of the ground, on a clean level surface and preferably under cover to protect them from prolonged exposure to moisture or mechanical damage.

**Chemical Compatibility**

URSA mineral wool products are compatible with all common construction materials, alkalis, dilute acids, mineral oil and petrol. Products that have been in contact with harsh solvents, acids or saturated with water should not be used.

**Health and Safety**

URSA mineral wool products are inherently safe to handle. During cutting or handling any dust generated is of nuisance value only; the wearing of dust masks, gloves and long sleeved clothing is recommended. Large scale machining should be connected to a dust extraction system. A comprehensive Health and Safety data sheet is available from URSA UK Ltd upon request.

**Availability**

**URSA Façade N32 & Façade N35** are available nationally through insulation distributors and builders merchants.

**References**

The Building Regulations and supporting documents.

BR 135 - Fire Performance of External Thermal Insulation Systems for Walls of Multistorey Buildings (BRE).

GBG 31 - Insulated External Cladding Systems (BRE).

BCA Technical Note 18 - Use of Combustible Cladding Materials on Residential Buildings (Building Control Alliance).

BS 8414 - Fire Performance of External Cladding Systems (BSI).

The Thermal Assessment of Window Assemblies, Curtain Walling and Non-traditional Building Envelopes (CAB/CWCT).

CIBSE Guide A3 - Thermal Properties of Buildings and Components.

BRE Digests, Information Papers and Good Building Guides.