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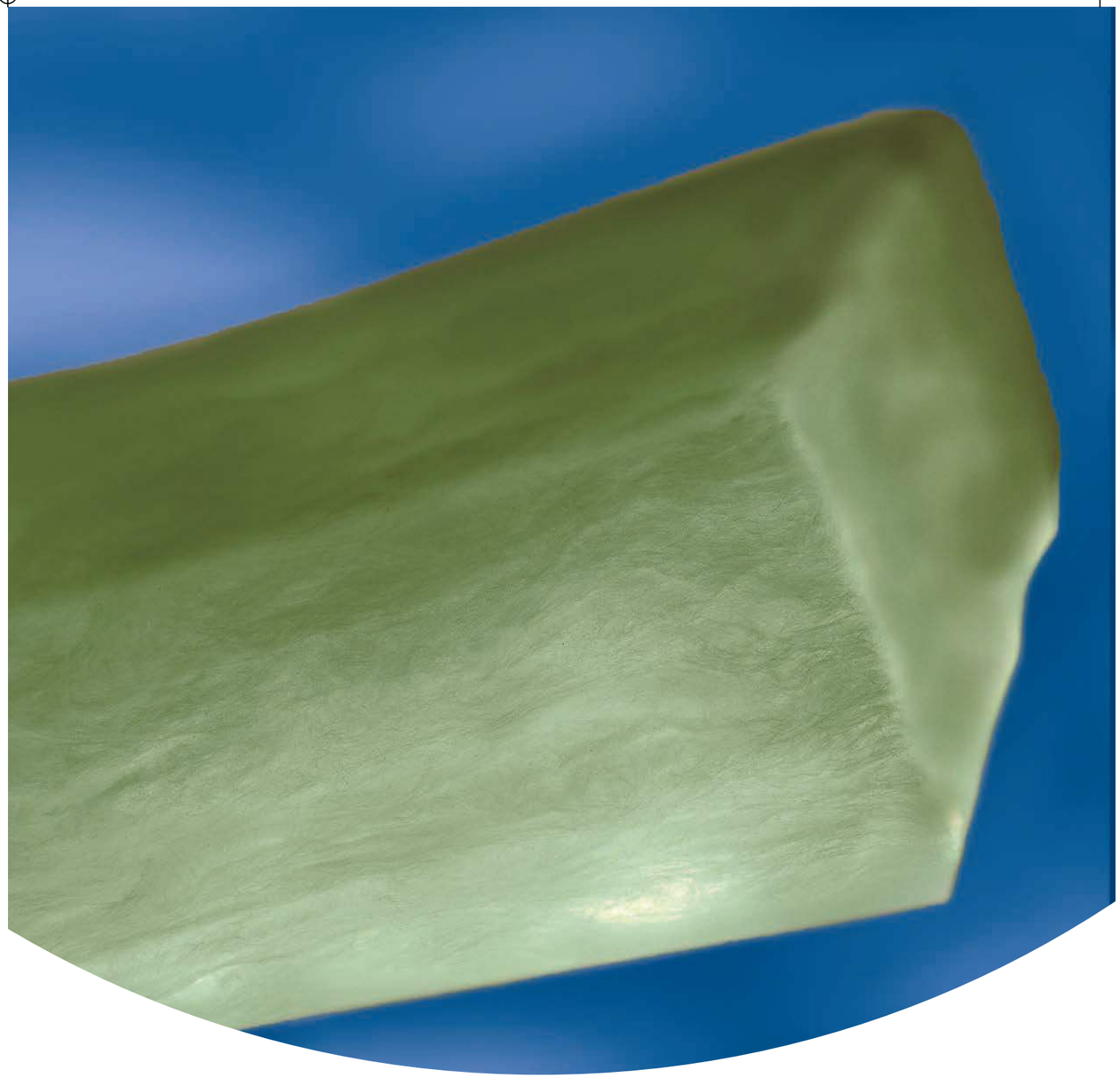


URSA MINERAL WOOL
URSA Timber Frame Roll & URSA Timber Frame Slab

Insulation for Timber and Metal Frame Wall Systems

BROUK-0023-09/17

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

URSA Timber Frame Roll & Timber Frame Slab

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

They have a thermal conductivity of 0.032 W/mK or 0.035 W/mK.

Benefits

Wider choice
URSA TF Roll & TF Slab 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 & TF Slab 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 & TF Slab 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 utlises at least 50% glass waste.

Reduced risk of condensation
Walls fitted with **URSA TF Roll & TF Slab** 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 & TF Slab 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 & TF Slab 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.

CE

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** or **TF Slab** 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

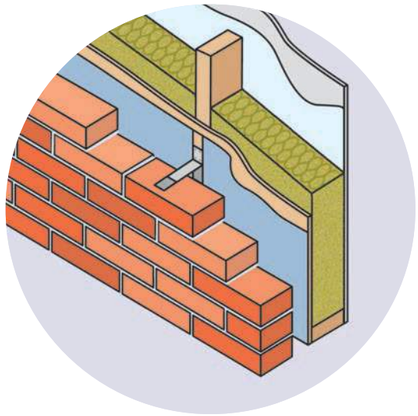


Figure 2 – Warm Frame Construction

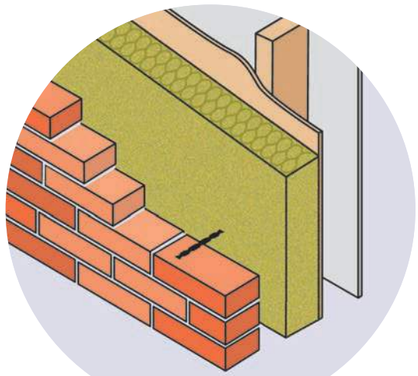
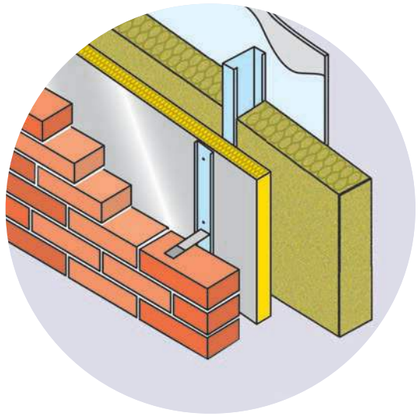


Figure 3 – Hybrid Construction



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

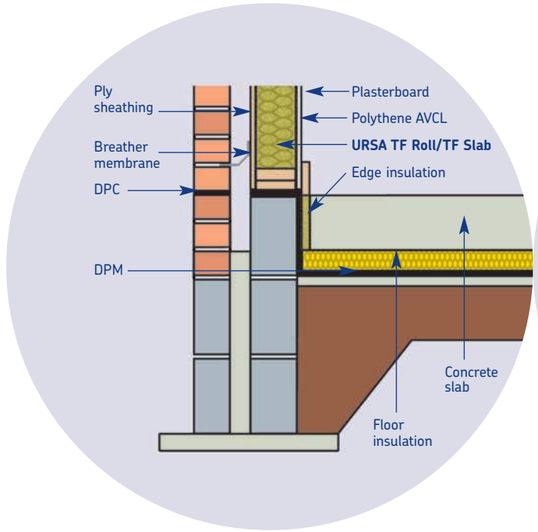


Figure 5 – Wall/Floor Junction Insulation Above Slab (Timber Floor)

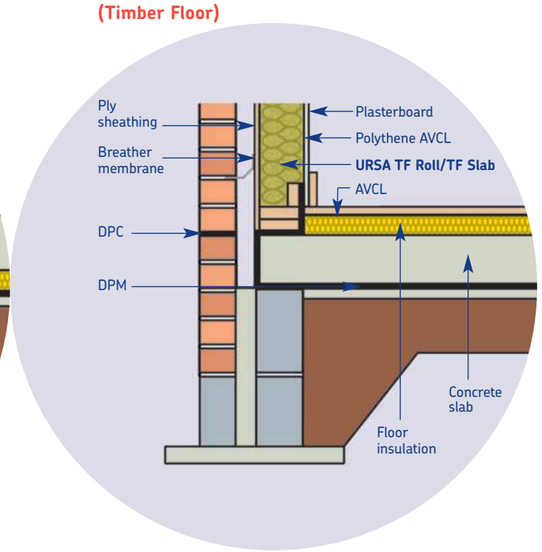


Figure 6 – Wall/Floor Junction Insulation Above Slab (Screed)

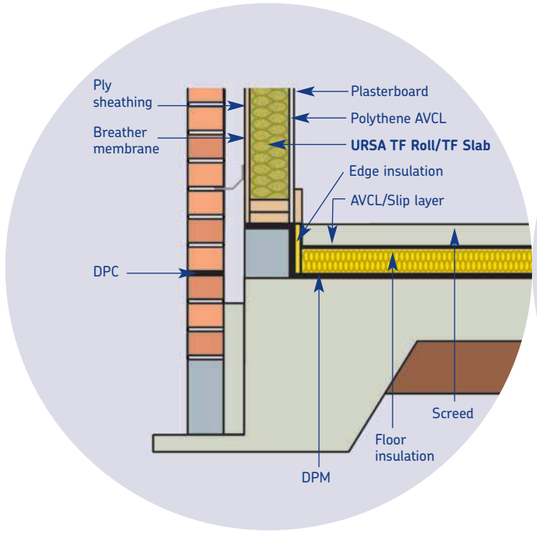
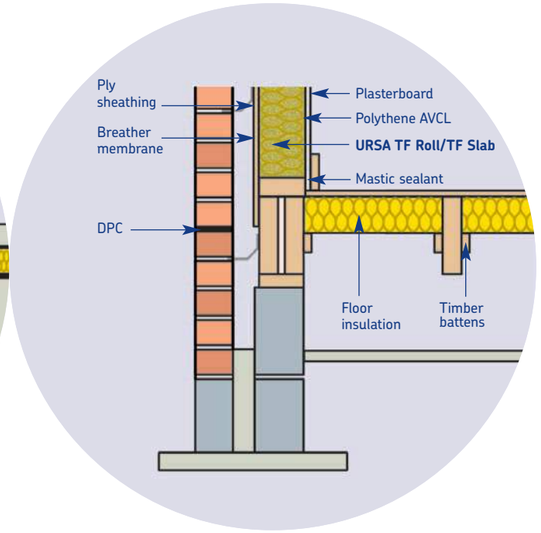


Figure 7 – Wall/Floor Junction (Timber Floor)



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 – Still Detail

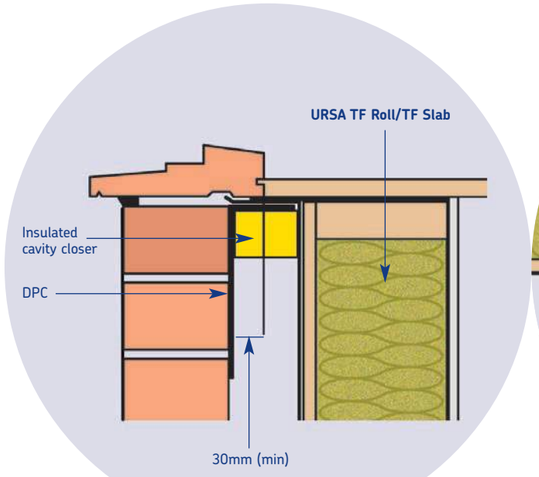


Figure 9 – Jamb Detail

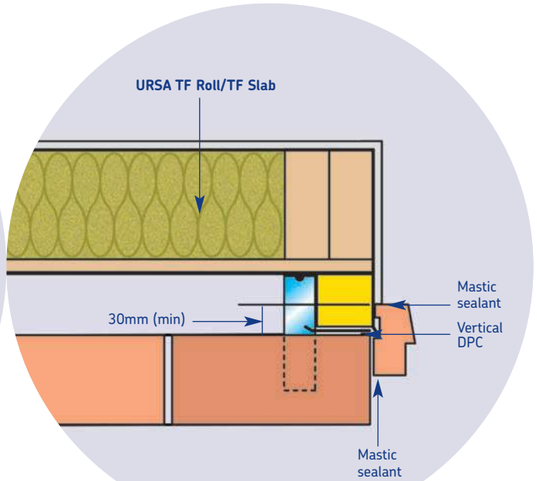


Figure 10 – Cold Pitched Roof – Gable Detail

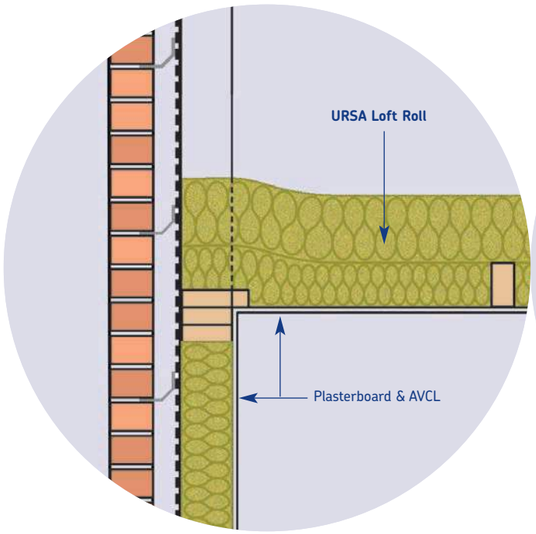
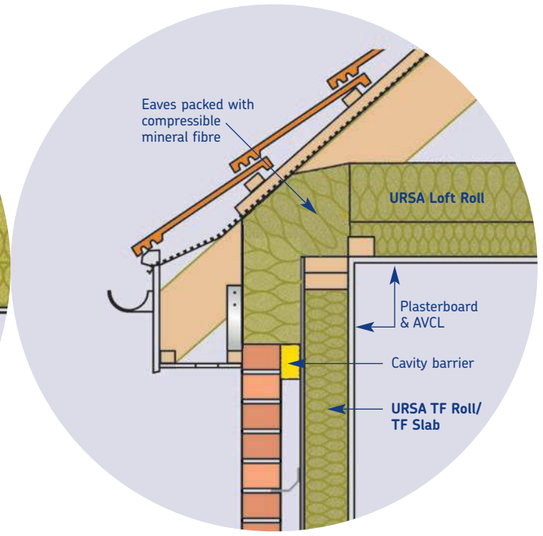


Figure 11 – Cold Pitched Roof – Eaves Detail



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 & TF Slab** 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

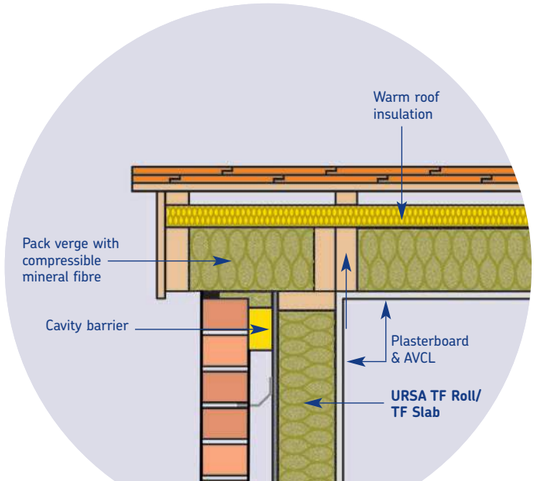
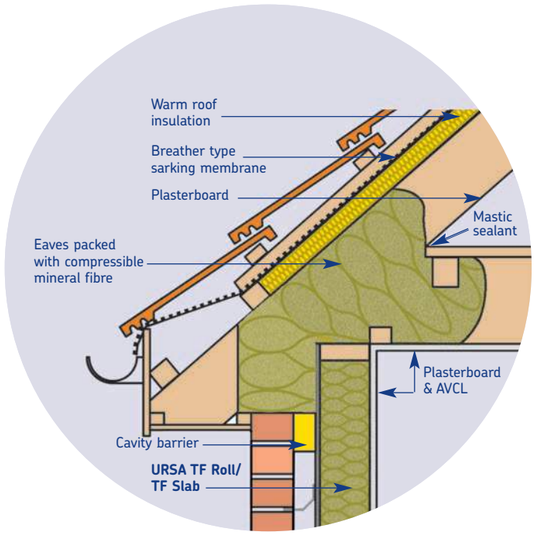


Figure 13 – Warm Pitched Roof – Eaves Detail



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. 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, 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

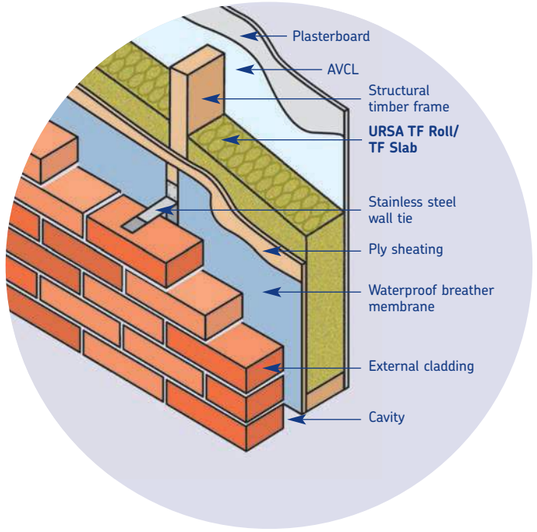
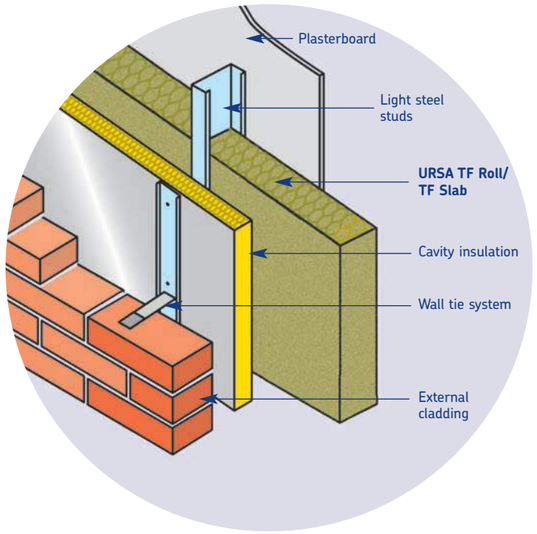


Figure 15 – Insulated Metal Frame



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_2 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 0.24 W/m²K or better will help ensure compliance. In extensions a U-value of 0.28 W/m²K is required and in refurbishment work 0.30 W/m²K is required. The Building Regulations (Scotland) require a U-value of 0.22 W/m²K or better. The Building Regulations (Wales) require a U-value better than 0.21 W/m²K in new dwellings.

Typical Construction – Between Timber Studs;
103mm brick
50mm clear cavity
Breather membrane
9mm OSB sheathing
URSA TF Roll or **URSA TF Slab**
Vapour control layer
12.5mm Plasterboard
Timber frame proportion of 15%

URSA TF Roll 35/TF Slab 35 (mm)	U-Value (W/m²K) (Standard breather membrane)	U-Value (W/m²K) (Reflective breather membrane)
90	0.38	0.32
140	0.27	0.24

URSA TF Roll 32/TF Slab 32 (mm)	U-Value (W/m²K) (Standard breather membrane)	U-Value (W/m²K) (Reflective breather membrane)
90	0.37	0.31
140	0.26	0.23

The use of an insulated plasterboard laminate can further improve these U-values. Please contact the URSA UK Technical Department for more information.

Technical Details

Specification Clause
The stud wall insulation shall be ..... mm thick **URSA TF Roll 35, URSA TF Slab 35, URSA TF Roll 32** or **URSA TF Slab 32** 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 TF Slab 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^3.

Nominal density of **URSA TF Slab 35** is 19.5 kg/m^3.

Nominal density of **URSA TF Roll 32** is 32 kg/m^3.

Nominal density of **URSA TF Slab 32** is 29 kg/m^3.

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 TF Slab 35;
MW – EN 13162 – T2 – DS(70,-) – MU1 – AFr5.

Reaction to Fire
Euroclass A1 to BS EN 13501-1.

Moisture Vapour Transmission
URSA TF Roll/TF Slab has 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.

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)	**Length (m)**	**Width (mm)**
90	6.50	2 x 570
140	4.25	2 x 570

URSA TF Roll 32

Thickness (mm)	Length (m)	Width (mm)
90	4.50	2 x 580
140	3.50	2 x 570

URSA TF Slab

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

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 TF Roll/TF Slab is 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 Buildings and Components.

Timber Frame Construction (TRADA).

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

BS 5268 Structural Use of Timber. Code of Practice for Timber Frame Walls.

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.