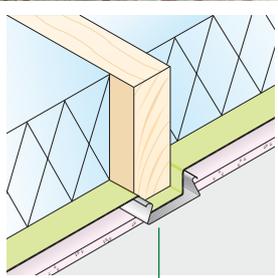
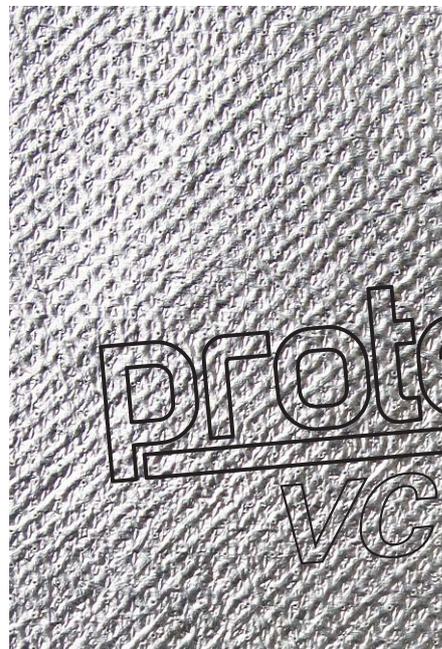


VC FOIL ULTRA INSULATING VAPOUR CONTROL LAYER



WITH UNIQUE
CAVIT-E CLIP



protect
VC Foil
Ultra

VC FOIL ULTRA INSULATING VAPOUR CONTROL LAYER



Protect VC Foil Ultra is a robust highly reflective low emissivity vapour control layer which has been developed to enhance the thermal performance of walls, ceilings and floors and now offers Class 1 Surface Spread of Flame to BS476-7. It provides significant thermal, strength and performance enhancements over conventional vapour control layer materials with the added benefit of a service cavity.

- Excellent vapour resistance
- Helps to avoid condensation risk in accordance with BS 5250: 2002
- Reduces air leakage when used with Protect VC Foil sealing tape as required by Building Regulations
- Low emissivity reflective surface enhances the thermal performance of the structure into which it is incorporated
- Corrosion and damage resistant reflective surface
- Excellent nail tear resistance
- High burst strength, tough and durable
- Easy to cut and lightweight to handle
- Foil faced moisture resistant tape to ensure correct sealing and air tightness
- Independently certified for all applications

Composition

Protect VC Foil Ultra is a triple ply construction including a tough non-woven core layer with a bright high purity aluminium foil which is bonded with a further LDPE interlayer.

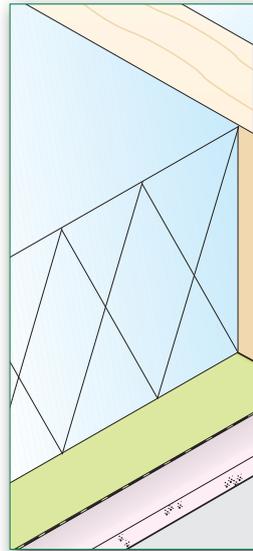
Size

Roll sizes 1.5m x 50m (75m²) and 3m x 50m (150m²), branded as Protect VC Foil Ultra. Protect VC Foil sealing tape 50m x 50mm.

Protect VC low emissivity technology

Protect VC Foil Ultra provides a highly reflective, low emissivity layer. When installed facing into an unventilated airspace, this effectively blocks infra red radiation and enhances the thermal performance of the airspace, and hence the overall U-value of the construction. Normal high emissivity airspaces are compared with low 'e' airspaces in the table below.

Thermal resistance is calculated to BS EN ISO 6946: 1997 'Thermal resistance and thermal transmittance - calculation method'.

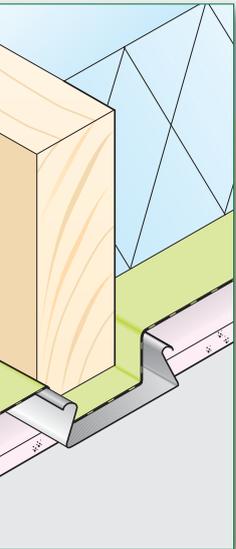


Improvement in thermal resistance values using Protect VC Foil Ultra

	Airspace (mm)	Unventilated airspace: No special treatment (m ² K/W)	Protect VC Foil facing into airspace (m ² K/W)	Improvement with Protect VC Foil
Heat flow horizontal	≥20	0.18	0.78	333%
Heat flow upwards	≥13	0.16	0.53	233%
Heat flow downwards	50	0.21	1.41	571%

Performance

	MD (along roll)	CD (across roll)
Nail Tear Strength (N) to EN 12310-1 with mods	160	160
Tensile Strength (N/50mm) to EN 12311-1 with mods	229	226
Elongation (%) to EN 12311-1 with mods	65	65
Water vapour resistance (MNs/g) to EN 1931		>589
Thermal resistance m ² K/W heat flow horizontal		0.78
Weight g/m ²		140



Cavit-E clip

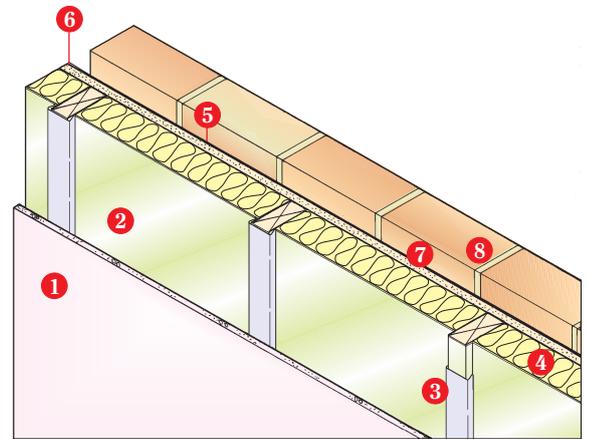
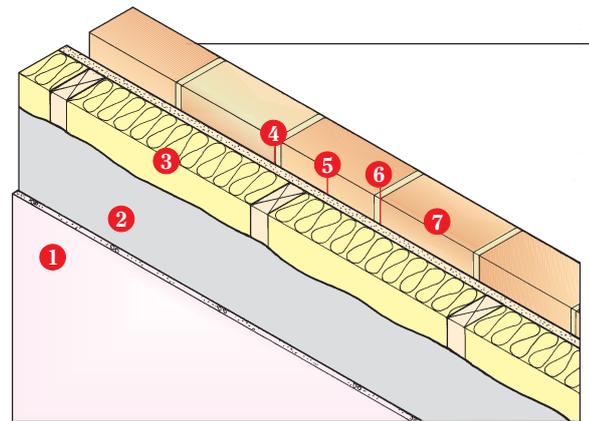
The Cavit-E clip has been designed specifically for use with Protect VC Foil Ultra to enhance thermal performance of timber frame walls and warm roofs.

It simply clips over the studs or rafters, holding the Protect VC Foil Ultra in place and creating a minimum 20mm unventilated airspace. This improves the thermal performance without increasing the stud/rafter size or the overall thickness of the construction.

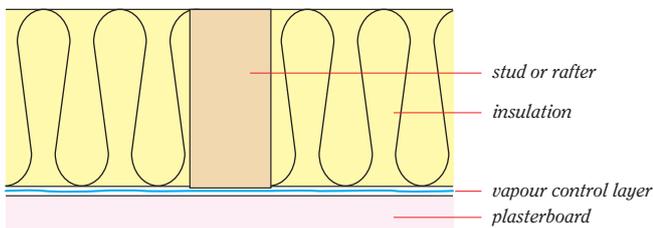
It has the added benefit of creating a cavity for services on the warm side of the insulation without compromising the integrity of the vapour control layer.

The Cavit-E clip is a sprung plastic section which fits a range of stud or rafter widths and is supplied in 2.2m lengths.

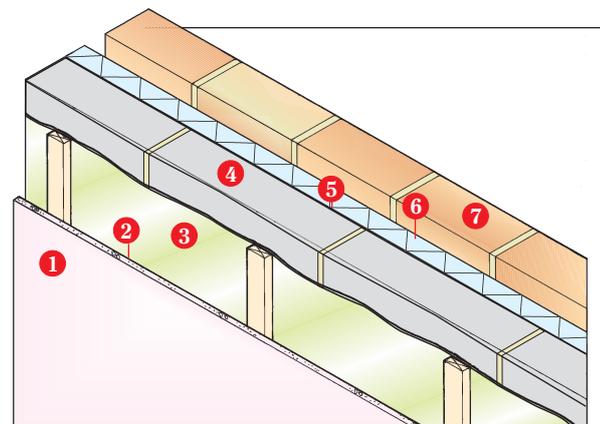
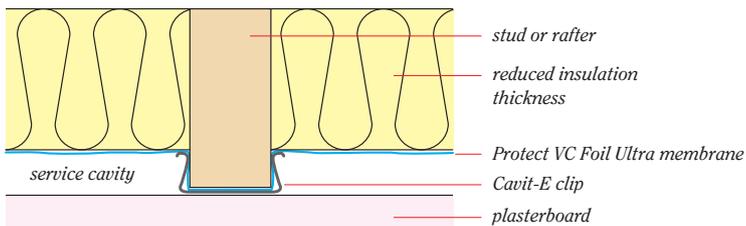
- Enhanced thermal performance (U-value) - see comparison following.
- Improved air tightness, limiting heat loss.
- Can reduce air leakage by 60% for SAP calculation purposes.
- Maximises internal floor areas.
- Reduced installation costs.
- Can be used with all insulation types but ideally suited for flexible fibrous and blown insulation.
- Quick and easy to install.
- Reduces the need for stapling the vapour control layer.
- Maintains the integrity of the vapour control layer and creates a low emissivity cavity and service void.



Standard



Enhanced with Cavit-E clip and Protect VC Foil Ultra



Timber frame wall construction

Standard U-value 0.30 W/m²K

Layer	Thickness (mm)	Thermal conductivity λ (W/mK)		Bridging fraction	Thermal resistance R (m ² K/W)	
		layer	bridge		layer	bridge
Surface resistance, internal					0.130	
1 Plasterboard	12.5	0.210			0.060	
2 Vapour control layer					-	
3 Insulation batt/timber frame	140	0.040	0.120	0.150	3.500	1.167
4 OSB sheathing	9	0.130			0.069	
5 Protect TF200 breather membrane					-	
6 Cavity unventilated	50				0.180	
7 Brick outer leaf	102.5	0.770			0.133	
Surface resistance, external					0.040	
<i>Total wall thickness</i>	314mm				<i>Total resistance</i>	4.112m ² K/W

Enhanced U value 0.24 W/m²K

Incorporates Protect Cavit-E clip and reflective technology

Compared with standard construction this has an improved U-value with thinner insulation and the same overall wall thickness.

Layer	Thickness (mm)	Thermal conductivity λ (W/mK)		Bridging fraction	Thermal resistance R (m ² K/W)	
		layer	bridge		layer	bridge
Surface resistance, internal					0.130	
1 Plasterboard	12.5	0.210			0.060	
2 Vapour control layer Protect VC Foil Ultra					-	
3 Low-E cavity & Cavit-E clip (part of stud)	≥ 20		0.120	0.150	0.780**	0.167
4 Insulation batt/timber frame	120	0.040	0.120	0.150	3.000	1.000
5 OSB sheathing	9	0.130			0.069	
6 Protect TF200 Thermo breather membrane					-	
7 Cavity unventilated low-E	50				0.770	
8 Brick outer leaf	102.5	0.770			0.133	
Surface resistance, external					0.040	
<i>Total wall thickness</i>	314mm				<i>Total resistance</i>	4.982m ² K/W

Protect VC Foil Ultra with Cavit-E clips creates a 20mm unventilated airspace which is equivalent to 34mm of $\lambda=0.032$ mineral wool or 38mm of $\lambda=0.040$ mineral wool fitted between studs.

For further thermal enhancement, foil-faced plasterboard can be used.

Masonry wall construction

U-value: 0.27 W/m²K

Layer	Thickness (mm)	Thermal conductivity λ (W/mK)		Bridging fraction	Thermal resistance R (m ² K/W)	
		layer	bridge		layer	bridge
Surface resistance internal					0.130	
1 Plasterboard	12.5	0.185			0.068	
2 Low-E service cavity with	≥ 20		0.130	0.08	0.780**	0.154
3 Vapour control layer Protect VC Foil Ultra						
4 Lightweight Aircrete block	100	0.110			0.909	
5 Insulation with foil face	50	0.022			2.273	
6 Low-E unventilated cavity	50				0.644	
7 Brick outer leaf	102.5	0.770			0.133	
Surface resistance external					0.040	
<i>Total wall thickness</i>	335mm				<i>Total resistance</i>	4.158m ² K/W

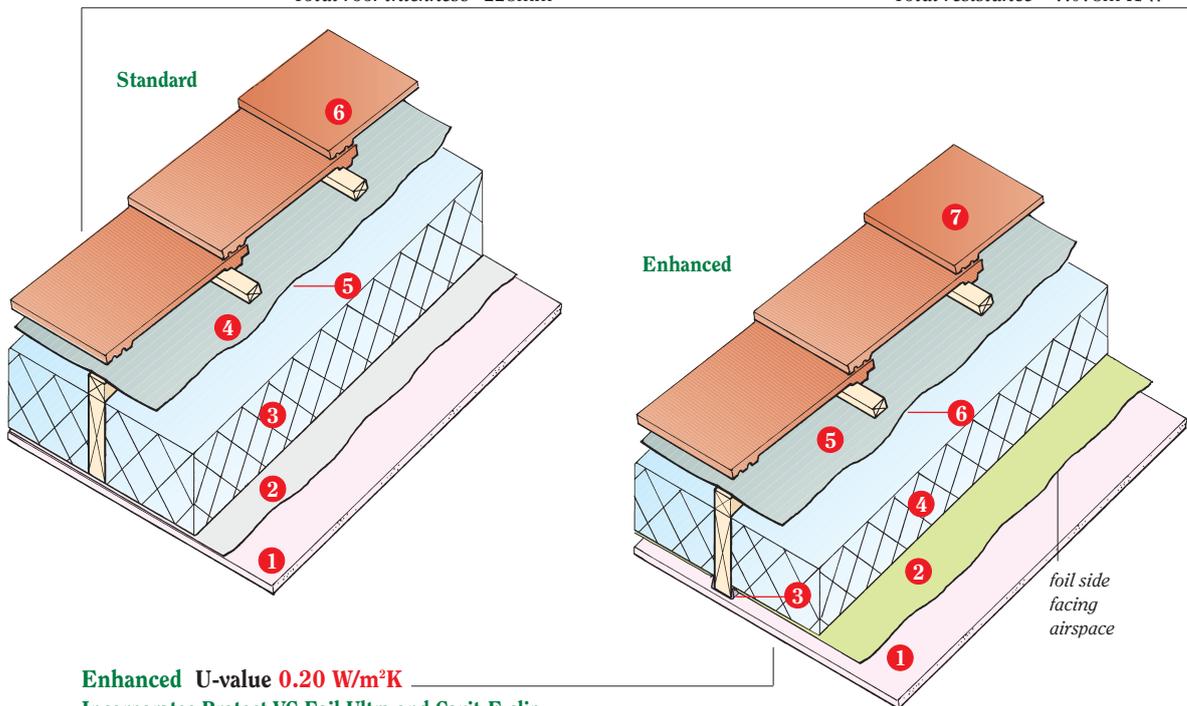
Protect VC Foil Ultra and a 20mm airspace can significantly reduce drying out time of the structure, therefore reducing the overall build time of the project. In addition to the benefit of the service cavity, Protect VC Foil Ultra will also improve the airtightness of the wall and therefore further limit heat loss.

**Thermal resistance data for Protect VC Foil Ultra facing a still air cavity has been derived by hot box testing with a 50mm cavity to BS EN 8990:1996 at National Physical Laboratories. Calculations to EN ISO 6946: 1996 show that there is no additional thermal benefit for cavities greater than 20mm (horizontal air layer).

Warm roof/ceiling construction

Standard U-value 0.20 W/m²K

Layer	Thickness (mm)	Thermal conductivity λ (W/mK)		Bridging fraction	Thermal resistance R (m ² K/W)	
		layer	bridge		layer	bridge
Surface resistance, internal					0.100	
1 Plasterboard	12.5	0.210			0.060	
2 Vapour control layer					-	
3 Insulation board/rafters	150	0.022	0.130	0.0800	6.818	1.154
4 Protect VP400 vapour permeable underlay					-	
5 Air layer ventilated (battens & counterbattens)	50				-	
6 Tiles (clay)	15	1.000			-	
Surface resistance, external					0.100	
<i>Total roof thickness</i>		228mm		<i>Total resistance</i>		7.078m ² K/W



Enhanced U-value 0.20 W/m²K

Incorporates Protect VC Foil Ultra and Cavit-E clip

Compared with standard construction this achieves the same U-value with significantly thinner insulation and the same overall depth of the roof construction.

Layer	Thickness (mm)	Thermal conductivity λ (W/mK)		Bridging fraction	Thermal resistance R (m ² K/W)	
		layer	bridge		layer	bridge
Surface resistance, internal					0.100	
1 Gyproc Wallboard	12.5	0.160			0.078	
2 Vapour control layer, Protect VC Foil Ultra					-	
3 Low-E cavity & Cavit-E Clip (part of rafter)	20		0.130	0.0800	0.530**	0.154
4 Insulation board/rafters	130	0.022	0.130	0.0800	5.909	1.000
5 Protect VP400 vapour permeable underlay					-	
6 Air layer ventilated (battens & counterbattens)	50				-	
7 Tiles (clay)	15	1.000			-	
Surface resistance, external					0.100*	
<i>Total roof thickness</i>		228mm		<i>Total resistance</i>		6.717m ² K/W

*This resistance substitutes for surface resistance and the resistance of layers 6-7 because of the ventilated air layer (layer 6)

**Thermal resistance data for Protect VC Foil Ultra facing a still air cavity has been derived by hot box testing to BS EN 8990:1996 at National Physical Laboratories.

Protect VC Foil Ultra with Cavit-E clips creates a 20mm unventilated airspace which is equivalent to 20mm of λ=0.022 rigid insulation fitted between rafters. The Cavit-E clip also acts as an insulation support, which helps reduce installation time.

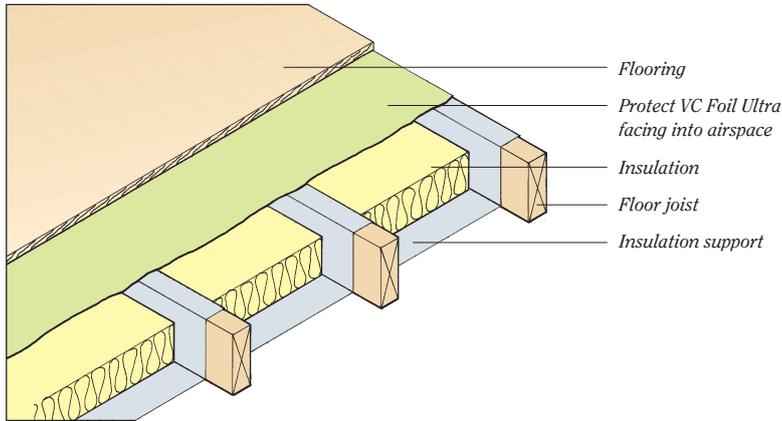
In warm roof constructions, BS 5250: 2002 requires a separate vapour control layer to be used on the warm side of the insulation, which should have sealed laps to reduce the risk of interstitial condensation.

See Protect Sealing Tapes leaflet for further information.

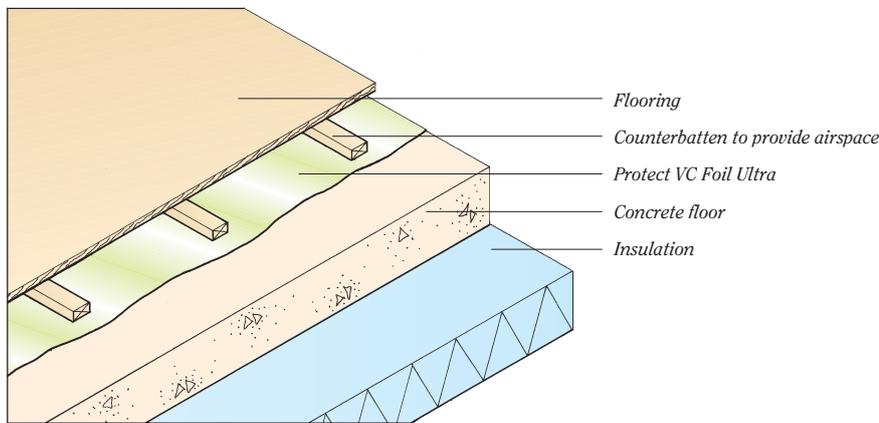
Floor construction

Protect VC Foil Ultra can also be used in suspended and solid floors to enhance their thermal performance. Protect VC Foil Ultra and a 25mm airspace when installed in a floor is equivalent to 42mm of $\lambda 0.040$ mineral wool when fitted between floor joists.

Suspended floor construction



Solid floor construction



Specification clause:
 Vapour control layer to be Protect VC Foil Ultra supplied by Glidevale Ltd, 2 Brooklands Road, Sale, Cheshire M33 3SS, Telephone: 0161 905 5700 Fax: 0161 905 2085. Email: info@glidevale.com
 Vapour control layer to be of triple ply construction with non-woven core and solid corrosion resistant aluminium layer.
 Vapour control layer to be fitted into wall/ceiling/floor* in accordance with BS 5250: 2002 and manufacturers instructions.
 * Delete as required

GLIDEVALE LIMITED

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 Email: info@glidevale.com Web: www.glidevale.com

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