The Yellow Guide

to Insulation

www.isover.co.uk

ISOVER

About ISOVER

Across the world, one name stands for excellence in insulation…

ISOVER is part of the Saint-Gobain group, leaders in the design, production and distribution of materials for the construction, industrial and consumer markets.

In the UK, ISOVER has been providing high performance, fire-safe, thermal and acoustic glass mineral wool insulation for over a quarter of a century.

The support of ISOVER's global resource has enabled ISOVER UK to establish itself as:

- The undisputed leader in the supply of innovative insulation solutions to the UK construction industry.
- Pioneers in product compression packing technology and the first insulation company to offer a fully palletised mineral wool product range.
- Leaders in sustainable production, utilising approximately 80% of recycled waste glass in the manufacturing process.
- The only insulation company with products as integral components of Robust Detail wall constructions and generically referenced in acoustic Building Regulations.
- The premier insulation brand providing acoustic and thermal enhancement across British Gypsum's SpecSure® lifetime warranted systems.

SAINT-GOBAIN

ISOVER UK

Part of the Saint-Gobain group

With a presence in over 50 countries and a workforce numbering almost 200,000, the Saint-Gobain group's global reach allows us to draw on unrivalled financial and technological resources to meet the changing needs of customers and communities in the 21st century.

Our philosophy, our values, your benefit

Already, ISOVER insulation warms and protects 1 in 3 homes in Europe and 1 in 5 in America.

A commitment to on-going research and development will see those figures rising still further.

But technical excellence and global leadership in glass mineral wool insulation is only part of the story. ISOVER's success is a result of the vision, values and culture of the ISOVER team on a global scale; a belief in the importance of developing products to create a better, more comfortable world.

ISOVER and the environment

ISOVER insulation products are made from glass mineral wool, one of the most environmentally friendly materials available.

Sustainable

ISOVER products are manufactured from silica sand, the earth's most abundantly occurring mineral and a sustainable, infinite resource.

Recyclable

Approximately 80% of the raw material used in the production of ISOVER products is recycled, far more than any comparable product. The recycled material can be post-consumer glass (from housing regeneration projects) or waste glass from flat glass manufacture, which would otherwise go to landfill.

At the end of its useful life, glass mineral wool is itself infinitely recyclable.

Environmental

The manufacturing process does not use or contain CFC's, HCFC's or other damaging gases - nor has it ever. In addition, the unique resilience of ISOVER glass mineral wool enables high compression packing which means more insulation in a smaller space than almost any other insulant. The result is better vehicle utilisation, reducing the environmental impact of transportation.

EcoHomes/Sustainable Homes

ISOVER products achieve full credit under BRE EcoHomes performance for zero Ozone Depletion Potential (ODP) and a Global Warming Potential (GWP) of less than 5.

Why choose glass mineral wool insulation?

Thermal Efficiency

Heating costs in a building insulated throughout with glass mineral wool can be reduced by up to 60%.

And as ever more challenging building regulations ask even more of modern insulation solutions, ISOVER will help you meet and exceed their demands with a full range of thermal insulation products and expert technical and specification advice.

Acoustic Comfort

Glass mineral wool, with its outstanding acoustic performance, is the perfect material for reducing the noise transmitted both through the structure of a building and also via concealed cavities. For this reason glass mineral wool is generically referenced throughout national Building Regulations and Robust Details.

Fire Protection

Glass mineral wool is totally non-combustible and because it is made from pure silica sand it will not support combustion even in direct, prolonged contact with flames.

What's more, it emits no toxic fumes or smoke, the two biggest hazards to health and life in the event of a fire. Because of that, most ISOVER products carry the highest possible European Euroclass A1 fire rating; This rating system is now written into the UK Building Regulations.

On-site Fitability

People have a word for the way glass mineral wool handles and performs on the job. They call it 'fitability'. Unlike rigid or more dense insulation products, ISOVER glass mineral wool can be installed by simply push-fitting into the construction to be insulated, with generally no use of fixing devices, with virtually no cutting to size and with very little waste. This makes ISOVER glass mineral wool probably the lowest installed cost insulant available.

Sustainable Product

Glass mineral wool is one of the most environmentally friendly, stable and sustainable insulants available. Its raw material is silica sand, the earth's most abundantly occurring natural material. And its impact on the environment in manufacture, use and disposal is minimal.

In addition, all ISOVER insulation contains around 80% recycled glass originating from post consumer glass that would normally be destined for landfill.

Moisture Control

Glass mineral wool has an open structure, which allows a building to breathe naturally and does not inhibit the natural drying out process of new construction. In conjunction with Vario KM Duplex, a next generation moisture management membrane, this will give a lifetime of protection from damage by moisture and humidity within all construction types – masonry, timber frame and steel frame.

Walls

ISOVER RD35 » Robust Detail E-WM-8

Where to use:

ISOVER RD35 is a high performance acoustic slab designed to be built into masonry separating walls during construction. This helps house builders meet Part E Acoustic Building Regulations between dwellings (semis, terraced, flats) in England and Wales, without the use of wet trades.

Scotland: The Robust Details scheme is already referred to in the new-style Scottish Building Standards: Technical Handbook: Domestic: Section 5, Noise and is currently undergoing a full review with the intention of incorporating as an alternative method of compliance.

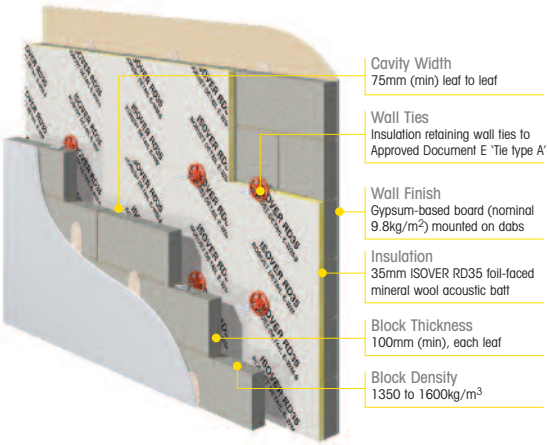
ISOVER RD35 is a unique and fundamental component of Robust Detail E-WM-8 party wall construction. The product features a clearly branded foil face to facilitate site identification.

Benefits:

- Removes the need for wet finishes – 'dot-and-dab' dry lining to the bare block face is all that is required.
- Avoids the need for pre-completion testing - no site sound test required.
- Significant cost saving compared to 'parge coat' Robust Details.

Thickness (mm)	Width (mm)	Length (mm)	Pack area (m^2)	Batts per pack
35	455	1200	6.55	12

Party Wall Robust Detail E-WM-8 using ISOVER RD35

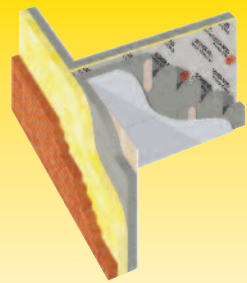


Party Wall Construction Characteristics

Robust Detail E-WM-8 construction is based on a party wall comprising of 2 leaves of lightweight aggregate blocks (minimum cavity width 75mm leaf to leaf), with a gypsum-based board 'dot-and-dab' applied finish. A render or parge coat is not required. The nominal specified weight of the gypsum-based board is 9.8kg/m^2 and the board thickness can be 12.5mm or 15mm provided that the nominal weight requirement is achieved.

External (flanking) Wall

Masonry both leaves with 50mm (min) cavity – clear, fully filled or partially filled with insulation. If clear or partially filled, use **ISOVER Cavity Barriers** at T-junction of party wall/external wall cavity, to negate flanking transmission.



Suggested 'T' junction detail to meet Part L 2006 and Part E 2003 performance requirements incorporating **ISOVER RD35** in party wall cavity and **ISOVER Hi-Cav 32** full-fill in external wall.

Note: For full design guidance e.g. junction details with walls, floors etc refer to Robust Detail design manual 'Robust Details Part E. Resistance to the passage of sound' or visit **www.robustdetails.com**

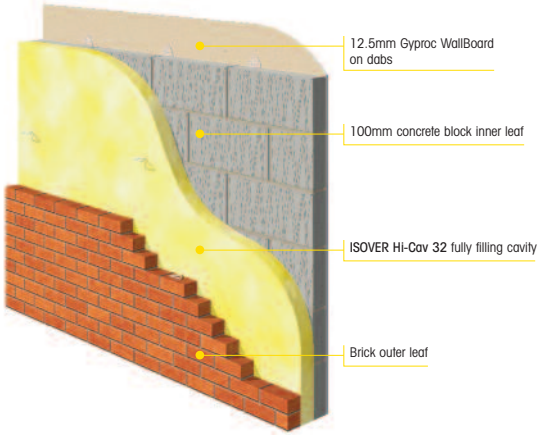
Hi-Cav 32 » Full-fill Solution

IMPROVED PERFORMANCE

Where to use:

Built into masonry cavity walls during construction, fully filling the cavity, **ISOVER Hi-Cav 32** is a silicone impregnated glass mineral wool slab designed to provide high levels of thermal insulation to satisfy the requirements of Part L Building Regulations 2006 and beyond.

R-value (m^2K/W)	Thickness (mm)	Width (mm)	Length (mm)	Pack area (m^2)	Batts per pack
2.34	75	455	1200	6.48	12
2.66	85	455	1200	5.40	10
3.13	100	455	1200	4.32	8



	Inner Leaf Block Type				
	Typical Aircrete			Typical 7N	Dense Concrete
	115mm λ=0.11	100mm λ=0.11	100mm λ=0.15	100mm λ=0.51	100mm λ=1.13
U-value (W/m^2K)	Thickness of ISOVER Hi-Cav 32 to achieve U-value (mm)				
0.30	75	75	75	85	100
0.29	75	75	85	100	100
0.28	75	75	85	100	100
0.27	75	85	85	100	100
0.26	85	85	100	100	-
0.25	85	100	100	-	-
0.24	100	100	100	-	-
0.23	100	100	-	-	-

Benefits:

- Designed to aid compliance with Building Regulations Part L 2006 for England and Wales and Section 6, Scotland.
- Allows the continued use of traditional building materials and construction techniques.
- U-values as low as 0.23 can be achieved within an overall 300mm wall width.
- No increase in house foot print.
- BBA certified for multi-storey use.
- Non-combustible - Euroclass A1 fire rating, the best attainable.
- Does not hinder the natural drying-out process of the building.

Installation Guidelines

ISOVER Hi-Cav 32 should be installed in accordance with the guidelines contained in BBA Certificate 90/2465, which can be downloaded from the ISOVER website www.isover.co.uk or BBA website **www.bbacerts.com**

Steel Frame Insulation System

NEW FOR AUTUMN 2007

Where to use:

For use in lightweight steel frame infill walling. **ISOVER Steel Frame Insulation System** has been designed to ensure that thermal, acoustic and fire performance requirements can be met using sustainable ISOVER glass mineral wool products. The system comprises of the following ISOVER products:

Steel Frame Batts:

Foil-faced slabs fixed to the outside of the steel frame for ***thermal and acoustic*** insulation. The slabs are 1200mm x 1200mm, installed with the foil facing the brickwork cavity. The reinforced foil has a low emissivity and is micro-perforated, allowing the building to 'breathe'.

Steel Frame Infill Batts:

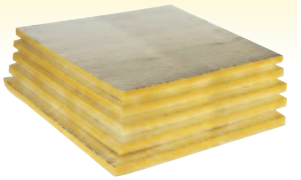
Plain batts fitted between the steel frame for ***thermal and acoustic*** insulation. The batts are 1200mm x 600mm and are simply push-fitted between the studs.

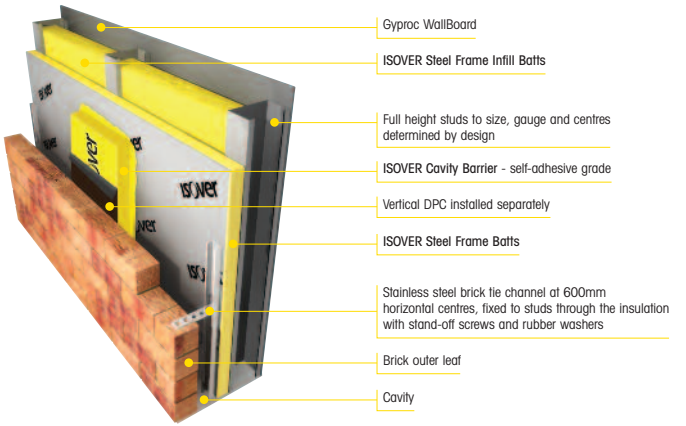
Cavity Barriers – Self-adhesive grade:

Attached to the foil-face of the **Steel Frame Batt** in the brickwork cavity for ***fire and acoustic*** insulation. **ISOVER Cavity Barriers self-adhesive grade** have been specifically developed to provide fire resistance in concealed wall cavities, offering easy attachment to the foil facing of the insulation.

Benefits:

- Tested and approved for use in Metsec steel framing systems.
- Easy to install.
- Fully water repellent.
- Durable – not easily damaged in storage, during transport or on site when installing.
- Does not hinder the natural drying out process of the building.
- Fire-safe – made from non-combustible mineral wool.





Steel Frame Batts

R-value (m^2K/W)	Thickness (mm)	Width (mm)	Length (mm)	Batts per pallet	Pallet area (m^2)
1.56	50	1200	1200	40	57.60

Note: The low emissivity foil-facing will also improve the thermal resistance of the cavity airspace from 0.18 to 0.57m^2K/W.

Steel Frame Infill Batts

R-value (m^2K/W)	Thickness (mm)	Width (mm)	Length (mm)	Batts per pack	Pack area (m^2)
1.39	50	600	1200	16	11.52
2.08	75	600	1200	10	7.20
2.78	100	600	1200	8	5.76

Thermal Performance

Required U-value (W/m^2K)	Steel Frame Batt fixed to outside of steel frame (mm)	and	Steel Frame Infill Batt between studs (mm)
0.35	50	+	50
0.30	50	+	50
0.29	50	+	50
0.28	50	+	75
0.27	50	+	75
0.26	50	+	75
0.25	50	+	100
0.24	50	+	100

Timber Frame Rolls & Batts » Unfaced

Where to use:

Rolls and batts suitable for use in timber frame external and separating wall constructions. The products self support between the studs at 600mm centres and require no additional fixings. The batts are designed so that two batts, end to end will fit frames of a standard domestic storey height without cutting.

Benefits:

- Completely non-combustible - Euroclass A1 fire rating, the best attainable.
- Does not shrink, slump or consolidate in normal building applications.
- Excellent acoustic performance.
- Lowest installed cost thermal solution.

Roll Products

Frame Roll 35

R-value (m^2K/W)	Thickness (mm)	Length (m)	Pack area (m^2)
2.57	90	5.30	6.04

Roll product width is split 2x570mm.

Batt Products

Frame Batt 32

R-value (m^2K/W)	Thickness (mm)	Pack area (m^2)	Batts per pack
1.56	50	6.03	9
2.81	90	3.35	5

Frame Batt 34

R-value (m^2K/W)	Thickness (mm)	Pack area (m^2)	Batts per pack
4.12	140	4.02	6

Frame Batt 35

R-value (m^2K/W)	Thickness (mm)	Pack area (m^2)	Batts per pack
2.86	100	5.36	8
4.29	150	4.02	6

Frame Batt 40

R-value (m^2K/W)	Thickness (mm)	Pack area (m^2)	Batts per pack
3.50	140	5.36	8

Frame Batt 43

R-value (m^2K/W)	Thickness (mm)	Pack area (m^2)	Batts per pack
2.09	90	8.04	12
3.26	140	5.36	8

All batt products are 570mm wide and 1175mm in length.

Vario KM Duplex **NEW FOR AUTUMN 2007**

Vario KM Duplex is the next generation vapour control membrane for use in existing and new build roof and wall constructions, with the added benefit of bringing excellent air leakage performance to the building envelope.

It consists of an innovative nylon based membrane, which provides more flexible vapour control than low permeability polythene films which can trap moisture in the assembly during certain seasonal conditions. By absorbing water from the air and thereby opening molecular pores, Vario changes its vapour permeability with the ambient humidity conditions.

Vario film has a thickness of 50μm, combined with low flammability.

ISOVER Frame Batt 32/Frame Batt 34/Frame Batt 40 or Frame Roll 43

Building Regulations – Thermal:

England & Wales: SAP calculation will determine precise U-value for Part L 2006 compliance.

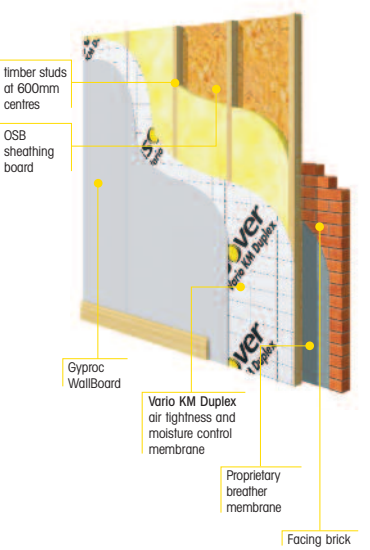
Scotland: Elemental Method U-value 0.25/0.22 (subject to primary heating package).

		U-value (W/m^2K)	
Stud Size (mm)	ISOVER Product membrane in brickwork cavity	Conventional breather membrane in brickwork cavity	Reflective breather
90	90mm Frame Batt 32	0.38	0.33
140	140mm Frame Roll 43	0.31	0.28
140	140mm Frame Batt 40	0.30	0.27
140	140mm Frame Batt 34	0.28	0.25
140	140mm Frame Batt 32 (90mm + 50mm)	0.27	0.24

U-value calculation based on 15% timber fraction.

External wall consisting of facing brick and a nominal 50mm cavity with an OSB sheathing board fixed to the outside of timber studs at 600mm centres. Proprietary breather membrane (reflective grade optional) fixed to the OSB board in the brickwork cavity.
Stud framework filled with ISOVER insulation. **Vario KM Duplex** air tightness and moisture control membrane fixed to the inner face of the studs. Wall lining finish of Gyproc WallBoard.

Timber Frame Wall Construction



Junction of external wall with party wall

Suggested 'T'-junction detail incorporating **ISOVER Cavity Barriers** and **ISOVER Timber Frame** products to provide compliance with Building Regulations thermal, acoustic and fire requirements in timber frame construction.

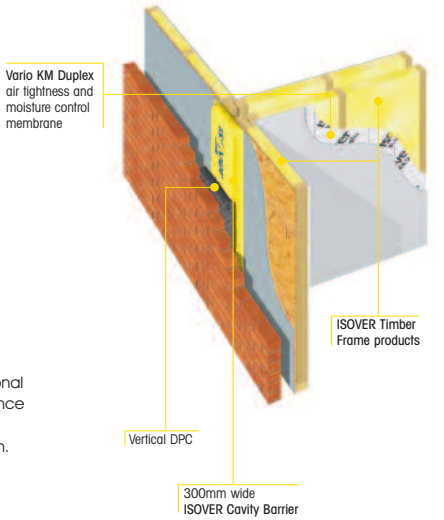
Meeting Building Regulations performance requirements

Thermal	Acoustic	Fire
External wall achieves U-values down to 0.24	Separating wall achieves minimum 45 dB (DnT,w+Ctr)	Meets national Building Regulations (up to 1 hour fire resistance)

ISOVER Cavity Barriers have been assessed by Chiltern International Fire laboratories as suitable for meeting the functional performance requirements (30 minutes and 60 minutes) at party wall cavity/external wall cavity T-junctions in timber frame construction.

Substantiation: Chiltern Fire Test Report Reference Chilt/A05102

ISOVER timber frame products in a stud framework with ISOVER Cavity Barriers in the external wall cavity.



Cavity Barriers

Where to use:

Designed to restrict the spread of smoke and flames in concealed cavities, particularly in cavities within external masonry, timber frame or steel frame walls. Will also help to comply with acoustic requirements as required by the Building Regulations Part E 2003 (England and Wales), including full compliance with Robust Detail constructions and Section 5 (Scotland).

Cavity Barrier (storey height x 300mm)

For cavity sizes (mm)	Sleeve colour	Nominal length (mm)	Width (mm)	Barriers per pack
50-65	Yellow	2400	300	8
66-80	Blue	2400	300	5
81-100	White	2400	300	5

Cavity Barrier (1.2m x 300mm)

For cavity sizes (mm)	Sleeve colour	Nominal length (mm)	Width (mm)	Barriers per pack
50-65	Yellow	1200	300	13
66-80	Blue	1200	300	10
81-100	White	1200	300	10

Cavity Barrier (1.2m x 100mm)

For cavity sizes (mm)	Sleeve colour	Nominal length (mm)	Width (mm)	Barriers per pack
50-65	Yellow	1200	100	50
66-80	Blue	1200	100	40
81-100	White	1200	100	40

Fire Performance

ISOVER Cavity Barriers are manufactured from glass mineral wool which has has a Euroclass A1 fire rating, the best attainable.

Tested to provide up to 100 minutes fire resistance.

Substantiation: Warrington Fire Test Report No. C52472.

Suitable for meeting the functional performance requirements (30 minutes and 60 minutes) at party wall cavity/external wall cavity T-junctions in timber frame construction.

Substantiation Chiltern Fire Test Report Reference Chilt/A05102

Acoustic Performance

Meet the generic description for cavity closers and will thus ensure compliance with Part E and Robust Details timber frame, masonry and steel frame construction.

Benefits:

Fire - Up to 100 minutes fire resistance in concealed cavities.

Acoustic – Ensures compliance with acoustic regulations flanking noise requirements.

Timber Frame – Chiltern International Fire report for 1 hour performance at external wall cavity/party wall cavity T-junctions.

Steel Frame – Self-adhesive grade available to ensure effective installation.

Joint free – Full storey height (2.4m) available, so no joints.

Robust – Not easily damaged in storage, during transport or on site and during installation.

Flanged – Flanges standard on all thicknesses.

Resilient – will tolerate structural movement and settlement.

Easy to identify – colour coded branded sleeves to avoid installation of wrong barrier sizes.

Compact range – Only three sizes available for all cavity widths up to 100mm – makes storage simple easy and more cost effective.

Cavity Barrier - storey height 2400x300mm

Cavity Barrier 1200mm x 300mm

Cavity Barrier 1200mm x 100mm

Partitions

Internal Partitions

APR 1200

Where to use:

Metal stud partitions and wall linings.

Timber stud partitions and separating walls.

Separating and party floors.

Benefits:

Non-combustible – Euroclass A1 fire rating, the best attainable.

Guaranteed lifetime performance as part of the British Gypsum SpecSure™ system warranty.

Over 25 years proven use

APR 1200 Internal Partition Roll

R-value (m^2K/W)	Thickness (mm)	Width (mm)	Length (m)	Pack area (m^2)
0.64	25	2x600	20.00	24.00
1.22	50	2x600	13.00	15.60
1.59	65	2x600	10.00	12.00
1.74	75	2x600	12.20	14.64
2.33	100	2x600	9.17	11.00

ISOVER APR 1200 is the only acoustic insulation quilt fully tested and approved for use with British Gypsum drywall systems covered by the SpecSure® Lifetime Performance Warranty

Acoustic Slabs

Where to use:

Wall lining systems and partitions.

Modular buildings.

Benefits:

Non-combustible – Euroclass A1 fire rating, the best attainable.

Guaranteed lifetime performance as part of the British Gypsum SpecSure™ system warranty.

Multi-Purpose Slabs

Providing high levels of acoustic performance

R-value (m^2K/W)	Thickness (mm)	Width (mm)	Length (mm)	Pack area (m^2)	Batts per pack
1.28	50	600	1200	14.40	20
2.44	100	600	1200	7.20	10

High Performance Slabs

Combining superior acoustic qualities with a higher level of thermal performance

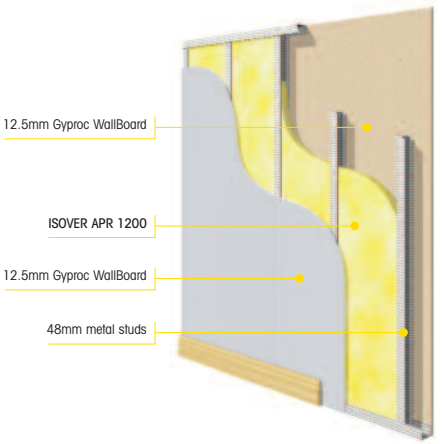
R-value (m^2K/W)	Thickness (mm)	Width (mm)	Length (mm)	Pack area (m^2)	Batts per pack
1.39	50	600	1200	11.52	16
2.08	75	600	1200	7.20	10

ISOVER Acoustic Slabs are approved for use with British Gypsum drywall systems covered by the SpecSure® Lifetime Performance Warranty

Metal Stud Partition Wall

1 layer of 12.5mm Gyproc WallBoard each side of metal studs at 600mm centres with **ISOVER APR 1200** within the cavity.

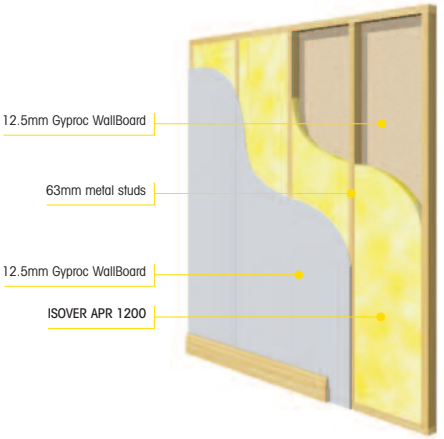
Insulation Thickness (mm)	Lab sound insulation 100-3150 Hz, R_w dB	Fire Resistance (mins)
25mm ISOVER APR 1200	40	30
50mm ISOVER APR 1200	42	30



Timber Stud Partition Wall

A partition wall constructed from 1 layer of 12.5mm Gyproc WallBoard each side of 63mm x 38mm timber studs at 600mm centres, with **ISOVER APR 1200** within the cavity.

Insulation Thickness (mm)	Lab sound insulation 100-3150 Hz, R_w dB	Fire Resistance (mins)
65mm ISOVER APR 1200	40	30



Ultimate Piano Plus

NEW

Where to use:

Ultimate is a next generation mineral wool combining thermal and acoustic performance with high fire resistance at reduced weight.

Ultimate Piano Plus is an integral component of British Gypsum's GypWall EXTREME impact and abrasion resistant partition system.

Thickness (mm)	Width (mm)	Length (m)	Pack area (m^2)
60	2x610	12.00	14.64

Benefits:

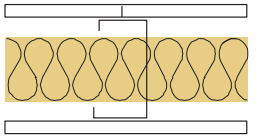
Non-combustible – Euroclass A1 fire rating, the best attainable.

High fire resistance at reduced weight.

Guaranteed lifetime performance as part of the British Gypsum SpecSure® system warranty when used as part of the GypWall EXTREME system.

GypWall EXTREME partition system – 60 minutes fire resistance

Board Type	Lining Thickness (mm)	Partition Thickness (mm)	Maximum Partition Height (mm)	Sound Insulation R_wdB	Duty Rating	System Reference
Rigidur H	1x12.5	97	3800	49	Severe	X606012
Rigidur H	1x15	102	4000	51	Severe	X606004



A partition wall constructed from 1 layer of board each side of Gypframe 70 S 60 'C' Studs at 600mm centres. 60mm **ISOVER Ultimate Piano Plus** in the cavity.

ISOVER Ultimate Piano Plus is approved for use with British Gypsum drywall systems covered by the SpecSure® Lifetime Performance Warranty

Roofs

Frame Batt 35

Where to use:

Designed to provide thermal, acoustic and fire insulation in warm roof constructions in line with appropriate Building Regulations performance requirements in new build warm roofs and loft conversions. The batts self-support between the rafters at 600mm centres, requiring no additional fixings.

R-value	Thickness (mm)	Width (mm)	Length (mm)	Pack area (m^2)	Batts per pack
2.86	100	570	1175	5.36	8
4.29	150	570	1175	4.02	6

Benefits:

- Non-combustible – Euroclass A1 fire rating, the best attainable.
- Low Lambda value (0.035 W/m.K).
- High acoustic performance to meet Building Regulations.
- Lowest installed cost thermal solution.

Vario KM Duplex » Moisture control within new roof constructions and within roof and wall elements.

Where rafters are untreated softwood timbers, that is, without any rot or mould inhibiting protection, this is acceptable where these rafters are exposed in a ventilated loft space. However, where the rafters are sealed with a ceiling finish as part of a 'room in a roof' or loft upgrade, consideration needs to be given to the effect of moisture trapped within the construction.

Conventionally this is addressed by maintaining a ventilated airspace between the back of the insulation and the outer roof covering, and will help when moisture vapour pressure is from inside to out. In summer conditions, however, moisture vapour can be driven inwards. The use of **Vario KM Duplex** membrane as a lining between the plasterboard and insulation will ensure that the sealed roof construction will be fully breathable under all climatic and seasonal conditions. ISOVER glass wool insulation is vapour permeable and, in conjunction with the Vario membrane, brings an assured and controlled release of moisture vapour, thereby removing conditions likely to cause problems with untreated timber.

Where rafters are impregnated with preservative chemicals, the Vario membrane system will ensure an airtight barrier against the release of toxins from the chemical preservatives into living areas.

Vario KM Duplex **NEW FOR AUTUMN 2007**

Vario KM Duplex is the next generation vapour control membrane for use in existing and new build roof and wall constructions, with the added benefit of bringing excellent air leakage performance to the building envelope.

It consists of an innovative nylon based membrane, which provides more flexible vapour control than low permeability polythene films which can trap moisture in the assembly during certain seasonal conditions. By absorbing water from the air and thereby opening molecular pores, Vario changes its vapour permeability with the ambient humidity conditions.

Vario film has a thickness of 50μm, combined with low flammability.

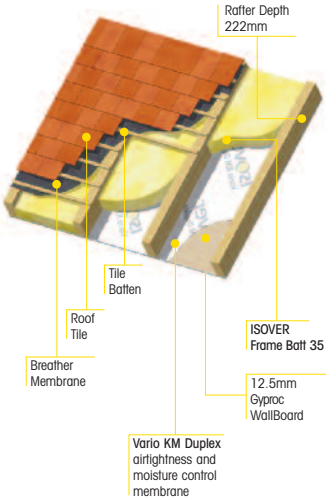
Insulating a new build warm roof

ISOVER Frame Batt 35

Solution to meet the ISOVER suggested U-value of 0.20 W/m².K (England & Wales)

Tiled or slated roof on tiling battens on breather membrane on 48mm thick x 222mm deep rafters. **ISOVER Frame Batt 35** installed in 2 x 100mm thickness between the rafters, leaving a 22mm airspace adjacent to the breather membrane. **Vario KM Duplex** membrane installed against the inner face of the rafters. Internal lining of Gyproc WallBoard.

Rafter Depth	Insulation Thickness (mm)	Ceiling Lining	Ceiling Membrane	U-value W/m².K
222mm	ISOVER Frame Batt 35 (2x100mm)	Gyproc WallBoard	Vario KM Duplex	0.20



Compliance with acoustic regulations:

Sloping (warm) roof construction in new-build adjoining properties where Robust Detail party wall constructions are used (masonry) need acoustic treatment. It is mandatory to install a minimum 100mm of mineral wool, minimum density 10kg/m³, between the rafters. All ISOVER timber frame products conform to this specification.

Vario KM Duplex **NEW FOR AUTUMN 2007**

Roofs » Insulating a loft conversion

Thermal Performance and U-values

For room-in-a-roof loft conversions there are elemental U-value requirements for both England and Wales (Part L1B 2006) and Scotland (Section 6) of:

Sloping Roof Element	0.20 W/m2.K
New Wall in Roof Space	0.30 W/m2.K (0.27 Scotland)

In addition to complying with elemental U-values, there are additional important considerations.

Compliance with Part E acoustic regulations, England and Wales.

Loft conversions are a material change of use (Part L1B, Section 1, paragraph 25, g and i), which means that compliance with Part E is also obligatory. Both sloping roofs and newly constructed walls are key construction elements which need to be sound-proofed against direct sound transmission and flanking noise transmission to adjacent properties. Sections 4.2 & 4.3 of Part E advocates the adoption of new-build construction details as a means of compliance.

One method of compliance is to use the extensively tested Robust Detail specifications, where all appropriate sloping roof details incorporate a layer of 100mm (minimum) mineral wool, minimum density 10kg/m³, between the rafters to minimise acoustic transfer via the roof element.

A minimum 100mm thickness of glass mineral wool, minimum density 10kg/m³, is also extensively specified throughout Part E where high levels of acoustic absorbency are needed.

All ISOVER glass mineral wool products for timber frame applications conform to this specification, and can provide compliance with both Part L (thermal) and Part E and Robust Details (acoustic).

Roofs » Insulating a loft conversion

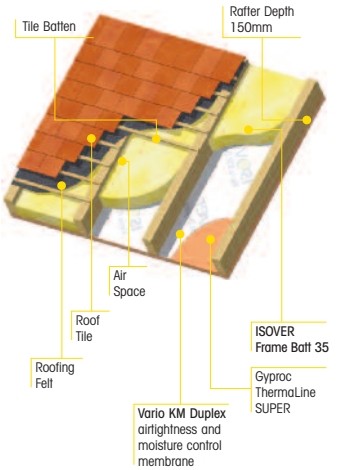
Construction Type	Rafter Depth (mm)	Tiling Underlay	Airspace between Underlay & Insulation (mm)	Counter Batten on top of Underlay	Insulation	Internal Air Tightness/Moisture Control Membrane	Ceiling Lining	U-value
Construction A	150	Conventional Felt	50	No	100mm Frame Batt 35	Vario KM Duplex	65mm Gyproc ThermaLine SUPER	0.20
Construction B	100	Conventional Breather Membrane	None	Yes				0.20

Construction A » ISOVER Frame Batt 35 in 150mm rafter depth

Solution to meet the ISOVER suggested U-value of 0.20 W/m².K

Maintaining a 50mm airgap between the roofing felt and the insulation.

Tiled or slated roof on tiling battens on roofing felt on 48mm x 150mm softwood rafters. **ISOVER Frame Batt 35**, 100mm thickness, installed between the rafters maintaining a 50mm ventilated airspace beneath the roofing felt. **Vario KM Duplex** membrane installed against the inner face of the rafters. Internal lining of 65mm Gyproc ThermaLine SUPER.

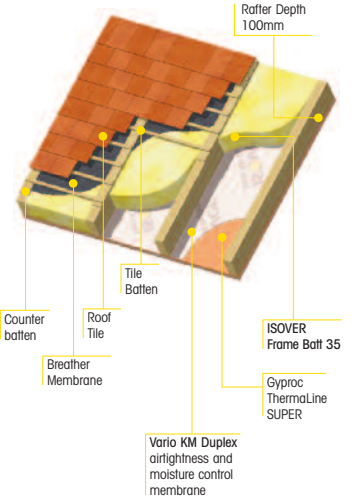


Construction B » ISOVER Frame Batt 35 in 100mm rafter depth

Solution to meet the ISOVER suggested U-value of 0.20 W/m².K

Installing conventional breather membrane beneath roofing tiles - no airgap required between membrane and insulation. Suitable for re-roofing projects.

Tiled or slated roof on tiling battens on counter battens (in the same plane as the rafters) on conventional breather membrane fixed to 48mm x 100mm softwood rafters. **ISOVER Frame Batt 35**, 100mm thickness, installed between the rafters - no airgap between breather membrane and ISOVER insulation. Vario KM Duplex membrane fixed to inner face of the rafters. Internal lining of 65mm Gyproc ThermaLine SUPER.



Floors

Sound Deadening Floor Roll

Where to use:

Meets the resilient layer specification for Type 2.1C (b) concrete base intermediate separating floors with screed floating layer, as described in the national Building Regulations.

Sound Deadening Floor Roll

Thickness (mm)	Width (mm)	Length (m)	Pack area (m^2)
25	1200	10.00	12.00

Benefits:

Generically referenced in national Building Regulations.

Over 25 years proven use.

RD Acoustic Floor Slab

Where to use:

Matches generic description for a resilient layer (FFT-4) in Robust Detail floor constructions E-FC-1 & E-FC-2.

RD Acoustic Floor Slab

Thickness (mm)	Width (mm)	Length (mm)	Pack area (m^2)	Batts per pack
25	625	1200	4.50	6

Benefits:

Suitable for use with Robust Detail floor constructions.

APR 1200

Where to use:

To increase acoustic performance in Robust Detail and other Building Regulation floor types.

APR 1200

R-value	Thickness (mm)	Width (mm)	Length (m)	Pack area (m^2)
0.64	25	2x600	20.00	24.00
1.22	50	2x600	13.00	15.60
1.59	65	2x600	10.00	12.00
1.74	75	2x600	12.20	14.64
2.33	100	2x600	9.17	11.00

Benefits:

High acoustic performance.

Over 25 years proven use.

Generically referenced in national Building Regulations.

Party/Separating Floors in New Dwellings

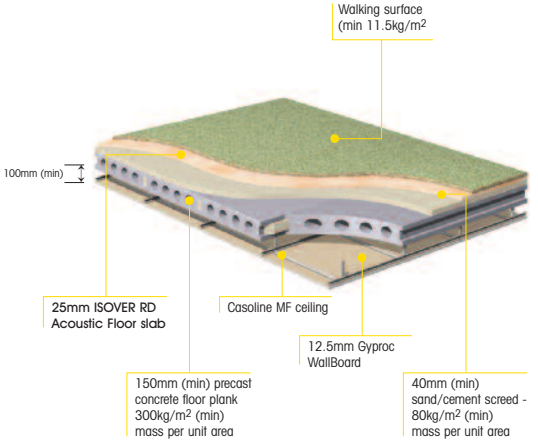
Robust Detail concrete separating floors in new build houses and flats are pre-tested designs which will meet Part E Acoustic Regulations without the need for site testing. The following floor constructions are included in the Part E Robust Detail pattern book, and show the appropriate ISOVER products that match the generic descriptions.

Robust Detail floor construction E-FC-1.

Precast concrete plank – Resilient platform layer

Method of compliance: Robust Detail E-FC-1 using floating floor treatment FFT4 and ceiling treatment CT1.

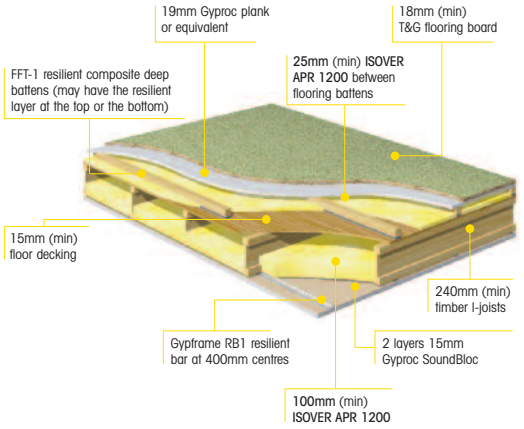
Note: The sound insulation performance will be increased if ISOVER APR 1200 (min 25mm) is placed in the ceiling void.



Robust Detail floor construction E-FT-1. (For use with timber frame walls only)

Timber I-Joist floor

Method of compliance: Robust Detail E-FT-1 using ceiling treatment CT2.



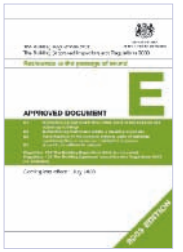
Please note: The floors featured in this document must be constructed with vertical resilient strips at floor edges. For further information regarding **ISOVER APR 1200** visit www.isover.co.uk

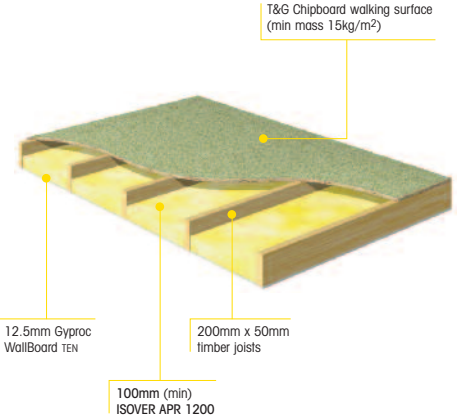
Internal Timber Floors in New Dwellings

Internal floors within the same dwelling need to achieve 40dB airborne sound insulation. Solutions can be either supported by laboratory test reports or contained within Approved Document E (to comply with Part E Building Regulations, July 2003 England and Wales). The following floor constructions meet this requirement.

Timber Joist Floor - Internal Floor Type C

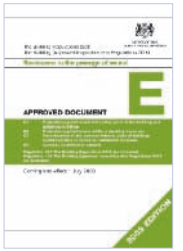
Method of compliance: As described in Approved Document E - site testing not required.

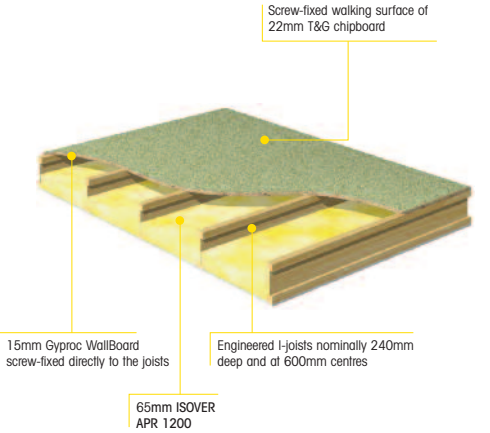




Timber I-Joist Floor

Method of compliance: Laboratory tested - site testing not required.





Standard Products

Spacesaver Roll and General Purpose Roll

Where to use:

Suitable for providing thermal insulation in domestic type pitched roofs.

Spacesaver Roll – Multi width perforations

R-value (m^2K/W)	Thickness (mm)	Width (mm)	Length (m)	Pack area (m^2)
2.33	100	1160	9.17	10.64
3.49	150	1160	6.03	6.99
3.95	170	1160	5.39	6.25
4.65	200	1160	3.88	4.50

Spacesaver Plus – Multi width perforations

R-value (m^2K/W)	Thickness (mm)	Width (mm)	Length (m)	Pack area (m^2)
2.50	100	1160	7.00	8.12
3.75	150	1160	4.67	5.42
5.00	200	1160	3.50	4.06

General Purpose Roll – Ready cut widths

R-value (m^2K/W)	Thickness (mm)	Width (mm)	Length (m)	Pack area (m^2)
2.33	100	2x580 3x386	9.17 9.17	10.64 10.62
3.49	150	2.580	6.03	6.99
4.65	200	2x580 3x386	3.88 3.88	4.50 4.49

Benefits:

Non-combustible – Euroclass A1 fire rating, the best attainable.

3 width version in a single product (Spacesaver).

Thermal conductivity (Lambda value)
Spacesaver & GPR 0.043 W/m.K
Spacesaver Plus 0.40 W/m.K

With pre-cut perforations, Spacesaver and Spacesaver Plus can provide widths of 386mm, 580mm and 1160mm from a single roll.

Lofts » Insulating between joists

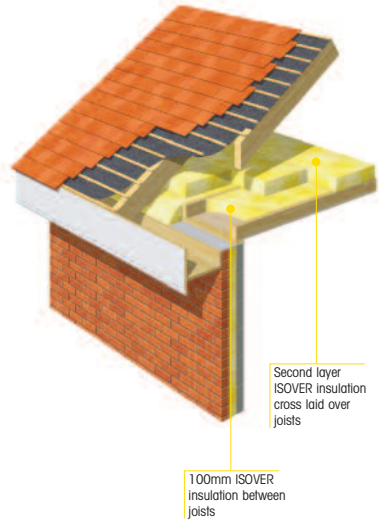
The following tables show the U-values achieved using ISOVER insulation laid in the roof void. U-values are based on the first 100mm layer of insulation laid between the joists, and the remaining thickness installed as a second layer, cross laid over the joists to reduce cold bridging.

Spacesaver/General Purpose Roll

Thickness of Insulation (mm) 1st layer	2nd layer	Total thickness (mm)	U-value ($W/m^2.K$)
100	170	270	0.16
100	200	300	0.14
150	200	350	0.13

Spacesaver Plus

Thickness of Insulation (mm) 1st layer	2nd layer	Total thickness (mm)	U-value ($W/m^2.K$)
100	150	250	0.16
100	200	300	0.13



Masonry External Walls » Full Fill Solution

CWS

Where to use:

CWS is a rectangular glass mineral wool slab, suitable for providing thermal insulation in a variety of different masonry external wall specifications when installed as a full cavity fill during construction.

CWS

R-value (m^2K/W)	Thickness (mm)	Width (mm)	Length (mm)	Pack area (m^2)	Batts per pack
1.39	50	455	1200	10.92	20
1.81	65	455	1200	9.83	18
2.08	75	455	1200	7.64	14
2.36	85	455	1200	6.55	12
2.36	100	455	1200	5.46	10

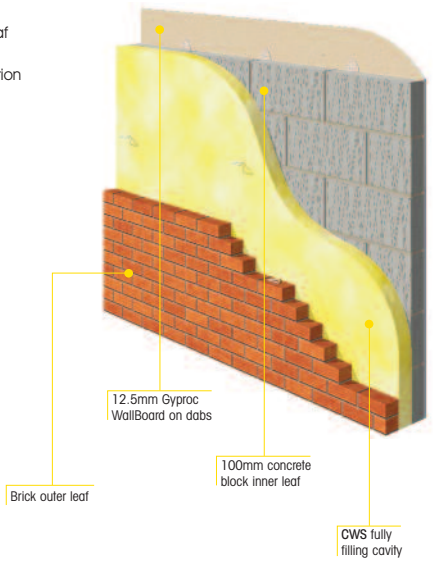
Benefits:

- Non-combustible – Euroclass A1 fire rating, the best attainable.
- Thermal conductivity (Lambda value) 0.036 W/m.K
- BBA approved.
- Over 25 years proven use.

Masonry cavity wall construction

A cavity wall of brick outer leaf and a 100mm concrete block inner leaf finished internally with 12.5mm Gyproc WallBoard on dabs, and with **CWS insulation batts** completely filling the wall cavity. U-value calculation assumes 6.7% mortar fraction.

	Inner Leaf Block Type				
	Typical Aircrete			Typical 7N	Dense Concrete
	115mm λ=0.11	100mm λ=0.11	100mm λ=0.15	100mm λ=0.51	100mm λ=1.13
U-value (W/m^2K)	Thickness of ISOVER CWS to achieve U-value (mm)				
0.30	75	75	85	100	100
0.29	75	85	85	100	-
0.28	85	85	100	-	-
0.27	85	100	100	-	-
0.26	-	100	100	-	-



Masonry External Walls » Part Fill Solution

Hi-Therm

Where to use:

Hi-Therm is a foil-faced glass mineral wool slab built into masonry cavity walls during construction, partially filling the cavity.

Hi-Therm

R-value (m^2K/W)	Thickness (mm)	Width (mm)	Length (mm)	Pack area (m^2)	Batts per pack
1.45	45	455	1200	6.01	11
1.61	50	455	1200	4.91	9

Note: The low emissivity foil-facing will also improve the thermal resistance of the cavity airspace from 0.18 to 0.644m^2K/W.

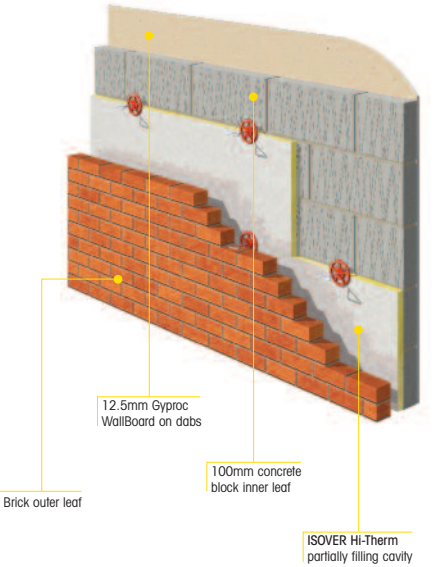
Benefits:

- Innovative product combining high performance glass mineral wool with reflective foil technology.
- Non-combustible. Achieves A2 Euroclass.
- Micro-perforated foil facing allows wall to breathe naturally.
- BBA approved.

Masonry cavity wall construction

A cavity wall of brick outer leaf and a 100mm concrete block inner leaf finished internally with 12.5mm Gyproc WallBoard on dabs, and with **ISOVER Hi-Therm** insulation batts partially filling the wall cavity. The residual cavity should be minimum 25mm (50mm for domestic construction) U-value calculation assumes 6.7% mortar fraction.

	Block Type	
	Typical Aircrete 115mm λ=0.11	100mm λ=0.11
U-value (W/m^2K)	Thickness of ISOVER Hi-Therm to achieve U-value (mm)	
0.30	45	45
0.29	45	50
0.28	50	-



Building Regulations Quick Reference Guide

Your simple guide to meeting the Building Regulations using ISOVER insulation products.

Whether you are building in England, Scotland or Wales, this 'at a glance' guide contains all the information you need to help you select the best insulation products, no matter what job you are involved with.

Using this guide is simple. Just select the application you need as identified at the top of every page and you will not only find the recommended **ISOVER** products but everything you need to meet the regulations in the most efficient and cost effective way possible.

ISOVER products will enable you to comply with Building Regulations Part E, L and B (England & Wales) for acoustics, thermal and fire and Sections 2, 5 & 6 (Scotland).

If ever in doubt, consult the ISOVER Technical Support on: 0115 945 1143 or e-mail: isover.enquiries@saint-gobain.com

Building Regulations thermal insulation compliance.

U-values

England and Wales - Part L 2006

New build properties: The required U-value for roof, wall and floor elements will be decided by the designer based on a whole-building computer assessment of carbon emissions (SAP 2005 for dwellings and Simplified Building Energy Model or SBEM for non-dwellings). The U-value can vary depending upon several factors, including air leakage rate and heating fuel type.

Extension work to existing buildings: There are specified U-values for newly constructed elements in an extension.

Scotland - Section 6

There are two methods of demonstrating compliance, of which the Elemental Method, with stipulated U-values for roof, wall and floor elements, is the simplest. This method is also suitable for extensions.

	England and Wales		Scotland	
Element	ISOVER recommended U-values for new buildings (W/m²K) (1)	Actual U-values for extensions (W/m²K)	Elemental U-values (W/m²K) for new dwellings	Actual U-values (W/m²K) for extensions
Pitched roof-insulation at ceiling level	0.13	0.16	0.16	0.16
Pitched roof-insulation at rafter level	0.20	0.20	0.16	0.20
Walls	0.30 to 0.25	0.30	0.25/0.22(2)	0.27

(1) Likely to give Part L compliance with a sensible balance of other measures.
(2) Depending upon primary heating package.

For information on U-values and SAP assessments, please contact ISOVER Technical Support on 0115 945 1143.

Building Regulations acoustic insulation compliance.

Sound insulation between adjoining dwellings

Robust Detail solution for masonry separating walls

ISOVER RD35 is designed to be built into masonry party walls during construction to help housebuilders meet Part E Acoustic Building Regulations between dwellings (semis, terraced, flats). **ISOVER RD35** is a unique and fundamental component of Robust Detail E-WM-8 party wall construction, which has been proven by an intensive programme of in-situ site testing.

Party wall construction characteristics

Robust Detail E-WM-8 construction is based on a party wall comprising of 2 leaves of lightweight aggregate blocks density 1350-1600 kg/m³ (minimum cavity width 75mm leaf to leaf), with a gypsum-based board 'dot-and-dab' applied finish. A render or parge coat is not required. The nominal specified weight of the gypsum-based board is 9.8kg/m² and the board thickness can be 12.5mm or 15mm provided that the nominal weight requirement is achieved.

*The Robust Details scheme is already referred to in the new style Scottish Building Standards: Technical Handbook: Domestic: Section 5, Noise and is currently undergoing a full review with the intention of incorporating as an alternative method of compliance.

Reduction of noise levels within the same dwelling

Acoustic insulation for internal partitions

Part E Acoustic Building Regulations 2003 states that it is necessary to achieve acoustic performance of 40dB in partition walls between bedrooms and between WC's/bathrooms and other rooms.

Acoustic insulation between floors within the same property

There is a requirement under Part E to achieve 40dB between floors within the same property.

For information on meeting acoustic regulations, please contact ISOVER Technical Support on 0115 945 1143.

Thermal

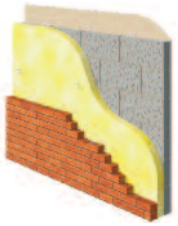
Construction:
External walls.

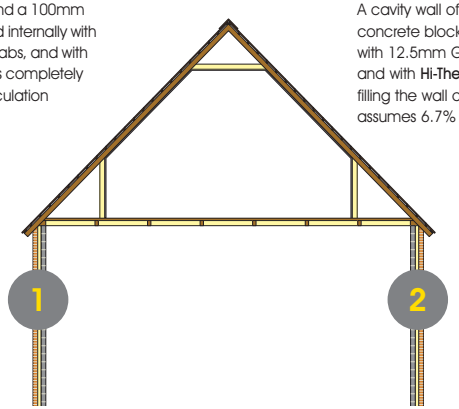
Building Regulations:
England & Wales: **(New Build)** CO^2 emission rate calculation will determine precise U-value for Part L 2006 compliance. **(Extensions)** Target U-value 0.30.
Scotland: Elemental Method U-value 0.25/0.22 subject to primary heating package. **(Extensions)** Target U-value 0.27.

Masonry construction

1 Full Cavity Fill

A cavity wall of brick outer leaf and a 100mm concrete block inner leaf finished internally with 12.5mm Gyproc WallBoard on dabs, and with **ISOVER Hi-Cav 32** insulation batts completely filling the wall cavity. U-value calculation assumes 6.7% mortar fraction.





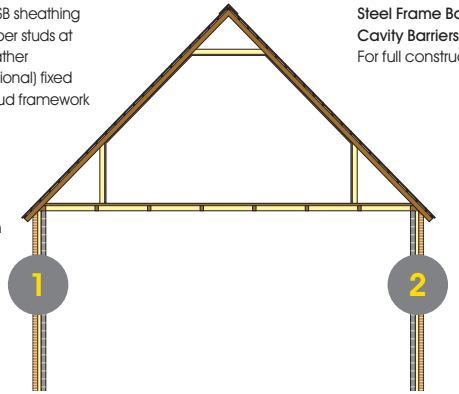
2 Partial Cavity Fill

A cavity wall of brick outer leaf and a 100mm concrete block inner leaf finished internally with 12.5mm Gyproc WallBoard on dabs, and with **Hi-Therm** insulation batts partially filling the wall cavity. U-value calculation assumes 6.7% mortar fraction.

Framed construction

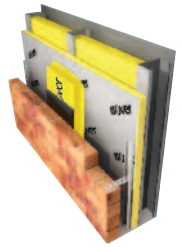
1 Timber Frame Walls:

External wall consisting of facing brick and a nominal 50mm cavity with an OSB sheathing board fixed to the outside of timber studs at 600mm centres. Proprietary breather membrane (reflective grade optional) fixed to the OSB board in the cavity. Stud framework filled with **ISOVER Frame Batt 32, Frame Batt 34, Frame Batt 40 or Frame Roll 43. Vario KM Duplex** airtightness and moisture control membrane fixed to the inner face of the studs. Wall lining finish of Gyproc WallBoard.



2 Steel Frame Walls:

Steel Frame Insulation System incorporating Steel Frame Batts, Steel Frame Infill Batts and Cavity Barriers self-adhesive grade.
For full construction details see page 7.

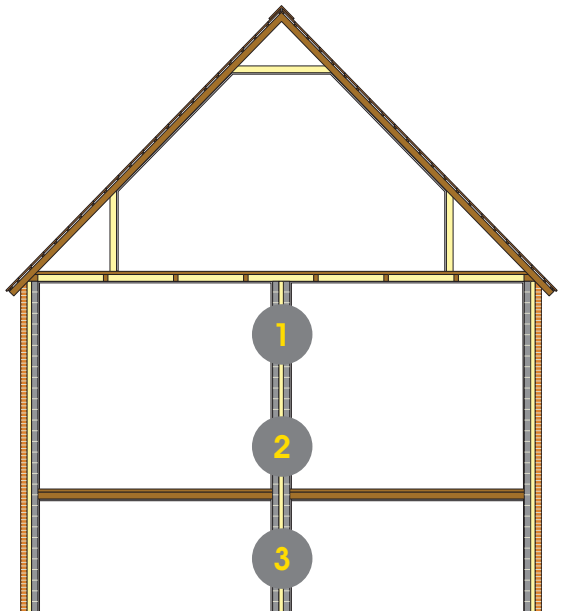


Vario KM Duplex **NEW FOR AUTUMN 2007**

Acoustic

Construction:
Separating wall in new build houses and flats.

Building Regulations:
England & Wales: Approved document E 2003 and Robust Details.
Scotland: Scottish Building Standards: Technical Handbook: Section 5



1 Masonry Separating Wall – Robust Detail E-WM-8

Separating wall comprising of 2 leaves of lightweight aggregate blocks (minimum cavity width 75mm leaf to leaf), with **ISOVER RD35** in separating wall cavity and a gypsum-based board 'dot-and-dab' applied finish. A render or parge coat is not required. The nominal specified weight of the gypsum-based board is 9.8kg/m^2 and the board thickness can be 12.5mm or 15mm provided that the nominal weight requirement is achieved.

2 Timber Frame Separating Wall – Robust Detail E-WT-2

Two layers of 12.5mm plasterboard nominally 22kg/m^2 (typically 19mm Gyproc Plank plus 12.5mm Gyproc WallBoard) with joints staggered each side of twin timber frames with any **ISOVER Frame Batt** product (min 60mm) each side. Sheathing board fixed to internal (cavity) side of each stud frame.

3 Steel Frame Separating Wall – Robust Detail E-WS-2

2x15mm layers of Gyproc SoundBloc plasterboard either side of twin steel frames, minimum 60mm Gypframe studs, maintaining 190mm (min) between inner faces of SoundBloc linings. 100mm **ISOVER Steel Frame Infill Batts** positioned between the twin frames.

Thermal & Acoustic

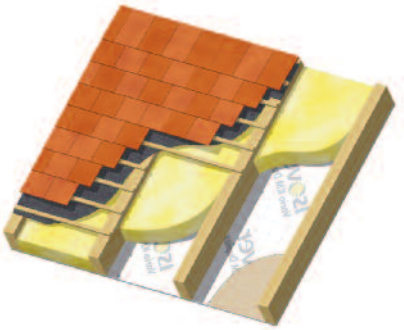
Construction:
Room in a roof (New Build).

Building Regulations:
England & Wales: Part L 2006 Thermal & Part E Acoustic.
Scotland: Elemental Method U-value 0.16 slope (subject to primary heating package).

1 Sloping Roof:

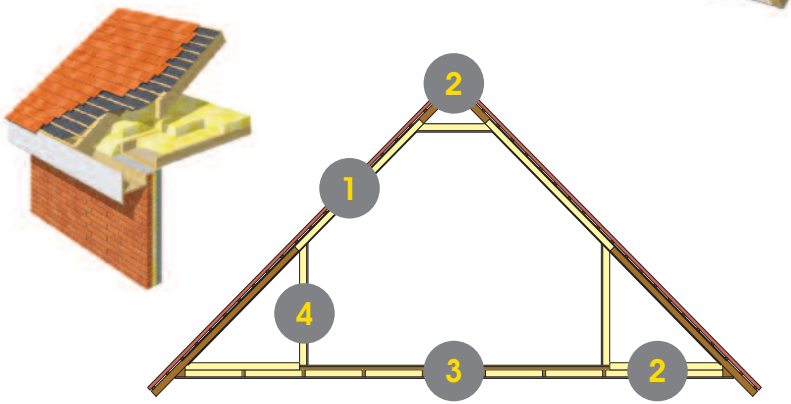
Tiled or slated roof on tiling battens on breather membrane on 48mm thick x 222mm deep rafters. **ISOVER Frame Batt 35** installed in 2 x 100mm thickness between the rafters, leaving a 22mm airspace adjacent to the breather membrane. Vario KM Duplex membrane installed against the inner face of the rafters. Internal lining of Gyproc WallBoard.

ISOVER recommend a U-value of 0.20 W/m².K (England & Wales)



2 Loft Spaces:

Lay **100mm ISOVER Spacesaver Plus** between joists and cross lay with **200mm Spacesaver Plus**.



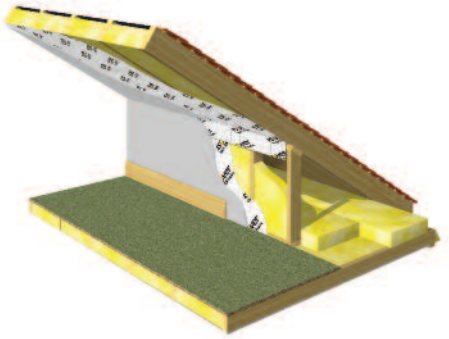
3 Floor:

- No thermal regulations apply
- Acoustic regulations do apply
- Ensure **100mm ISOVER APR 1200 within floor**

4 New 140mm Timber Stud Walls:

To meet Thermal Building Regulations (U-Value 0.30), install **100mm ISOVER Frame Batt 35** by push fitting between vertical studs. Insulated wall and sloping roof to be lined with Vario KM Duplex moisture control and air tightness membrane. Roof and wall finish of 12.5mm Gyproc WallBoard.

ISOVER recommend a U-value of 0.28 W/m².K



Thermal & Acoustic

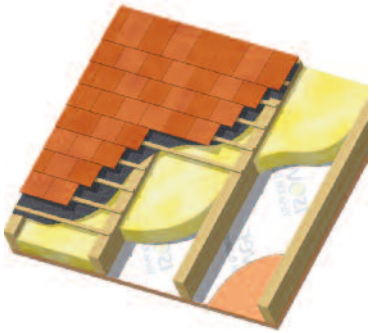
Construction:
Room in a Roof (Loft Conversion).

Building Regulations:
England & Wales: Part L 2006 Thermal & Part E Acoustic.
Scotland: Elemental Method U-value 0.20 slope, 0.27 walls (see section 6 table 6.2.9 column A).

1 Sloping Roof:

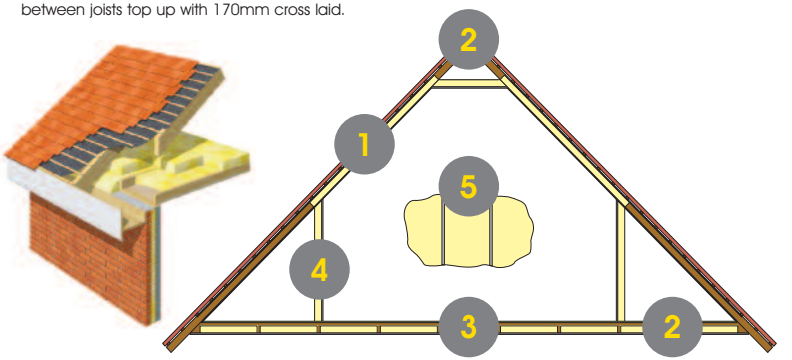
Maintaining a 50mm airgap between the roofing felt and the insulation.

Tiled or slated roof on tiling battens on roofing felt on 48mm x 150mm softwood rafters. **ISOVER Frame Batt 35** 100mm thickness, installed between the rafters maintaining a 50mm ventilated airspace beneath the roofing felt. **Vario KM Duplex** vapour control membrane installed against the against the rafters to provide moisture control and airtightness. Internal lining of 65mm Gyproc ThermaLine SUPER.



2 Loft Spaces:

If no insulation (or little) lay 1**00mm ISOVER Spacesaver** or **ISOVER GPR** between joists and cross lay with 170mm. If there is already insulation between joists top up with 170mm cross laid.

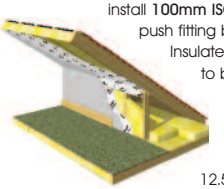


3 Floor:

- No thermal regulations apply
- Acoustic regulations do apply
- Ensure **100mm ISOVER APR 1200 within floor**

4 New Timber Stud Walls:

To meet Thermal Building Regulations (U-Value 0.30), install **100mm ISOVER Frame Batt 35** by push fitting between vertical studs. Insulated wall and sloping roof to be lined with Vario KM Duplex moisture control and air tightness membrane. Roof and wall finish of 12.5mm Gyproc WallBoard.



5 Party/Separating Wall:

The party/separating wall of a loft conversion adjoining an adjacent property will need to be improved to comply with Part E requirement of 43dB.

For further advice, please contact the ISOVER technical department on: 0115 945 1143.

Thermal & Acoustic

Construction:

Internal Stud Partition / Timber Floor in the same dwelling.

Building Regulations:

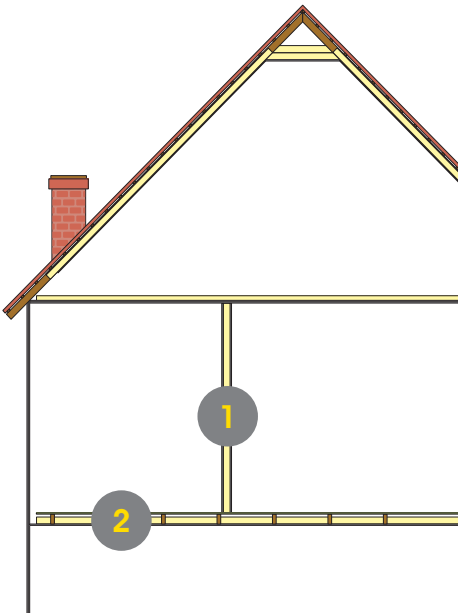
England & Wales: To meet Part E 40dB sound insulation requirement in internal walls and floors.
Scotland: Scottish Building Standards Section 5.

1 Timber Stud Partition:

Incorporates **65mm ISOVER APR 1200** between 63mm timber studs with single layer 12.5mm Gyproc WallBoard each side to achieve 40dB.

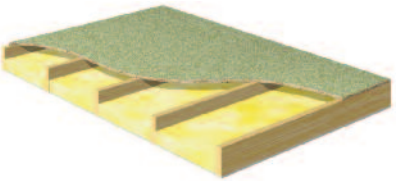
1 Metal Stud Partition:

Metal stud partition incorporates **25mm ISOVER APR 1200** between 48mm metal studs with single layer 12.5mm Gyproc WallBoard each side.



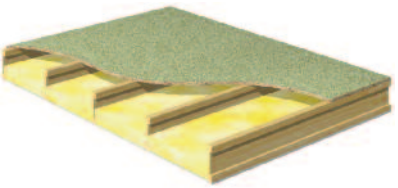
2 Timber Solid Joist Floor:

To meet 40dB Acoustic Building Regulations incorporate min **100mm ISOVER APR 1200** between 200mm x 50mm timber joists.



2 Timber I-Joist Floor:

To meet 40dB Acoustic Building Regulations incorporate min **65mm ISOVER APR 1200** between engineered I-joists nominally 240mm deep.



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2. Timber Frame Products
3. Spacesaver Roll & General Purpose Roll
4. Frame Batt 35
5. Cavity Barriers
6. RD35 Robust Detail E-WM-8
7. APR 1200
8. RD Acoustic Floor Slab and Sound Deadening Floor Slab

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Email: **isover.enquiries@saint-gobain.com**

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