isover
SAINT-GOBAIN

AIRTIGHTNESS & MOISTURE CONTROL SOLUTIONS

Vario® Airtightness & Moisture Control System – The Complete Intelligent System

SAINT-GOBAIN

CONTENTS

AIRTIGHTNESS & MOISTURE CONTROL VARIO® SYSTEM

A range of high performance membranes with accompanying accessories, unique in providing excellent levels of airtightness with unparalleled protection against moisture. A well sealed ceiling is a requirement of most agrément certificates for breathable roofing felts, essential to future proof all buildings.

What is Vario®?

Vario® System consists of two intelligent membranes, accessory tapes and a sealant, designed to adapt to the climate and protect your building, inside and out. The system is also designed with an uncompromising commitment to superior airtightness. Vario® System meets and exceeds industry standards, while making a substantial contribution to your BER, reducing the environmental footprint of the building.

The Vario® system is a high performance system consisting of intelligent membranes and accessory products and provides;

- Excellent levels of airtightness within the building envelope
- Protection against moisture by facilitating the drying of the building structure
- Variable S^d value and can diffuse 25 more times more moisture in summer than the structure absorbs in winter

EN ISO 13162

Where to use

Residential

Non Residential

Airtightness & Moisture Control

Membrane Performance Overview

Materials: Modified fabric-reinforced polyamide faced with a special polypropylene fabric

Water vapour transmission: 0,3 ≤ S_d ≤ 5 (KM Duplex) 0,3 ≤ S_d ≤ 20 (Xtra)

Water Vapour Resistance: 1.5 - 25 MNs/g / 1.5 - 100 MNS/g

Maximum tensile strength: ≥ 110 N/50 mm

Nail tear Resistance: ≥ 50 N (KM Duplex) ≥ 40 N (Xtra)

Temperature range: - 40°C to + 80°C

BENEFITS AND FEATURES

THERMAL	Creates an airtight barrier to lock out draughts and keep in heat. Excellent thermal performance when used with Isover mineral wool insulation
ACOUSTIC	Excellent acoustic performance when used with Isover mineral wool insulation
MOISTURE	Vapour permeable breathable insulation. Improves energy performance and reduces heating & cooling costs
EASY TO INSTALL	Simple and easy to install. Revolutionary new installation system with Xtra membrane and Xtra tape with apply and release function – no need for staples

STANDARDS AND CERTIFICATION

QUALITY	We hold a Quality Management Standard BS EN ISO 9001: 2008 for manufacturing
CE	All products are manufactured in accordance with the CE marking requirements under the Construction Products Regulation
PRODUCT STANDARDS	All our products are manufactured in accordance with product standard: EN 13162: 2008 and EN 13172 Evaluation of Conformity
ENVIRONMENT	Isover is an ISO 14001:2004 (Environmental Management System) accredited manufacturing facility. This accreditation ensures that all products are manufactured to the stringent standards set out by this management system. EN ISO 13162 EMS 551706 003 EN ISO 9001: 2000
INDOOR AIR QUALITY	Awarded the highest standard in indoor air quality - Eurofins “Gold Standard” Label. The Gold Certificate means that Isover mineral wool is certified as an outstanding material in terms of Indoor Air Quality emissions regulations
DURABILITY	Fire Performance Euroclass classification of the product is related to the organic content, which cannot increase with time. Thermal conductivity of mineral wool products do not change with time, experience has shown the fibre structure to be stable and the porosity contains no other gases than atmospheric air. (See std EN13162:2012 Annex ZA,Table ZA.1) Will not accelerate corrosion with steel, copper or aluminium. Will not sustain vermin, nor breed or promote fungi or bacteria

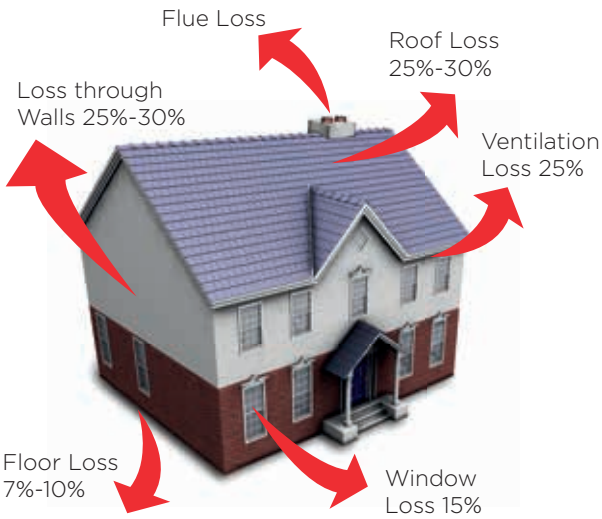
WHERE SHOULD YOU USE VARIO®?

In an era of high fuel bills and concern about energy efficiency, a quality insulation and airtightness system is more important than ever. Superior insulation is the ideal solution – because it's a sustainable, effective and an economical investment. It will help you save on bills and protect the planet too.

Heat lost through the fabric of a building can be substantial, this results in higher fuel consumption in order to maintain comfortable room temperatures, and also substantial energy wastage. Vario®, together with mineral wool insulation, lets you choose whether to make your building an energy liability or an energy asset. Choosing Vario® allows you avoid energy loss and create a sustainable, comfortable home.

So whether you are planning to go with a timber frame, masonry or steel frame construction for a new building or dwelling, select Vario®: the leading, complete high performance intelligent airtightness & moisture control system.

Areas of Heat Loss in Homes (Source: SEAI)



The Vario® system can be used in a diverse range of constructions:

Timber Frame Buildings
On roofs, walls, windows and doors, sealing up any openings or penetrations in the building envelope where heat might be lost.

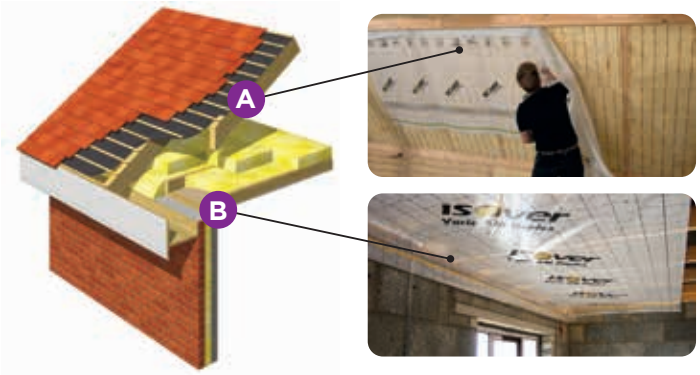
Masonry Buildings
On roofs, windows, doors and also to seal up any opening or penetrations in the building (such as vents for tumble dryers) where heat can be lost.

Steel Frame Buildings
In steel frame structures such as commercial and retail buildings, Vario® can be used in the same applications as on timber frame structures, except tapes are used instead of staples.

Roofs - Timber Frame, Masonry and Steel Buildings

No matter what type of structure or material forms the frame of your building, your roof can be fitted with Vario®.

Vario® is also an essential tool in fixing any penetration or opening in the roof of your building structure. The flexibility of the Vario® system allows you to achieve airtightness and heat protection by sealing all penetrations and thus the building envelope.



A: Inhabited roof structures
Vario® is stapled to the rafters of the sloping roof on the inside.

B: Uninhabited roof structures
Vario® is stapled to the underside of the joists and sealed to the wall on the inside.

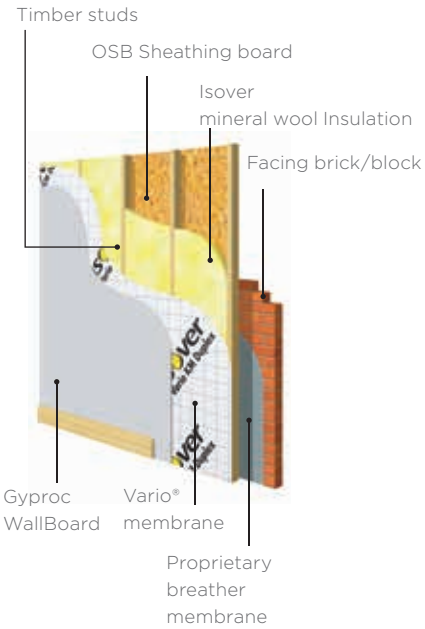
Walls - Timber Frame Buildings

Vario® offers specifiers of timber frame housing a complete solution, as it is the world's most advanced system for the management of interstitial moisture in timber framed construction. Vario® technology is proven, having been extensively tested and specified in high volume timber frame construction in the exacting standards and climates of Northern Europe and Scandinavia.

Specifiers dealing with timber framed buildings start with an advantage in that the Vario® membrane is also an effective air barrier - providing exceptional airtightness for the building envelope.

Another unique quality of Vario® is its ability to protect the inside of the building and its occupants against toxic gases, which may emanate from chemical preservatives contained within the timber structure. This is particularly important when converting the attics of older buildings into living space, as the type and toxicity of any preservatives can be unknown and therefore potentially hazardous.

The Vario® system of membranes and tapes is used to wrap and seal the outer walls (by stapling to the studs), windows, doors and all penetrations of the building envelope.



Walls - Masonry Buildings

The Vario® system is also the optimum solution for masonry construction. Selecting Vario® as your membrane of choice provides exceptional airtightness of the building envelope when applied to the sealing of windows and doors, timber roof structures, and the sealing of separating timber floors to block walls and of all penetrations throughout the masonry building envelope.

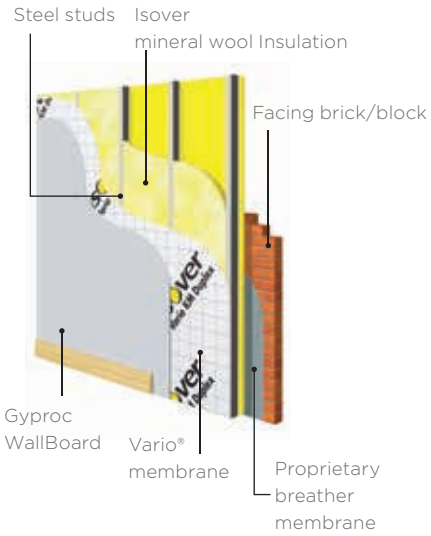
The Vario® membrane is stapled to the underside of joists below the attic and then sealed to walls. Where separating timber floors join outer block walls, Vario® tapes are used to seal potential leaks.

The Vario® membrane is sealed to masonry walls at ceiling level. Vario® Tape (in the above images, Vario® Bond) is used to seal the point where timber separating floors penetrate the outer blockwork and where windows meet blockwork.

Walls - Steel Frame Buildings

In commercial and retail buildings, Vario® can be used in much the same way as on timber frame structures: sealing the outer walls on the warm side, windows, doors and all penetrations of the building envelope.

The flexibility of the Vario® system allows you to achieve the highest standards of airtightness and heat retention in any size commercial and retail building.



Penetrations and Openings

One of the most common ways to compromise your building's overall airtightness and heat retention is to fail to address penetrations. This can be easily remedied with the Vario® System.

DON'T SWEAT IT

BUILDINGS BREATHE BETTER WITH

ISOVER VARIO

THE HIGH PERFORMANCE SYSTEM

ISOVER Vario® is a high performance system consisting of intelligent membranes (Vario KM Duplex & Xtra) and Vario accessory tapes and mastic which provide:

- **PROTECTION FROM DAMP AND DAMAGE**
- **WARMTH IN WHILE KEEPING MOISTURE OUT**
- **IMPRESSIVE VARIABLE SD VALUE**

Contact our technical team:
ROI: **1800 744 480** NI: **0845 399 0159**
tech.ie@saint-gobain.com
Visit www.isover.ie/vario to learn more

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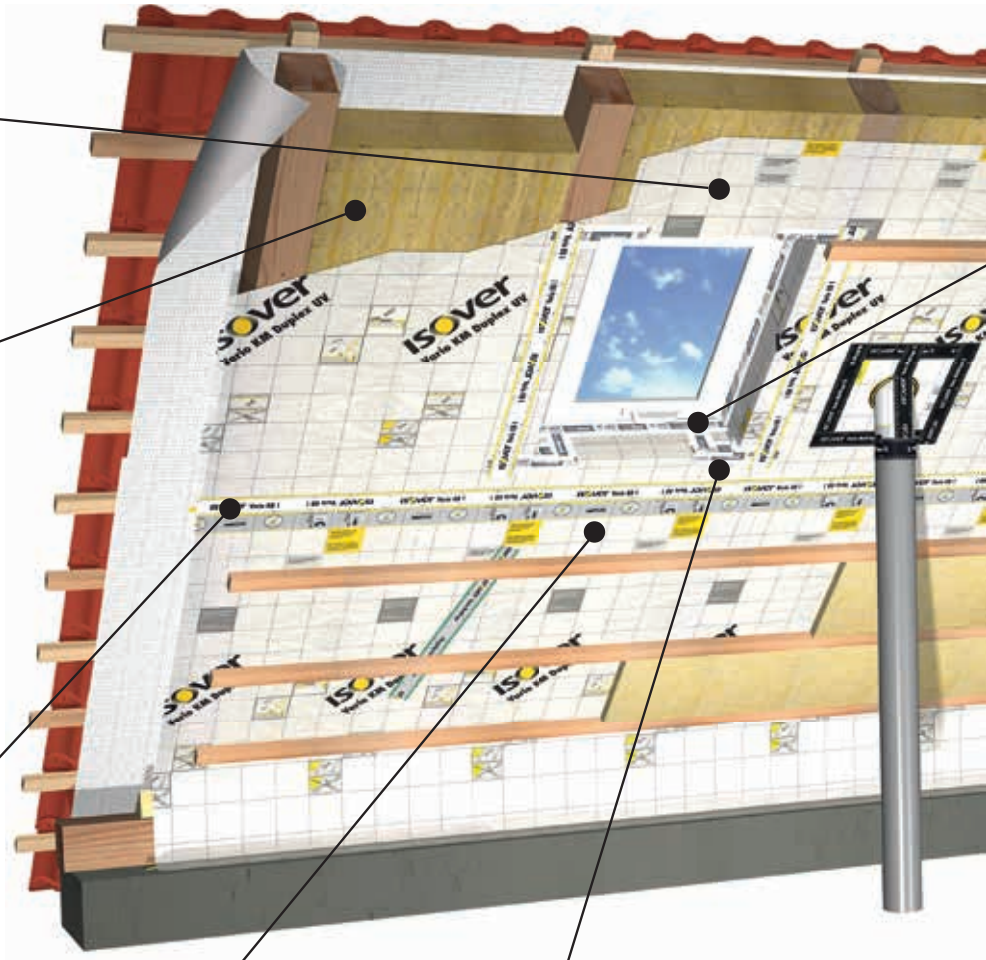
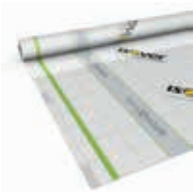
A QUICK GUIDE TO WHAT, WHERE AND HOW TO USE THE VARIO® SYSTEM

Vario® KM Duplex UV Membrane
The heart of the Vario® System: our patented polyamide membrane acts like a sensitive skin.



Isover Metac
The Metac innovative multi-application high performance thermal roll – our finest thermal insulation product.

Vario® KB1
Our high adhesion, single-sided tape provides wind and airtight adhesion of Vario® membrane for horizontal and vertical overlapping, which now features water resistant glue and measurements on the tape to make installation easier.



Vario® Xtra
The Intelligent membrane for greater safety.

Vario® MultiTape SL+
A non-ageing tape, featuring extremely high adhesion for sealing overlapped membrane joints and – crucially – sealing effectively around any installation gaps, which also features water resistant glue. Available in 60mm and 150mm widths to suit narrower or wider cavities.

ISOVER SAINT-GOBAIN

VarioBond

A High Performance Airtight Plasterable, Junction Tape For Windows, Doors and Timber to Block Connections.

Key Features:

- Multi–application for internal & external use*
- Plasterable – can be plastered or rendered over with Gypsum based undercoat plasters, sand and cement and exterior renders
- Vario® Bond has a high adhesive strength, which bonds to a number of substrates
- Pre-split, with finger-lift function for easy installation
- Airtight, windtight and driving rain proof

SUBSTRATES

- Vario® Membrane
- Timber
- PVC
- Concrete Block
- Metal & Concrete Lintels
- PVC Cavity Closers

JUNCTIONS

- Timber wall plate
- Internal Windows
- External Windows
- Internal Floors

Vario® DoubleFit+
Universal sealant - a 2-in-1 solution for creating air-tight joins between vapour membrane and adjacent surfaces.

Find more Vario® applications online at
www.isover.ie

* The surface on which the tape is installed must be free from releasing film (e.g., moisture, ice or hoar frost) which would prevent contact of the adhesive with the surface.

New Build U-Values:
0.16 Pitched Roof

Renovation U-Values:
0.25 Pitched Roof

BUILDING REGULATIONS REPUBLIC OF IRELAND

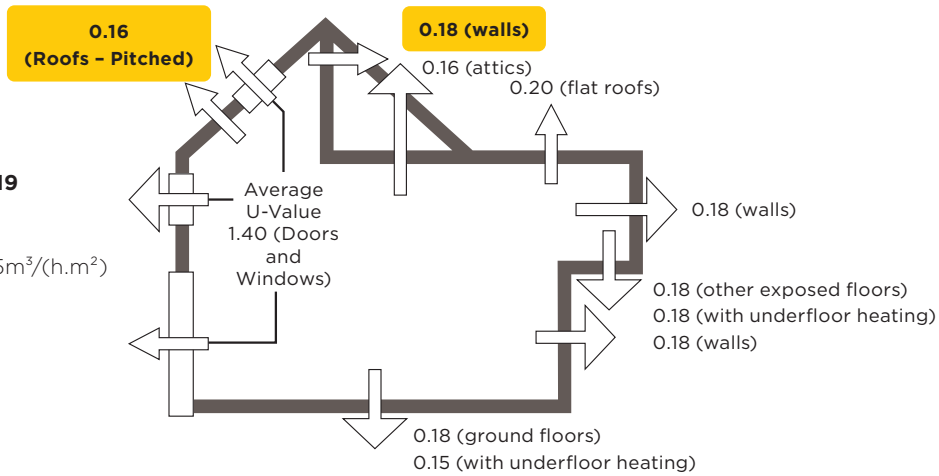
The following is a guide to thermal building regulations for new & existing dwellings, delivering comfort and energy savings through effective thermal insulation.

Republic of Ireland

New Dwellings TGD – Part L – 2019

Minimum standards for U-Values

Upper limit for air permeability is $5m^3/(h.m^2)$



For more information you can contact our technical team on free phone (ROI) 1800 744480 or go to www.isover.ie

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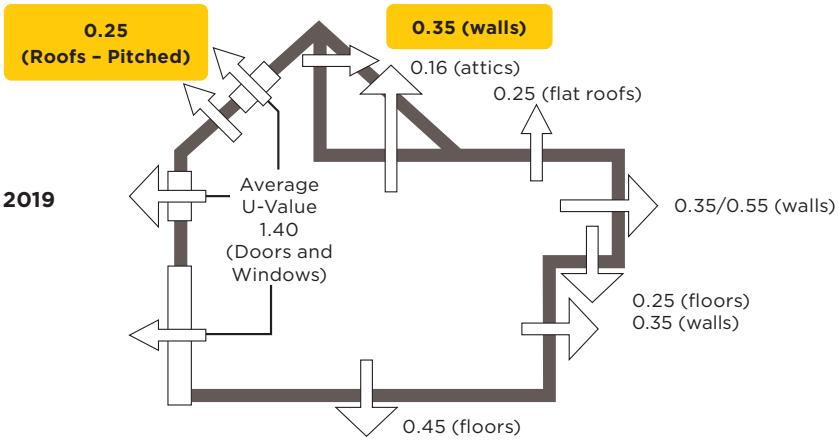
Republic of Ireland

Existing Dwellings TGD – Part L – 2019

Minimum standards for U-Values



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Contact our technical team for more info

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NI
0845 399 0159

EMAIL
tech.ie@saint-gobain.com

New Build U-Values:
0.20 Pitched Roof

Renovation U-Values:
0.18 Pitched Roof

BUILDING REGULATIONS NORTHERN IRELAND

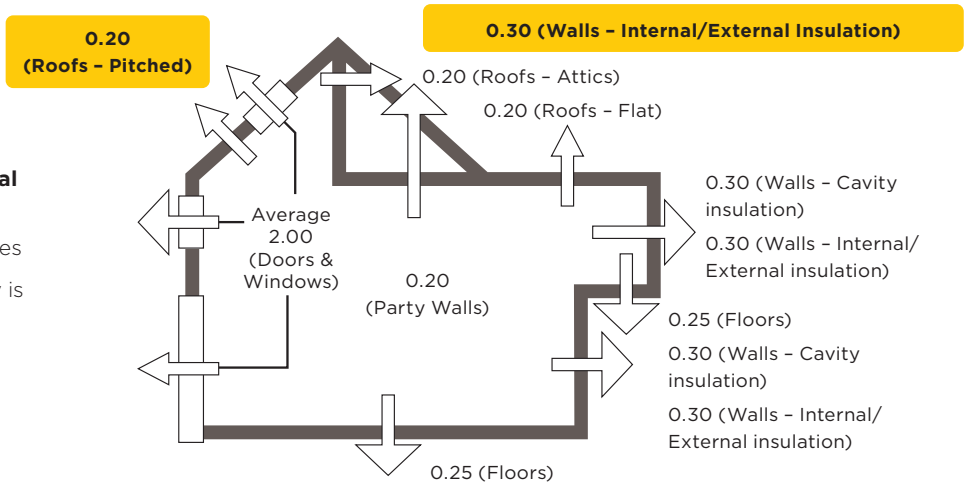
The following is a guide to thermal building regulations for new & existing dwellings, delivering comfort and energy savings through effective thermal insulation.

Northern Ireland

New Dwellings – DFP Technical Booklet F1:2012

Minimum standards for U-Values

Upper limit for air permeability is $10m^3/(h.m^2)$



For more information you can contact our technical team on phone (NI) 0845 339 0159 or go to www.isover.ie

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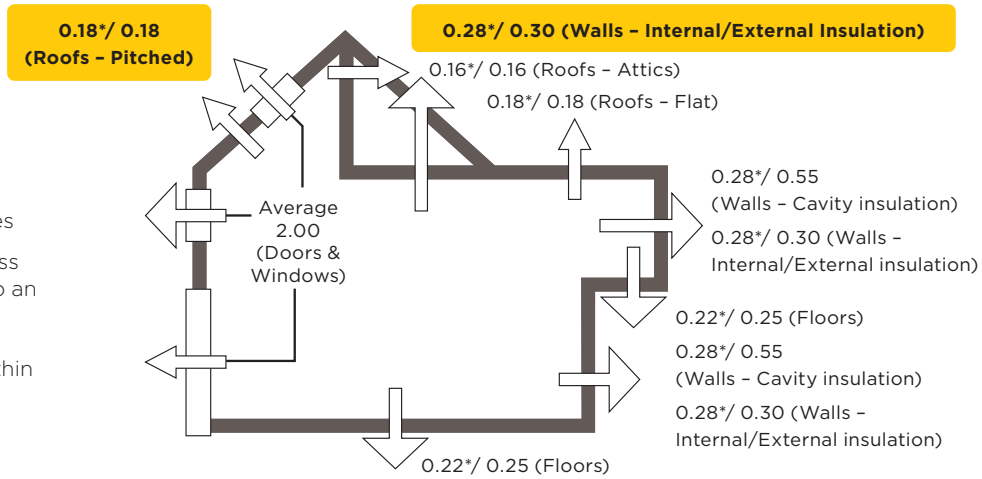
Northern Ireland

Existing Dwellings – DFP Technical Booklet F1:2012

Minimum standards for U-Values

These regulations are split across new thermal elements added to an existing dwelling, for example a new extension or dormer & upgraded thermal elements within the existing building.



*figures refer to a new element added to an existing dwelling i.e. extension, dormer etc.

For more information you can contact our technical team on phone (NI) 0845 339 0159 or go to www.isover.ie

ISOVER VARIO® SYSTEM

A high performance system consisting of intelligent membranes and accessory products, providing excellent levels of airtightness with unparalleled protection against moisture.

Product Features

- High performance airtightness and moisture control system
- Two intelligent membranes to suit a variety of applications
- Range of accessory products – high performance tapes and sealants

High performance airtightness & moisture control

Where to use

Walls – Internally

Roof – Internally

Floors – Internally

ISOVER VARIO® SYSTEM

For use in Airtightness applications

High performance membranes with accompanying accessories unique in providing excellent levels of airtightness.

MOISTURE CONTROL · BREATHABLE · MINIMAL WASTE · EASY TO TRANSPORT · ENERGY SAVINGS · EASY TO INSTALL · PROTECTED PLANET

Intelligent Variable Sd Membranes

Product	Order Code	Width (mm)	Length (m)	M² Per Roll	Pack	Packs Per Pallet	
Vario® Xtra Membrane	**5200814933**	1500	40	60	1 Roll	42 Rolls	
Vario® KM Duplex Membrane	**5200300299**	1500	40	60	1 Roll	42 Rolls	

Fixed Sd Membranes

Product	Order Code	Width (mm)	Length (m)	M² Per Roll	Pack	Packs Per Pallet	
Vario StopVap Membrane	**5200815577**	1500	40	60	1 Roll	46 Rolls	

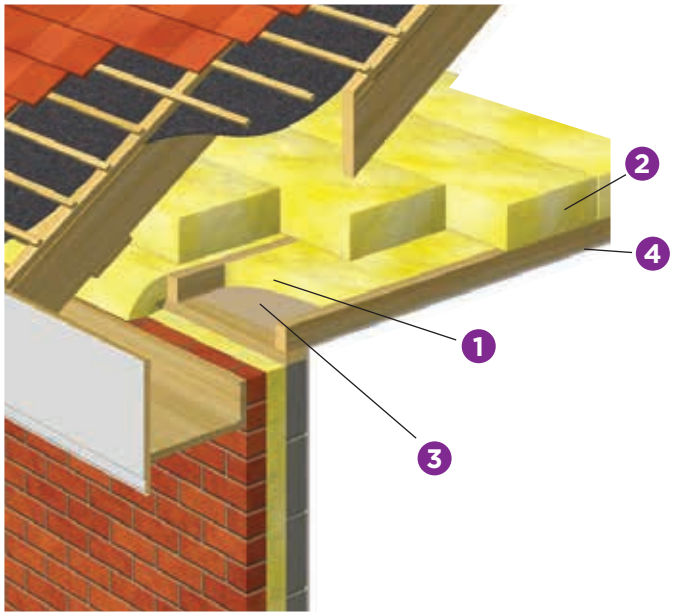
Airtightness Tapes & Mastic

Product	Order Code	Width (mm)	Length (m)	M² Per Roll	Pack	Packs Per Pallet	
Vario KB1 Single Sided Tape	**5200300297**	60	40	2.4	5 Rolls	120 Boxes (600 Rolls)	
Vario MultiTape SL+	**5200431017**	60	25	1.5	10 Rolls	80 Boxes (800 Rolls)	
Vario MultiTape SL	**5200916780**	150	25	3.75	10 Rolls	24 Boxes (240 Rolls)	
Vario DoubleTwin	**5200678235**	19	50	0.95	15 Rolls	48 Boxes (720 Rolls)	
Vario Bond	**5200683153**	100	25	2.5	6 Rolls	48 Boxes (288 Rolls)	
Vario Bond	**5200683156**	150	25	3.75	4 Rolls	48 Boxes (192 Rolls)	
Vario Doublefit+ Mastic	**5200645927**	N/A	310ml	N/A	12 Cartridges	75 Boxes (900 Cartridges)	

ATTICS

Twin Leaf Construction

1. Isover insulation between joists
2. Second layer of Isover insulation cross laid over joists
3. Isover insulation installed between rafters
4. Vario® System



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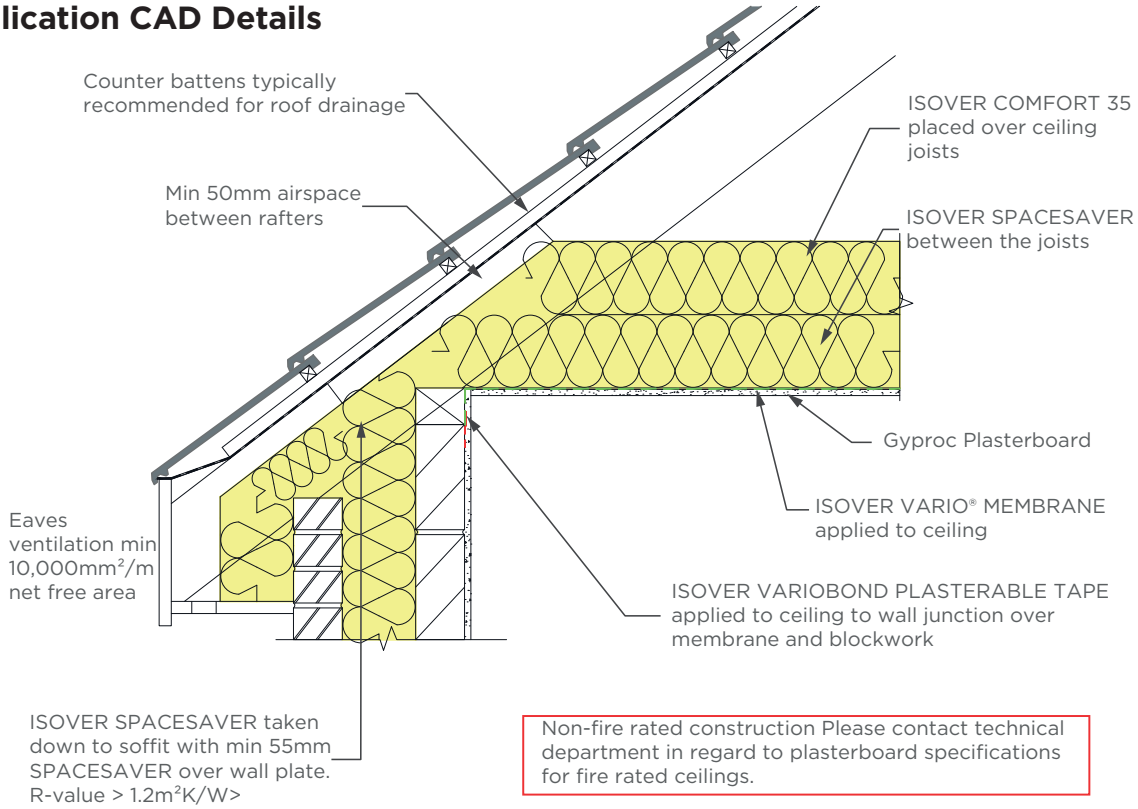


Non-fire rated construction Please contact technical department in regard to plasterboard specifications for fire rated ceilings.

Isover Products

Spacesaver Roll

+

Comfort 35

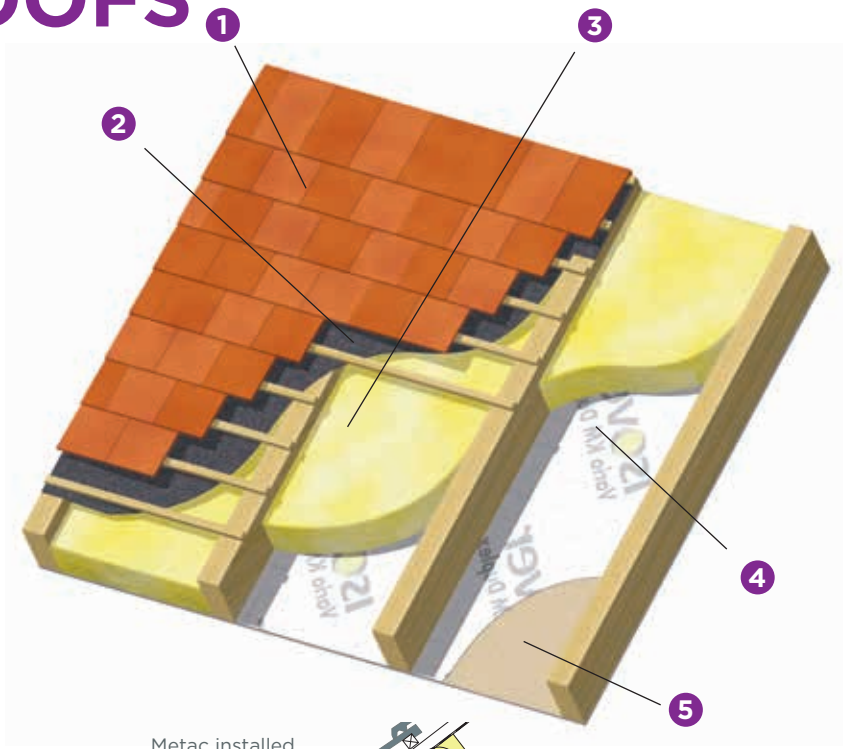
+

Vario® System

PITCHED ROOFS

Insulation between rafters

1. Tiled or slated roof on tiling battens
2. Low resistance underlay
3. Isover insulation installed between rafters
4. Vario® membrane + tapes
5. 12.5mm Gyproc WallBoard



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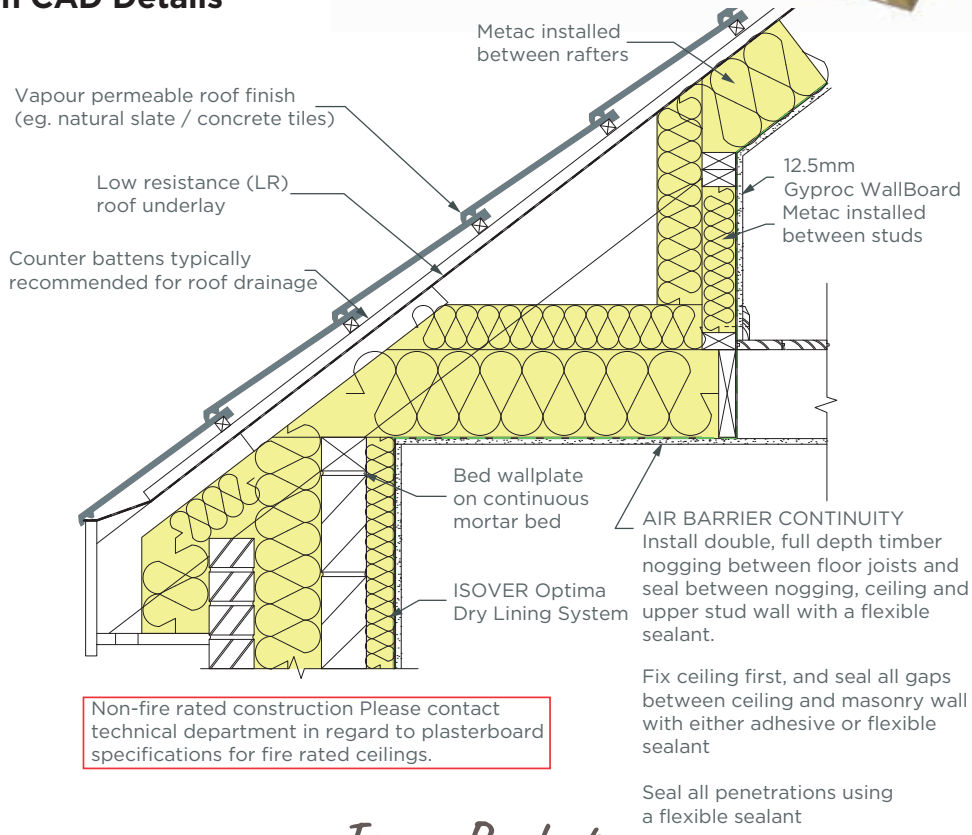


Non-fire rated construction Please contact technical department in regard to plasterboard specifications for fire rated ceilings.

Isover Products

Metac Roll

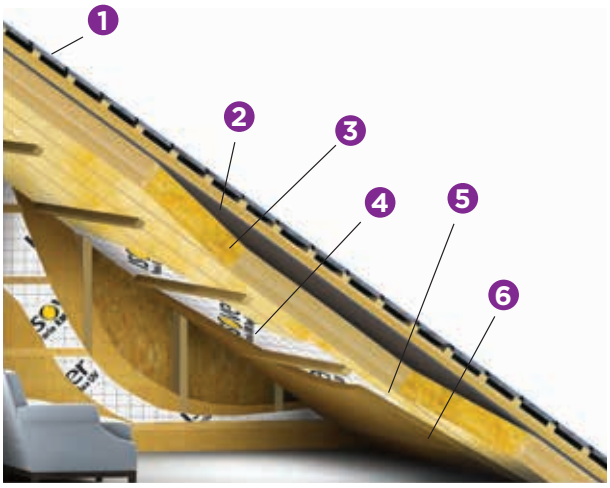
+

Vario® System

PITCHED ROOF WITH INTERNAL COUNTER BATTENS

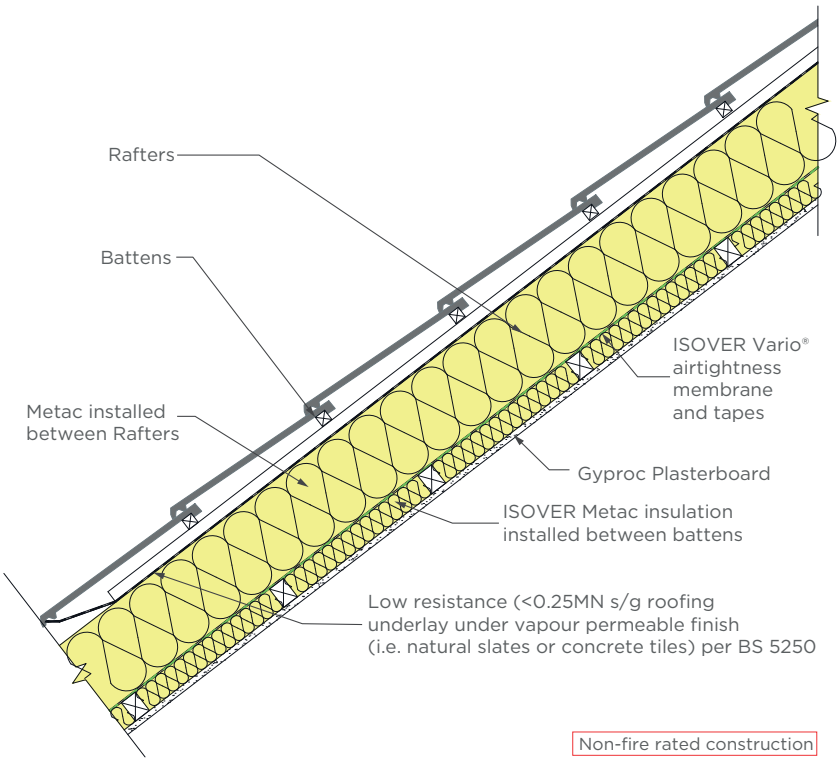
Insulation full filled between rafters + Vario® + internal counter battens

1. Tiled or slated roof with external counter battens/ ventilation space*
2. Low resistance Underlay per BS 5250
3. Isover insulation installed between rafters
4. Vario® System
5. Isover insulation between counter battens
6. Gyproc WallBoard



*even in instances where there is a non-permeable roof finish (fibre cement slates) and no external counter batten/ventilation space Metac can still be full filled once used with Vario® Xtra. Contact our Technical team for more information.

Application CAD Details



Isover Products

Metac Roll

+

Vario® System

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Get the **know-how** with the **Saint-Gobain Technical Academy**

With purpose built facilities, dedicated resources in Kingscourt and Dublin as well as NEW Online Training, Saint-Gobain Technical Academy offers a wide range of FREE training courses and webinars to upskill and educate construction industry professionals.

The mix of interactive training, live demo and theory courses include:

- Airtightness and moisture management
- Acoustics in Buildings
- Dry lining systems for installers and supervisors
- nZEB in Practice
- Fire performance in buildings
- Renovation solutions
- ROI Building Regulations & Compliance
- Internally insulating existing external walls: The challenges faced and a possible solution

...and much more

Sign up for our NEW Online Training Courses at

www.saint-gobain.ie

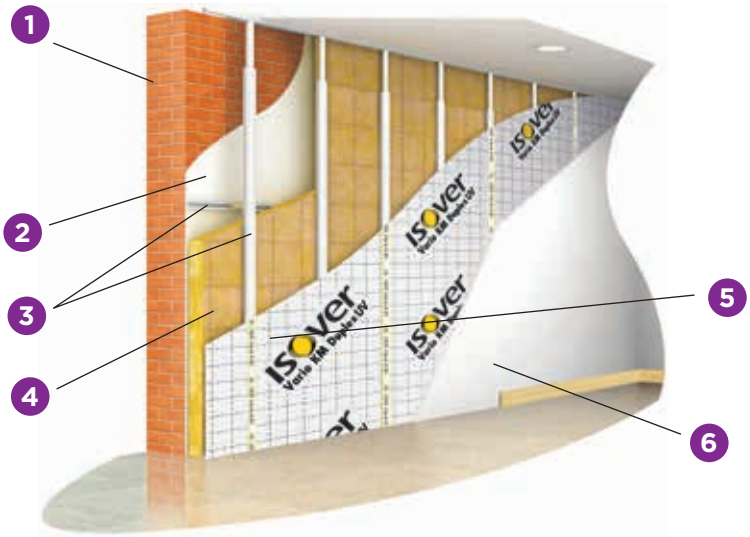
REGISTER NOW

SAINT-GOBAIN

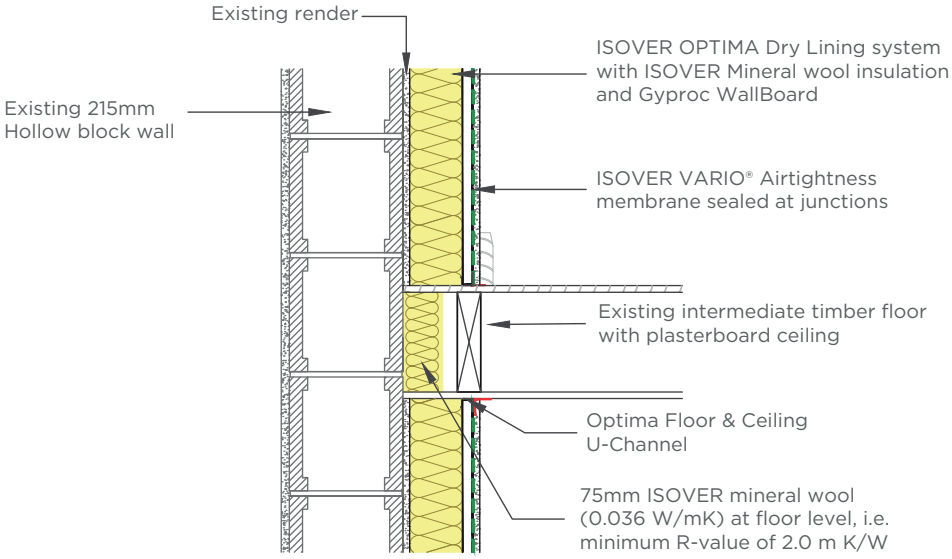
DRY LINING

Multiple Substrates / Construction Types

1. 215 mm brick
2. 13mm Gyproc Plaster
3. Optima metal studs + fixings
4. Isover insulation
5. Vario® membrane + tapes placed on studs
6. Gyproc WallBoard



Hollow block wall to intermediate floor junction



Existing floor boards to be cut back where possible to accommodate installation of VARIO® membrane through intermediate floor on room side of insulation, lapped and sealed above/below

Isover Products

Optima Dry Lining System

+

Comfort Panel 32

OR

Comfort Roll 35

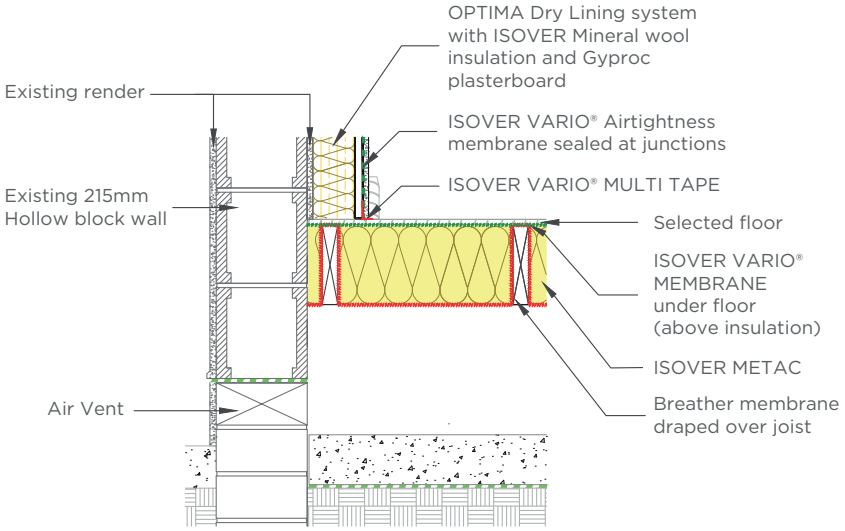
OR

Metac

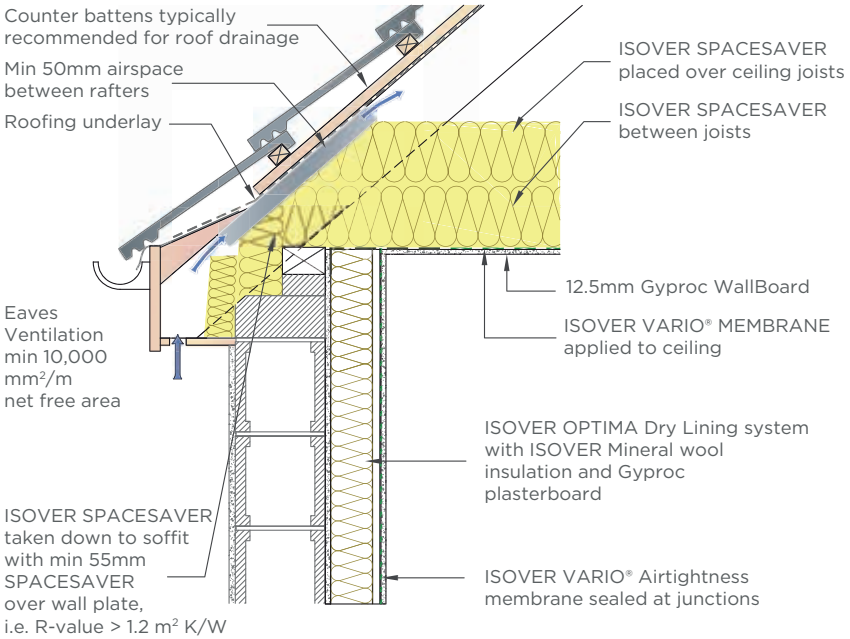
+

Vario® System

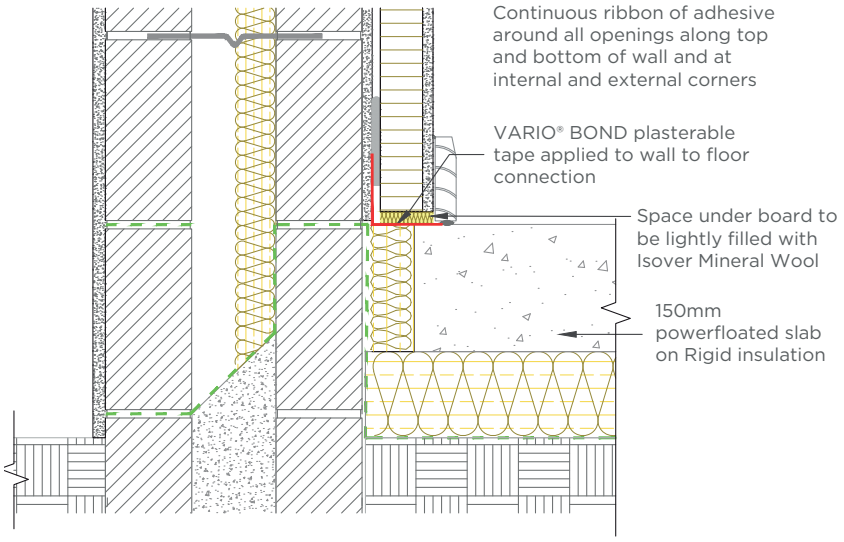
Hollow block wall to ground floor junction



Wall to attic junction



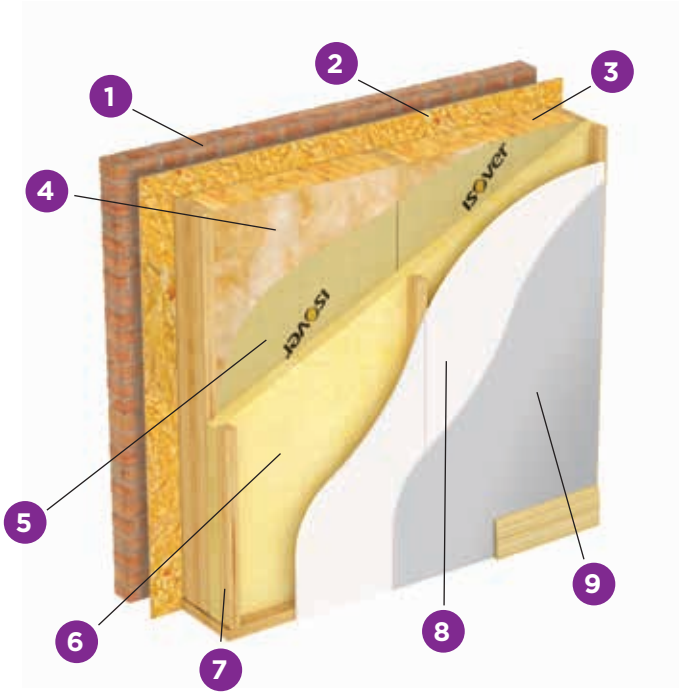
Masonry wall to ground floor junction



TIMBER FRAME WALL

Insulation between studs

1. Brick Outer Leaf
2. Cavity 25mm secured with wall ties
3. Breather membrane on OSB affixed to timber studs on the cavity side of the build up
4. Isover Insulation Metac 031 140mm friction fit between 600mm studs
5. Isover StopVap or KM Duplex Airtightness Membrane affixed to inside of timber studs.Joints of membrane sealed to each other withVario® Airtightness tapes and accessories
6. HD Slab, affixed to the rafters using full height battens, running parallel to the studs of the external wall
7. Batten with 50mm Service Cavity
8. Gyproc Plasterboard
9. Gyproc Plaster Finish



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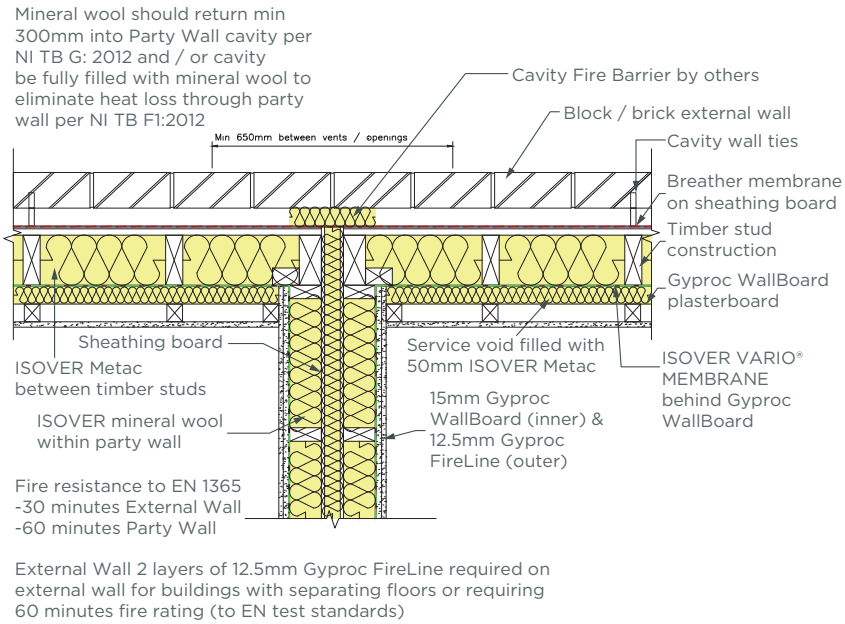


Isover Products

Comfort Roll 35

OR

Metac

OR

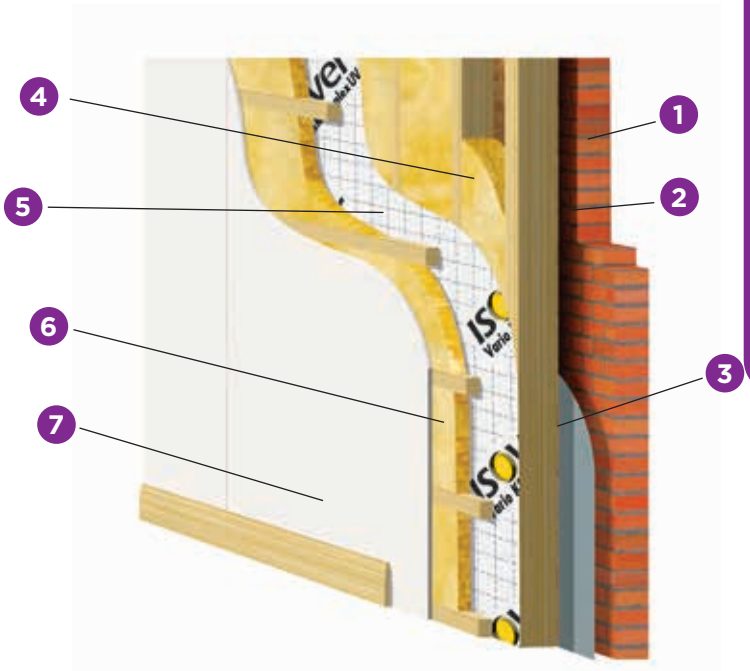
Comfort Panel 32

+

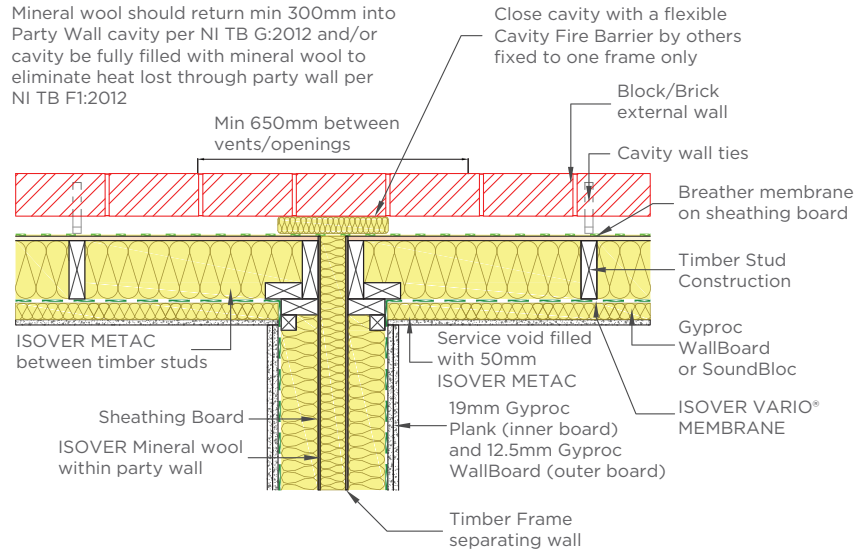
Vario® System

Insulation fully filled between rafters with Vario® and Isover InLiner board

1. External brick
2. 50mm clear cavity
3. Breather membrane + Sheathing board
4. Isover insulation between studs
5. Vario® membrane + tapes
6. Isover insulation between counter batten
7. Gyproc Plasterboard



Application CAD Details



External Wall

2 layers of 12.5mm Gyproc FireLine required on external wall for buildings with separating floors or requiring 60 minutes fire rating (to EN test standards) Est. lab sound insulation 100-3150 Hz: Airborne 50-55 RwdB

Isover Products

Comfort Roll 35

OR

Comfort Panel 32

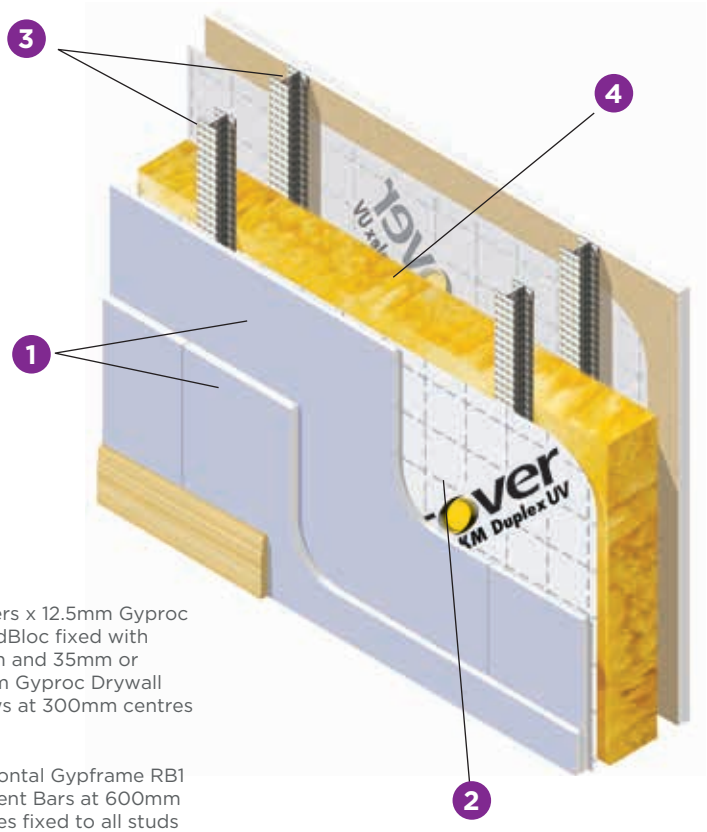
+

Metac

+

Vario® System

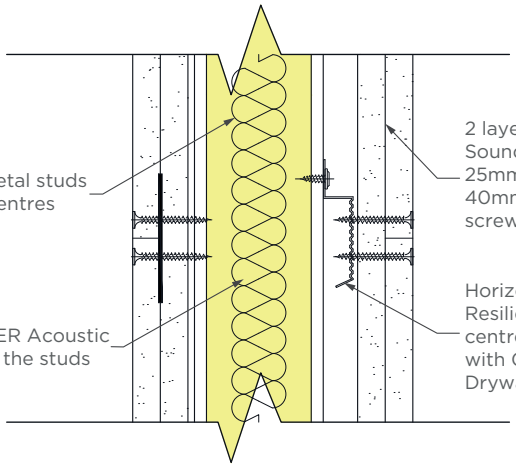
METAL STUD SEPARATING PARTY WALL



Twin leaf construction Overall construction nominal width 250mm

1. 2 x 15mm Gyproc SoundBloc
2. Isover Vario® membrane + tapes
3. Two frameworks of Gypframe 60 I 50 'I' Stud at 600mm centres
4. Isover Acoustic Roll in the cavity

Application CAD Details



Isover Products

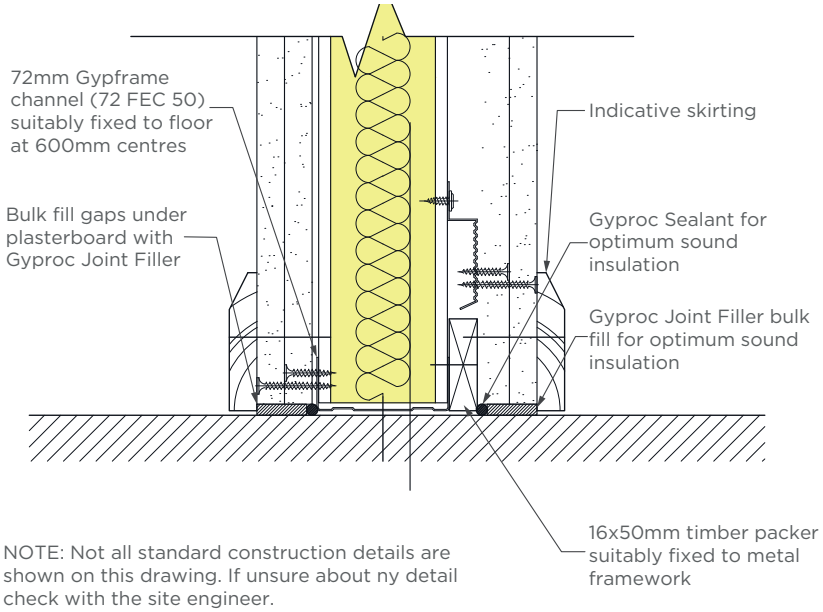
Comfort Roll 35

+

Metac

+

Vario® System

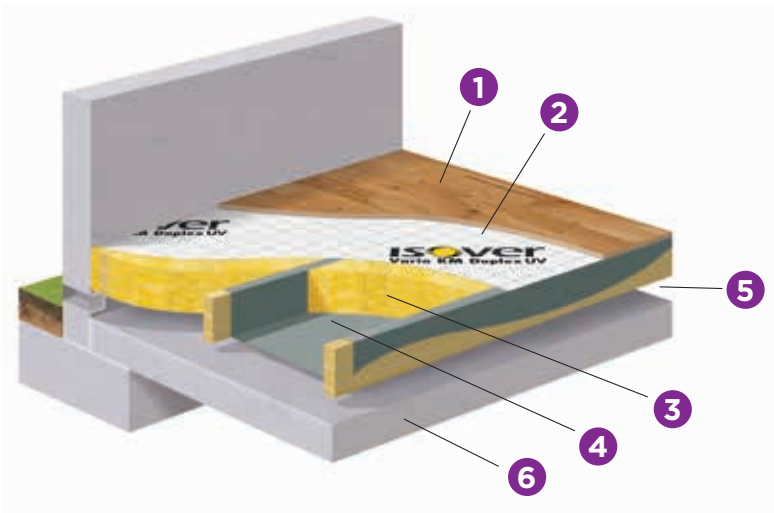


NOTE: Not all standard construction details are shown on this drawing. If unsure about ny detail check with the site engineer.

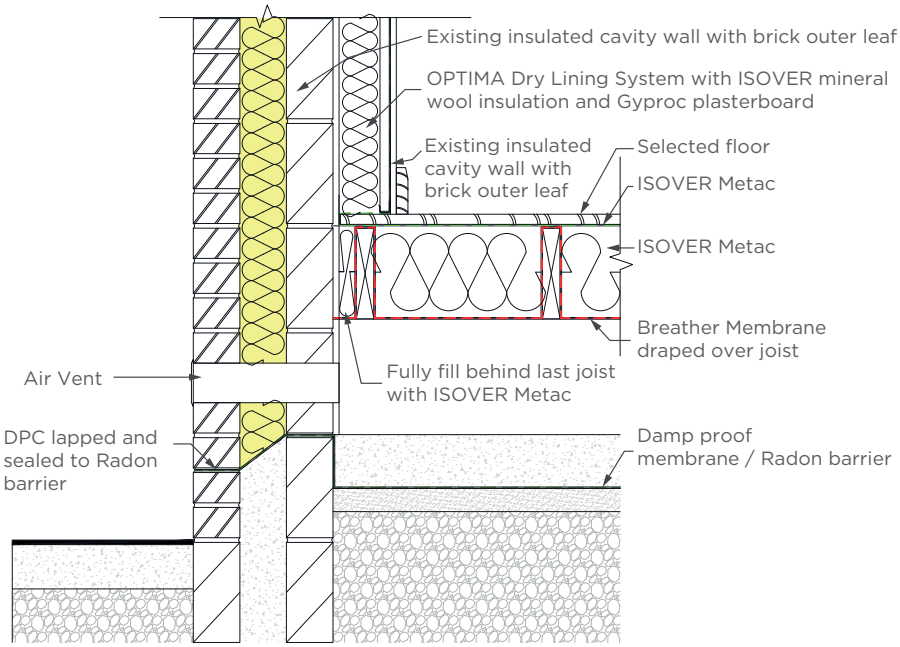
SUSPENDED GROUND FLOOR

Timber – Insulated between joists

1. Timber walking surface
2. Vario® membrane + tapes
3. Isover insulation between joists
4. Breather membrane / netting
5. Ventilated void
6. Ground floor slab



Application CAD Details



Isover Products

Spacesaver Roll

OR

Metac

+

Vario® System

CASE STUDY

111 Central Promenade, Newcastle County Down

Project Overview

Category: Retrofit

Duration: 8 months

Contractor/Specifier: CHP Mechanical and Liam Milling Architects

Size: 600m²

Project Goal

The aim of the project was to convert two early 20th century houses into 7 contemporary apartments for the popular seaside town of Newcastle. The owner required a high spec finish and we had to consider the external fabric of the buildings to enable Isover to come up with a suitable system that would work with the existing buildings.

Project Challenge

Due to the age of the houses there was some concern as the external walls were leaking water. The fact the external walls were wet, required a system that would give the owner durability, moisture management, airtightness, robustness, an upgrade in thermal, acoustic performance and adaptable to suit the building.

How did you overcome these challenges?

At the first site meeting, Mark McCormick raised concerns that the wall lining on the plans would cause moisture in the external walls to become trapped and over time cause issues. We then put forward our Isover Optima system, and when Liam the architect checked everything out he decided to change the plans to use Isover's Optima Dry Lining System.

What challenges were unique about this build?

The age of the building and the high spec finish of the apartments which would allow the apartments to be used all year round.

How did you overcome these unique challenges?

We produced U-Value reports and condensation analysis which showed that we delivered the required U-Value, allowed the walls to breathe, had an excellent airtightness level, was robust and gave a greater level of acoustic performance.

U-value achieved:

EXTERNAL WALLS | **0.20**

Isover Products

Optima Dry Lining System

+

Metac

+

Acoustic Roll

+

Spacesaver Roll

+

Spacesaver Plus

+

Vario® System


CHP Mechanical


ISOVER

NOTES

NOTES

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