

URSA MINERAL WOOL

URSA Timber Frame Roll & Slab and
URSA Hometec Roll

Rafter Level Roof Insulation



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.

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



URSA

Timber Frame Roll & Slab and

URSA

Hometec Roll

URSA TF Roll is a lightweight, non-combustible, unfaced glass mineral wool product for use in warm pitched roof spaces.

It has a thermal conductivity of 0.032 W/mK or 0.035 W/mK.

URSA TF Slab is a lightweight, non-combustible, semi-rigid glass mineral wool slab for use in timber framed walls and roofs.

It has a thermal conductivity of 0.032 W/mK.

URSA Hometec Roll 35 has a thermal conductivity of 0.035 W/mK and **URSA Hometec Roll 32** has a thermal conductivity of 0.032 W/mK.



Benefits

Quality

Outstanding product quality manufactured to ISO 9001 Quality Systems.

Global warming potential

URSA TF Roll/Slab and **URSA Hometec Roll** do not use chemical blowing agents and so the Global Warming Potential (GWP) arising from them is zero.

Insulation savings

It is possible to meet the Building Regulation requirement with only 140mm of **URSA TF Roll/Slab** or **URSA Hometec Roll** and suitable thermal laminate plasterboard.

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.

Increased usable space

The roof void becomes part of the habitable accommodation.

Acoustic

URSA TF Roll/Slab and **URSA Hometec Roll** have excellent sound insulation characteristics and enhance the acoustic comfort of the building.

Environment

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

Handling

URSA TF Roll/Slab and **URSA Hometec Roll** are lightweight yet tough, resilient and easy to install. They are easily cut using a sharp knife.

Space saving

Compaction of the rolls in their manufacture saves space in both storage and transport.

Durability

URSA TF Roll/Slab and **URSA Hometec Roll** 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.



Design

Warm Roof Space

Insulation at rafter level has the distinct advantage of offering additional living or storage space without increasing the 'foot print' of the building. As the roof space is kept warm there is no need to provide additional insulation to water services within the void.

Insulation at rafter level falls into three main categories:

- **Cold Roof (Unventilated)** – a cold roof construction allowing the full depth of the rafter to be used but requiring the use of a vapour permeable sarking membrane. Further insulation can be added under the rafters, ceiling height permitting, which masks the thermal bridge effect of the timbers improving the U-value and reducing the possibility of pattern staining occurring.
- **Cold Roof (Ventilated)** – a traditional cold roof using bitumen or polythene based sarking felt requiring both eaves to ridge ventilation (50mm minimum airspace) and a vapour control layer. Again insulation can be added under the rafters to mask the thermal bridge effect of the timbers.
- **Warm Roof (Unventilated)** – a warm roof construction allowing the full depth of the rafter to be used but requiring the use of a vapour permeable sarking membrane. Insulation is also used over the rafters which masks the thermal bridge effect of the timbers improving the U-value and reducing the possibility of pattern staining occurring.

Thermal Bridging

Ensure that the **URSA TF Roll/Slab** or **URSA Hometec Roll** is continuous and forms a tight joint at details such as between rafters, at ridges, valleys and hips. Where the timber floor meets the sloping ceiling or wall it is important to limit air infiltration by sealing around the perimeter of the floor at the skirting board. Expanding foam and/or mastic type sealants should be used under the skirting to seal the floor edge.

Limiting Air Infiltration

The plasterboard ceiling should be installed with all joints between the ceiling and walls sealed with plaster, adhesive or flexible sealant. Seal all penetrations using a flexible sealant.

A correctly detailed and installed polythene air and vapour control layer (AVCL) will further enhance the air tightness of the construction.

Condensation

With increasing levels of insulation the increased risk of interstitial condensation must be carefully considered – BS 5250 gives detailed design advice. In pitched roofs the governing factor is the choice of roof tile underlay, either High Resistance (HR) or Low Resistance (LR) types:

Type HR Underlay – these are the more traditional bitumen or polythene based products that have a water vapour resistance greater than 0.25 MNs/g.

A 50mm ventilated air space must be provided between the insulation and the underlay (this space may reduce to a minimum of 25mm at the centre of the underlay drape).

Ventilation of the roof void must be provided as follows:

- 25mm x eaves length, at low level.
- 5mm x eaves length, at high level (on both sides if the ridge board separates the roof into two sections).

Type LR Underlay – these are breather type membranes that have a water vapour resistance less than or equal to 0.25 MNs/g. There is normally no need to provide a ventilated void between the insulation and the underlay but sufficient space should be left to allow a slight drape in the membrane.

If the roof covering is relatively air tight, for example man made artificial slates, counterbattens should be used to allow ventilation above the underlay. In domestic type applications ventilation of the batten cavity should be provided as follows:

- 7mm x eaves length, at low level, for normal ceilings.
- 3mm x eaves length, at low level, for well sealed ceilings.
- 5mm ventilation slot at high level.

For larger roofs (schools, hospitals, supermarkets etc) increased ventilation of the batten cavity should be provided as follows:

- 10mm x eaves length, at low level, for normal ceilings.
- 5mm x eaves length, at low level, for well sealed ceilings.
- 5mm ventilation slot at high level.

There are a number of Type LR underlays available that promote the energy efficiency of not providing any ventilation – as these are not covered by BS 5250 it is recommended that these products carry a suitable technical approval such as BBA certification.

Further measures that should be taken include:

- Removal of the water vapour at source by the use of suitable ventilation and/or extract fans in high humidity areas.
- The use of a correctly detailed and carefully sealed air and vapour control layer (AVCL) (minimum 500g polythene sheet or foil backed plasterboard) will reduce the amount of water vapour from the living area passing into the cold roof void.

Acoustic Performance

URSA TF Roll/Slab or **URSA Hometec Roll**, minimum 100mm, fitted between the rafters will help prevent noise transmission through or over the pitched roof structure.

URSA TF Roll/Slab or **URSA Hometec Roll** in this application complies with the various wall/roof junctions shown in Robust Details Part E.

Wind Uplift

The wind uplift force exerted on the roof will vary according to geographical location, site location and building height. Calculations relating to the fixing pattern and batten dimensions should be made with reference to BS 5534.

Fire Performance

When used within a pitched roof constructed in accordance with this brochure **URSA TF Roll/Slab** or **URSA Hometec Roll** will not prejudice the fire resistance properties of the roof and adds no fire load to the building. The slate or tiled finish will give the required external fire rating, SAA, whilst 12.5mm plasterboard will ensure the necessary fire protection internally. Fire stopping in the form of mineral fibre insulation should be used at party walls.

Installation

Between Rafter Insulation – Unventilated (Figures 1 & 2)

The usual procedure for construction is:

1. Complete the tiling, battening and felting in the normal manner using a British Board of Agrément approved LR (breather) type underlay.
2. Fit the **URSA TF Roll/Slab** or **URSA Hometec Roll** between the rafters ensuring there are no gaps between the rafters and between sections of insulation.
3. Ensure that a 25mm (minimum) airspace is maintained above the insulation to allow a drape in the underlay.
4. Alternatively the LR type underlay may be pulled taut over the rafters and the full depth of the rafter filled with insulation. To ensure drainage above the membrane counterbattens, 38 x 50mm, must be nailed to the rafters at 300mm centres ensuring a minimum of 38mm penetration of the fixing into the rafter. The tiling battens and tiles are then installed in the normal manner.
5. Continue the **URSA TF Roll/Slab** or **URSA Hometec Roll** into the timber frame dwarf walls ensuring continuity of the wall and roof insulation.
6. If necessary further insulation may be added internal to the timber structure to both enhance the thermal performance and to mask the thermal bridge effect of the timbers.
7. An air and vapour control layer (AVCL) is required with this form of roof construction; this may be either polythene sheet or foil-backed plasterboard.
8. The plasterboard internal finish is fitted in the normal manner though longer fixings are required when using a two-layer insulation system.

Figure 1 – Between Rafter Insulation (Unventilated) – Eaves Detail

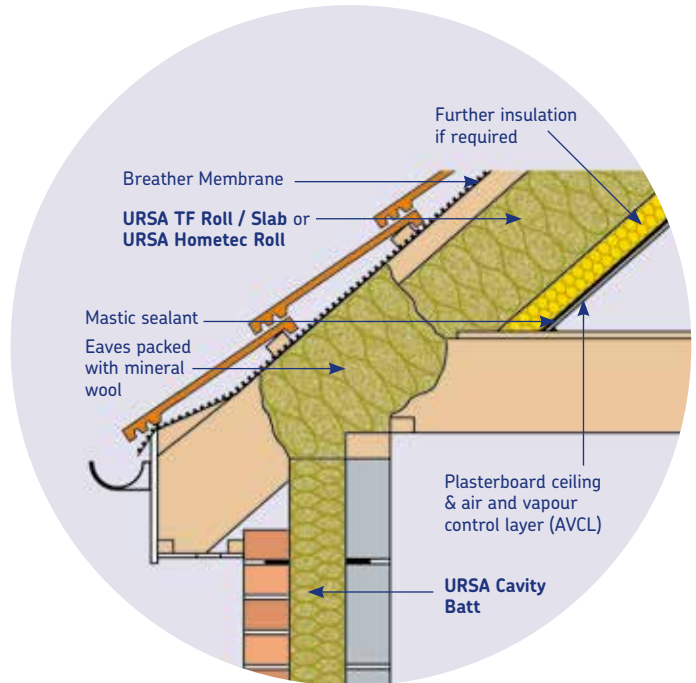
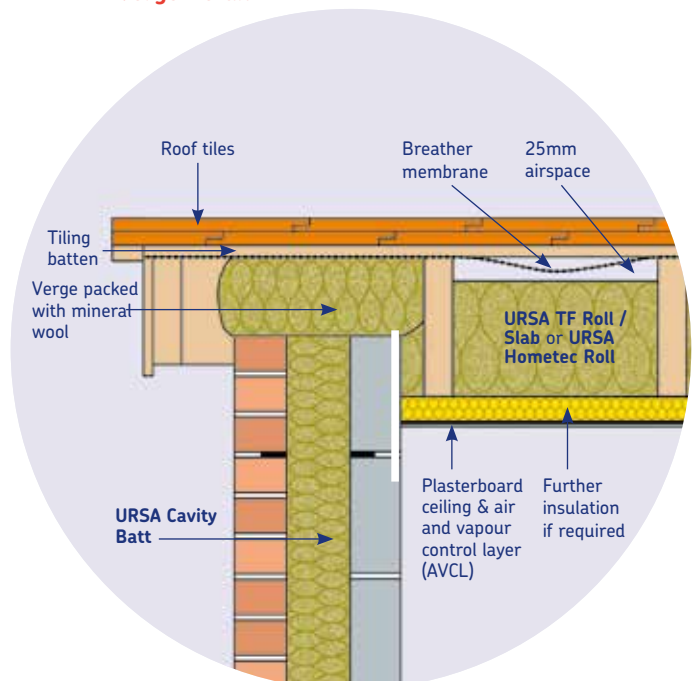


Figure 2 – Between Rafter Insulation (Unventilated) – Verge Detail



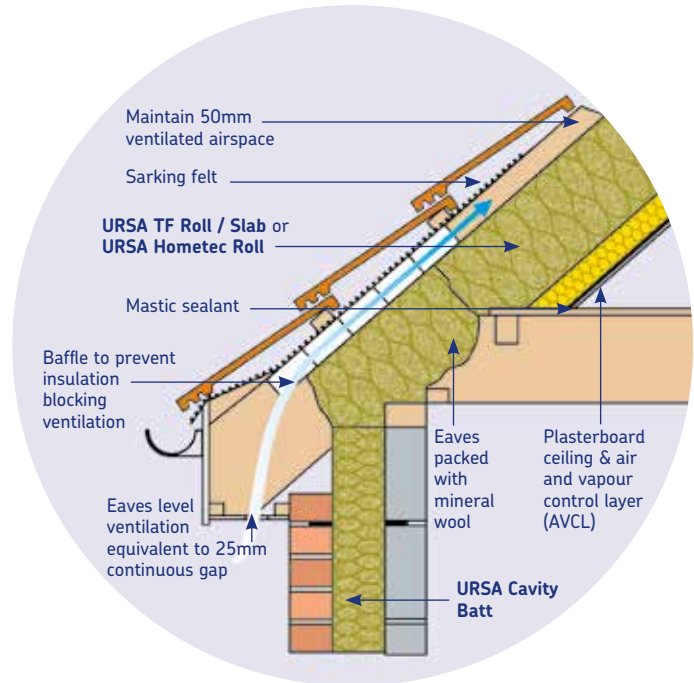
Installation

Between Rafter Insulation – Ventilated (Figures 3 & 4)

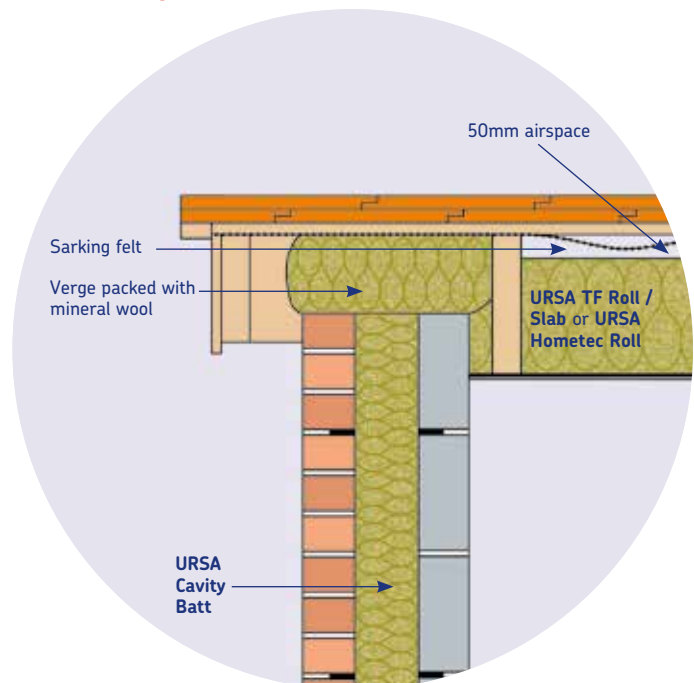
The usual procedure for construction is:

1. Complete the tiling, battening and felting in the normal manner using type HR underlay. Ensure that provision is made for eaves for ridge ventilation in accordance with BS 5250 (see above).
2. Fit the **URSA TF Roll/Slab** or **URSA Hometec Roll** between the rafters ensuring there are no gaps between the rafters and between sections of insulation.
3. Ensure that a 50mm airspace is maintained above the insulation.
4. Continue the **URSA TF Roll/Slab** or **URSA Hometec Roll** into the timber frame dwarf walls ensuring continuity of the wall and roof insulation.
5. If necessary further insulation may be added internal to the timber structure to both enhance the thermal performance and to mask the thermal bridge effect of the timbers.
6. An air and vapour control layer (AVCL) is required with this form of roof construction; this may be either polythene sheet or foil-backed plasterboard.
7. The plasterboard internal finish is fitted in the normal manner though longer fixings are required when using a two-layer insulation system.

**Figure 3 – Between Rafter Insulation (Ventilated)
– Eaves Detail**



**Figure 4 – Between Rafter Insulation (Ventilated)
– Verge Detail**



Between Rafter Insulation – Warm Roof Construction (Figures 5 & 6)

The usual procedure for construction is:

1. Install the warm roof (over rafter) insulation and secure using counterbattens in accordance with the manufacturer’s instructions and complete the tiling, battening and felting using a British Board of Agrément approved LR (breather) type underlay.
2. Once the roof is watertight and working from inside the building fit the **URSA TF Roll/Slab** or **URSA Hometec Roll** between the rafters. Ensure the depth of the rafters is fully filled and there are no gaps between the rafters and between sections of insulation.
3. Continue the **URSA TF Roll/Slab** or **URSA Hometec Roll** into the timber frame dwarf walls ensuring continuity of the wall and roof insulation.
4. An air and vapour control layer (AVCL) is recommended with this form of warm roof construction. In high humidity applications, e.g. swimming pools, laundries, commercial kitchens etc an air and vapour control layer (AVCL) is required; this may be either a polythene sheet or high performance polythene/ aluminium foil laminate. The design should be checked using BS 5250.
5. The plasterboard internal finish is fitted in the normal manner.

Figure 5 – Warm Roof Insulation – Eaves Detail

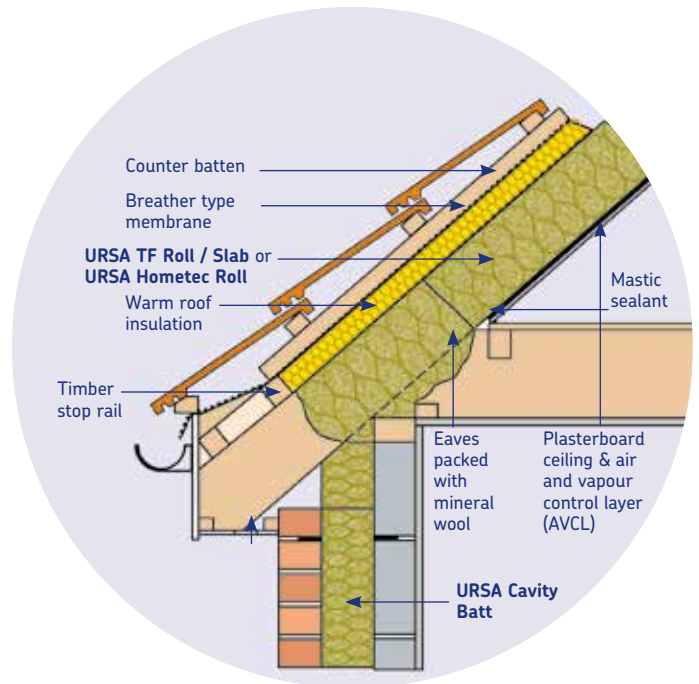
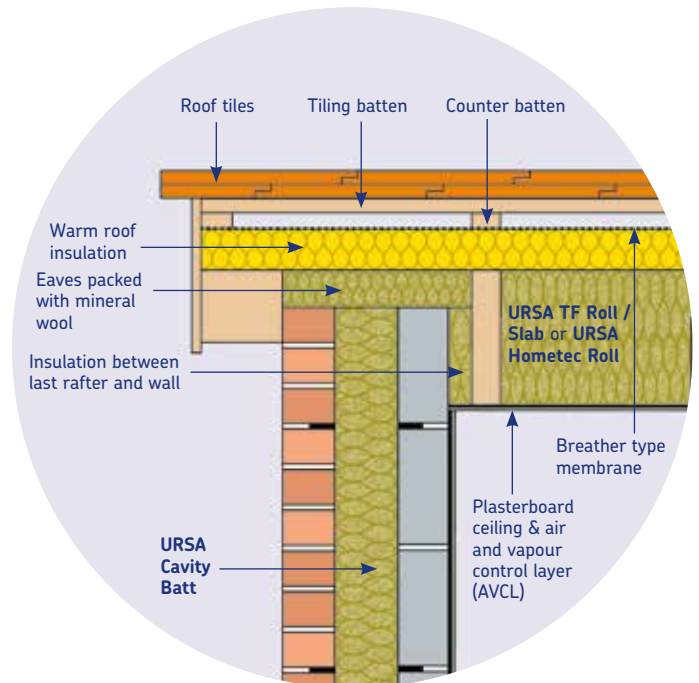


Figure 6 – Warm Roof Insulation – Vergé Detail



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.

Compliance with the Building Regulations is shown by limiting the 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 new build a U-value of 0.16 W/m²K or better will help ensure compliance whilst in extensions and refurbishment

work a U-value of 0.18 W/m²K is required. The Building Regulations (Wales) require a U-value better than 0.15 W/m²K in new dwellings.

In the cold roof details additional insulation is used **under** the rafters.

In warm roofs the additional insulation is fixed **above** the rafters.

Please contact URSA Technical Services for alternative solutions and further information.

URSA TF Roll 35/URSA Hometec Roll 35 U-values

Rafter Level Insulation (Cold Roof – Unventilated)		
URSA TF ROLL 35 URSA Hometec Roll 35	U-Value (W/m ² K) (600mm c/c)	U-Value (W/m ² K) (450mm c/c)
90mm TF Roll & 35mm PUR	0.24	0.25
90mm TF Roll & 50mm PUR	0.22	0.22
90mm TF Roll & 60mm PUR	0.20	0.20
140mm TF Roll & 35mm PUR	0.19	0.19
140mm TF Roll & 50mm PUR	0.17	0.17
140mm TF Roll & 60mm PUR	0.15	0.16
200mm Hometec Roll & 35mm PUR	0.15	0.15
200mm Hometec Roll & 50mm PUR	0.13	0.14
200mm Hometec Roll & 60mm PUR	0.13	0.13

Rafter Level Insulation (Warm Roof – Unventilated)		
URSA TF ROLL 35 URSA Hometec Roll 35	U-Value (W/m ² K) (600mm c/c)	U-Value (W/m ² K) (450mm c/c)
90mm TF Roll/Slab & 50mm PUR	0.21	0.21
90mm TF Roll/Slab & 60mm PUR	0.19	0.19
140mm TF Roll/Slab & 50mm PUR	0.16	0.17
140mm TF Roll/Slab & 60mm PUR	0.15	0.16
200mm Hometec Roll & 50mm PUR	0.13	0.14
200mm Hometec Roll & 60mm PUR	0.13	0.13

Heat Loss Calculations

URSA TF Roll/TF Slab 32 or URSA Hometec Roll 32 U-Values

Rafter Level Insulation (Cold Roof – Unventilated)		
URSA TF Roll/Slab 32 URSA Hometec Roll 32	U-Value (W/m ² K) (600mm c/c)	U-Value (W/m ² K) (450mm c/c)
90mm TF Roll/Slab & 35mm PUR	0.23	0.24
90mm TF Roll/Slab & 50mm PUR	0.21	0.21
90mm TF Roll/Slab & 60mm PUR	0.19	0.19
140mm TF Roll/Slab & 35mm PUR	0.18	0.19
140mm TF Roll/Slab & 50mm PUR	0.16	0.16
140mm TF Roll/Slab & 60mm PUR	0.15	0.15
200mm Hometec Roll & 35mm PUR	0.14	0.15
200mm Hometec Roll & 50mm PUR	0.13	0.13
200mm Hometec Roll & 60mm PUR	0.12	0.12

Rafter Level Insulation (Warm Roof – Unventilated)		
URSA TF Roll/Slab 32 URSA Hometec Roll 32	U-Value (W/m ² K) (600mm c/c)	U-Value (W/m ² K) (450mm c/c)
90mm TF Roll/Slab & 50mm PUR	0.20	0.21
90mm TF Roll/Slab & 60mm PUR	0.18	0.19
140mm TF Roll/Slab & 50mm PUR	0.16	0.16
140mm TF Roll/Slab & 60mm PUR	0.15	0.15
200mm Hometec Roll & 50mm PUR	0.13	0.13
200mm Hometec Roll & 60mm PUR	0.12	0.12

Technical Details

Specification Clause

The rafter level pitched roof insulation shall bemm thick **URSA TF Roll 35**, **URSA TF Roll/Slab 32** or **URSA Hometec Roll 32** mineral wool insulation. Continue the insulation over the wall plate and ensure all joints are tightly butted. The insulation is to be installed as work proceeds in accordance with URSA UK Ltd instructions.

Thermal Conductivity

Declared thermal conductivity of **URSA TF Roll 35** and **URSA Hometec Roll 35** is 0.035 W/mK.

Declared thermal conductivity of **URSA TF Roll/Slab 32** and **URSA Hometec Roll 32** is 0.032 W/mK.

Declared thermal conductivity tested to BS EN 13162.

Density

Nominal density of **URSA TF Roll 35** is 22 kg/m³.

Nominal density of **URSA TF Roll 32** is 32 kg/m³.

Nominal density of **URSA TF Slab 32** is 32 kg/m³.

Nominal density of **URSA Hometec Roll 35** is 22 kg/m³.

Nominal density of **URSA Hometec Roll 32** is 32 kg/m³.

Designation Code

URSA TF Roll 32;

MW – EN 13162 – T3 – WS – MU1.

URSA TF Slab 32;

MW – EN 13162 – T3 – WS – MU1.

URSA TF Roll 35;

MW – EN 13162 – T2 – DS(70,-) – MU1 – AFR5.

URSA Hometec Roll 35;

MW – EN 13162 – T2 – DS(70,-) – MU1 – AFR5.

URSA Hometec Roll 32;

MW – EN 13162 – T3 – WS – MU1.

Reaction to Fire

Euroclass A1 to BS EN 13501-1.

Moisture Vapour Transmission

URSA TF Roll/Slab and **URSA Hometec Roll** have minimal resistance to the passage of water vapour thus allowing the roof to breathe.

A practical value for the moisture vapour resistivity is 5 MNs/gm.

Specific Heat Capacity

The specific heat capacity is 1.03 kJ/kgK.

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.

URSA TF Roll 35

Dimensions	
Thickness (mm)	Width (mm)
90 & 140	2 x 570

URSA TF Roll 32

Dimensions	
Thickness (mm)	Width (mm)
90 & 140	2 x 580

URSA TF Slab

Dimensions		
Thickness (mm)	Length (mm)	Width (mm)
90 & 140	1200	570

URSA Hometec Roll 35

Dimensions	
Thickness (mm)	Width (mm)
60, 80, 100, 120, 140, 150, 160, 180, 200, 220, 240 & 265	1200

URSA Hometec Roll 32

Dimensions	
Thickness (mm)	Width (mm)
60, 80, 101, 120, 140, 160 180 & 200	1200

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 they should be stored clear of the ground, on a clean level surface and 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 mineral wool products are available nationally through insulation distributors and builders merchants.

References

The Building Regulations and supporting documents.

Thermal Insulation: avoiding risks (2002).

Accredited Construction Details and Accredited Construction Details (Scotland).

CIBSE Guide A3 - Thermal Properties of Building Structures.

BS 5250 Code of Practice for Control of Condensation in Buildings.

BS 9250 Code of Practice for the Airtightness of Ceilings in Pitched Roofs.

BS EN 1991, Eurocode 1; Actions on Structures.

BS 5534 Code of Practice for Slating and Tiling.

BS 8000 Workmanship on Building Sites. Part 6 Code of Practice for Slating and Tiling of Roofs and Claddings.

BRE Digests, Information Papers and Good Building Guides.



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