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**URSA** TERRA MINERAL WOOL  
URSA TIMBER FRAME ROLL & SLAB  
and URSA HOMETEC ROLL

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Insulation for Timber and Metal Frame Wall 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 TIMBER FRAME ROLL & SLAB and URSA HOMETEC ROLL

**URSA TF ROLL** is a lightweight, non-combustible, glass mineral wool product. It is suitable for use in both timber and metal framed walls. **URSA TF ROLLS** have 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.

**URSA TF SLABS** have a thermal conductivity of 0.032 W/mK.

**URSA HOMETEC ROLL 35** is a lightweight, non-combustible, unfaced glass mineral wool roll. It has a thermal conductivity of 0.035 W/mK.



## Benefits

### Wider choice

**URSA TF ROLL/SLAB** and **URSA HOMETEC ROLL** will assist in meeting the appropriate Building Regulation standard with any form of timber or metal framed wall construction.

### Quality

Outstanding product quality manufactured to ISO 9001 Quality Systems.

### 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.

### 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

Used between studs in timber frame construction it is possible to meet the Building Regulation requirement with only 140mm of **URSA TF ROLL** or **TF SLAB**.

### 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.

### Reduced risk of condensation

Walls fitted with **URSA TF ROLL/SLAB** and **URSA HOMETEC ROLL** create more even warm conditions so reducing the risk of surface condensation.

A vapour control layer is required when insulating between the studs.

### 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 both the UKCA and CE Mark to show compliance with BS EN 13162 and are quality assured to ISO 9001.



# Design

## Construction Principles

There are three main forms of framed construction depending upon the position of the insulation:

- **Cold Frame** – all of the insulation is fitted within the depth of the studs which results in the timber/steel bridging the insulation. It is possible to add an insulated lining internally to both improve the thermal performance and mask the thermal bridge effect (see Figure 1).
- **Warm Frame** – the insulation is fitted externally to the framing, as a sheathing, to give a continuously insulated envelope. This form of construction has the advantages of preventing the thermal bridge problem and being inherently safe from harmful condensation risk (see Figure 2).
- **Hybrid** – insulation is fitted between the studs with an additional layer on the outside to reduce thermal bridging. Careful choice of the ratio of thermal resistances of each layer is required to avoid interstitial condensation (see Figure 3).

## Limiting Air Infiltration

Ensure that the **URSA TF ROLL/SLAB** or **URSA HOMETEC ROLL** is continuous and forms a tight joint at details such as corners. Where a timber floor meets the wall it is important to limit air infiltration by sealing around the perimeter of the floor. Expanding foam and/or mastic type sealants should be used under the sole plate to seal the floor edge. The polythene air and vapour control layer (AVCL) creates an additional air infiltration barrier.

## Wall Width

The use of high efficiency insulation has the benefit of achieving high standards of insulation without a great increase in the overall wall thickness. Standard 140mm deep timber studs may be used whilst still achieving the current Building Regulation standard.

## Condensation

An air and vapour control layer (AVCL) is generally required when insulating between the studs, this can either be a polythene sheet (minimum 500g) or a foil-backed plasterboard. When using sheathing insulation the structural frame is maintained at the same temperature as the inside of the building and an air and vapour control layer (AVCL) may not be required. Surface condensation is generally not a problem with the correct choice of insulation thickness, heating system and ventilation.

## Rainwater Penetration

Projections and discontinuities within the cavity such as changes in wall thickness or beams will require the use of a cavity tray. When using sheathing insulation in conjunction with a cold pitched roof (insulation at horizontal ceiling level) the top edge of the insulation should be protected by the use of a cavity tray.

Figure 1 – Cold Frame Construction

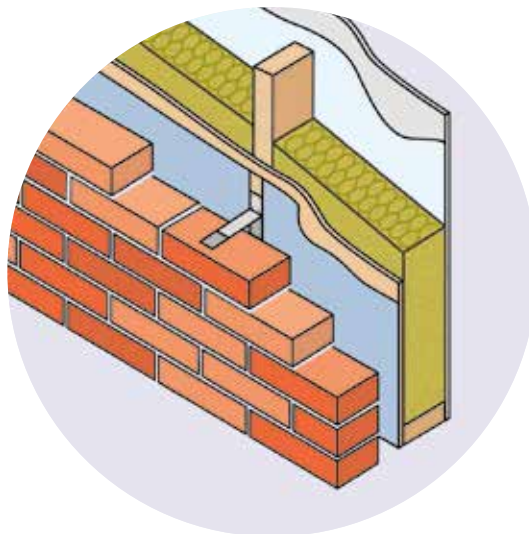


Figure 2 – Warm Frame Construction

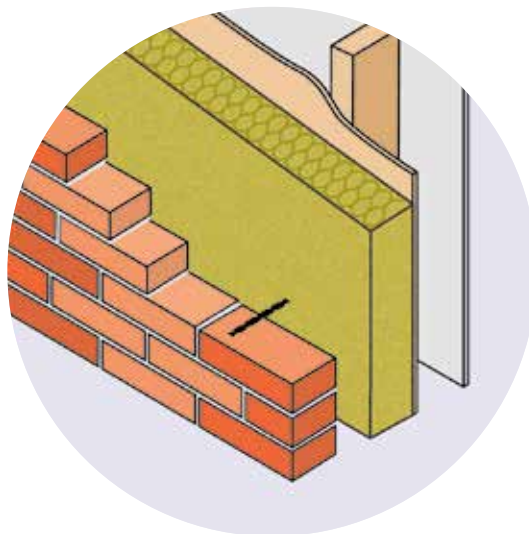
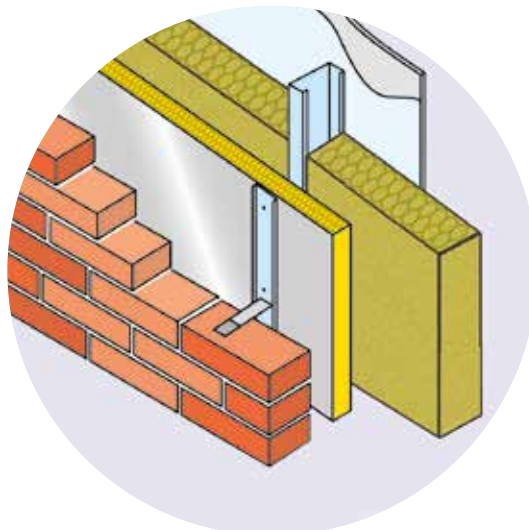


Figure 3 – Hybrid Construction



**Thermal Bridging**

Insulation installed between studs will introduce a series of repeating thermal bridges plus the effect of lintels, noggins and sole and top plates.

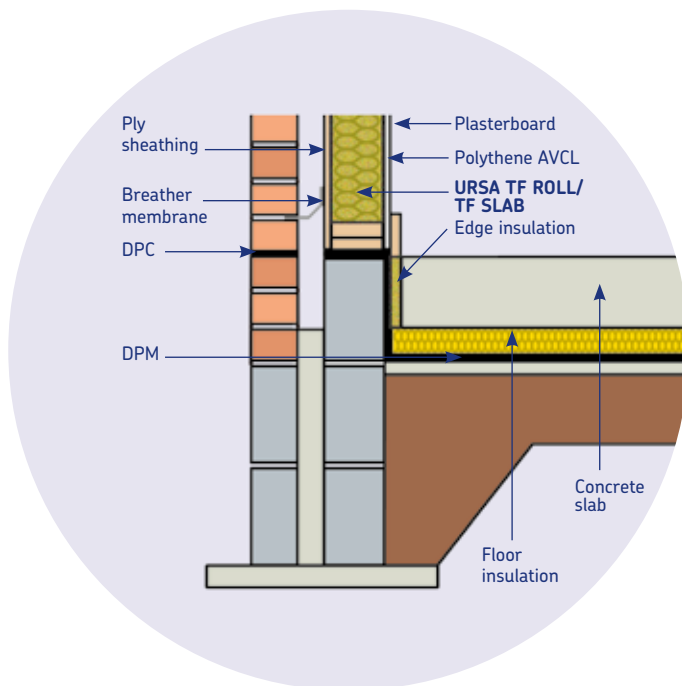
This can significantly affect the calculated U-value as the framing may account for up to 20% of the wall area; the Building Regulations recommend a default of 15% framed area for calculation purposes.

The use of an insulated sheathing is more thermally efficient as it eliminates these causes of thermal bridging.

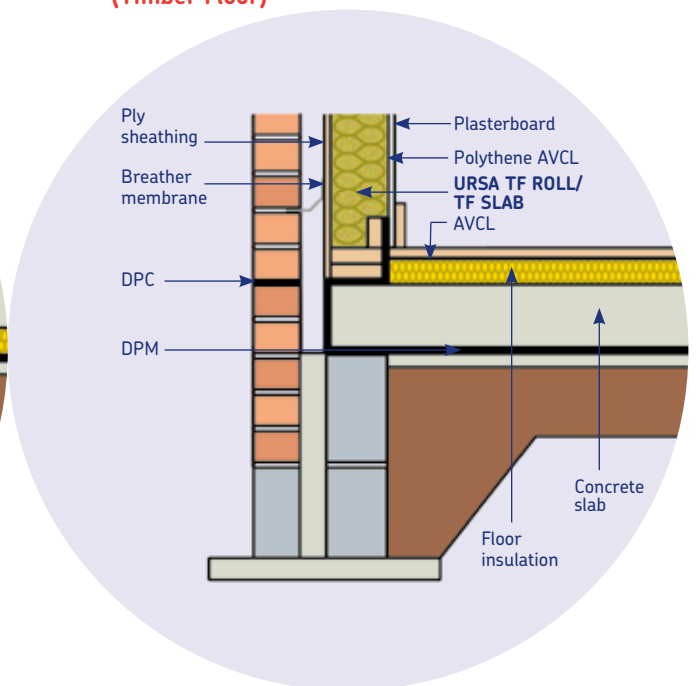
With increasing levels of insulation it is vitally important to ensure continuity of the insulation at the junction of elements and around door and window openings.

At the junction of the floor and the wall a vertical section of insulation, at the floor edge, or extending the sheathing insulation below the floor level, can reduce thermal bridging (See Figures 4, 5, 6 & 7).

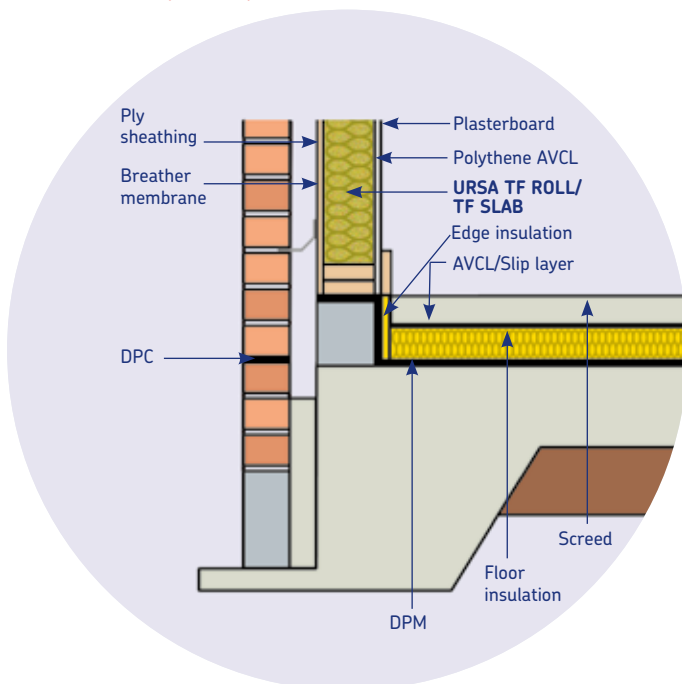
**Figure 4 – Wall/Floor Junction Insulation Below Slab**



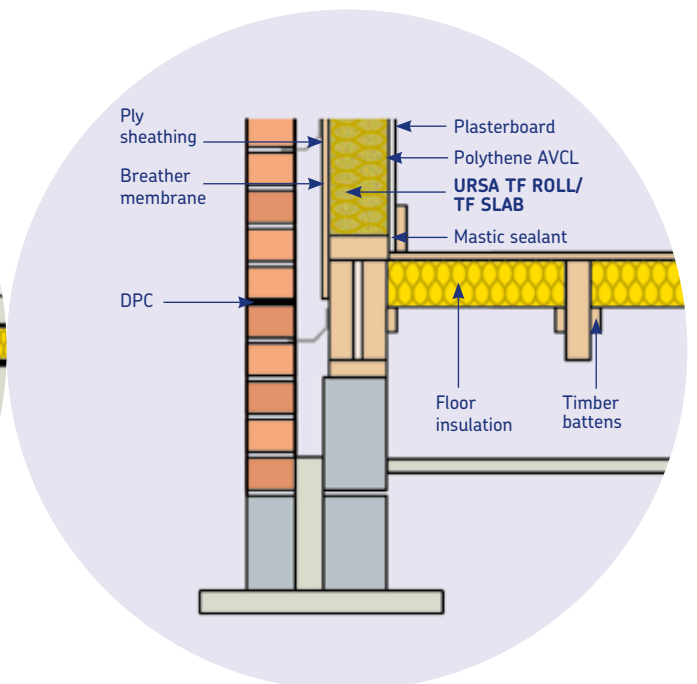
**Figure 5 – Wall/Floor Junction Insulation Above Slab (Timber Floor)**



**Figure 6 – Wall/Floor Junction Insulation Above Slab (Screed)**



**Figure 7 – Wall/Floor Junction (Timber Floor)**

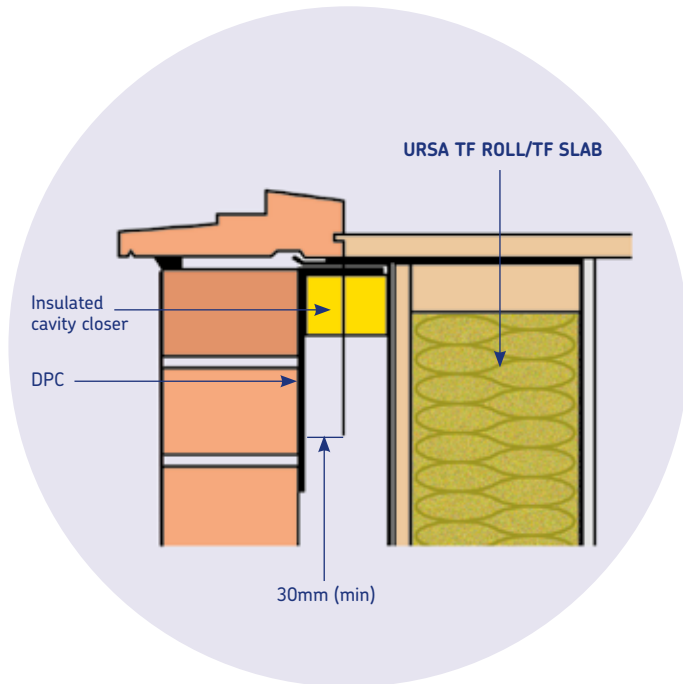


# Design

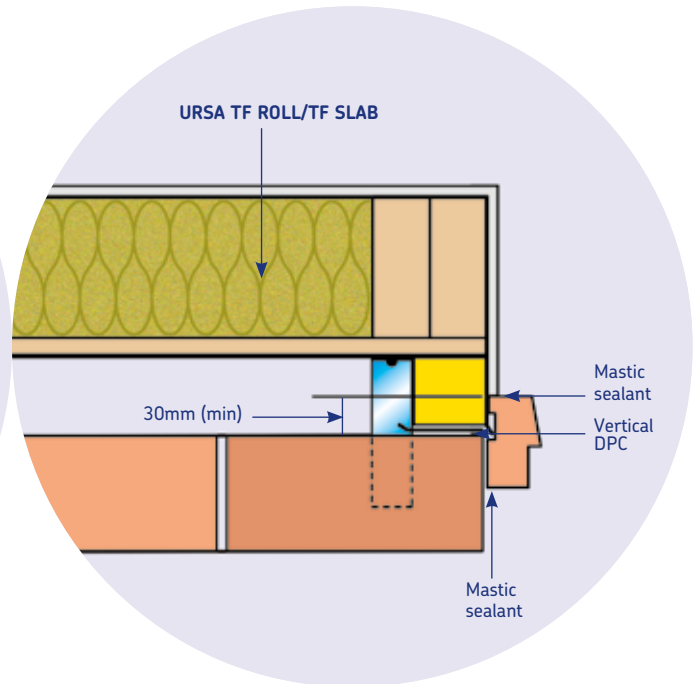
Around door and window openings careful detailing of the insulation along with the use of proprietary insulated cavity closers can help to reduce thermal bridging (See Figures 8 & 9).

In a cold roof construction the entire thickness of the loft insulation should extend over the head of the main wall panel to the sheathing board (see Figures 10 & 11).

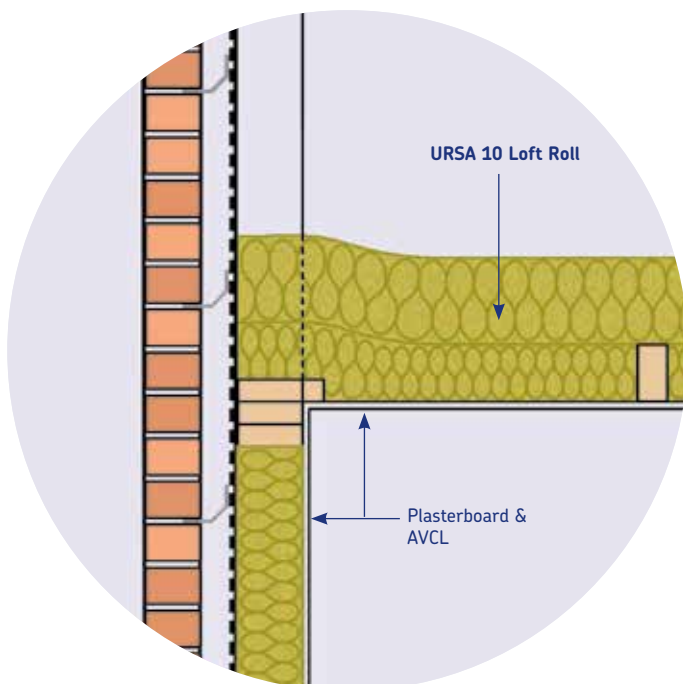
**Figure 8 – Sill Detail**



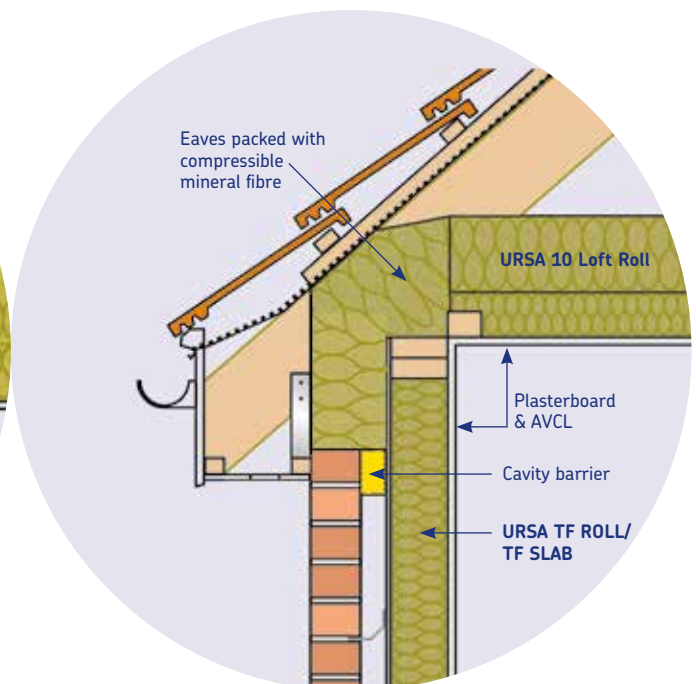
**Figure 9 – Jamb Detail**



**Figure 10 – Cold Pitched Roof – Gable Detail**



**Figure 11 – Cold Pitched Roof – Eaves Detail**

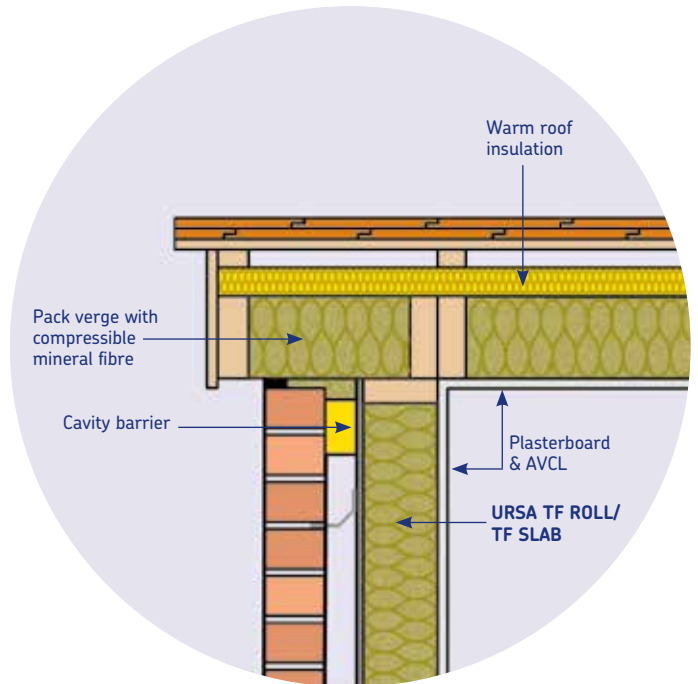


At gable walls with warm roof construction the insulation should be continued to the underside of the roof to ensure continuity of the wall and roof insulation (see Figures 12 & 13).

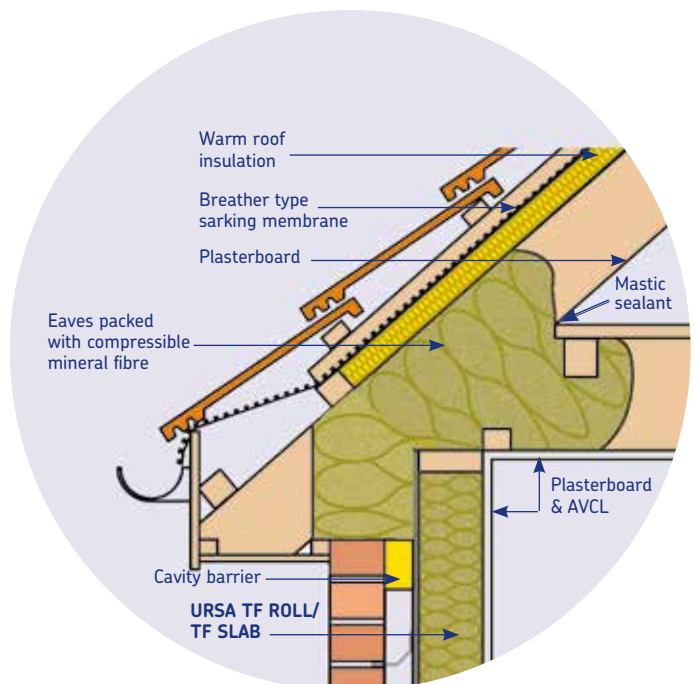
**Fire Performance**

When used within a timber or metal framed wall constructed in accordance with this brochure **URSA TF ROLL/SLAB** or **URSA HOMETEC ROLL** will not prejudice the fire resistance properties of the wall. Cavity barriers should be installed in accordance with Building Regulation requirements.

**Figure 12 – Warm Pitched Roof – Gable Verge Detail**



**Figure 13 – Warm Pitched Roof – Eaves Detail**



# Installation

## Insulation Between Timber Studs (see Figure 14)

### The usual procedure for construction is:

1. The timber frame, OSB or plywood sheathing, breather membrane etc are all installed in the normal manner.
2. The external finish of brickwork, tile hanging or external render is then installed.
3. The **URSA TF ROLL/TF SLAB** is fitted tightly between the studs, normally fully filling the stud depth.
4. The internal lining of air and vapour control layer (AVCL) and plasterboard are then fixed in the normal manner.
5. An enhanced U-value may be achieved by installing additional insulation internally or externally to the timber frame. Check with the timber frame manufacturer for specific requirements and details.

## Insulation Between Metal Studs (see Figure 15)

### The usual procedure for construction is:

1. The metal framing is installed in accordance with the manufacturer's instructions.
2. The external finish of brickwork, tile hanging or external render is then installed.
3. Cut the **URSA HOMETEC ROLL** to width to suit the stud centres, normally 600mm, and fit tightly between the studs.
4. The internal lining of air and vapour control layer (AVCL) and plasterboard are then fixed in the normal manner.
5. An enhanced U-value may be achieved by installing additional, partial fill, cavity wall insulation external to the steel frame. Check with the steel frame manufacturer for specific requirements and details.

Other forms of external finish such as tile hanging, render, timber weatherboarding, PVC-U cladding etc are also suitable and should be fixed in accordance with the manufacturer's instructions.

Figure 14 – Insulation Between Timber Studs

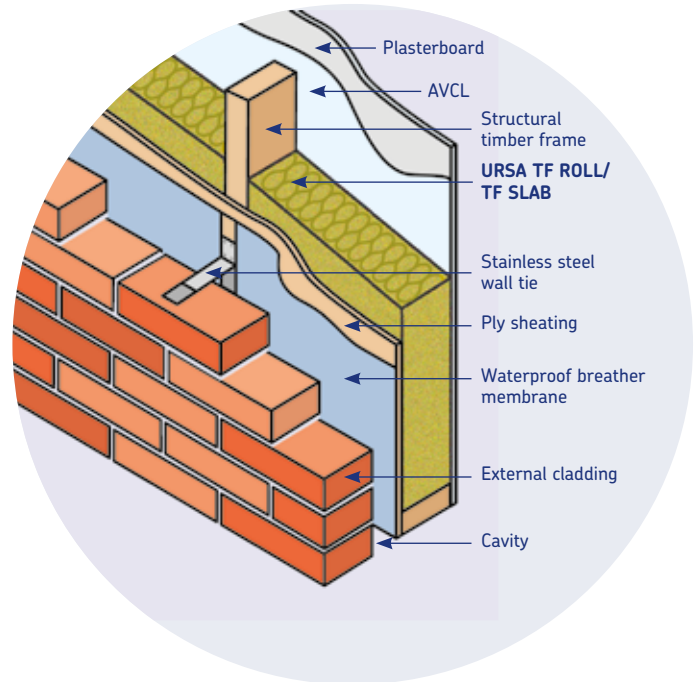
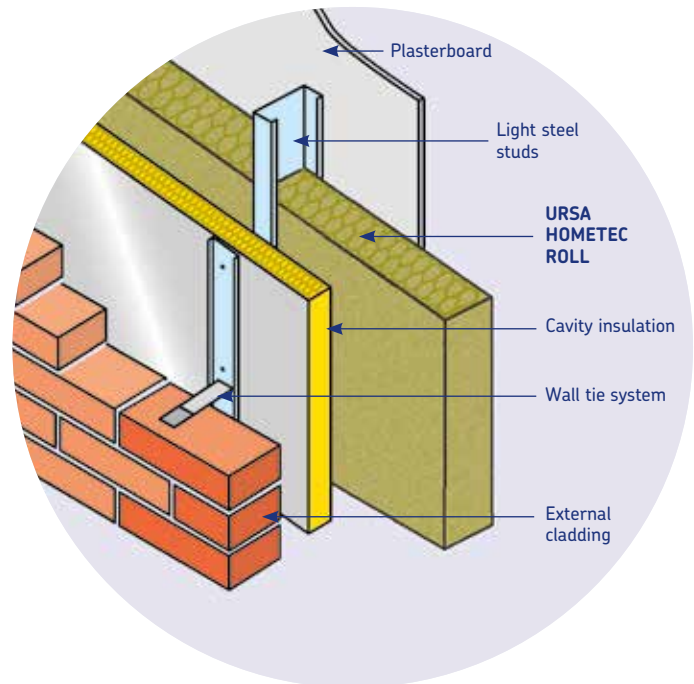


Figure 15 – Insulated Metal Frame





# 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 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 dwellings U-value of 0.18 W/m<sup>2</sup>K – 0.20 W/m<sup>2</sup>K or better will help ensure Building Regulation compliance. In non-dwellings aim for 0.22 W/m<sup>2</sup>K or better.

## Typical Construction – Between Timber Studs;

103mm brick  
50mm clear cavity  
Breather membrane  
9mm OSB sheathing

### URSA TF ROLL or URSA TF SLAB

Air & vapour control layer  
12.5mm Plasterboard  
Timber frame proportion of 15%

URSA TF ROLL 35 (mm)	U-Value (W/m <sup>2</sup> K) (Standard breather membrane)	U-Value (W/m <sup>2</sup> K) (Reflective breather membrane)
90	0.38	0.32
140	0.27	0.24
140mm & 30mm PUR	0.20	0.18

URSA TF ROLL 32/TF SLAB 32 (mm)	U-Value (W/m <sup>2</sup> K) (Standard breather membrane)	U-Value (W/m <sup>2</sup> K) (Reflective breather membrane)
90	0.37	0.31
140	0.26	0.23
140mm & 30mm PUR	0.19	0.17

## Typical Construction – Between Metal Studs;

103mm brick  
50mm clear cavity  
50mm PUR cavity insulation

### URSA HOMETEC ROLL 35

Air & vapour control layer  
2 x 12.5mm Plasterboard

Steel studs at 600mm c/c. Correction for restraint channel fixings based on fixings with cross sections area of 24 mm<sup>2</sup>, thermal conductivity 17 W/mK and at 4.9 fixings/m<sup>2</sup>.

URSA HOMETEC ROLL 35	U-Value (W/m <sup>2</sup> K)
100mm & 50mm PUR	0.20
150mm & 50mm PUR	0.18
200mm & 50mm PUR	0.16

# Technical Details

## Specification Clause

The stud wall insulation shall be ..... mm thick **URSA TF ROLL 35**, **URSA TF ROLL/SLAB 32** or **URSA HOMETEC ROLL 35** unfaced mineral wool roll/slab. Insulation 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 32** and **URSA TF SLAB 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/m<sup>3</sup>.

Nominal density of **URSA TF ROLL 32** is 32 kg/m<sup>3</sup>.

Nominal density of **URSA TF SLAB 32** is 32 kg/m<sup>3</sup>.

Nominal density of **URSA HOMETEC ROLL 35** is 22 kg/m<sup>3</sup>.

## 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 wall 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

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 & 260	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 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 mineral wool products are available nationally through insulation distributors and builders merchants.

### **References**

The Building Regulations and supporting documents.

NHBC Standards (NHBC).

CIBSE Guide A3 - Thermal Properties of Buildings and Components.

Timber Frame Construction (TRADA).

BS 5250 Management of Moisture in Buildings – Code of Practice.

BS EN 1995, Eurocode 5. Design of Timber Structures.

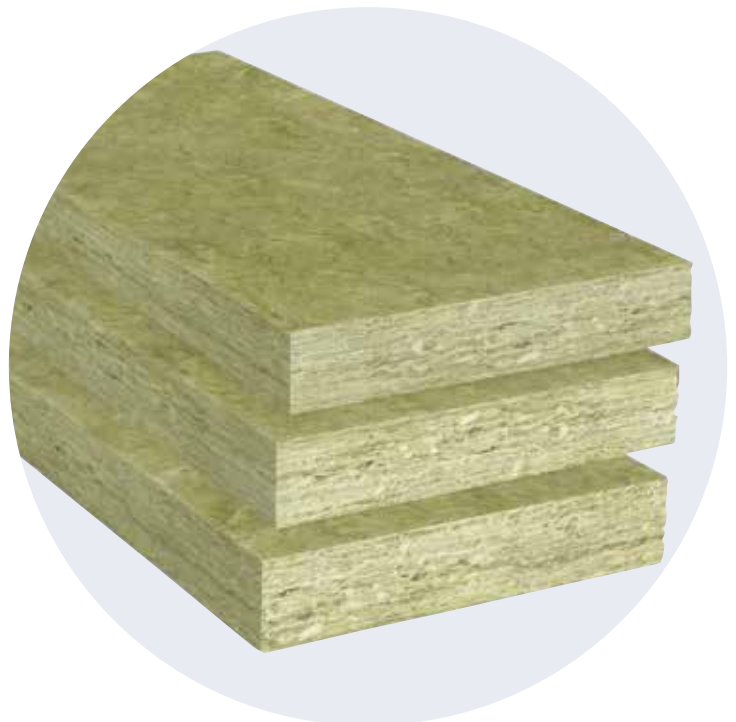
BS EN 845 Specification for Ancillary Components for Masonry. Ties, Tension Straps, Hangers & Brackets.

BRE Special Digest SD2 Timber frame dwellings: U-values and the Building Regulations.

BRE Special Digest SD6 Timber frame dwellings: Section 6 of the Domestic Technical Handbook (Scotland): Energy.

BRE Digest 465 U-values for light steel-frame construction.

BRE Digests, Information Papers and Good Building Guides.



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