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# ISOVER
# SOLUTIONS GUIDE

**Creating energy efficient residential buildings, using innovative & sustainable solutions.**

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## Section 4 - Wall & Floor Solutions for Thermal Performance



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## Section 7 - Optima Dry Lining System



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ISOVER has a long and proud history of producing and supplying market leading insulation solutions in Ireland and has served Irish builders, architects and home owners for over 40 years. As part of the wider Saint-Gobain group, who are leaders in the design, production and distribution of materials for the construction projects around the world, ISOVER seeks to develop and supply complete insulation solutions to guarantee the thermal and acoustic comfort of Irish homes & businesses.

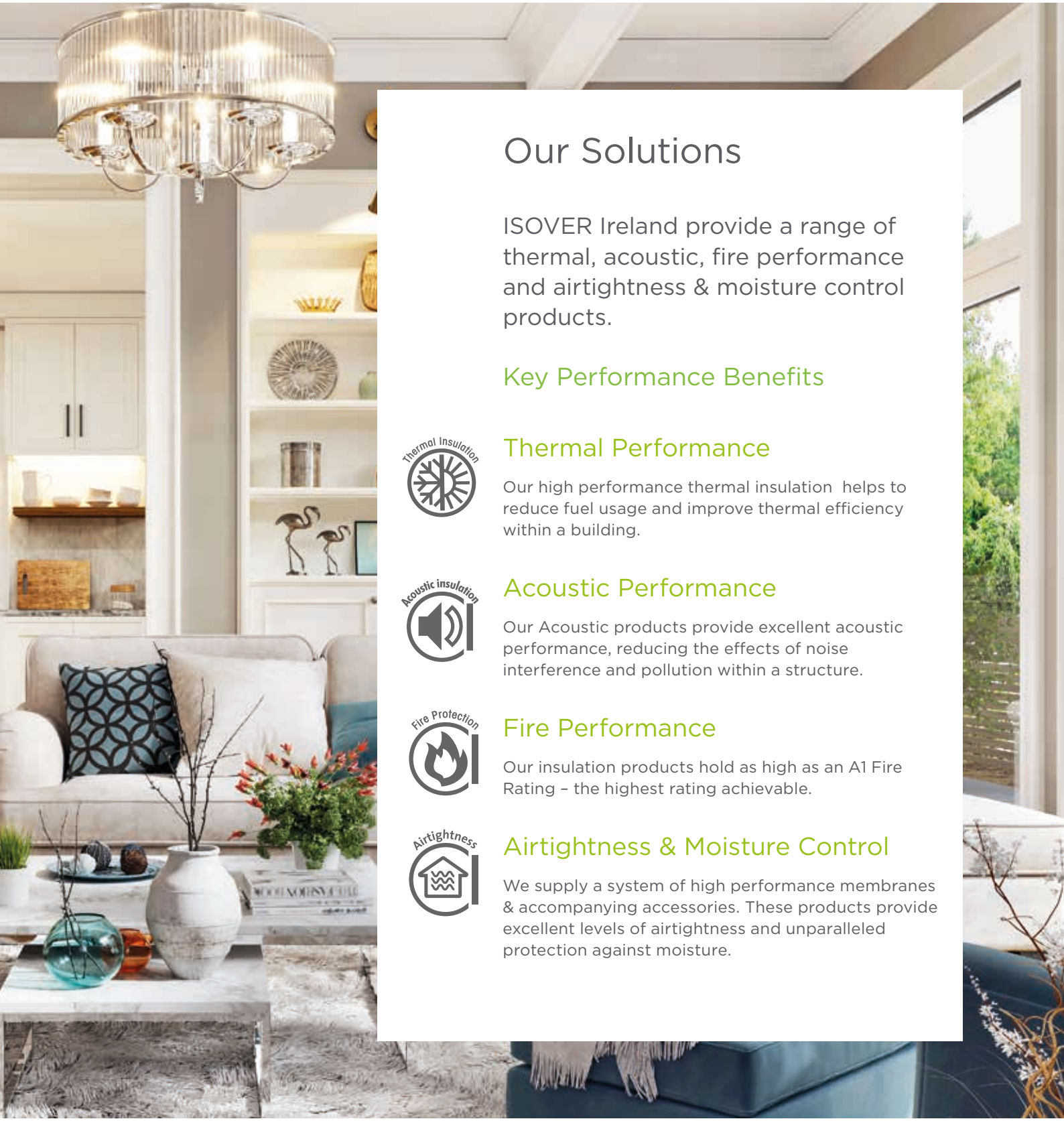
With our overall goal and purpose - To Make the World a Better Home - we strive to continue providing market leading solutions to help make all our homes more comfortable to live in and more sustainable to maintain. Technical excellence and global leadership in mineral wool insulation products and building systems is only part of the story. We also work to improve the sustainability of our products, continuously reviewing the carbon footprint of the products we make, as well as using up to 75% recycled materials in our insulation products.

This guide features a range of market leading insulation, airtightness & dry lining solutions, all of which are backed up by the technical & customer focused support that is so important to the Irish construction market.

Our success in providing support to our customers for over 40 years is a result of our focus on improving the quality of thermal & acoustic comfort in Irish homes and businesses. By continuing to do so, we can all help ensure that we Make the World a Better Home for everyone.

PÁDRAIG BARRY

Managing Director of ISOVER
& Gyproc in Ireland



# Our Solutions

ISOVER Ireland provide a range of thermal, acoustic, fire performance and airtightness & moisture control products.

## Key Performance Benefits

### Thermal Performance

Our high performance thermal insulation helps to reduce fuel usage and improve thermal efficiency within a building.

### Acoustic Performance

Our Acoustic products provide excellent acoustic performance, reducing the effects of noise interference and pollution within a structure.

### Fire Performance

Our insulation products hold as high as an A1 Fire Rating – the highest rating achievable.

### Airtightness & Moisture Control

We supply a system of high performance membranes & accompanying accessories. These products provide excellent levels of airtightness and unparalleled protection against moisture.

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# Solutions

ISOVER offer you sustainable solutions for the residential, commercial, health and education sectors.

## Mineral Wool Solutions

ISOVER offer a range of high performance mineral wool solutions providing excellent thermal comfort from 0.031-0.044 W/mK

- ✔ Healthy Indoor Air Quality, Eurofins Air Comfort Gold Award
- ✔ Excellent Recovery, reduced slumping and high tear strength
- ✔ Natural recycled materials, no odour
- ✔ Soft Touch, Low Dust for a pleasant installation
- ✔ Up to A1 Fire Rating, the highest rating for insulation materials
- ✔ Vapour permeable insulation for maximum protection from moisture & condensation

## Airtightness & Moisture Control Solutions

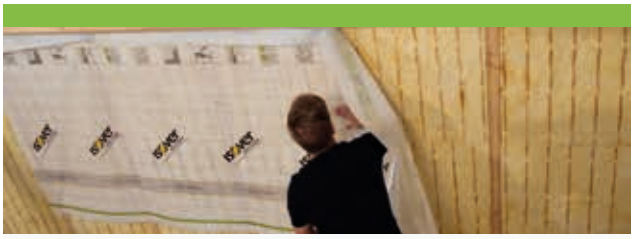
The Vario® system is a high performance system consisting of intelligent membranes and accessory products which provide;

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

Recycled glass UP TO 75 %

- G3 Touch technology
- Great performance
- Gentle to use and install
- Good for the environment
- A1 fire rated

**Efficient**
Best Thermally Performing Mineral Wool Insulation On The Market



Moisture Control

- Complete Airtightness & Moisture Control System
- Multifunctional: acting as a barrier and a breathable membrane
- Variable $S_d$ performance
- Beats present and future building regulations
- Saves energy

**Protects**
the building structure

ISOVER provide complete solutions to enable high performance for thermal, acoustic, fire protection plus airtightness & moisture control applications.

## Interior Dry Lining Solutions

Optima Dry Lining System is the first NSAI certified dry lining system in Ireland and is BBA certified for Northern Ireland – it is an innovative high performance solution for insulating new and older homes from the inside.

- ✔ Excellent thermal and acoustic performance
- ✔ Eliminates thermal bridges
- ✔ Adjustable system for all wall types and materials
- ✔ Dry clean, lightweight with minimal waste
- ✔ Compatible with the Vario® Airtightness and Moisture Control System
- ✔ Quick & easy to install
- ✔ Designed for adaptability and reuse with natural materials for low ecological impact

## Acoustic Solutions

ISOVER have developed a range of high performance products to offer excellent acoustic results. This range has been tested to ensure the highest possible decibel reduction providing high levels of acoustic comfort.

- ✔ Excellent acoustic performance
- ✔ Natural materials – made from recycled materials
- ✔ A1 Fire Rating for mineral wool rolls – highest possible fire rating
- ✔ Range of solutions to provide excellent results across new build and renovation

High performance

Easy to Install

Quick, allows for rapid installation

**Eliminates**
Thermal Bridges

Reduces unwanted noise

Lowers the infiltration of external noises

Helps protect against airborne and impact noise

Saves energy

**Minimises**
unwanted noise

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# Quality Certified Solutions

ISOVER guarantees high quality, certified systems for the protection and future-proofing of buildings, providing certified solutions across mineral wool, drylining, airtightness & moisture control.

## Our commitment to quality:

CE
EN ISO 13162

We hold a Quality Management Standard EN ISO 9001: 2008 for manufacturing. All products are manufactured in accordance with the CE marking requirements under the Construction Products Regulation, and to product standard: EN 13162: 2008 and EN 13172 Evaluation of Conformity.

Our commitment to the 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.

Our products have been manufactured to BES60001 to ensure their constituent materials have been responsibly sourced.

1. **Eurofins Certification:** ISOVER's G3 Touch insulation range has the highest award for indoor air quality – the Eurofins Indoor Air Comfort "Gold Standard" certificate. ISOVER G3 insulation achieved this by using new technology to manufacture its next generation mineral wool. The Eurofins "Gold Standard" combines all relevant European regulations and voluntary labels which measure the effect of products on indoor air quality - combining the most stringent requirements in any EU country into one label. This makes Indoor Air Comfort GOLD the most ambitious label for low-emissions in the whole of Europe. Eurofins is well known as a leading independent international provider of emissions testing, analysing a wide range of products and building materials such as flooring products, adhesives, insulation materials, paints and varnishes.

   *"The Gold Certificate means that ISOVER mineral wool is certified as an outstanding material in terms of Indoor Air Quality emissions regulations."*

   - Dr. Roland Augustin, Director Certification Chemical Safety, Eurofins Hamburg.

## Support is everything

Contact our Customer Services team for information on any of our support services from spec to site.

**Customer Services**
+353 (0)1 6298444
customer.service@saint-gobain.com


The Eurofins award was made possible following the introduction of the latest in mineral wool manufacturing technology by ISOVER, called G3. This revolutionary technology allows us to introduce more natural ingredients to our processes, thus ISOVER insulation is even better than before in environmental terms.

2. **EMICODE®:** To ensure the greatest possible protection regarding health, environmental and indoor air hygiene, specific ISOVER materials have been awarded the EMICODE® label. They are very low in emissions, meet the strictest tolerances and standards and are permanently monitored by independent inspection bodies.

   As a result, EMICODE® guarantees a clean and safe indoor air quality for years to come – for a healthy and comfortable climate within the envelope of the building. ISOVER's Vario® Bond Plasterable Tape was awarded the GEV Emicode to certify that it meets the above criteria in terms of providing clean and safe indoor air quality.

3. **NSAI Certification:** ISOVER Optima was awarded the first ever NSAI Certification in Ireland for a Dry Lining System. The certification is designed specifically for new building materials, products and processes that do not yet have a long history of use and for which published national standards do not yet exist either because they are innovative or because they deviate from the established norm. NSAI Agrément assesses, specifies testing, and where appropriate, issues Agrément certificates for such products. NSAI Agrément is responsible for Agrément assessment and certification.

EN ISO 13162

4. **CE Marking:** ISOVER products are fully CE Marked assuring you and your customer consistent product quality and performance. The letters "CE" are the abbreviation of the French phrase "Conformité Européene" which literally means "European Conformity." CE marking is a manufacturer's declaration that the product complies with the essential requirements of the relevant European health, safety and environmental protection legislation, regarding their products safety and performance. The legislation also means all CE marked products are made with tight manufacturing parameters to guarantee performance within their specific application.

# BREEAM

BREEAM is the longest established environmental assessment method and rating system for buildings, with 250,000 buildings achieving certified assessment ratings and over a million registered for assessment since it was first launched in 1990. It was developed by the Building Research Establishment.

BREEAM® does not certify a specific product, but a building as a whole. The use of ISOVER sustainable insulation solutions can contribute to your future BREEAM project (BREEAM International New Construction 2013) on 8 criteria and be worth up to 43 credits.

| Categories | Criteria | Total Credits Available |
|---|---|---|
| Health & Well-Being | HEA 02 Indoor Air Quality | 4 |
| | HEA 03 Thermal Comfort | 2 |
| | HEA 05A Acoustic Performance | 2 |
| Energy | ENE 01 Energy Efficiency | 15 |
| Material | MAT 01 Life Cycle Implants | 6 |
| Waste | MAT 04 Insulation | 1 |
| | WST 01 Construction Waste Management | 3 |
| Innovation | Innovation | 10 |

**43 Credits**

**If you want more information about how ISOVER can help with LEED or BREEAM, get in touch with our technical team:**
**NI:** 0845 399 0159
**ROI:** 1800 744 480
tech.ie@saint-gobain.com

# LEED

LEED has been popular in Ireland over the past number of years particularly amongst US multinationals. LEED was developed by the US Green Building Council inspired by the UK scheme, BREEAM.

LEED® does not certify a specific product, but a building as a whole. The use of ISOVER sustainable insulation solutions can contribute to your future LEED project (BD&C New construction) on 11 criteria and be worth up to 42 credits.

| Categories | Criteria | Total Points Available |
|---|---|---|
| **Integrative Process** | Credit "Integrative Process" | 1 |
| **Energy & Atmosphere** | Optimise Energy Performance | **18 (up to 20 for Healthcare)** |
| **Material & Resources** | Building Lifecycle Impact Reduction | **5 (up to 6 for Core & Shell)** |
| | Building Product Disclosure And Optimisation; Environmental Production Declaration | 2 |
| | Building Product Disclosure And Optimisation; Sourcing Of Raw Materials | 2 |
| | Building Product Disclosure And Optimisation; Material Ingredients | 2 |
| | Construction And Demolition Waste Management | 2 |
| **Indoor** | Low-Emitting Materials | 3 |
| **Environmental** | Thermal Comfort | 1 |
| **Quality** | Acoustic Performance | **1 (up to 2 for Healthcare)** |
| **Innovation** | Innovation | 5 |

## 42 Points

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Environmental Product Declaration

BREG EN EPD No.: 000064 Issue 01

This is to certify that this verified Environmental Product Declaration provided by:

Saint-Gobain Isover UK

is in accordance with the requirements of:

EN 15804:2012+A1:2013

This declaration is for:

Spacesaver and Spacesaver Ready - Cut Product Families

Company Address

Saint - Gobain Isover UK
Whitehouse Industrial Estate
Runcorn
Cheshire
WA7 3DP
United Kingdom

isover

Derek Hughes 20 April 2015

20 April 2015 19 April 2020

EPD

## Environmentally friendly products, from manufacture to end of life

# EPD Certification

ISOVER is a leader in providing sustainable insulation solutions. As part of this, we prepare and provide Environmental Product Declarations for our products, so that you can understand the low environmental impact of using mineral wool as an insulation solution. EPDs for applicable products are available at **www.isover.ie**


ISOVER has also prepared an in-depth analysis for some of our products, focusing on the manufacture stage of the product life cycle, with areas such as **Raw material handling (1) Glass melting (2), Fiberizing (3), Curing (4), Cutting (5), Packaging (6) and Palletisation (7)** all assessed with regard to their environmental impact.

The EPD report will state the impact of the product on the environment for the full life of the product. Preparation of EPDs demonstrates ISOVER's commitment to providing responsible and environmentally friendly insulation products for the Irish market.

**If you would like more information on ISOVER EPDs, get in touch with our Technical Team today**

**ROI:** 1800 744 480
**NI:** 0845 399 0159
tech.ie@saint-gobain.com

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Contact a member of our team for information on any of our support services from spec to site.

# Support is everything

## Regional **Sales Managers**



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**Midlands Region**
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**Southern Region**
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**Martin Comerford**

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## Supports **we offer...**

- Specification Team
- National Delivery Service
- Plasterboard Recycling Service
- Sales Team Supporting Distribution
- Technical Support
- Demonstrations Team
- Customer Service
- U-Value calculations
- Technical Academy Training Facility

# Place **your trust in us**

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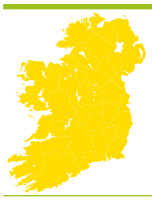
# Contact Us

## Specification Sales Managers



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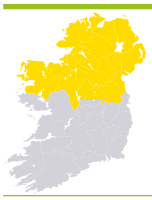
## Product Advisor/Demonstrator



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# Sustainable Insulation Solutions

### THE ONLY FIRE RATED 1 BOARD PITCHED ROOF SOLUTION

Learn more about the only 1 board fire rated pitched roof solution.

### LOOKING TO INSULATE YOUR ATTIC?

View our “How to Insulate” movie and step-by-step guide!

### LOCK IN HEAT, LOCK OUT DRAUGHTS WITH VARIO RANGE!

Learn more about our airtight and moisture control solution application detailing.

### CONVERTING YOUR ATTIC?

Check out the “Metac” movie!

## NEED HELP? DO YOU HAVE A QUESTION?

Contact our technical team:
ROI: 1800 744 480
NI: 0845 399 0159
tech.ie@saint-gobain.com


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# ISOVER
# ATTIC SOLUTIONS

Insulation, Airtightness & Moisture
Management Solutions for Attic Floors

# Contents

# Attic Floor Application Overview
# **ISOVER Insulation & Vario® System**

## ISOVER offers a comprehensive range of products for attic floors, both in New Build and Renovation projects.

ISOVER Spacesaver delivers high performance for traditional attic floor applications where a layer of insulation is placed between and above attic floor trusses. Comfort 35 & ISOVER Timber Frame Roll 35 also offer improved thermal performance for attic applications. When combined with the Vario® system, they provide excellent performance and help to keep energy consumption and fuel bills down.


- ✔ **High performance** thermal insulation ranging from 0.035 - 0.044.
- ✔ **Friction fitting** insulation with Metac – eliminating air gaps
- ✔ **Vapour permeable insulation** for maximum protection from moisture and condensation issues
- ✔ **Excellent indoor air quality** Eurofins Gold Comfort
- ✔ **Manufactured using recycled glass** helping our environment
- ✔ **G3 Touch technology** great performance, gentle to use and install, good for the environment

Acoustic insulation · Fire Protection · Moisture Control · Breathable · Energy Savings · Easy to install · Recycled glass UP TO 75 % · Protected planet $CO_2$ · Minimal waste · Easy to transport

**W/mK** 0.035 - 0.044

INDOOR AIR COMFORT eurofins GOLD CERTIFIED PRODUCT

CE

G3 touch

## WHERE TO USE

Residential

New and Old

ISOVER SAINT-GOBAIN

# Standards and Certification

| | |
|---|---|
| **QUALITY** | We hold a Quality Management Standard BS EN ISO 9001: 2015 for manufacturing. |
| **CE** | Our products are manufactured in accordance with the CE marking requirements under the Construction Products Regulation |
| **PRODUCT STANDARDS** | All products are manufactured in accordance with product standard:<br>BS EN 13162:2012+A1:2015 and BS EN 13172 Evaluation of Conformity. |
| **ENVIRONMENT** | ISOVER is an ISO 14001:2015 (Environmental Management System) accredited manufacturing facility. This accreditation ensures that all products are manufactured to the stringent standards set out by this management system. |
| **INDOOR AIR QUALITY** | Awarded the highest standard in indoor air quality - Eurofins “Gold” 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 does 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. |
| **RESPONSIBLY SOURCED** | Our products have been manufactured to BES60001 to ensure their constituent materials have been responsibly sourced. |

CE

TECHNICAL ACADEMY

NEW Online Training

# 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

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**NEW BUILD U VALUES:**
0.16 PITCHED ROOF
**RENOVATION U VALUES:**
0.25 PITCHED ROOF

# Building Regulations
# **Republic of Ireland**

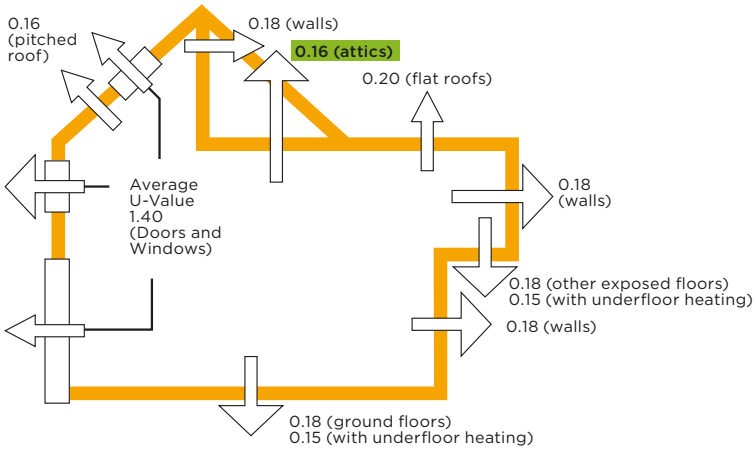
The following is a guide to thermal building regulations for new & existing dwellings, delivering comfort and energy savings through effective thermal insulation.

## Republic of Ireland

**New Dwellings TGD – Part L – 2019**

Minimum standards for
U-Values

Upper limit for air permeability is
5m³/(h.m²)

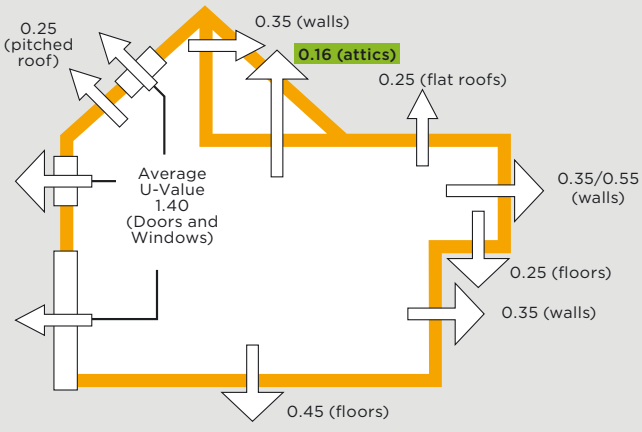



For more information you can contact our technical team on free phone (ROI) 1800 744480 or go to www.isover.ie

## Republic of Ireland

**Existing Dwellings TGD – Part L – 2019**

Minimum standards for
U-Values




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

CONTACT OUR TECHNICAL TEAM FOR MORE INFO:
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**NEW BUILD U VALUES:**
0.20 PITCHED ROOF
**RENOVATION U VALUES:**
0.18 PITCHED ROOF

# Building Regulations **Northern Ireland**

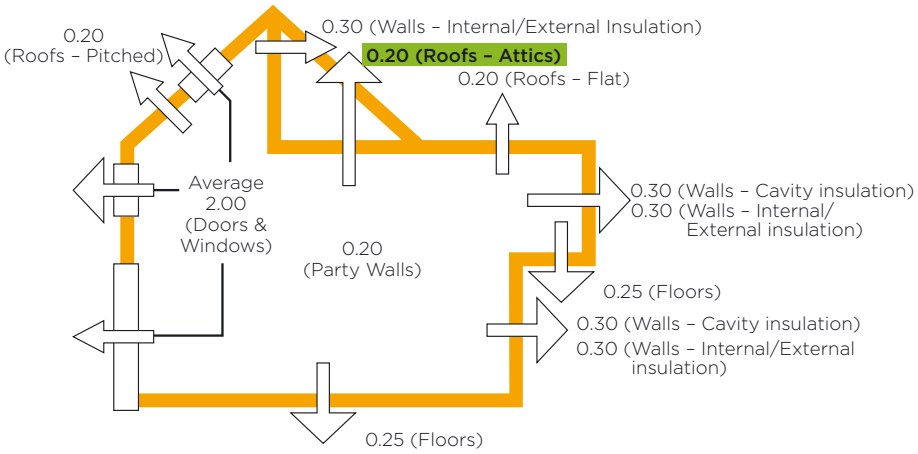
The following is a guide to thermal building regulations for new & existing dwellings, delivering comfort and energy savings through effective thermal insulation.

## Northern Ireland

**New Dwellings – DFP Technical Booklet F1:2012**

Minimum standards for U-Values

Upper limit for air permeability is 10m³/(h.m²)



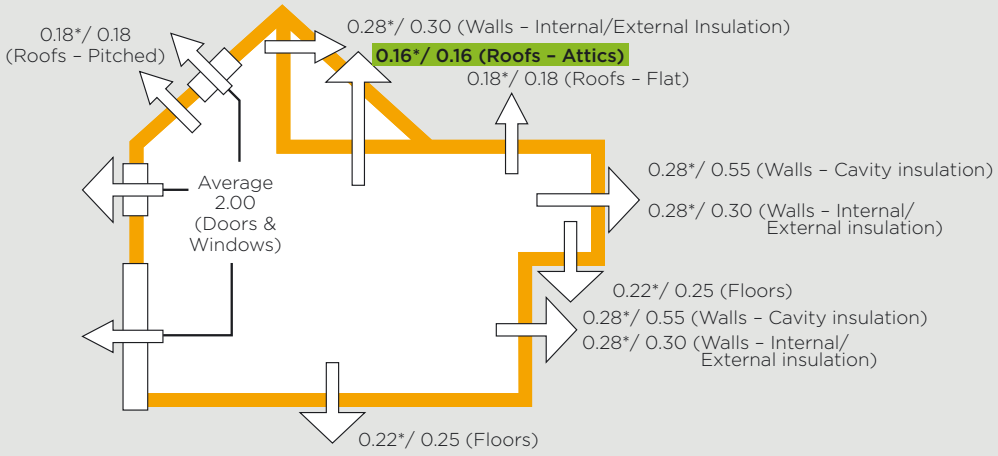

For more information you can contact our technical team on phone (NI) 0845 339 0159 or go to www.isover.ie

## 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

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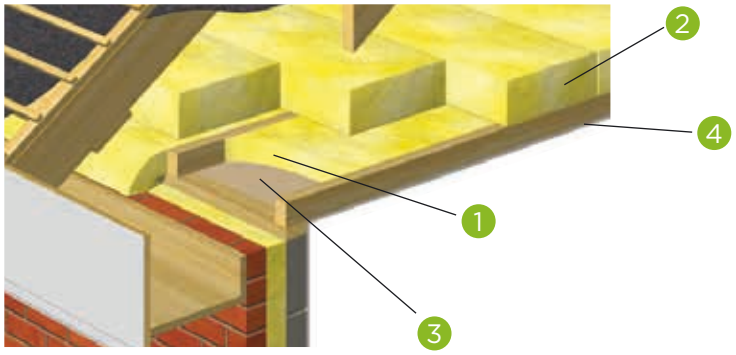
# Attics

## Insulation Between & Over Joists

1. ISOVER insulation between joists
2. Second layer of ISOVER insulation cross laid over joists
3. Vario® membrane + tapes
4. See boarding options table




## Boarding Options

**47mm Truss**

1 x 15mm FireLine to 35mm x 44mm Counter Battens with 35x63mm noggings to all board edges

**<47mm Truss**

2 x 12.5mm FireLine to 35mm x 44mm Counter Battens, with no noggings required

1 x 15mm FireLine to 35mm x 63mm Counter Battens

Note: Noggings (of equivalent size to counterbattens) required to all board edges unless noted otherwise

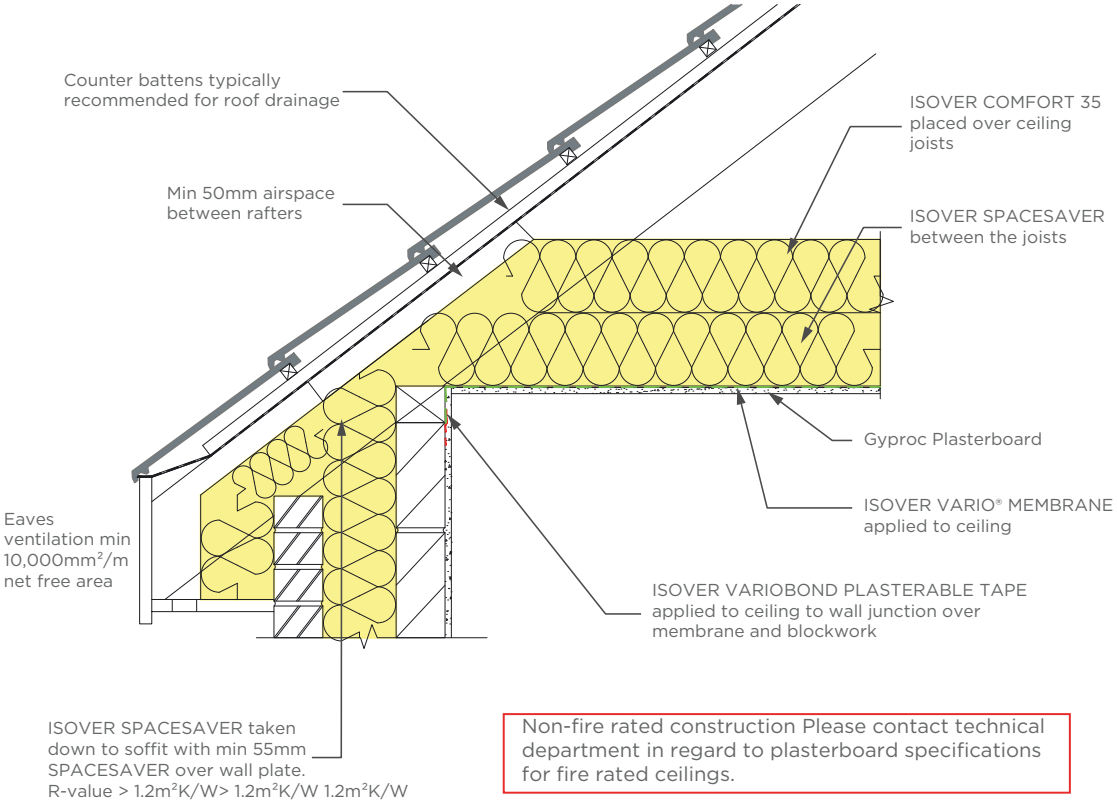
30 **Minutes Fire Resistance (Typically 3 Storey Dwellings, As Well As 2 Storey Attic Spaces Intended For Conversion To Habitable Spaces)**

| | 1st Insulation layer, fitted to depth of joists | 1st Layer Lambda | Insulation 2nd Layer | 2nd Layer Lambda | Airtightness | U-Value 400 centres | U-Value 600 centres |
|---|---|---|---|---|---|---|---|
| 100mm Joist Height | Spacesaver 100mm | 0.044 | Spacesaver 170mm | 0.044 | Vario® System | 0.16 | 0.16 |
| | Spacesaver 100mm | 0.044 | Comfort 35 140mm | 0.035 | Vario® System | 0.16 | 0.16 |
| | Spacesaver 100mm | 0.044 | Spacesaver Plus 150mm | 0.040 | Vario® System | 0.16 | 0.16 |
| | Spacesaver Plus 100mm | 0.040 | Spacesaver Plus 150mm | 0.040 | Vario® System | 0.16 | 0.16 |
| | Spacesaver 100mm | 0.044 | Spacesaver 200mm | 0.044 | Vario® System | 0.15 | 0.14 |
| 150mm Joist Height | Comfort 35 140mm | 0.035 | Spacesaver 200mm | 0.044 | Vario® System | 0.12 | 0.12 |
| | Comfort 35 140mm | 0.035 | Spacesaver Plus 200mm | 0.040 | Vario® System | 0.11 | 0.11 |
| | Spacesaver 150mm | 0.044 | Spacesaver 200mm | 0.044 | Vario® System | 0.13 | 0.13 |
| | Spacesaver 150mm | 0.044 | Spacesaver 150mm | 0.044 | Vario® System | 0.15 | 0.15 |
| | Spacesaver 150mm | 0.044 | Spacesaver Plus 150mm | 0.040 | Vario® System | 0.14 | 0.14 |
| | Spacesaver Plus 150mm | 0.040 | Spacesaver Plus 150mm | 0.040 | Vario® System | 0.14 | 0.13 |
| | Spacesaver 150mm | 0.044 | Comfort 35 140mm | 0.035 | Vario® System | 0.14 | 0.13 |
| | Spacesaver 150mm | 0.044 | Spacesaver 200mm | 0.044 | Vario® System | 0.13 | 0.13 |
| | Spacesaver 150mm | 0.044 | Spacesaver Plus 200mm | 0.040 | Vario® System | 0.12 | 0.12 |
| | Spacesaver Plus 150mm | 0.040 | Spacesaver Plus 200mm | 0.040 | Vario® System | 0.12 | 0.11 |
| 200mm Joist Height | Spacesaver Plus 200mm | 0.040 | Spacesaver Plus 200mm | 0.040 | Vario® System | 0.10 | 0.10 |

Any values are indicative, please contact our technical support team for values pertaining to your project.

CONTACT OUR TECHNICAL TEAM FOR MORE INFO:
ROI: 1800 744 480 • NI: 0845 399 0159 • tech.ie@saint-gobain.com

# Application CAD Details




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

ISOVER PRODUCTS


Spacesaver Roll


Comfort 35


Vario® System

**More CAD details and application variants are available to download by registering and logging into www.isover.ie**

Please contact us for more information on this and other applications:

**Free Phone (ROI):** 1800 744480

**Free Phone (NI):** 0845 3990159

**Email:** tech.ie@saint-gobain.com

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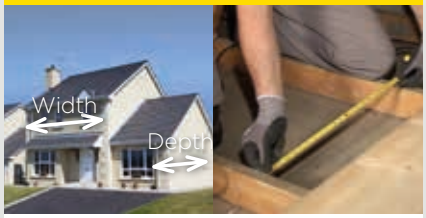
# Attic Install Guide

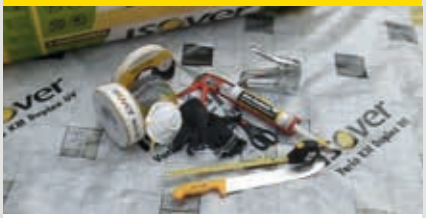
## STEP 1 HOW MUCH DO YOU NEED?




**You will need to work out how many rolls of insulation you need**

- Check joists - do you have any existing insulation in your attic?
- What size are your joists? Measure depth and width. Typically joists are 100mm deep and 600mm wide.

## STEP 2 WHAT TOOLS DO YOU NEED?



**You will need...**

- A sharp insulation knife
- Goggles
- Measuring tape
- Brush handle
- Pipe insulation
- Downlighter or socket boxes
- Cold water tank jacket
- Isover insulation

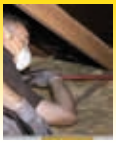
## STEP 3 CABLES, SOCKETS AND DOWNLIGHTERS

Treat sockets and downlighters with a socket box and remember to leave a 75mm gap around the cable, where these cables can't be lifted above the insulation.

Ensure certified solutions (by others) are used where fire resistance is required.

## STEP 4 FIRST LAYER

For the first layer of insulation, lift your insulation through the attic hatch - whilst keeping the packaging on. Then cut the insulation to match the width of your joists. Finally for this step: Starting at the end furthest away from the attic door, simply roll and friction fit between the joists.



**Use the handle of a brush or something similar to push the insulation into "hard to reach" places - but take care not to compress the insulation.**

## STEP 5 VENTILATION

It's important to ensure your attic space is well-ventilated to prevent a build up of moisture and condensation.

For this purpose, we recommend that you leave a gap of 50mm between the roofing membrane and the insulation at eaves of the roof .

## STEP 6 WATER TANK AND PIPES

Once the first layer is completed, you should put on the tank cover and make it secure with tape.

Then, put on the pipe covers and seal with a tape - such as our Vario® MultiTape SL.

**Don't put insulation under the water tank! This is best practice to avoid water tank freezing in low temperatures.**

## STEP 7 WALKWAY

It's a good idea to put a walkway to your tank.

You can do this by:

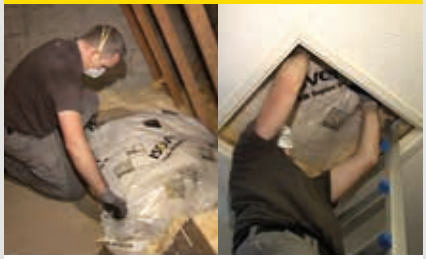
- Securing timber across the joists
- Laying the top of layer of insulation between them
- Then laying a walkable wood board on top

## STEP 8 TOP UP LAYER

When your 1st layer is complete you are ready for the top up layer.

Open Comfort 35 roll and roll out in the opposite direction across the joists, ensure you join each layer and leave no gaps

## STEP 9 ATTIC HATCH



Your attic hatch can be simply insulated by making a bag filled with insulation, preferably using vapour membrane. You can use Isover Vario® membrane filled with leftover insulation. Place it over the attic hatch. For extra protection - use a draft seal tape around the door surround to create an airtight seal.

Exit carefully and adjust the bag in the right place.

Close the hatch and you are done! Your attic is insulated!

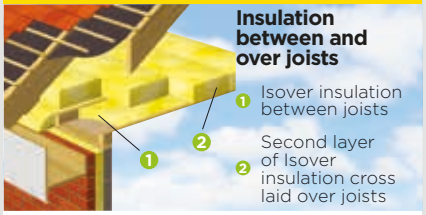
## STEP 10 INSTALLATION MOVIE & TECHNICAL SUPPORT

You can view our easy to follow Attic Insulation movie by scanning the QR code below with your smart phone:

**View our installation video**

Alternatively, go to:
**www.isover.ie**

## OUR PRODUCTS




### Understanding Thermal Performance

The current building regulations require a U-Value of 0.16 for attic floors. The U-Value is defined as the rate at which heat is lost - and the lower the U-Value, the better it is for your home.

**1st Layer:**
100mm Spacesaver = 0.044 W/mK

**Plus 2nd Layer:**
140mm Comfort 35 = 0.035 W/mK

**Gives you...**

**U Value of 0.16**

...which meets current building regulations!

## CHECKLIST

### Before you begin - here's a checklist...

**Do you have:**

- ☐ Secure stairs or ladder to your attic
- ☐ Board or plank to stand on - don't stand between joists as your foot may go through the ceiling!
- ☐ Protective clothing - face mask and gloves
- ☐ Pipes and tank insulation covers
- ☐ Lighting source in your attic - if you have run a cable, please make sure that it's secured and doesn't cause a trip hazard
- ☐ Ventilation points – check the eaves to find the ventilation grills

## NEED HELP? DO YOU HAVE A QUESTION?

Contact our technical team:
ROI: 1800 744480
NI: 0845 3990159
tech.ie@saint-gobain.com

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# Product Range Overview

## ISOVER Spacesaver Roll


FOR USE IN **PITCHED ROOF – ATTICS**

A mineral wool roll for domestic attic floors.
Rolls pre-perforated to 3 x 386mm and 2 x 580mm widths to fit between common joist spacings.


**W/mK** 0.044

| Product | Order Code | Thickness (mm) | Width (mm) | Length (mm) | Pack Area (m²) | Pack Per Pallet |
|---|---|---|---|---|---|---|
| Spacesaver G3 Touch | **5200854520** | 100 | 1160 | 12180 | 14.13 | 24 |
| Spacesaver G3 Touch | **5200854529** | 150 | 1160 | 8050 | 9.34 | 24 |
| Spacesaver G3 Touch | **5200840154** | 200 | 1160 | 5200 | 6.03 | 24 |

## ISOVER Spacesaver Ready Cut Roll


FOR USE IN **PITCHED ROOF – ATTICS**

A mineral wool roll providing thermal insulation for domestic attic floors. Easy to install, rolls are ready-cut to provide half third widths to suit 400mm joist spacings.


**W/mK** 0.044

| Product | Order Code | Thickness (mm) | Width (mm) | Length (mm) | Pack Area (m²) | Pack Per Pallet |
|---|---|---|---|---|---|---|
| Spacesaver Ready-Cut G3 Touch | **5200861922** | 100 | 3 x 386 | 12180 | 14.10 | 24 |
| Spacesaver Ready-Cut G3 Touch | **5200861942** | 150 | 3 x 386 | 8050 | 9.32 | 24 |
| Spacesaver Ready-Cut G3 Touch | **5200861980** | 200 | 3 x 386 | 5200 | 6.03 | 24 |

# ISOVER
# Spacesaver Solid Roll

FOR USE IN **PITCHED ROOF – ATTICS**

A mineral wool solid roll providing thermal insulation for domestic attic floors.


Acoustic insulation · Fire Protection · Moisture Control · Breathable · Minimal waste · Easy to transport · Energy Savings · Easy to install · Recycled glass UP TO 75% · Protected planet $CO_2$ · Thermal Insulation · Euroclass A1 fire rating

**W/mK** 0.044

| Product | Order Code | Thickness (mm) | Width (mm) | Length (mm) | Pack Area ($m^2$) | Pack Per Pallet |
|---|---|---|---|---|---|---|
| Spacesaver Solid G3 Touch | **5200625528** | 100 | 1200 | 9170 | 11 | 24 |
| Spacesaver Solid G3 Touch | **5200666363** | 125 | 1160 | 6030 | 6.99 | 24 |
| Spacesaver Solid G3 Touch | **5200625526** | 150 | 1200 | 6030 | 7.24 | 24 |
| Spacesaver Solid G3 Touch | **5200625524** | 200 | 1200 | 3880 | 4.66 | 24 |

# ISOVER
# Spacesaver Plus Roll

FOR USE IN **PITCHED ROOF – ATTICS**

A mineral wool roll providing increased thermal and acoustic insulation for domestic attic floors and external walls. Rolls are pre-perforated to 3 x 386mm and 2 x 580mm widths to fit between common joist spacings.


Acoustic insulation · Fire Protection · Moisture Control · Breathable · Minimal waste · Easy to transport · Energy Savings · Easy to install · Recycled glass UP TO 75% · Protected planet $CO_2$ · Thermal Insulation · Euroclass A1 fire rating

**W/mK** 0.040

| Product | Order Code | Thickness (mm) | Width (mm) | Length (mm) | Pack Area ($m^2$) | Pack Per Pallet |
|---|---|---|---|---|---|---|
| Spacesaver Plus G3 Touch | **5200625357** | 100 | 1160 | 7000 | 8.12 | 24 |
| Spacesaver Plus G3 Touch | **5200625359** | 150 | 1160 | 4670 | 5.42 | 24 |
| Spacesaver Plus G3 Touch | **5200625361** | 200 | 1160 | 3500 | 4.06 | 24 |

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# Product Range Overview

## ISOVER Comfort 35

FOR USE IN **PITCHED ROOF RAFTERS • PITCHED ROOF ATTICS • WALLS INSULATED CAVITIES**

A high performance roll, with a tissue facing for ease of handling, which is designed for topping up attic floor insulation – easy to install, can be simply rolled out over existing insulation.


Acoustic insulation · Fire Protection · Moisture Control · Breathable · Minimal waste · Easy to transport · Energy Savings · Easy to install · Recycled glass UP TO 75 % · Protected planet $CO_2$ · Thermal Insulation

**W/mK** 0.035

| Product | Order Code | Thickness (mm) | Width (mm) | Length (mm) | Pack Area ($m^2$) | Packs Per Pallet |
|---|---|---|---|---|---|---|
| Comfort 35 G3 Touch | **5200542536** | 140 | 1200 | 3400 | 4.08 | 24 |

## ISOVER Timber Frame Roll 35

FOR USE IN **PITCHED ROOF RAFTERS • PITCHED ROOF ATTICS • WALLS INSULATED CAVITIES**

A high performance pre-split roll designed for topping up attic floor insulation, which can be simply rolled out over existing insulation.


Acoustic insulation · Fire Protection · Moisture Control · Breathable · Minimal waste · Easy to transport · Energy Savings · Easy to install · Recycled glass UP TO 75 % · Protected planet $CO_2$ · Thermal Insulation

**W/mK** 0.035

| Product | Order Code | Thickness (mm) | Width (mm) | Length (mm) | Pack Area ($m^2$) | Packs Per Pallet |
|---|---|---|---|---|---|---|
| Timber Frame Roll 35 G3 Touch | **5200625583** | 140 | 2x570 (1140) | 4000 | 4.8 | 18 |
| Timber Frame Roll 35 G3 Touch | **5200822660** | 140 | 3x400 (1200) | 4000 | 4.8 | 18 |

# ISOVER
# Vario® System

FOR USE IN **AIRTIGHTNESS APPLICATIONS**

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

HIGH PERFORMANCE AIRTIGHTNESS AND MOISTURE CONTROL

## 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 |  |
| Vario® StopVap Membrane | **5200846100** | 3000 | 40 | 120 | 1 Roll | 46 Rolls |  |

## Airtightness Tapes & Mastic

| Product | Order Code | Width (mm) | Length (m) / (ml) | 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 60 | **5200431017** | 60 | 25 | 1.5 | 10 Rolls | 80 Boxes (800 Rolls) |  |
| Vario® Multitape SL 150 | **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) |  |

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# PITCHED ROOF SOLUTIONS

Insulation, Airtightness & Moisture Management
Solutions for Timber Frame Roof Structures

# Contents

# Pitched Roof Application
# **ISOVER Metac & Vario® System**

*ISOVER offers one of the safest options for insulating Pitched Roofs, both in New Build and Renovation projects.*

*ISOVER Metac is a high performance mineral wool insulation 'slab on a roll'. When used in conjunction with our Vario® Airtightness and Moisture Control System it offers a market leading solution in terms of thermal, acoustic and safety performance. If also combined with ISOVER InLiner Board you have the complete mineral wool pitched roof solution. ISOVER InLiner Board is a super dense, rigid and high performance laminated Insulated Plasterboard.*

- ✔ **High performance** *thermal insulation*
- ✔ **Excellent acoustic performance**
- ✔ **A2 fire rating** *highest rating on the market EN 13501-1*
- ✔ **No slump** *during installation and life of the system*
- ✔ **Friction fits** *in rafters eliminating any air gaps*
- ✔ **Fully fill** *Metac with our Vario® System*
- ✔ **Vapour permeable insulation** *for maximum protection from moisture and condensation issues*
- ✔ **Excellent Indoor Air Quality** *Eurofins Gold Comfort*
- ✔ **Made from Recycled materials** *up to 75% recycled glass*
- ✔ **G3 Touch technology** *great performance, gentle to use and install, good for the environment*

Acoustic insulation · Euroclass A2 fire rating · Fire Protection · Moisture Control · Breathable · Energy Savings · Easy to install · Recycled glass UP TO 75% · Protected planet $CO_2$ · Minimal waste · Easy to transport

**W/mK** 0.031-0.034

## WHERE TO USE

Residential

New and Old

# Standards and Certification

| | |
|---|---|
| **QUALITY** | We hold a Quality Management Standard EN ISO 9001: 2015 for manufacturing. |
| **CE** | All products are manufactured in accordance with the CE marking requirements under the Construction Products Regulation |
| **PRODUCT STANDARDS** | All products are manufactured in accordance with product standard: EN 13162:2012+A1:2015 and EN 13172 Evaluation of Conformity. |
| **ENVIRONMENT** | ISOVER is an ISO 14001:2015 (Environmental Management System) accredited manufacturing facility. This accreditation ensures that all products are manufactured to the stringent standards set out by this management system. |
| **INDOOR AIR QUALITY** | Awarded the highest standard in indoor air quality - Eurofins “Gold” 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 does 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. |
| **RESPONSIBLY SOURCED** | Our products have been manufactured to BES60001 to ensure their constituent materials have been responsibly sourced. |

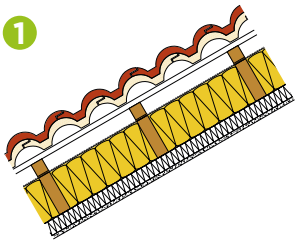
CE

# Control of
# **Condensation and Ventilation**

ISOVER complies with BS 5250:2016 code of practice for control of condensation in buildings & SR 82: 2017 Code of Practice for Slating and Tiling. These are the industry standards to ensure the building fabric is protected from moisture and condensation damage. This is achieved by ensuring adequate vapour control and ventilation measures are installed.

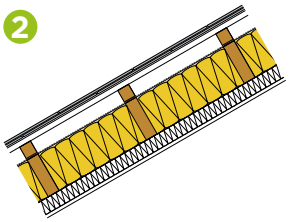
## Good practice details

1



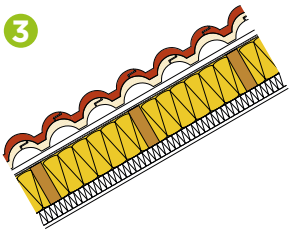
- ✔ Concrete tiles or natural slates (air-open)
- ✔ Slating laths
- ✔ Counterbattens (for roof drainage)
- ✔ LR (breathable) roofing felt
- ✔ Full fill ISOVER Metac insulation
- ✔ Vario® KM Duplex or Vario® Xtra Intelligent Airtightness VCL
- ✔ ISOVER InLiner Board

2



- ✔ Fibre cement slates (air-closed)
- ✔ Slating laths
- ✔ Ventilated counter batten space
- ✔ LR (breathable) roofing felt
- ✔ Full fill ISOVER Metac insulation
- ✔ Vario® KM Duplex or Vario® Xtra Intelligent airtightness VCL
- ✔ ISOVER InLiner Board

3



- ✔ Concrete tiles or natural slates (air-open)
- ✔ Slating laths
- ✔ LR (breathable) roofing felt
- ✔ Full fill ISOVER Metac insulation
- ✔ Vario® KM Duplex or Vario® Xtra Intelligent airtightness VCL
- ✔ ISOVER InLiner Board

## The standards cover

- ✔ Dealing with high moisture levels and condensation to protect the building fabric.
- ✔ Ensuring a sufficiently permeable roof build up i.e. use of an adequate breathable roofing felt in conjunction with an air-open roof covering (e.g. natural slates or concrete tiles not fibre cement).
- ✔ Addressing the risks associated with excessive humidity in buildings, notably mould growth and condensation.
- ✔ Recommending best practice construction, counterbattens as above the roof membrane allows for better drainage of rain water and can accommodate ventilation under non-air-open coverings where ridge and eaves vents are provided over the felt.

**ISOVER Pitched Roof Solutions - How do they comply with these industry standards?**

- Protecting Building Fabric - Managing moisture vapour
- Healthy Indoor Air Quality - Dealing with mould growth and condensation
- Energy Savings - Creating an airtight construction
- Full ISOVER Solution - High performance mineral wool insulation and airtightness, moisture control.

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**NEW BUILD U-VALUES:**
0.16 PITCHED ROOF
**RENOVATION U-VALUES:**
0.25 PITCHED ROOF

# Building Regulations
# **Republic of Ireland**

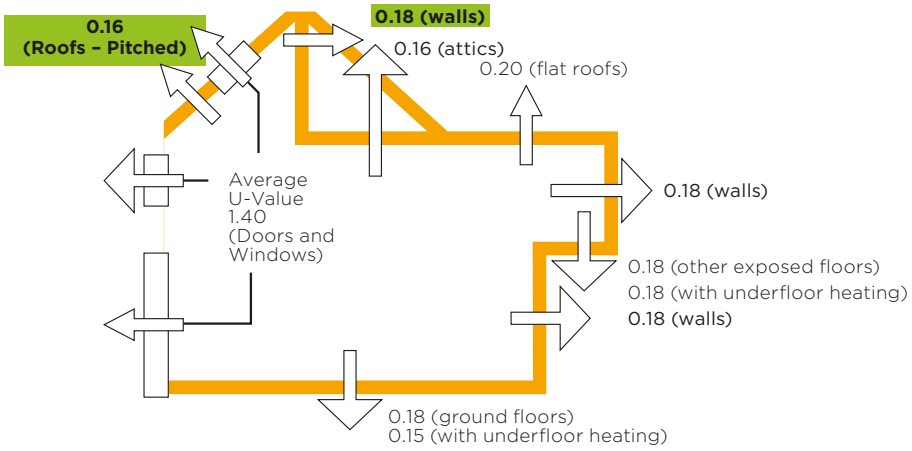
The following is a guide to thermal building regulations for new & existing dwellings, delivering comfort and energy savings through effective thermal insulation.

## Republic of Ireland

**New Dwellings TGD – Part L – 2019**

Minimum standards for U-Values

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

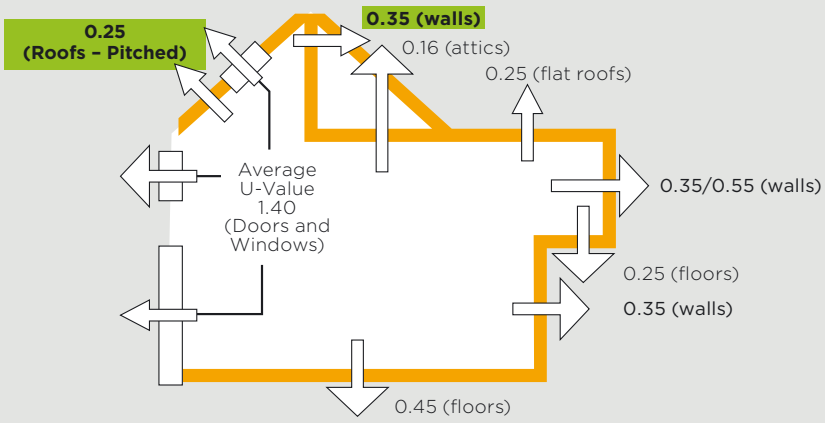



For more information you can contact our technical team on free phone (ROI) 1800 744480 or go to www.isover.ie

## 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:
ROI: 1800 744480 • NI: 0845 399 0159 • tech.ie@saint-gobain.com

NEW BUILD U-VALUES:
0.20 PITCHED ROOF
RENOVATION U-VALUES:
0.18 PITCHED ROOF

# Building Regulations **Northern Ireland**

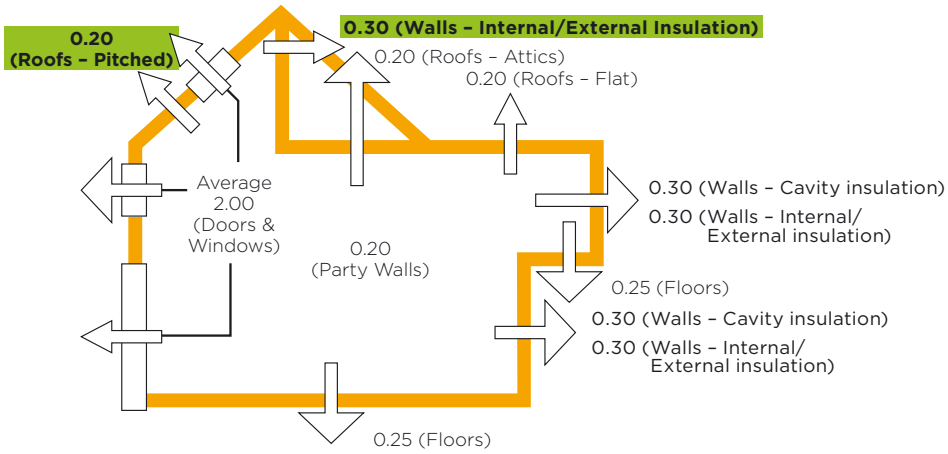
The following is a guide to thermal building regulations for new & existing dwellings, delivering comfort and energy savings through effective thermal insulation.

## Northern Ireland

**New Dwellings – DFP Technical Booklet F1:2012**

Minimum standards for U-Values

Upper limit for air permeability is 10m³/(h.m²)



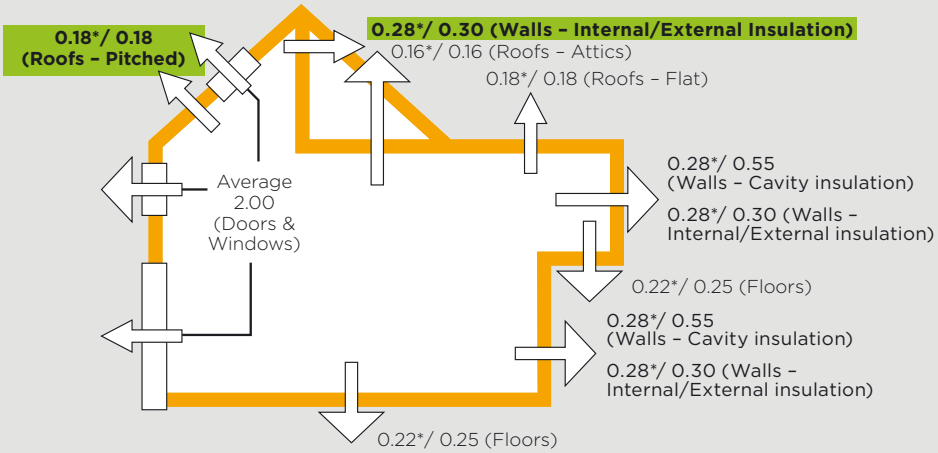

For more information you can contact our technical team on phone (NI) 0845 339 0159 or go to www.isover.ie

## 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

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# Building Regulations Fire Protection

Changes in successive editions of the Building Regulations in RoI have led to key differences between timber frame constructions in the Republic of Ireland and Northern Ireland. In RoI, changes to Part L and more recently Part B which have resulted in higher insulation levels and more robust fire details due to a move to the more onerous EN standards for the testing of fire protection to structural elements.

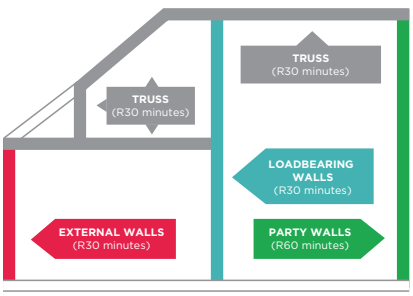
TGD B – volume 2 (dwellings) 2017 changed the test method for fire resistance of structural elements from the British Standard, (BS 476) to the European standards for new dwellings. Under this test method the furnace burns hotter, faster and imposes further limitations in terms of the application of the results from the fire tests.

The systems described in this guide are therefore with reference to the European Standard.

Timber frame guidance noted, Feb & Dec 2018, May 2020. Since publication of TGD B - Vol 2 2017, additional guidance for the Republic of Ireland has been issued in respect to timber framed elements for walls, floors and trussed rafter roofs. Guidance has included the requirement “in the case of all separating walls, the build-up including linings must be carried out in the factory”. Also, “fire rated elements of roof trusses including ceilings below are now deemed to be structural and therefore require fire test evidence with a load applied here.”

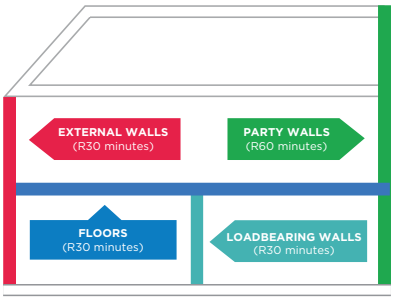
## Two or more Storey Dormer Truss Roof

External walls, Separating Walls, Internal loadbearing walls, All elements of truss



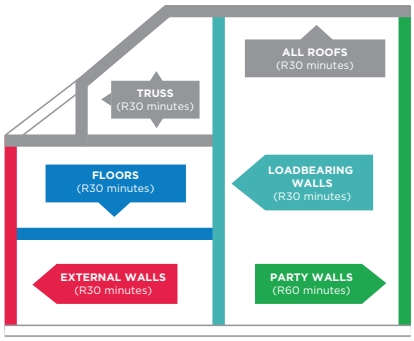

## Two Storey Dwelling, Cut or Truss Roof

External Walls, Separating walls, Internal loadbearing walls, Intermediate floors




## Three Storey Dwelling Cut or Truss Roof

External Walls, Separating Walls, Internal loadbearing walls, Intermediate floors, Roofs above third storey+, All elements of truss roofs.



INLINER BOARD

isover SAINT-GOBAIN

There's no huffing and puffing when you choose

# ISOVER **InLiner F**

COMMENDED AT RIAI AWARDS

# WARM. SAFE. QUIET.

The amazing new **ISOVER InLiner F** provides unmatched **acoustic and thermal comfort plus 30 minutes fire resistance** – all in a single easy-to-install board.

**IT'S WARM**
Achieves 0.16 W/m²K*

**IT'S SAFE**
Fire Rated 30 min

**IT'S QUIET**
Improved Acoustic Comfort

**Pitched roof insulation, perfected**

Visit **isover.ie/inliner** | Call ROI **1800 744 480** | Call NI **0845 399 0159**

*When used in conjunction with ISOVER Metac and Vario, InLiner can achieve up to and beyond 0.16 W/m²K in pitched roof applications

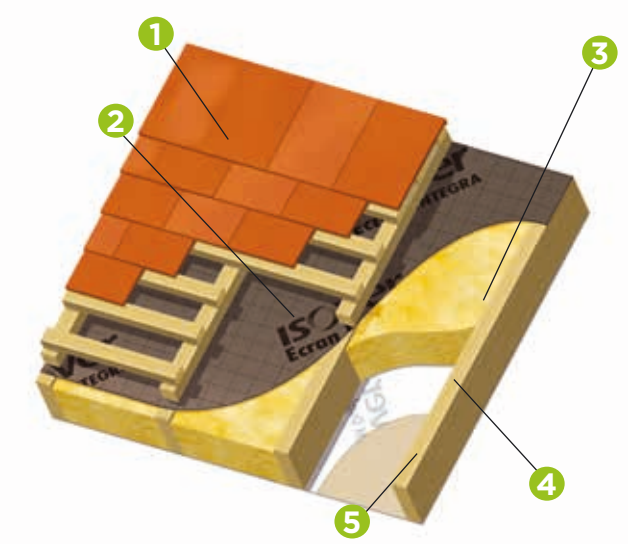
If renovating or converting your attic, ISOVER Metac easily exceeds renovation regulations!

# Pitched Roofs

## Pitched Roof insulation full filled between rafters + Vario®

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. Gyproc WallBoard

Even in instances where there is no external counter batten/ventilation space Metac can still be full filled once used with Vario® Xtra. Contact our Technical team for more information.




| Insulation in rafters (mm) | Airtightness/ Moisture Control | Board lining | U-value W/m²K for 400 centres | U-value W/m²K for 600 centres |
|---|---|---|---|---|
| Metac 031 180mm | Vario® System | 12.5mm Gyproc WallBoard | 0.21 | 0.19 |
| Metac 034 220mm | Vario® System | 12.5mm Gyproc WallBoard | 0.18 | 0.17 |
| Metac 034 150mm x 2 | Vario® System | 12.5mm Gyproc WallBoard | 0.14 | 0.13 |
| Metac 031 140mm & 034 150mm | Vario® System | 12.5mm Gyproc WallBoard | 0.14 | 0.13 |

Any values are indicative, please contact our technical support team for values pertaining to your project.

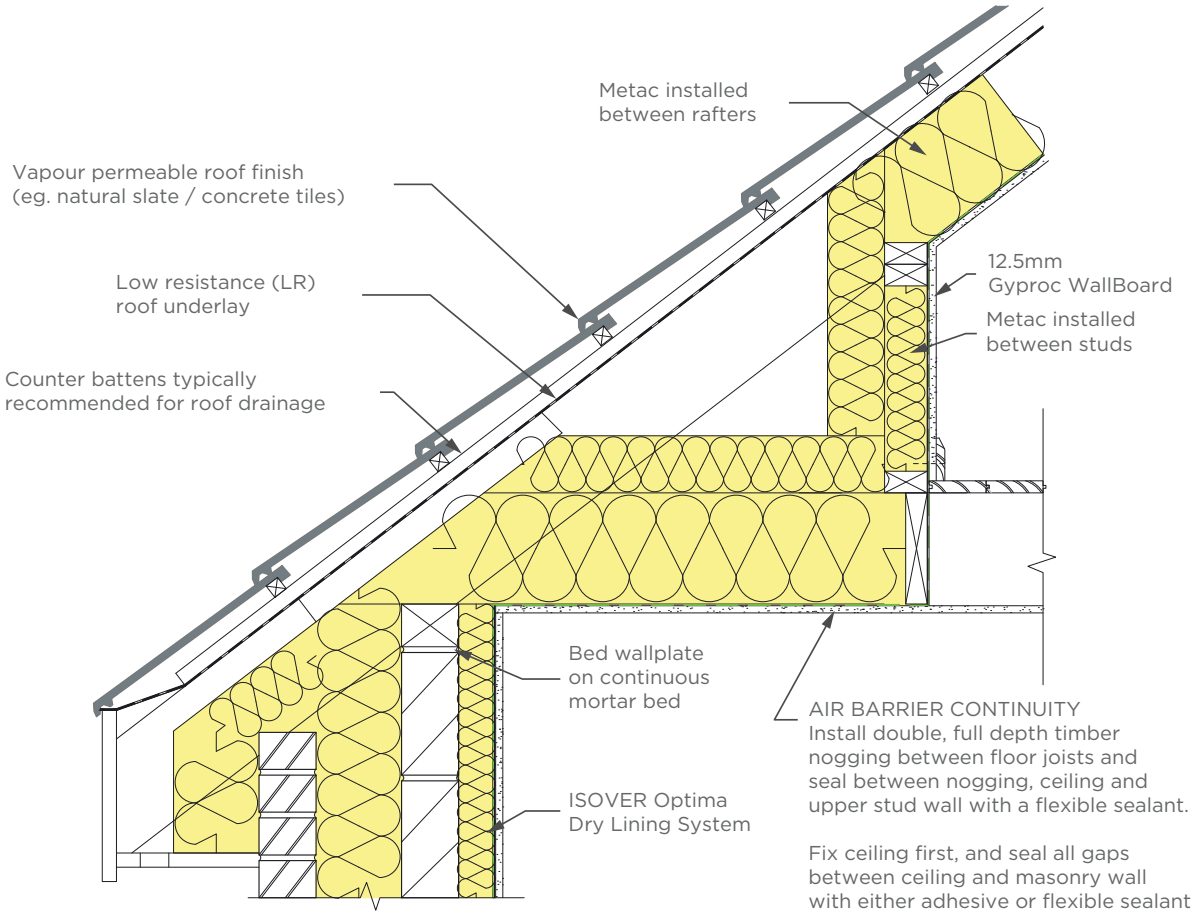
ISOVER PRODUCTS


Metac Roll

+


Vario® System

# Application CAD Details




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

**More CAD details and application variants are available to download by registering and logging into www.isover.ie**

Please contact us for more information on this and other applications:

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**Free Phone (NI):** 0845 3990159

**Email:** tech.ie@saint-gobain.com

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# Pitched Roof with Internal Counter battens

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

1. Tiled/natural slate roof tiling battens or counter battens where required
2. Low resistance underlay
3. ISOVER Metac Insulation friction fit between rafters
4. ISOVER Vario® membrane and tapes applied under the rafters
5. ISOVER insulation between 50mm counter battens
6. Gyproc plasterboard as specified in the performance tables


| Truss width (min.) | Gyproc Plasterboard Type | Airtightness Layer | Rafter Depth | Insulation in Rafters | Insulation below rafters | Secondary framing below rafters | Noggings* | U Value 600mm c/c | U Value 400mm c/c |
|---|---|---|---|---|---|---|---|---|---|
| **30 Minutes Fire Resistance (Typically 3 storey dwellings, as well as 2 storey attic spaces intended for conversion to habitable spaces, and 2 storey dwellings with Dormer Truss Roofs)** | | | | | | | | | |
| 47mm | 1 x 15mm FireLine | Vario® KM Duplex & Tapes | 175mm | Metac 031 180mm | Metac 034 50mm | 50 x 44mm counter battens | Not required | 0.16 | 0.17 |
| 47mm | 1 x 15mm FireLine | Vario® KM Duplex & Tapes | 175mm | Metac 031 180mm | Metac 034 50mm | As required for insulation | 35x63mm (min) | 0.16 | 0.18 |
| 47mm | 1 x 15mm FireLine | Vario® KM Duplex & Tapes | 200mm | Metac 034 2 x 100mm | Metac 034 50mm | 35 x 63mm counter battens | 35x63mm (min) | 0.15 | 0.17 |
| 47mm | 2 x 12.5mm FireLine | Vario® KM Duplex & Tapes | 200mm | Metac 031 180mm | Metac 034 50mm | As required for insulation + 35 x 44mm service battens | Not required | 0.15 | 0.16 |
| 35mm | 2 x 12.5mm FireLine | Vario® KM Duplex & Tapes | 200mm | Metac 034 2 x 100mm | Metac 034 50mm | As required for insulation + 35 x 44mm service battens | Not required | 0.15 | 0.16 |

*Timber noggings of the minimum size stated are required to maintain support and fixing grounds to all plasterboard edges, both around the perimeter and in the field of the installed ceiling below rafters.

ISOVER PRODUCTS


Metac Roll

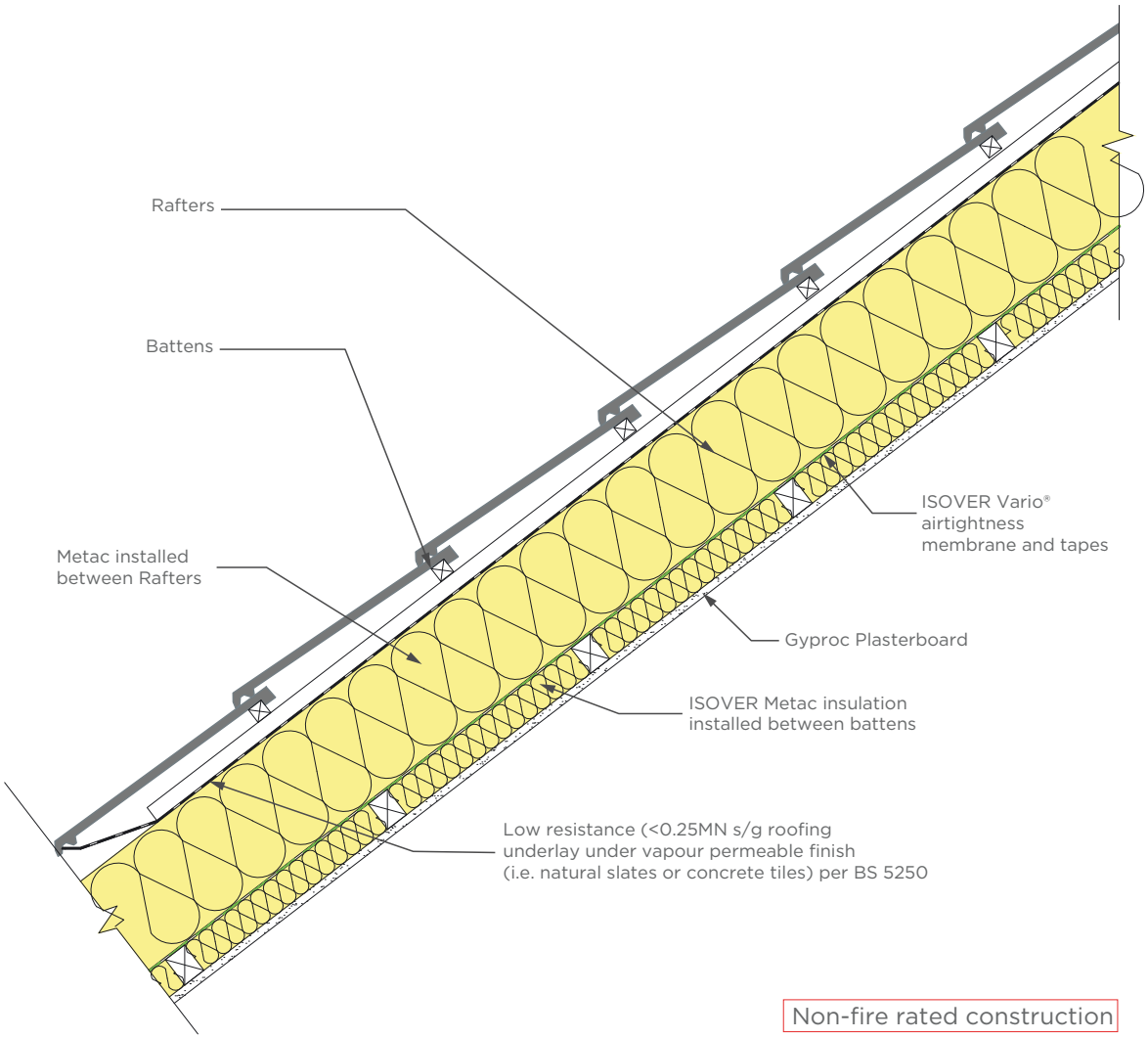
+


Vario® System

+


Comfort Roll 35

# Application CAD Details




Non-fire rated construction

Note:
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**Free Phone (NI):** 0845 3990159

**Email:** tech.ie@saint-gobain.com

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# Installation Pitched Roof with Counterbattens


*Measure depth and width of rafters. Then measure the length and width of the building and multiply twice the span of the rafters by the length of the building.*


*Lift Metac into the attic still in its packaging.*


*Measure and cut the roll to fit rafter width leaving 10mm extra on dimension.*


*Unroll and allow full recovery, use a straight edge and sharp insulation knife. Push and friction fit the insulation between the rafters.*


*When rafters have had insulation installed, proceed to install membrane and counterbattens. Ensure eaves ventilation is left where required. Metac can be fully filled between rafters when used with our Vario® Xtra membrane installed below the insulation.*


*To increase the U-value, ISOVER recommends installing 50 × 50mm counterbattens filled with 50mm Metac – this allows a service zone without need to pierce airtight membrane.*

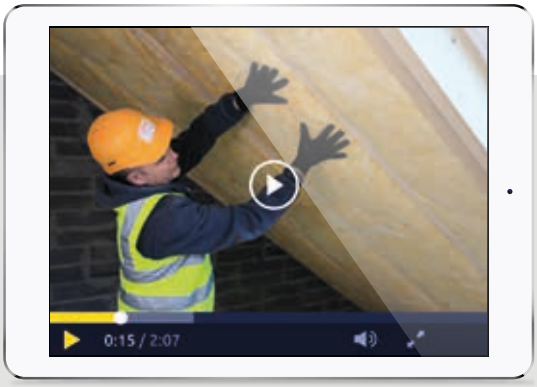

*Push and friction fit between counterbattens,*


*Finally use Gyproc plasterboard applied to counter battens to complete the installation. This combined with our Vario® Membrane and Metac, provides the safest solution to protect timber rafters from moisture damage.*

**Want to know more?**

## WATCH OUR INSTALL VIDEOS

**www.youtube.com/isoverireland**



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...and much more



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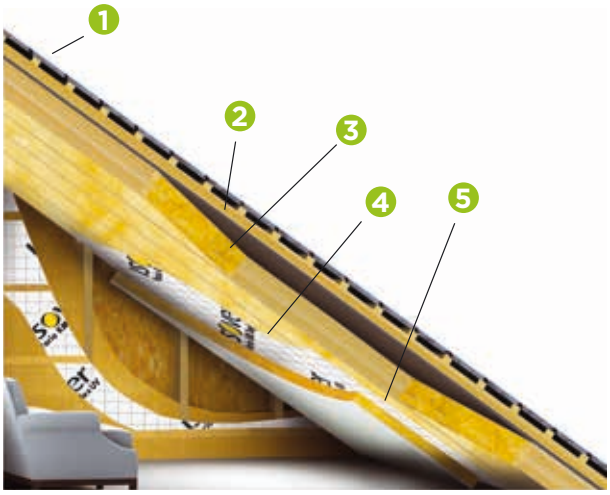
# Pitched Roof with ISOVER InLiner Board

## Insulation fully filled between rafters with Vario® and ISOVER InLiner board

*ISOVER Metac can be full filled between rafters with Vario® KM Duplex and an InLiner Board, where there are air-open tiles/slates with no counter battens/ventilation space on outside roof structure.*

1. *Tiled/natural slate roof tiling battens or counter battens where required*
2. *Low resistance underlay*
3. *ISOVER Metac Insulation friction fit between rafters*
4. *ISOVER Vario® membrane and tapes applied under the rafters*
5. *ISOVER InLiner A / InLiner F laminated insulation board beneath rafters, affixed with 90mm drylining screws at 200mm centres*




| Board Type | Thickness | Airtightness Layer | Rafter Depth | Insulation in Rafters/ Joists | Insulation below Rafters | U Value 600mm c/c | U Value 400mm c/c |
|---|---|---|---|---|---|---|---|
| **30 minutes fire resistance (typically 3 storey dwellings, as well as 2 storey attic spaces intended for conversion to habitable spaces)** | | | | | | | |
| InLiner F | 62.5mm | Vario® KM Duplex & Tapes | 175mm | Metac 034 180mm | InLiner F Laminate | 0.16 | 0.17 |
| InLiner F | 62.5mm | Vario® KM Duplex & Tapes | 175mm | Metac 031 180mm | InLiner F Laminate | 0.15 | 0.16 |
| InLiner F | 62.5mm | Vario® KM Duplex & Tapes | 200mm | Metac 034 2 x 100mm | InLiner F Laminate | 0.15 | 0.15 |
| InLiner F | 62.5mm | Vario® KM Duplex & Tapes | 225mm | Metac 034 220mm | InLiner F Laminate | 0.14 | 0.14 |

Note: For non-fire rated applications, InLiner A can be used in place of InLiner F in the above build ups.

ISOVER PRODUCTS


Metac 034 or Metac 031

+


Vario® System

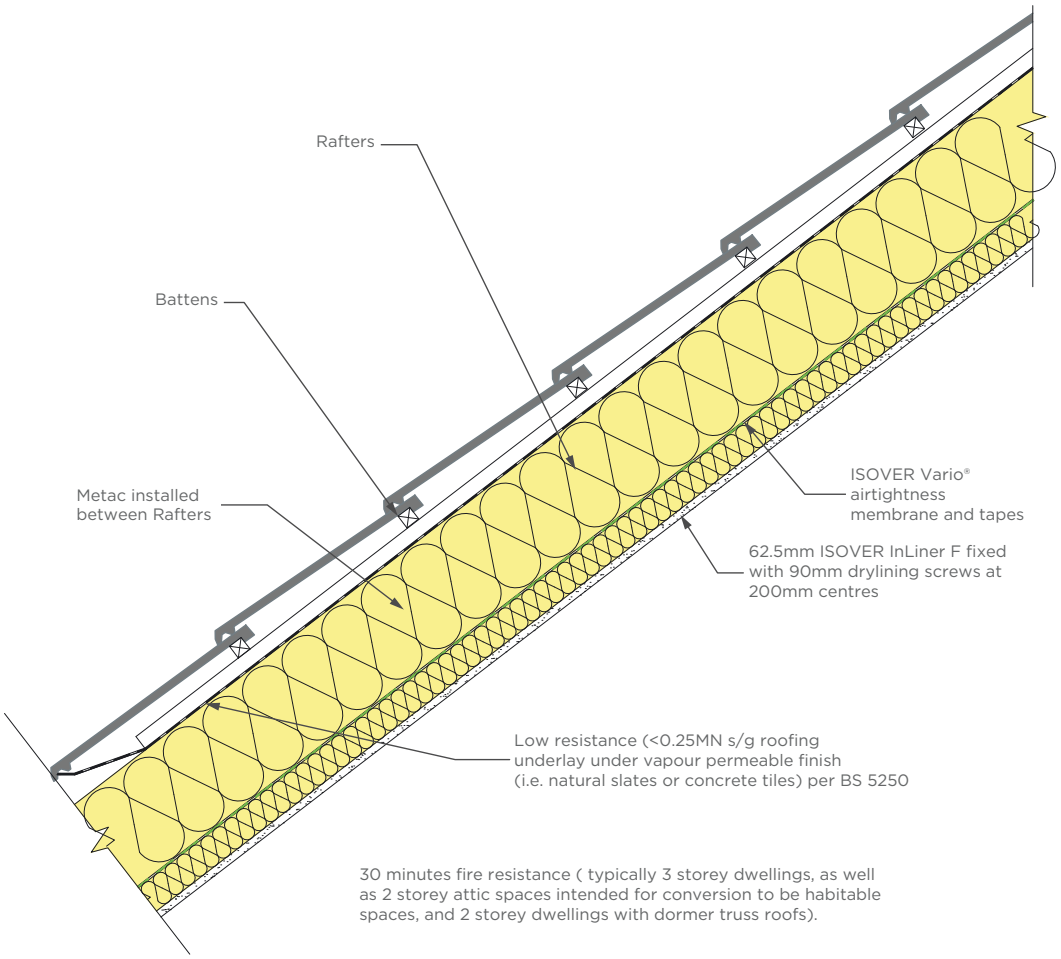
+


InLiner A Board

OR


InLiner F Board

# Application CAD Details

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**Free Phone (NI):** 0845 3990159

**Email:** tech.ie@saint-gobain.com

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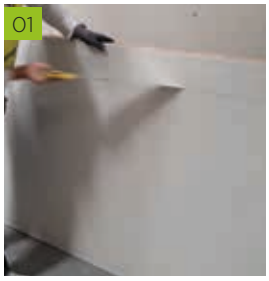
CHECKLIST:

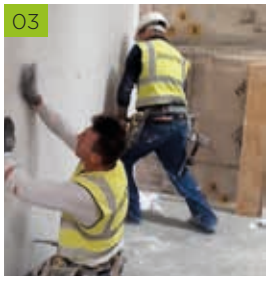
1. **Measure area and cut InLiner board as required to align with studs/rafters, ensuring straight and even cuts.**
2. **At angular junctions e.g. pitched to knee wall, cut meeting edges to appropriate angles, dividing angles equally to ensure continuity of insulation.**
3. **On the insulation side of the InLiner measure and mark out the position of the InLiner spacers to correspond with the timber framing.**
4. **Insert spacing screws in the insulation of the board at 200mm centres, in line with your rafter markings.**

01



If any InLiner Boards need to be cut to fit a particular spacing, ensure the cut is straight so that there are no gaps between joining boards.
InLiner can be cut with a hand saw or skill saw.

03

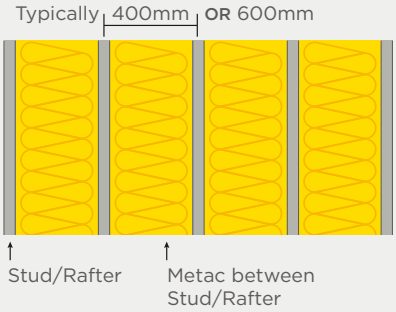


Ensure that adjoining horizontal boards are flush with each other before beginning to fix the boards to the studs. Use a continuous line of screws across both top and bottom boards as shown above.

At board corners InLiner spacers should be positioned 15mm from the edge running with the timber and 25mm from the edge perpendicular to the direction of the timbers (see Diagram D).

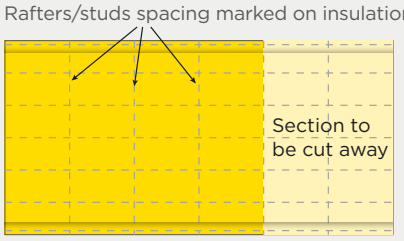
02

**A Measure Rafter Centres**



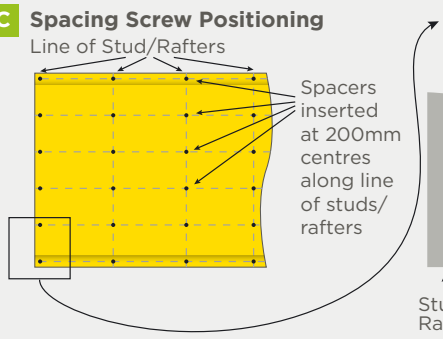

**B Mark Board**

Rafters/studs spacing marked on insulation

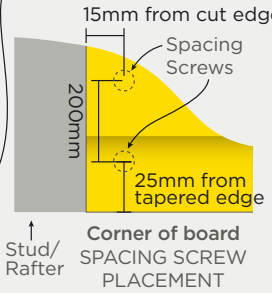



It is recommended to install the InLiner boards with the long (tapered) edges of the boards running perpendicular to the framing

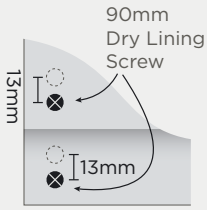
**C Spacing Screw Positioning**




**D Corner and Edge Detailing**




**Corner of board**
SPACING SCREW PLACEMENT



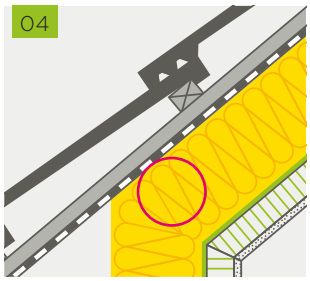

**Corner of board**
DRY LINING SCREW PLACEMENT

It is recommended the insulation side of the board is marked with a grid that aligns with the timber studs the board is being installed on, to ensure proper placement of both the 55mm InLiner spacer screws and 90mm dry lining screws.

Insert InLiner Spacer Screws in the insulation side of the InLiner Board at 200mm centres along the same lines of the studs/rafters the board is to be installed on (see Diagram C)

Spacers should be positioned 15mm from the edges of the board, and 25mm along the top and bottom of the board. Screws should be fixed within a further 13mm of the position of the InLiner spacer screw. Face fix the boards to the timber framing with minimum 90mm Dry Lining screws installed at 200mm centres to correspond (within 13mm) with the position of the InLiner Spacers. Position the Dry Lining screws at corners inside the position of the spacers (see Diagram D).

04



Maintain consistency of insulation thickness at angular junctions. E.g. where pitched roof abuts knee wall. Chamfer the edges of the meeting InLiner boards equally.

For more details on certification, please contact our Technical Team on **NI 0845 3990159** or **ROI 1800 744480**.

# Installation Pitched Roof with InLiner Board



**1.** *Cut & friction fit ISOVER Metac 031/034 Insulation between studs/rafters.*

**2.** *Apply Vario® KM Duplex or Vario® Xtra across/along the studs using a staple to secure in place. Seal any seams between the Vario® Membrane with Vario® KB1 Tape. Any tears in the membrane envelope should also be sealed with Vario® KB1 Tape, to ensure the airtight envelope is maintained.*


*Install the first board at the corner of the knee wall, ensuring a snug fit. Ensure the edge of the board has adequate support from the vertical framing members.*


*Secure InLiner Board to the studs using minimum 90mm screws, with 4.5mm diameter, at maximum 200mm centres. Ensure that the screws are inserted straight on and not overtightened to reduce potential compression.*


*If any InLiner Boards need to be cut to fit a particular spacing, ensure the cut is straight so that there are no gaps between joining boards.*


*Boards can be installed horizontally or vertically. If installing horizontally, ensure that the top of the board is lined up with the perimeter stud at the top of the knee wall.*


*Once knee wall boards have been installed, proceed to install pitched roof boards. Chamfer the bottom edge of the InLiner board to ensure a tight fit between the boards already installed on the knee wall and those on the rafter.*


*Installation of small sections of InLiner must be avoided where possible and sections must span perpendicularly across 3 joists minimum as best practice.*

*Once the pitched section of the roof has been installed, cut and fit a section of InLiner Board to fit the angle of the pitched roof on the gable end.*


*Once the boards have been taped and the joints filled, plastering can commence.*

*We recommend plastering the pitched roof section first, allowing it to dry and then commencing knee wall plastering.*

*2 layers of Gyproc Skimcoat were applied during the above installation. Care must be taken to ensure each layer has pulled in sufficiently before application of another layer.*

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# ISOVER
# Metac Roll 031


FOR USE **IN PITCHED ROOF ATTICS • PITCHED ROOF RAFTERS • WALLS INTERNALLY INSULATED**

An extra high performance quality thermal insulation roll designed for a wide range of applications where space is at a premium.

## PRODUCT FEATURES

- ✔ Thermal conductivity 0.031 W/mK
- ✔ Excellent acoustic performance
- ✔ Excellent fire safety - A1 fire rated
- ✔ Vapour permeable breathable insulation
- ✔ Improves energy performance and reduces heating & cooling costs
- ✔ Easy to install. Friction fits between timber stud, joists and rafters with no need for additional fixings
- ✔ Made from recycled glass. Minimal manufacturing and on-site wastage. Low carbon footprint at manufacture and during transport

Acoustic insulation · Fire Protection · Moisture Control · Breathable · Minimal waste · Easy to transport · Energy Savings · Easy to install · Recycled glass UP TO 75% · Protected planet $CO_2$ · Thermal Insulation

OUR BEST MINERAL WOOL ROLL

**W/mK** 0.031

| Product | Order Code | Thickness (mm) | Width (mm) | Length (mm) | Pack Area ($m^2$) | Pack Per Pallet |
|---|---|---|---|---|---|---|
| ISOVER Metac | **5200899796** | 90 | 1200 | 5400 | 6.24 | 18 |
| ISOVER Metac | **5200841098** | 140 | 2 x 600 | 3500 | 4.2 | 18 |
| ISOVER Metac | **5200861944** | 140 | 3 x 400 | 3400 | 4.08 | 18 |
| ISOVER Metac | **5200868092** | 180 | 1250 | 2700 | 3.375 | 18 |

## WHERE TO USE

Pitched Roof – Rafters

Walls – Internally Insulated

# ISOVER
# Metac Roll 034

A high performance quality thermal insulation roll designed for a wide range of applications where space is at a premium.


## PRODUCT FEATURES

- ✔ Thermal conductivity 0.034 W/mK
- ✔ Excellent acoustic performance
- ✔ Excellent fire safety - A1 fire rated
- ✔ Vapour permeable breathable insulation
- ✔ Improves energy performance and reduces heating & cooling costs
- ✔ Easy to install. Friction fits between timber stud, joists and rafters with no need for additional fixings
- ✔ Made from recycled glass. Minimal manufacturing and on-site wastage. Low carbon footprint at manufacture and during transport


**W/mK** 0.034–0.031

| Product | Lambda Value | Product Code | Thickness (mm) | Width (mm) | Length (mm) | Roll Area (m²) | Rolls Per Pallet |
|---|---|---|---|---|---|---|---|
| ISOVER Metac | 0.034 | **5200771695** | 50 | 1200 | 9300 | 11.16 | 18 |
| ISOVER Metac | 0.034 | **5200771696** | 100 | 1200 | 6000 | 7.20 | 18 |
| ISOVER Metac | 0.034 | **5200765192** | 150 | 1200 | 4100 | 4.92 | 18 |
| ISOVER Metac | 0.034 | **5200771700** | 150 | 3 × 400 | 4100 | 4.92 | 18 |
| ISOVER Metac | 0.034 | **5200771705** | 180 | 1200 | 3400 | 4.08 | 18 |
| ISOVER Metac | 0.034 | **5200771708** | 180 | 3 × 400 | 3400 | 4.08 | 18 |
| ISOVER Metac | 0.034 | **5200765193** | 220 | 1200 | 2900 | 3.48 | 18 |
| ISOVER Metac | 0.034 | **5200852270** | 220 | 3 × 400 | 2900 | 3,48 | 18 |

Any values are indicative, please contact our technical support team for values pertaining to your project.

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# ISOVER InLiner Board

High performance, high density, laminated insulation board.
Designed for easy handling & installation in a variety of applications.
Ideally suited to pitched roof and external wall applications.

FOR USE IN **PITCHED ROOF RAFTERS**

## PRODUCT FEATURES

- ✔ 1 Board fire rated system - InLiner F only*
- ✔ High thermal performance
- ✔ Breathable system
- ✔ Excellent acoustic performance

COMMENDED AT RIAI AWARDS

Thermal Insulation · Acoustic Insulation · Fire Protection · Moisture Control · Breathable · Energy Savings · Easy to Install · Recycled glass UP TO 75% · Protected planet $CO_2$ · Minimal waste · Easy to transport

1.61 $m^2K/W$

## ISOVER InLiner A

FOR NON-FIRE RATED PITCHED ROOFS

| Product | Product Code | Thickness (mm) | Width (mm) | Length (mm) | Thermal Resistance | Board Area ($m^2$) | Boards per Pallet |
|---|---|---|---|---|---|---|---|
| InLiner A | 5200858231 | 62.5 | 1200 | 2400 | 1.61 $m^2K/W$ | 2.88 | 15 |

## ISOVER InLiner F

FOR FIRE RATED PITCHED ROOFS

| Product | Product Code | Thickness (mm) | Width (mm) | Length (mm) | Thermal Resistance | Board Area ($m^2$) | Boards per Pallet |
|---|---|---|---|---|---|---|---|
| InLiner F | 5200862069 | 62.5 | 1200 | 2400 | 1.61 $m^2K/W$ | 2.88 | 15 |

| Product | Product Code | Diameter | Length | Description |
|---|---|---|---|---|
| InLiner Spacing Screw | 5200865943 | 3.9mm | 55mm | Fine Thread Dry Lining Screw |

## WHERE TO USE

Pitched Roof – Rafters

*Refer to page 16.

# ISOVER
# Vario® System

FOR USE IN **AIRTIGHTNESS APPLICATIONS**

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

HIGH PERFORMANCE AIRTIGHTNESS AND MOISTURE CONTROL

## 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 |
| Vario® StopVap Membrane | **5200846100** | 3000 | 40 | 120 | 1 Roll | 46 Rolls |

## Airtightness Tapes & Mastic

| Product | Order Code | Width (mm) | Length (m) / (ml) | 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 60 | **5200431017** | 60 | 25 | 1.5 | 10 Rolls | 80 Boxes (800 Rolls) |
| Vario® Multitape SL 150 | **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) |

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# Case Study

## Project Overview

**Main Contractor:** Oliver Sheerin

**ISOVER Products Used:** InLiner A, Metac, Vario® System

### Project Background

A primely located site in the centre of Navan town was secured with the intention of creating an energy efficient and acoustically comfortable multi-family residence. This one off new build 2 storey house was planned to house a different family on each level, so the acoustic comfort for both families was a key consideration. The project incorporated a modern design plan including large sun facing windows to capture sunlight, as well as an insulated pitched roof to maximise living space.

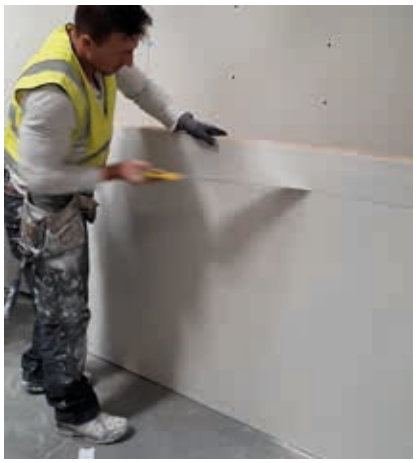
### The Challenge

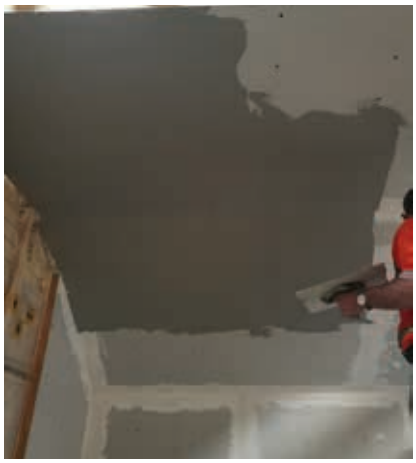
Achieving both thermal and acoustic comfort for both levels of the build was the key challenge and goal of the project. Energy efficiency is key to the thermal comfort of the future residents, but ensuring acoustic infiltration is addressed by the materials is essential as well. This unique set of challenges meant that the contractor was working with new systems to achieve both goals. As such, familiarity with the systems & materials had to be established.

All of these challenges were addressed with onsite support from our demonstration and sales team. Training consultations were provided to guide the initial installation of InLiner A, Vario® & Metac; to ensure the goals of the project were met.

### The Approach

The installer was very happy with the overall system, given that it delivered on his requirements for acoustic and thermal comfort, as well as being easy to install. The benefit of using a full ISOVER & Gyproc system was that he had ready support from the local sales and demonstration representatives; meaning that the installation of the system progressed






ISOVER
SAINT-GOBAIN

# ISOVER
# THERMAL WALL & FLOOR SOLUTIONS

Wall & Floor Solutions for Thermal Performance

# Contents

# Thermal Walls & Floors
# ISOVER Insulation & Vario® System

*ISOVER offers one of the safest options for insulating walls & floors for thermal performance, both in New Build and Renovation projects.*

*ISOVER Metac is a high performance mineral wool insulation 'slab on a roll'. When used in conjunction with our Vario® Airtightness and Moisture Control System it offers a market leading solution in terms of thermal, acoustic and safety performance. If also combined with ISOVER InLiner Board you have the complete mineral wool pitched roof solution. ISOVER InLiner Board is a super dense, rigid and high performance laminated insulation plasterboard.*

## Metac insulation

- ✔ **High performance** *thermal insulation*
- ✔ **Vapour permeable** *insulation for maximum protection from moisture and condensation issues*
- ✔ **A1 fire rating** *(for Isover mineral wool) highest rating on the market EN 13501-1*
- ✔ **Avoid slump** *during installation and life of the system*
- ✔ **Friction fits** *to aid in eliminating any air gaps*
- ✔ **Excellent Indoor Air Quality** *Eurofins Gold Comfort*
- ✔ **Made from Recycled materials** *up to 75% recycled glass*
- ✔ **G3 Touch technology** *great performance, gentle to use*

Acoustic insulation · Euroclass A2 fire rating · Fire Protection · Moisture Control · Breathable · Energy Savings · Easy to install · Recycled glass UP TO 75% · Protected planet $CO_2$ · Minimal waste · Easy to transport

**W/mK** 0.031-0.036

## WHERE TO USE

Residential

New and Old

ISOVER SAINT-GOBAIN

# Standards and Certification

| | |
|---|---|
| **QUALITY** | We hold a Quality Management Standard EN ISO 9001: 2015 for manufacturing. |
| **CE** | All products are manufactured in accordance with the CE marking requirements under the Construction Products Regulation |
| **PRODUCT STANDARDS** | All products are manufactured in accordance with product standard: EN 13162:2012+A1:2015 and EN 13172 Evaluation of Conformity. |
| **ENVIRONMENT** | ISOVER is an ISO 14001:2015 (Environmental Management System) accredited manufacturing facility. This accreditation ensures that all products are manufactured to the stringent standards set out by this management system. |
| **INDOOR AIR QUALITY** | Awarded the highest standard in indoor air quality - Eurofins “Gold” 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 does 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. |
| **RESPONSIBLY SOURCED** | Our products have been manufactured to BES60001 to ensure their constituent materials have been responsibly sourced. |

CE

# Building Regulations Fire Protection

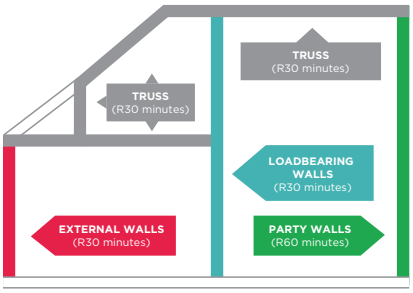
Changes in successive editions of the Building Regulations in RoI have led to key differences between timber frame constructions in the Republic of Ireland and Northern Ireland. In RoI, changes to Part L and more recently Part B which have resulted in higher insulation levels and more robust fire details due to a move to the more onerous EN standards for the testing of fire protection to structural elements.

TGD B – volume 2 (dwellings) 2017 changed the test method for fire resistance of structural elements from the British Standard, (BS 476) to the European standards for new dwellings. Under this test method the furnace burns hotter, faster and imposes further limitations in terms of the application of the results from the fire tests.
The systems described in this guide are therefore with reference to the European standard.

Timber frame guidance noted, Feb & Dec 2018, May 2020. Since publication of TGD B - Vol 2 2017, additional guidance for the Republic of Ireland has been issued in respect to timber framed elements for walls, floors and trussed rafter roofs. Guidance has included the requirement “in the case of all separating walls, the build-up including linings must be carried out in the factory”. Also, “fire rated elements of roof trusses including ceilings below are now deemed to be structural and therefore require fire test evidence with a load applied here.”

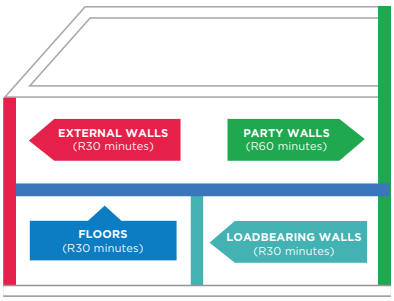
## Two or more Storey Dormer Truss Roof

External walls, Separating Walls, Internal loadbearing walls, All elements of truss



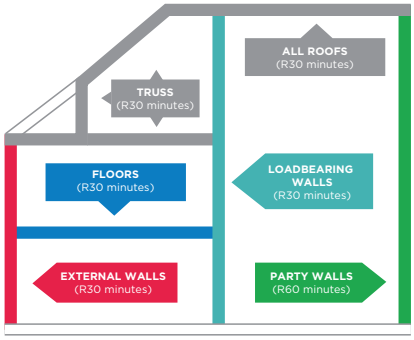

## Two Storey Dwelling, Cut or Truss Roof

External Walls, Separating walls, Internal loadbearing walls, Intermediate floors




## Three Storey Dwelling Cut or Truss Roof

External Walls, Separating Walls, Internal loadbearing walls, Intermediate floors, Roofs above third storey+, All elements of truss roofs.

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SAINT-GOBAIN

**NEW BUILD U-VALUES:**
0.16 PITCHED ROOF
**RENOVATION U-VALUES:**
0.25 PITCHED ROOF

# Building Regulations
# **Republic of Ireland**

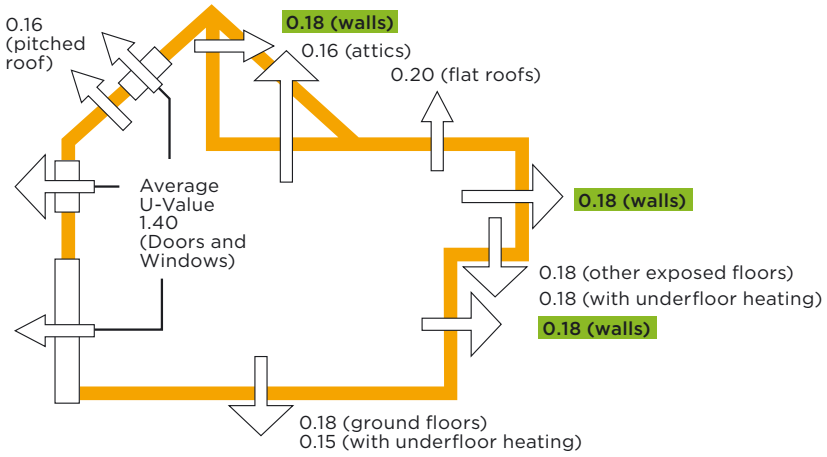
The following is a guide to thermal building regulations for new & existing dwellings, delivering comfort and energy savings through effective thermal insulation.

## Republic of Ireland

**New Dwellings TGD – Part L – 2019**

Minimum standards for
U-Values

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

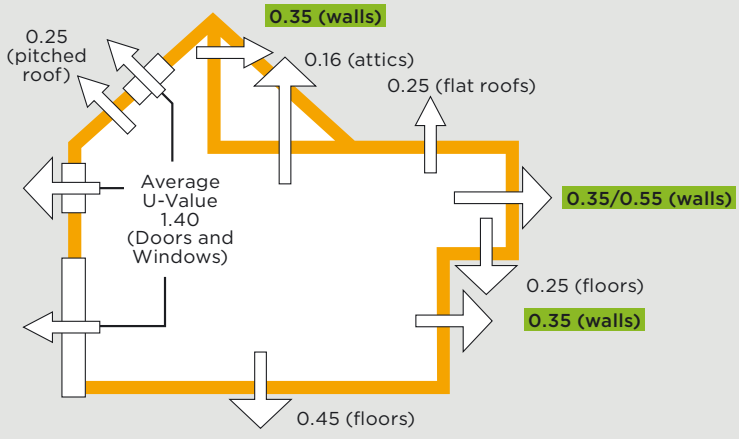



For more information you can contact our technical team on free phone (ROI) 1800 744480 or go to www.isover.ie

## Republic of Ireland

**Existing Dwellings TGD – Part L – 2019**

Minimum standards for
U-Values

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ROI: 1800 744480 • NI: 0845 399 0159 • tech.ie@saint-gobain.com

NEW BUILD U-VALUES:
0.20 PITCHED ROOF
RENOVATION U-VALUES:
0.18 PITCHED ROOF

# Building Regulations **Northern Ireland**

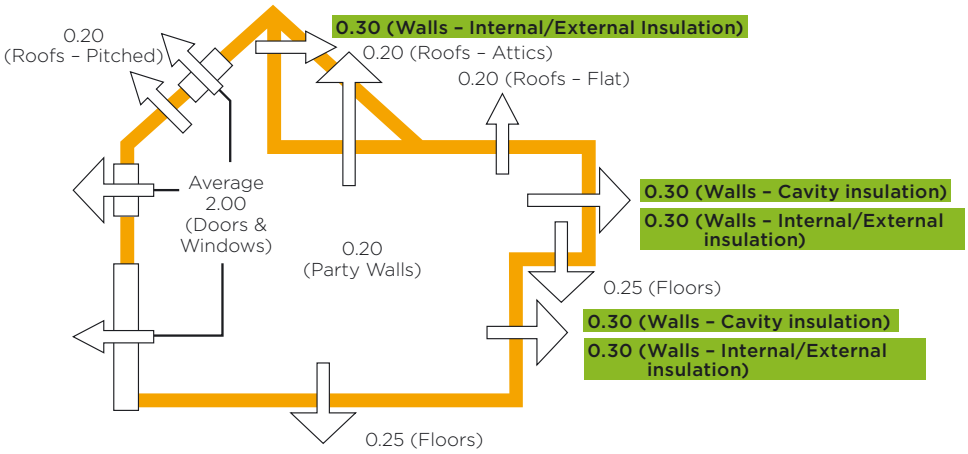
The following is a guide to thermal building regulations for new & existing dwellings, delivering comfort and energy savings through effective thermal insulation.

## Northern Ireland

**New Dwellings – DFP Technical Booklet F1:2012**

Minimum standards for U-Values

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

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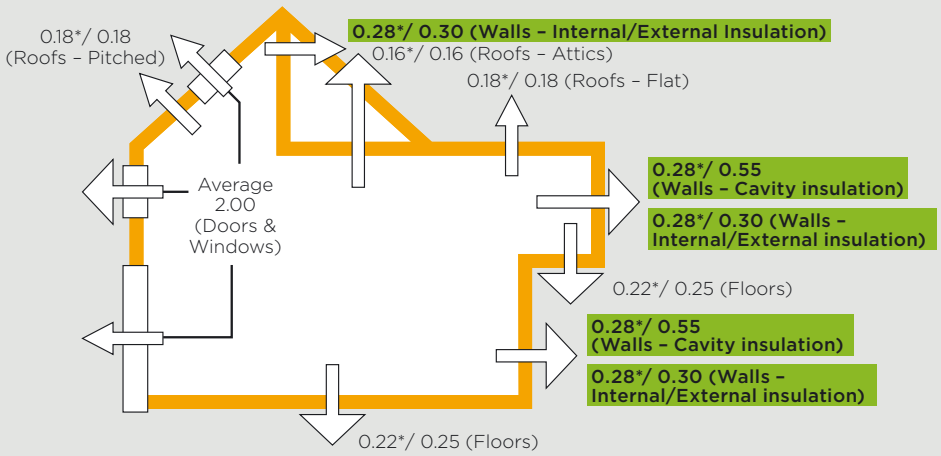
## Northern Ireland

**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

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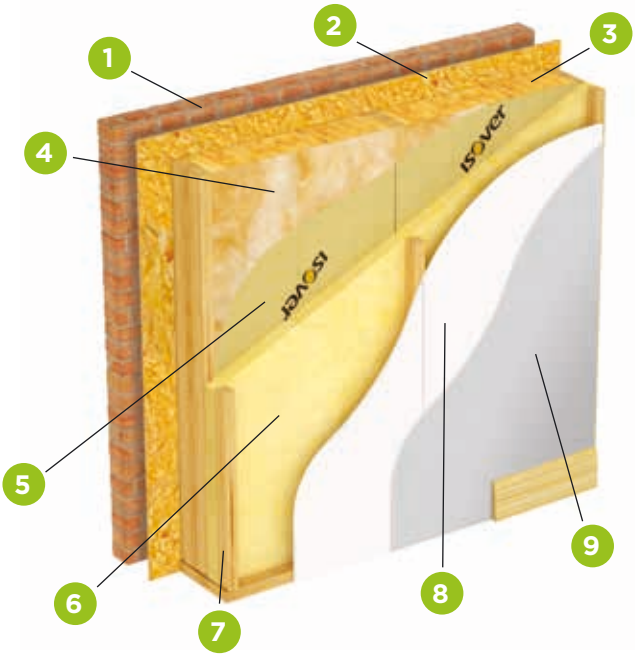
# Timber Frame External Wall

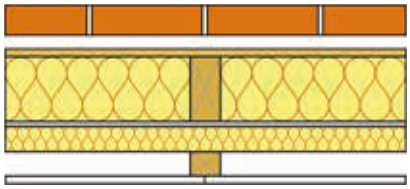
## Insulation between studs

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 with Vario® 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 as described in the table below
9. Gyproc plaster finish

## High Performance Solution

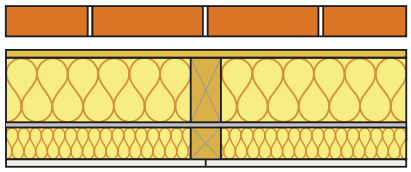



1



Note: U-Values provided in below performance table

2



Note: For U-Value calculations please contact the technical department

## Performance Table

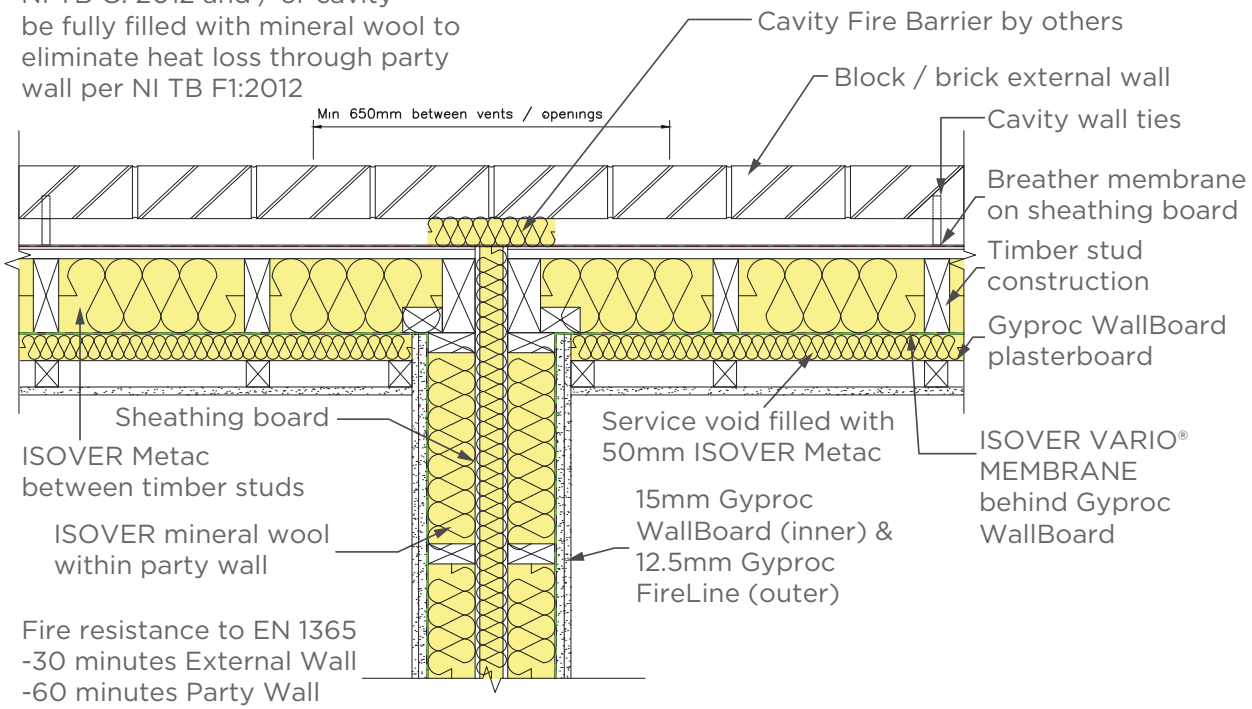
| Fire Performance | | Plasterboard Specification | High Performance Board Options |
|---|---|---|---|
| 1 | 30 MINUTES | 1 x 12.5mm WallBoard | 1 x 12.5mm SoundBloc |
| | | | 1 x 12.5mm Habito* |
| 2 | 30 MINUTES | 1 x 15mm WallBoard | 1 x 15mm SoundBloc |
| | | | 1 x 12.5mm Habito* |

| Stud Size | Insulation Studs | Insulation Face | Airtightness | U-Values | | |
|---|---|---|---|---|---|---|
| | | | | Refl. Foil** | 600 c/c | 400 c/c |
| 140 x 38 | Acoustic Roll 036 150mm | HD Slab 032 50mm | Vario® StopVap/KM Duplex & Vario® Accessories | 0.16 | 0.17 | 0.18 |
| 140 x 38 | Comfort 035 140mm | HD Slab 032 50mm | Vario® StopVap/KM Duplex & Vario® Accessories | 0.15 | 0.17 | 0.18 |
| 140 x 38 | Metac 034 150mm | HD Slab 032 50mm | Vario® StopVap/KM Duplex & Vario® Accessories | 0.15 | 0.17 | 0.18 |
| 140 x 38 | Metac 031 140mm | HD Slab 032 50mm | Vario® StopVap/KM Duplex & Vario® Accessories | 0.14 | 0.16 | 0.17 |
| 175 x 38 | Metac 034 180mm | HD Slab 032 50mm | Vario® StopVap/KM Duplex & Vario® Accessories | 0.13 | 0.15 | 0.15 |
| 175 x 38 | Metac 031 180mm | HD Slab 032 50mm | Vario® StopVap/KM Duplex & Vario® Accessories | 0.13 | 0.14 | 0.15 |
| 200 x 38 | Metac 034 2x100mm | HD Slab 032 50mm | Vario® StopVap/KM Duplex & Vario® Accessories | 0.12 | 0.14 | 0.14 |

***With reflective foil per manufacturer's claims*

# Application CAD Details

Mineral wool should return min 300mm into Party Wall cavity per NI TB G: 2012 and / or cavity be fully filled with mineral wool to eliminate heat loss through party wall per NI TB F1:2012




Fire resistance to EN 1365
-30 minutes External Wall
-60 minutes Party Wall

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)

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

**More CAD details and application variants are available to download by registering and logging into www.isover.ie/spechub**

Please contact us for more information on this and other applications:

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**Free Phone (NI):** 0845 3990159

**Email:** tech.ie@saint-gobain.com

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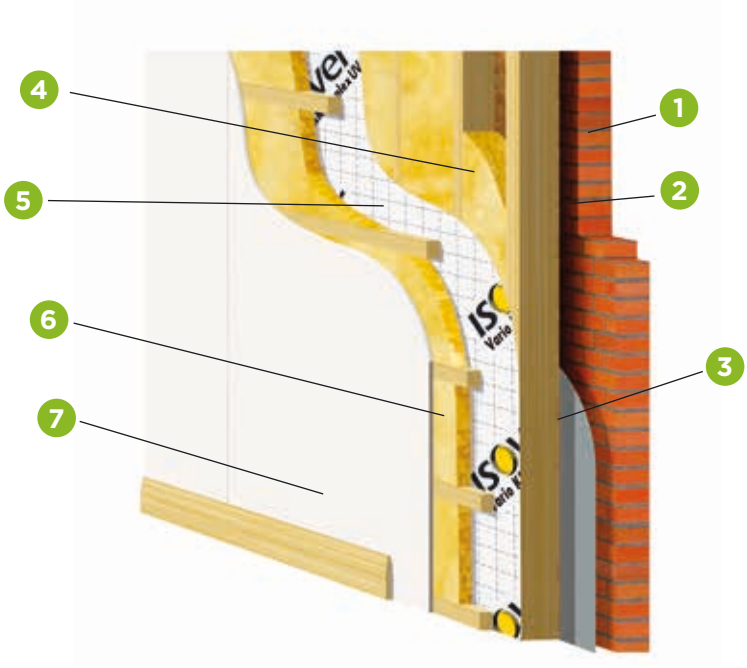
# Timber Frame External Wall

## Insulation Between Timber Studs and Counter Battens

1. External brick
2. 50mm clear cavity
3. Breather membrane + Sheathing board
4. ISOVER insulation between studs
5. Vario® System
6. ISOVER insulation between counter batten
7. Gyproc WallBoard
8. Gyproc Plaster Finish



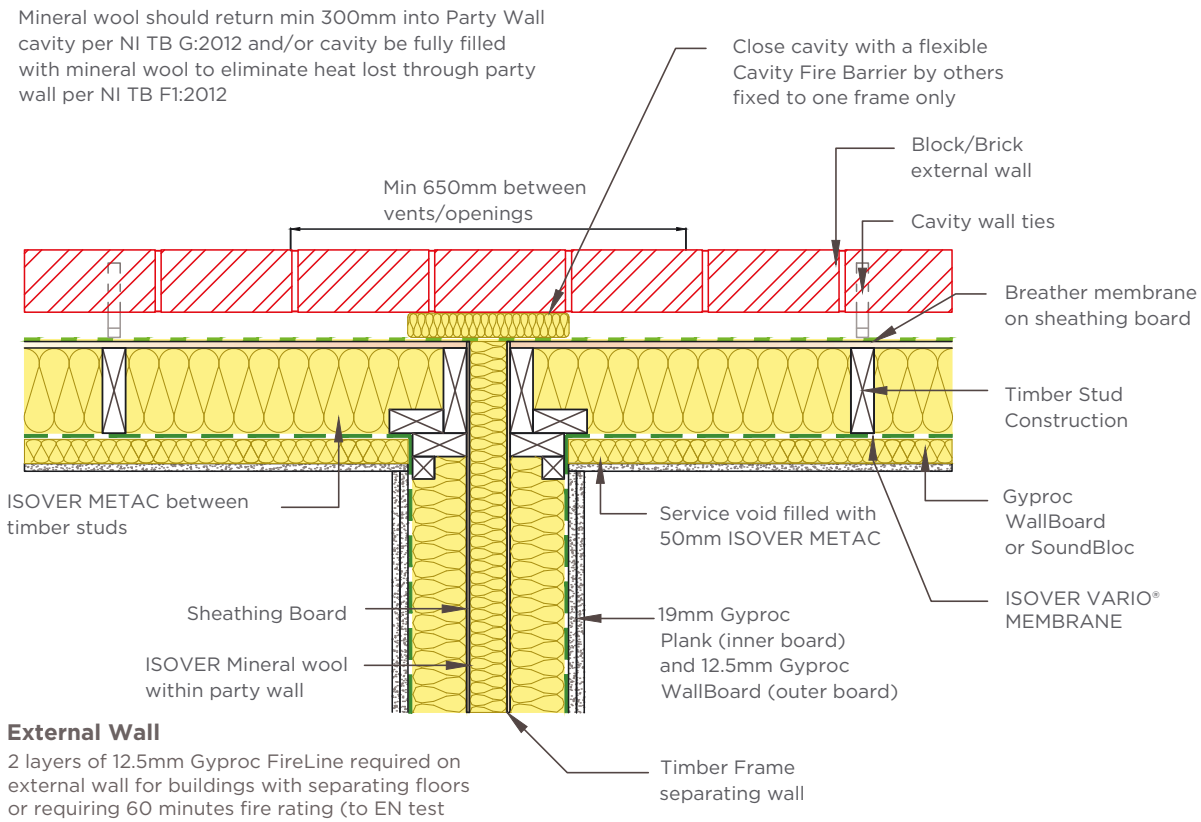

| Insulation Between Studs | Insulation Lambda | Insulation On Studs | Insulation Lambda | Airtightness | Board Lining | U-Value* 400 centres | U-Value* 600 centres | U-Value* 400 centres | U-Value* 600 centres |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | without reflective foil | | with reflective foil | |
| Comfort 140mm / Timber Frame Roll 140mm | 0.035 | Metac 50mm (between counter battens) | 0.034 | Vario® System | WallBoard affixed to CBs | 0.19 | 0.19 | 0.18 | 0.17 |
| Timber Frame Roll 140mm | 0.032 | Metac 50mm (between counter battens) | 0.034 | Vario® System | WallBoard 12.5mm | 0.18 | 0.18 | 0.17 | 0.16 |
| Metac 140mm | 0.031 | Metac 50mm (between counter battens) | 0.034 | Vario® System | WallBoard affixed to CBs | 0.18 | 0.17 | 0.17 | 0.16 |
| Metac 150mm | 0.034 | Metac 50mm (between counter battens) | 0.034 | Vario® System | WallBoard affixed to CBs | 0.19 | 0.18 | 0.19 | 0.17 |
| Metac 180mm | 0.034 | Metac 50mm (between counter battens) | 0.034 | Vario® System | WallBoard affixed to CBs | 0.16 | 0.16 | 0.15 | 0.14 |
| Metac 180mm | 0.031 | Metac 50mm (between counter battens) | 0.034 | Vario® System | WallBoard affixed to CBs | 0.016 | 0.15 | 0.15 | 0.14 |
| Metac 220mm | 0.034 | Metac 50mm (between counter battens) | 0.034 | Vario® System | WallBoard affixed to CBs | 0.14 | 0.13 | 0.13 | 0.12 |

*U-Value measured in W/m²k

ISOVER PRODUCTS

Comfort Roll 35 + Metac + Vario® System + Timber Frame Roll + Metac 031

# 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

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

**More CAD details and application variants are available to download by registering and logging into www.isover.ie/spechub**

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**Email:** tech.ie@saint-gobain.com

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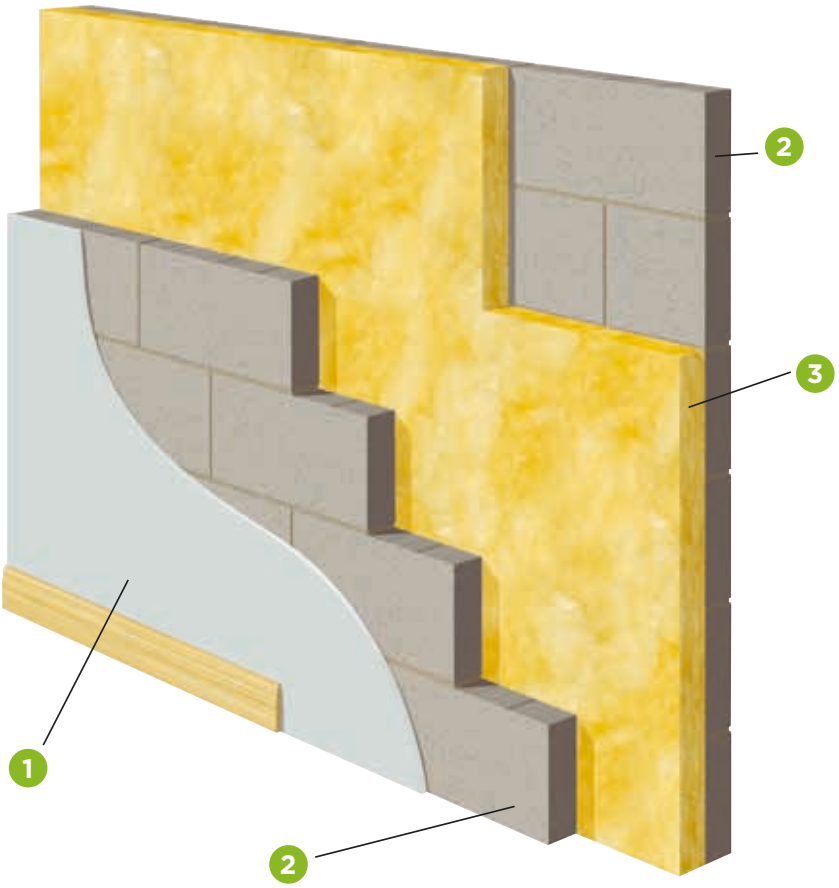
# Masonry Separating Party Wall

## Twin Leaf Construction Blockwork

1. Nominal 11 mm Gyproc Hard Coat + 2 mm Gyproc Skimcoat or Carlite Finish
2. 100mm block leaves (minimum density 1375 kg/m³)
3. Minimum 75mm ISOVER Cavity Wall Slab or 75mm RD Party Wall Roll (zero U-value)*




* ISOVER insulation used in conjunction with Gyproc plasters and plasterboards meet the requirements of the guidance for Separating Wall types 2.1 & 2.2 as per examples given in Northern Ireland Building Regulations Technical Booklet G 2012. Pre-Completion Testing is required when specifying Building Regulations Technical Booklet G Guidance Constructions.

ISOVER PRODUCTS

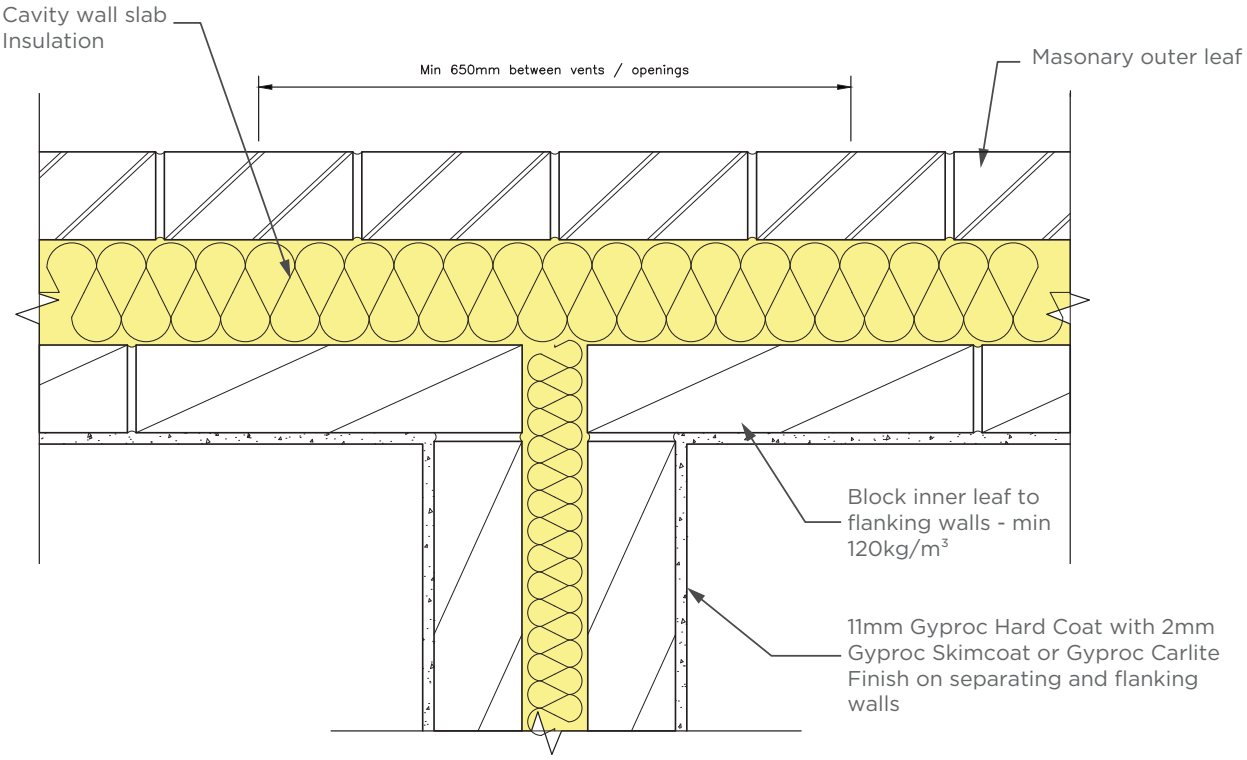
RD Party Wall Roll

OR

Cavity Wall Slab

# Application CAD Details

Mineral wool should return min 300mm into Party Wall cavity per NI TB G: 2012 and / or cavity be fully filled with mineral wool to elimate heat loss through Party Wall per NI TB F1:2012

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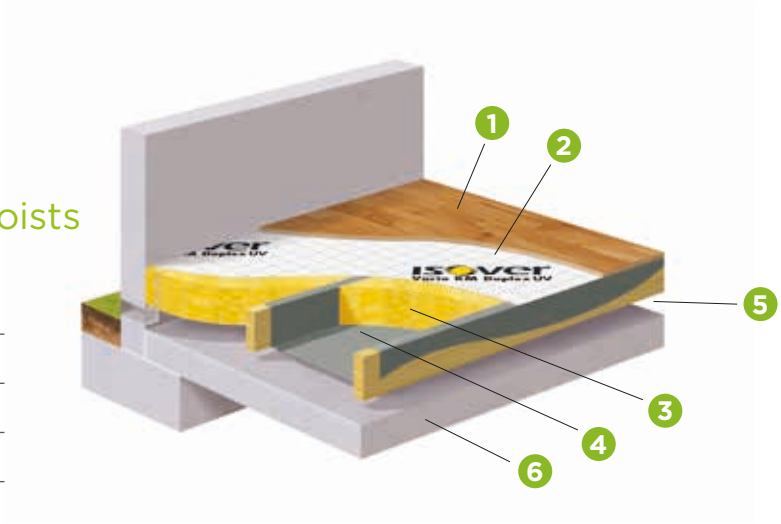
# Suspended Ground Floors

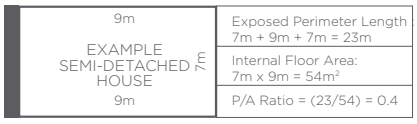
## Timber - Insulated Between Joists

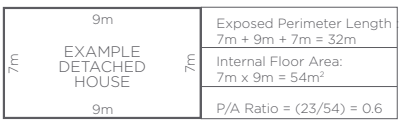



1. Timber walking surface
2. Vario® membrane + tapes
3. Isover insulation between joists
4. Breather membrane / netting
5. Ventilated void
6. Ground floor slab

| Joist size | Insulation between joists | Lambda | Thickness | ATMC | U-Value per P/A Ratio | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 |
| 100 | Spacesaver | 44 | 100 | Vario® System | 0.16 | 0.22 | 0.25 | 0.27 | 0.28 | 0.29 | 0.3 | 0.31 |
| 100 | Spacesaver Plus | 40 | 100 | Vario® System | 0.16 | 0.21 | 0.024 | 0.026 | 0.27 | 0.28 | 0.29 | 0.29 |
| 100 | Metac | 34 | 100 | Vario® System | 0.15 | 0.2 | 0.22 | 0.24 | 0.25 | 0.26 | 0.027 | 0.27 |
| 150 | Spacesaver | 44 | 150 | Vario® System | 0.14 | 0.18 | 0.2 | 0.21 | 0.22 | 0.23 | 0.23 | 0.24 |
| 150 | Spacesaver Plus | 40 | 150 | Vario® System | 0.14 | 0.17 | 0.19 | 0.2 | 0.21 | 0.22 | 0.22 | 0.23 |
| 150 | Metac | 34 | 150 | Vario® System | 0.13 | 0.16 | 0.18 | 0.19 | 0.2 | 0.2 | 0.21 | 0.22 |
| 150 | Metac | 31 | 140 | Vario® System | 0.13 | 0.16 | 0.17 | 0.18 | 0.19 | 0.19 | 0.2 | 0.2 |
| 180 | Metac | 34 | 180 | Vario® System | 0.12 | 0.15 | 0.16 | 0.17 | 0.17 | 0.18 | 0.18 | 0.18 |
| 180 | Metac | 31 | 180 | Vario® System | 0.12 | 0.14 | 0.15 | 0.16 | 0.17 | 0.17 | 0.17 | 0.17 |
| 200 | Spacesaver | 44 | 200 | Vario® System | 0.13 | 0.16 | 0.17 | 0.18 | 0.18 | 0.19 | 0.19 | 0.2 |
| 200 | Spacesaver Plus | 40 | 200 | Vario® System | 0.12 | 0.15 | 0.16 | 0.17 | 0.17 | 0.18 | 0.18 | 0.18 |
| 220 | Metac | 34 | 220 | Vario® System | 0.11 | 0.13 | 0.14 | 0.15 | 0.15 | 0.15 | 0.15 | 0.16 |

Note: The U-Value for floors (including basement floors) depends on the length of the exposed perimeter (to unheated buildings or outside).
Example: Perimeter Area (P/A) Ratio = Length of exposed perimeter (m) divided by the internal floor area (m²).




Therefore based on a P/A ratio of 0.4 for the semi-detached house, from the table above 150mm Isover Metac can achieve a U-Value of 0.18W/m²K but a detached house of the same size/shape the P/A ratio would increase to 0.6 and the U-Value based on 150mm Isover Metac would change to 0.20 W/m²K as per table above.

**ISOVER PRODUCTS**


Spacesaver Roll

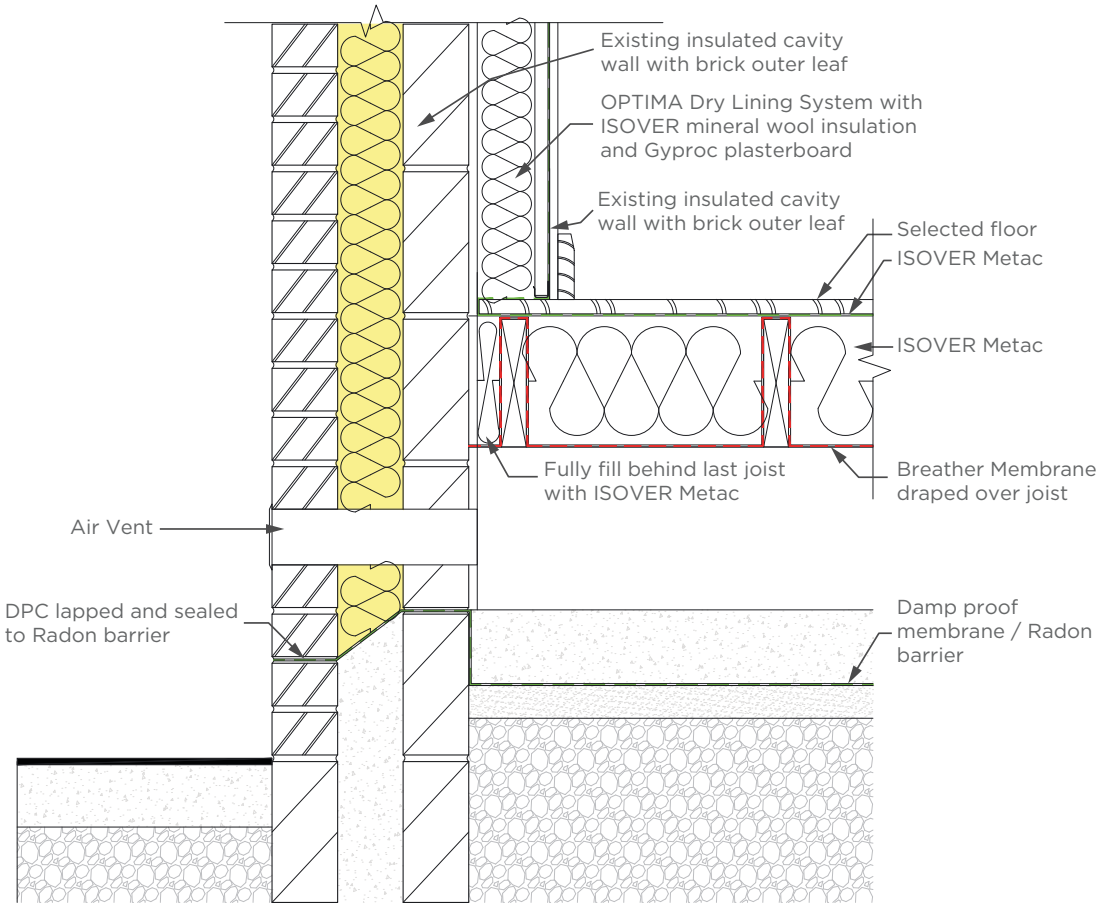
OR


Metac

+


Vario® System

# Application CAD Details

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# ISOVER
# Metac Roll

A high performance quality thermal insulation roll designed for a wide range of applications where space is at a premium.


## PRODUCT FEATURES

- ✔ Thermal conductivity 0.031 / 0.034 W/mK
- ✔ Excellent acoustic performance
- ✔ Excellent fire safety - A1 fire rated
- ✔ Vapour permeable breathable insulation
- ✔ Improves energy performance and reduces heating & cooling costs
- ✔ Easy to install. Friction fits between timber stud, joists and rafters with no need for additional fixings
- ✔ Made from recycled glass. Minimal manufacturing and on-site wastage. Low carbon footprint at manufacture and during transport


**W/mK** 0.034–0.031

| Product | Lambda Value | Product Code | Thickness (mm) | Width (mm) | Length (mm) | Roll Area (m²) | Rolls Per Pallet |
|---|---|---|---|---|---|---|---|
| ISOVER Metac | 0.034 | **5200771695** | 50 | 1200 | 9300 | 11.16 | 18 |
| ISOVER Metac | 0.034 | **5200771696** | 100 | 1200 | 6000 | 7.20 | 18 |
| ISOVER Metac | 0.034 | **5200765192** | 150 | 1200 | 4100 | 4.92 | 18 |
| ISOVER Metac | 0.034 | **5200771700** | 150 | 3 × 400 | 4100 | 4.92 | 18 |
| ISOVER Metac | 0.034 | **5200771705** | 180 | 1200 | 3400 | 4.08 | 18 |
| ISOVER Metac | 0.034 | **5200771708** | 180 | 3 × 400 | 3400 | 4.08 | 18 |
| ISOVER Metac | 0.034 | **5200765193** | 220 | 1200 | 2900 | 3.48 | 18 |
| ISOVER Metac | 0.034 | **5200852270** | 220 | 3 × 400 | 2900 | 3,48 | 18 |
| ISOVER Metac | 0.031 | **5200899796** | 90 | 1200 | 5400 | 6.24 | 18 |
| ISOVER Metac | 0.031 | **5200841098** | 140 | 2 × 600 | 3500 | 4.2 | 18 |
| ISOVER Metac | 0.031 | **5200861944** | 140 | 3 × 400 | 3400 | 4.08 | 18 |
| ISOVER Metac | 0.031 | **5200868092** | 180 | 1250 | 2700 | 3.375 | 18 |

Any values are indicative, please contact our technical support team for values pertaining to your project.

# ISOVER Comfort 35

FOR USE IN **PITCHED ROOF RAFTERS • PITCHED ROOF ATTICS • WALLS INSULATED CAVITIES**

A high performance roll designed for topping up attic floor insulation – easy to install, can be simply rolled out over existing insulation.


Acoustic insulation · Fire Protection · Moisture Control · Breathable · Minimal waste · Easy to transport · Energy Savings · Easy to install · Recycled glass UP TO 75 % · Protected planet $CO_2$ · Thermal Insulation

**W/mK** 0.035

| Product | Order Code | Thickness (mm) | Width (mm) | Length (mm) | Pack Area ($m^2$) | Pack Per Pallet |
|---|---|---|---|---|---|---|
| Comfort 35 G3 Touch | **5200542536** | 140 | 1200 | 3400 | 4.08 | 24 |

# ISOVER Acoustic Roll

FOR USE IN **WALLS PARTITION • WALLS EXTERNAL & SEPARATING • FLOORS FLOATING UNDER/BETWEEN**

A mineral wool roll providing high levels of acoustic insulation in partitions, walls and floors to meet acoustic requirements in domestic and non-residential applications.


Acoustic insulation · Fire Protection · Moisture Control · Breathable · Minimal waste · Easy to transport · Energy Savings · Easy to install · Recycled glass UP TO 75 % · Protected planet $CO_2$ · Thermal Insulation · Euroclass A1 fire rating A1

**W/mK** 0.036

| Product | Order Code | Thickness (mm) | Width (mm) | Length (mm) | Pack Area ($m^2$) | Pack Per Pallet |
|---|---|---|---|---|---|---|
| Acoustic Roll G3 Touch | **5200625536** | 25 | 1200 | 20000 | 24.00 | 24 |
| Acoustic Roll G3 Touch | **5200625538** | 50 | 1200 | 12000 | 14.40 | 24 |
| Acoustic Roll G3 Touch | **5200625546** | 70 | 1200 | 9000 | 10.80 | 24 |
| Acoustic Roll (Combi) G3 Touch | **5200625540** | 100 | 1160 | 6500 | 7.54 | 24 |
| Acoustic Roll (Combi) G3 Touch | **5200625542** | 150 | 1160 | 4500 | 5.22 | 24 |
| Acoustic Roll (Combi) G3 Touch | **5200625544** | 200 | 1160 | 2700 | 3.13 | 24 |

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# Case Study

## Isover Armstrong timber engineering, Noonan construction, Vale Road Site Arklow (Thermal Walls)

### Project Overview

| |
|---|
| **Building Owner:** Vale Road Site Arklow (Meadowvale) |
| **Architect:** Meehan Levins Architects, River Walk, Arklow, Co. Wicklow |
| **Main Contractor:** Noonan Construction |
| **Sub-Contractor:** Armstrong Timber Engineering |
| **ISOVER Products Used:** Comfort 35 140mm |

## Project Background

Meadowvale is a development of 301 three-bedroom semi-detached houses in Arklow Co Wicklow.

## Developer

Noonan Construction, established in 1969, is focused on quality of build and service in both the Residential and Commercial sectors. In addition to this long and wide experience they are committed to adopting the latest sustainable building techniques. Supporting their home buyers through the process and offering choice in finishes is a key part of their service.

## The Challenge

Chose Armstrong due to ongoing relationship and existing workflows. Modular timber frame build with Comfort 35 140mm used in External walls. Achieve thermal requirements as well as address workflow requirements for external walls. Speed is a key consideration as well as reliability/consistency of insulation material being installed into the external wall. Comfort 35 offers a consistency which is a requirement for factory kit construction. Deliver an A-rated home with excellent thermal performance in the external walls. NZEB compliant external wall achieved using Comfort 35.

As always, health and safety has been an important consideration for the project as well as sustainability.

## The Approach

ISOVER supported the project by providing calculations to ensure product would meet regulatory and site requirements. Technical and on-site application support was also provided to ensure that the advice and approach taken met the requirements of those working on the project.

As part of this, an understanding of project work flows to ensure adoption of Comfort 35 in a factory process was undertaken and this would yield efficiencies in construction. ISOVER systems were enthusiastically received and were found to be easy to use whilst providing the high level of thermal performance required.

Moreover, ISOVER helped with workflow as the sales team was able to offer ongoing support to ensure the project was delivered to a high spec and within the desired timelines. The end result was a high performance home that delivered on government and project stakeholder requirements.

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# ACOUSTIC WALL SOLUTIONS

Wall & Floor Solutions for Acoustic Performance

# Contents

# Introduction

## Noise Affects Everyone! It is everywhere...in the street, on work-sites, in stations and airports, but also in our houses. We are all sensitive to noise, whether at work, or at home, alone or socially.

This well-known urban phenomenon causes numerous problems such as sleep disorders, stress or loss of concentration. Acoustic comfort is an essential element of the quality of life.

Silence is the feature of places where we feel comfortable.

Building acoustics is the science of controlling noise in buildings, including the minimisation of noise transmission from one space to another, sound insulation; and the control of noise levels and characteristics within a space, sound absorption.

Noise can be defined as sound that is undesirable, but it can also be subjective and depends on the reactions of the individual. When a noise is troublesome, it can reduce comfort and efficiency. If a person is subjected to noise for long periods, it can result in physical discomfort or mental distress.

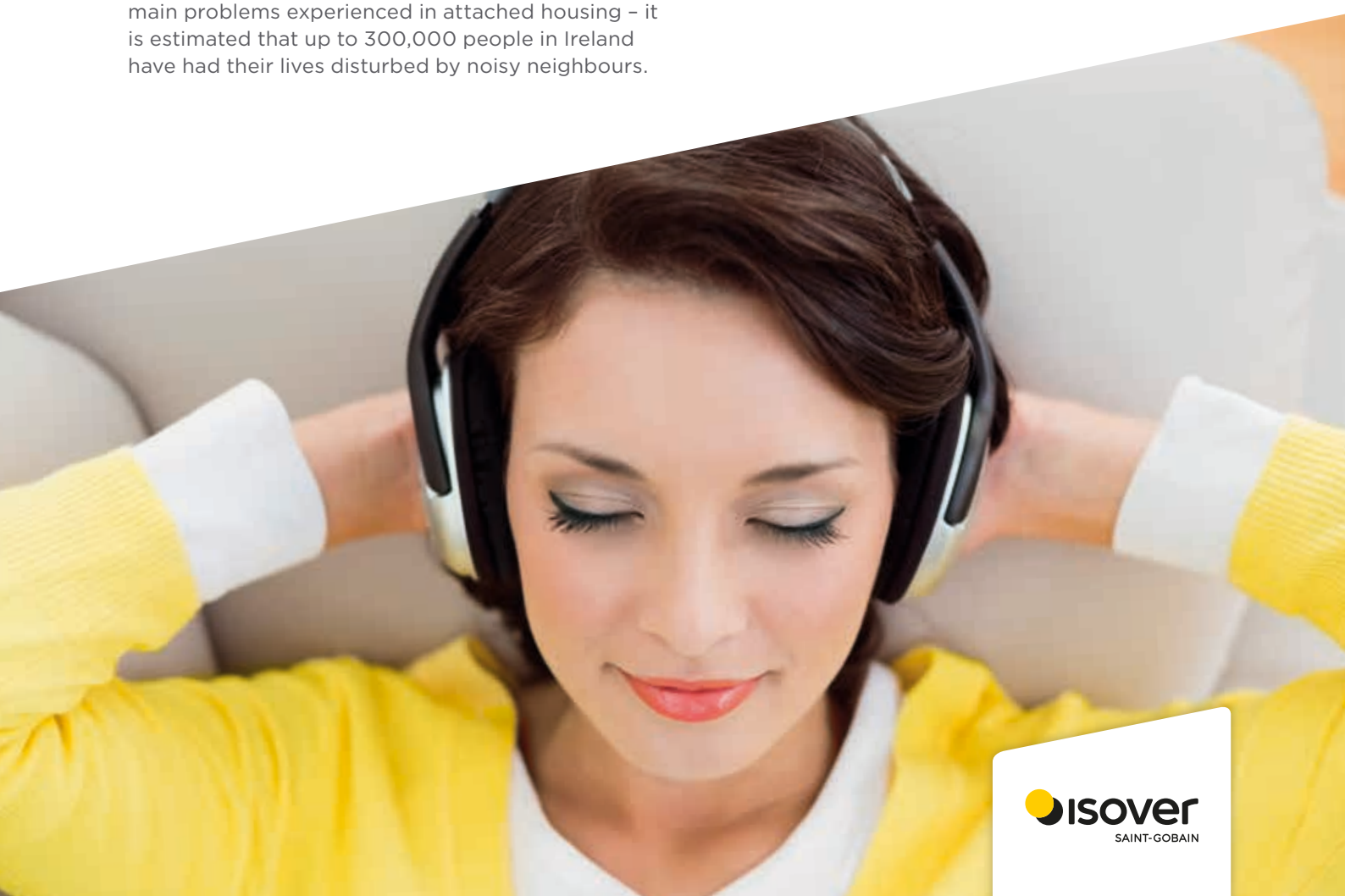
Within homes, a noisy neighbour can be one of the main problems experienced in attached housing – it is estimated that up to 300,000 people in Ireland have had their lives disturbed by noisy neighbours.

The correct acoustic climate must be provided in each space and, noise transmission levels should be compatible with the building's usage.

ISOVER has been conducting extensive research and development to achieve this goal for many years. It is constantly improving its products in order to enhance their acoustic performance.

ISOVER have developed a range of high-performance acoustic solutions, providing high levels of acoustic insulation in partitions, party walls and floors which offer excellent acoustic results.

The ISOVER range has been tested to ensure the highest possible decibel reduction providing excellent acoustic comfort. As a result, they provide the best available response to acoustic issues.



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# Standards and Certification

| | |
|---|---|
| **QUALITY** | We hold a Quality Management Standard EN ISO 9001: 2015 for manufacturing. |
| **CE** | Our products are manufactured in accordance with the CE marking requirements under the Construction Products Regulation |
| **PRODUCT STANDARDS** | All products are manufactured in accordance with product standard: EN 13162:2012+A1:2015 and EN 13172 Evaluation of Conformity. |
| **ENVIRONMENT** | ISOVER is an ISO 14001:2015 (Environmental Management System) accredited manufacturing facility. This accreditation ensures that all products are manufactured to the stringent standards set out by this management system. |
| **INDOOR AIR QUALITY** | Awarded the highest standard in indoor air quality - Eurofins “Gold” 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 does 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. |
| **RESPONSIBLY SOURCED** | Our products have been manufactured to BES60001 to ensure their constituent materials have been responsibly sourced. |

EN ISO 9001: 2000

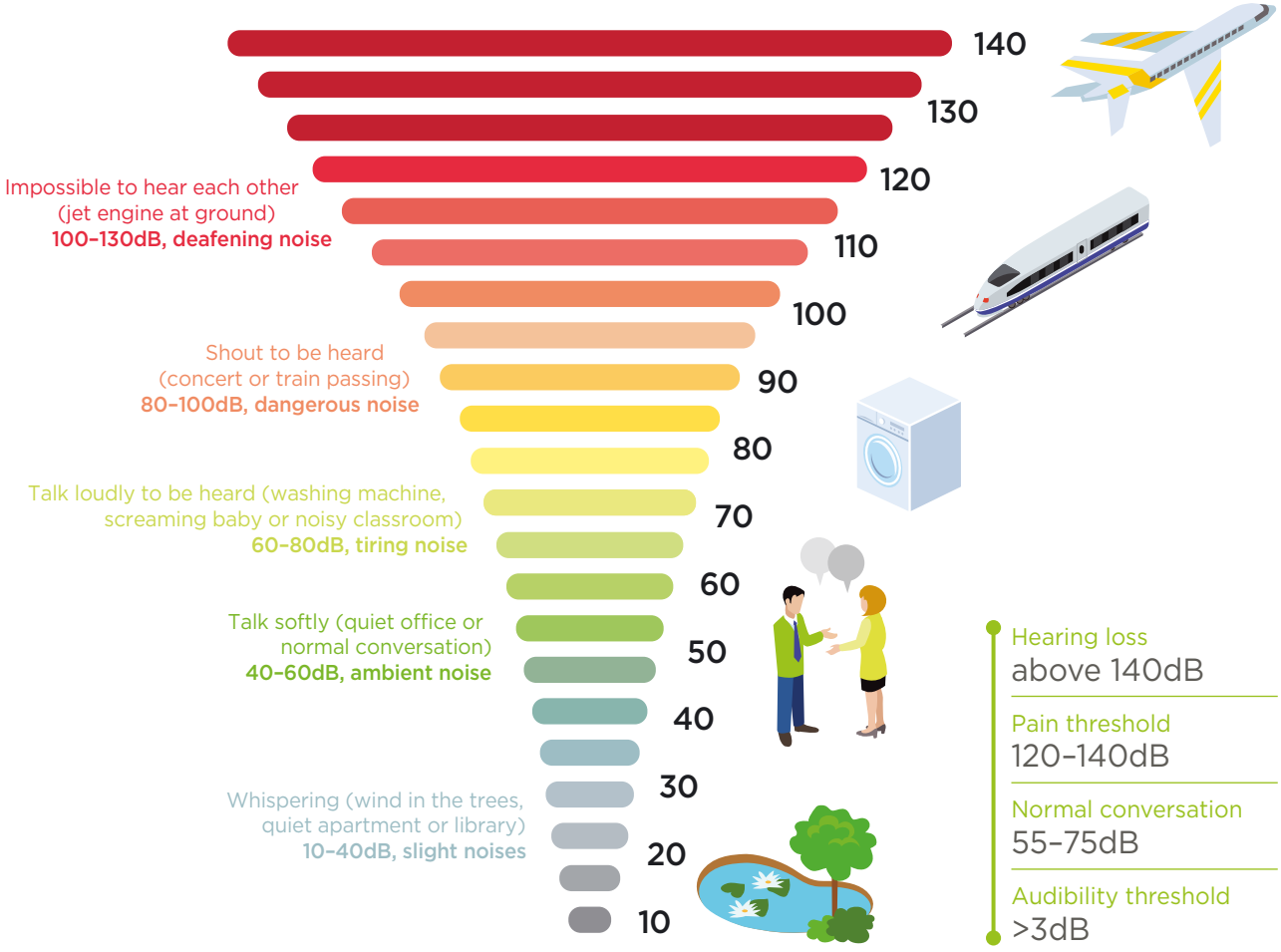
EMS 551706 003

# Noise Sources

## There are four noise sources in the building acoustics domain

1. Airborne noise from external sources: road, rail or aircraft noise, voices in the street, etc.
2. Airborne noise from internal sources: conversations, Hi-Fi, television, etc.
3. Impact noise: movements of people or furniture, falling objects, etc.
4. Equipment noise: elevators, valves, ventilation fans, etc.

# Noise Level Scale




## Noise can cause cognitive disorders

**Increased tiredness and level of stress**. As a result, recovery periods in a calm, quiet location are required.

## Noise can directly affect personal health, depending on its intensity and exposure time

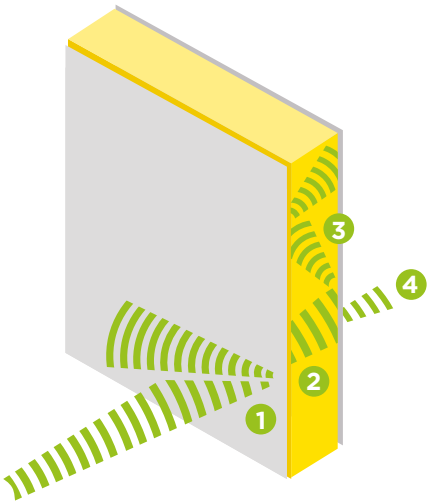
This can consist of **sleep disorders, effects upon the cardiovascular system** (rapid heartbeat and raised blood pressure) and **impaired hearing acuity**.

## Calm is a source of well-being.

In order to be noticeable, any acoustic improvement must be **more than 3dB**. As a result, any difference of less than 3 dB between two sound insulation systems (mainly technical or materials used) will not be audible.

**Reducing the level by 10dB** gives the impression of hearing **half the noise**.

# Mass-spring-mass systems and the effect of ISOVER mineral wools



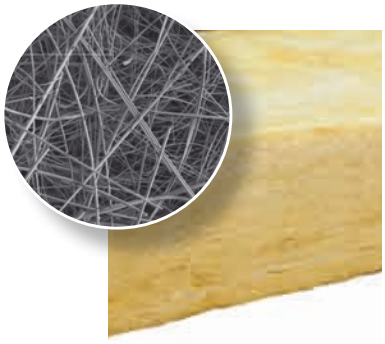

## Principle

To optimise the acoustic performance of walls and reduce their weight and thickness, double-skin walls may be used (referred to as lightweight walls).

These are composed of two single-skin walls separated by a cavity.

**In order to improve the sound insulation, the cavity created between the two skins is filled with an insulating material.**

## This method of partitioning a wall uses the so-called “mass-spring-mass” principle



1. The first skin serves as a mass (as in a single-skin wall): it reflects a part of the noise and allows the rest to pass.
2. The remaining noise is transmitted into the elastic insulating material, which absorbs it and so reduces the amplitude of the waves.
3. The second skin again reflects part of the noise inside the isolating material (which absorbs more noise).
4. It finally transmits the attenuated noise into the adjoining room.

**ISOVER mineral wools are excellent sound absorbent materials. Thanks to its open-cell, porous structure (due to its randomly arranged fibres), it traps the sound energy and dissipates it within its thickness.**

| Wall | Sound Insulation | |
|---|---|---|
| 18 cm concrete wall | $R_A$ = 60dB |   |
| 215mm Block Masonry on flat with ISOVER Calibel dabbed and placed on one side. | $R_A$ = 54dB |   |
| Separating party wall with double-framed structure **with 50mm Acoustic Roll, 100mm Spacesaver Plus, Gyproc Plank & Gyproc WallBoard single layers on either side.** | $R_A$ = 70dB |   |

## Better acoustic attenuation can be achieved with light systems rather than with heavy systems, within the same thickness.

**IN SUMMARY:** Double-skinned walls are useful because they offer high attenuation without requiring heavy or excessively thick walls.

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# Achieving Proper Impact Sound Insulation

## Recommended action

In order to achieve the most effective floor insulation against impact noise, handling the noise at its source is recommended.

**Treating the floor in the room in which the impacts occur is also recommended.**
This is done by separating the supporting structure from the finished floor, thereby reducing lateral transmission and ensuring that direct impact noise is partly absorbed by the insulating material between the two elements.

Due to their elasticity, glass wool and stone wool both provide effective isolation, between the screed and the concrete slab for example. In this case, the glass wool provides the mechanical link between the two claddings, serving as a spring to act as an intermediate or as spacing material that actively helps to increase the acoustic insulation.

The insulation used in this case must therefore be sufficiently elastic to serve as a spring yet sufficiently rigid to ensure proper mechanical behaviour in the screed or load distribution surface. The insulating material's spring effect is characterised by its dynamic stiffness.

## Supplementary action

If it is impossible to handle the noise when emitted, systems should be used to limit direct noise transmission (floor underlay) and indirect noise transmission (vertical wall cladding). The best result is achieved by combining both actions.

**Recommended action**
Direct treatment of floor insulation

**Further action**
Direct and indirect treatment
(ceiling and walls)

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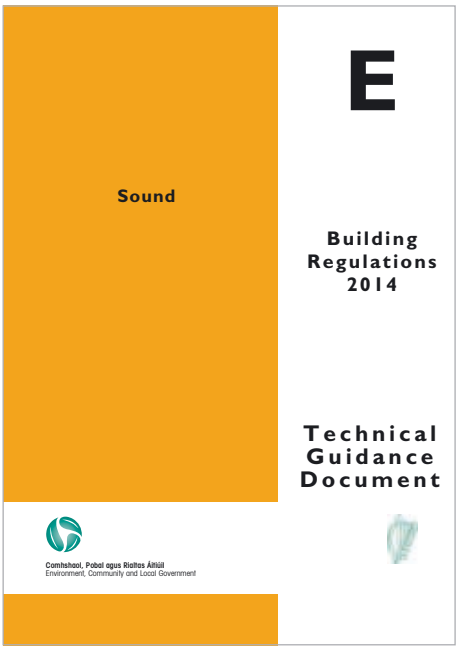
# Regulations, Codes & Certifications

## Introduction

Acoustic regulations vary according to building type, as well as location (Republic of Ireland's regulations differ to those in Northern Ireland). Here is a useful summary of the regulations that are in place for residential building for both Republic of Ireland and Northern Ireland.

## Republic of Ireland

- ✔ Technical Guidance Document E 2014 - Resistance to the Passage of Sound.
- ✔ Requires all separating walls and floors to demonstrate their compliance by successfully passing on-site testing on their respective projects.
- ✔ Unlike the regulations for England and Northern Ireland, there is no provision in the regulations for the adoption of 'Robust Details' to avoid on-site testing or provision to use them as demonstration of a compliant solution.
- ✔ There is however a provision within the regulations to bring the number of tests required on site to the same level as the systems outlined in the TGD once it can be demonstrated that the solution has successfully shown compliance on 30 separate tests undertaken across at least two different project locations.




**Need regulatory advice?**
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NI: 0845 3990159
tech.ie@saint-gobain.com

## Republic of Ireland Required sound performance levels - New Build

| Separating Construction | Airborne Sound Insulation $D_{nT,w}$ dB | Impact Sound Insulation $L'_{nT,w}$ dB |
|---|---|---|
| Walls | 53 (min) | - |
| Floors (including stairs with a separating function) | 53 (min) | 58 (max) |

## Republic of Ireland Minimum frequency of testing per group or sub-group type

| Number Of Attached Dwellings | 'Sets Of Tests' Required |
|---|---|
| 4 or less | At least 1 |
| Greater than 4 but less than or equal to 20 | At least 2 |
| Greater than 20 but less than or equal to 40 | At least 2 + 10% x No. of attached dwellings greater than 20 |
| Greater than 40 but less than or equal to 100 | At least 4 + 5% x No. of attached dwellings greater than 40 |
| More than 100 | At least 7 + 5% x No. of attached dwellings greater than 100 |

## Republic of Ireland Other constructions - minimum frequency of testing per group or sub-group type

| Number Of Attached Dwellings | 'Sets Of Tests' Required |
|---|---|
| First 8 dwellings (or part thereof) planned for completion | At least one 'set of test' for each separating element up to 4 No. 'sets of tests' |
| Greater than 8 but less than or equal to 20 | At least 6 (in total) |
| Greater than 20 but less than or equal to 40 | At least 6 + 10% x No. of attached dwellings greater than 20 |
| Greater than 40 but less than or equal to 100 | At least 8 + 5% x No. of attached dwellings greater than 40 |
| More than 100 | At least 11 + 5% x No. of attached dwellings greater than 100 |

## Republic of Ireland Other constructions - minimum frequency of testing per group or sub-group type

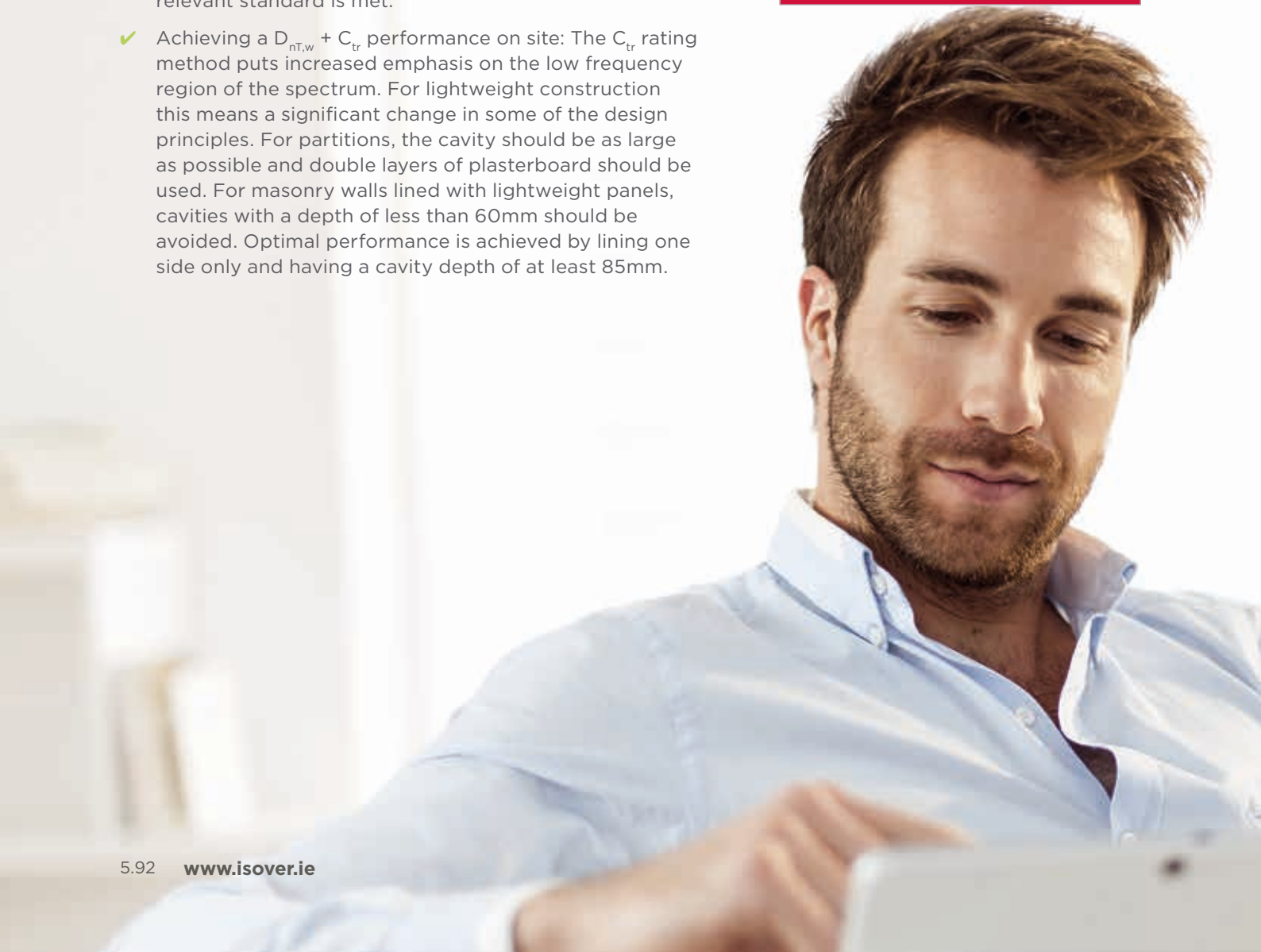
| Min Number Of Individual Tests | Min Number Of Sites | Max Number Of Tests Per Site | Min Number Of Test Bodies |
|---|---|---|---|
| 30 | 2 | 16 | 2 |

# Regulations, Codes & Certifications

## Northern Ireland

Northern Ireland's acoustic regulations are outlined in Technical Booklet G. These regulations are put into place in a series of specifications known as 'robust details'.


- ✔ Technical Booklet G 2012 - Resistance to the Passage of Sound.
- ✔ Robust details outline acceptable builds for relevant acoustic applications (party wall, floors, partitions), without the need for on-site testing. These forms of construction have been designed and site tested to ensure that they deliver a standard of sound insulation on site to meet the minimum regulations of Technical Booklet G.
- ✔ Any deviation from the standard robust details must undergo testing to prove that the required standard was met.
- ✔ Contractors can register each project they are working on with the Robust Details body. The approved spec for each relevant application will then be sent out to ensure the relevant standard is met.
- ✔ Achieving a $D_{nT,w}$ + $C_{tr}$ performance on site: The $C_{tr}$ rating method puts increased emphasis on the low frequency region of the spectrum. For lightweight construction this means a significant change in some of the design principles. For partitions, the cavity should be as large as possible and double layers of plasterboard should be used. For masonry walls lined with lightweight panels, cavities with a depth of less than 60mm should be avoided. Optimal performance is achieved by lining one side only and having a cavity depth of at least 85mm.



## Northern Ireland Dwellings

Performance standards for separating walls, separating floors, and stairs that have a separating function.

| | Airborne Sound Insulation $D_{nT,w}$ dB + $C_{tr}$dB (minimum values) | Impact Sound Insulation $L'_{nT,w}$ dB (maximum values |
|---|---|---|
| **New dwellings** | | |
| Walls | 45 | - |
| Floors and stairs | 45 | 62 |
| **Dwellings formed by material change of use** | | |
| Walls | 43 | - |
| Floors and stairs | 43 | 64 |

## Northern Ireland Rooms for Residential Purposes

Performance standards for separating walls, separating floors, and stairs that have a separating function.

| | Airborne Sound Insulation $D_{nT,w}$ dB + $C_{tr}$dB (minimum values) | Impact Sound Insulation $L_{nT,w}$ dB (maximum values) |
|---|---|---|
| New Rooms for residential purposes | | |
| Walls | 43 | - |
| Floors and stairs | 45 | 62 |
| Rooms for residential purposes formed by material change of use | | |
| Walls | 43 | - |
| Floors and stairs | 43 | 64 |

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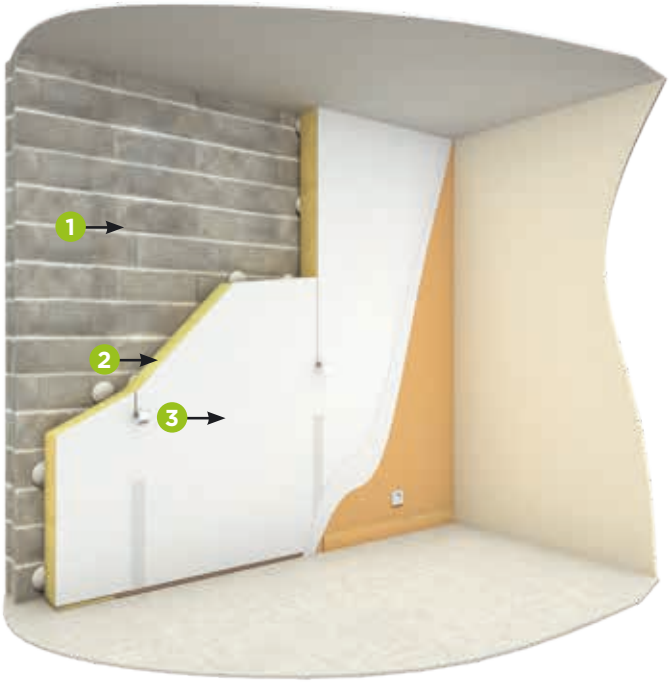
# Masonry Separating Party Wall

## Single leaf construction 215mm block on flat

1. 215mm solid block
2. Gyproc Plasterboard Compound dabbed*
3. ISOVER Calibel Board

*Adhesive dabs should be applied in a regular pattern in accordance with EN 8212 : 1995 and EN 8000 Part 8: 1994 to give a minimum area of contact between board and background of 20%.

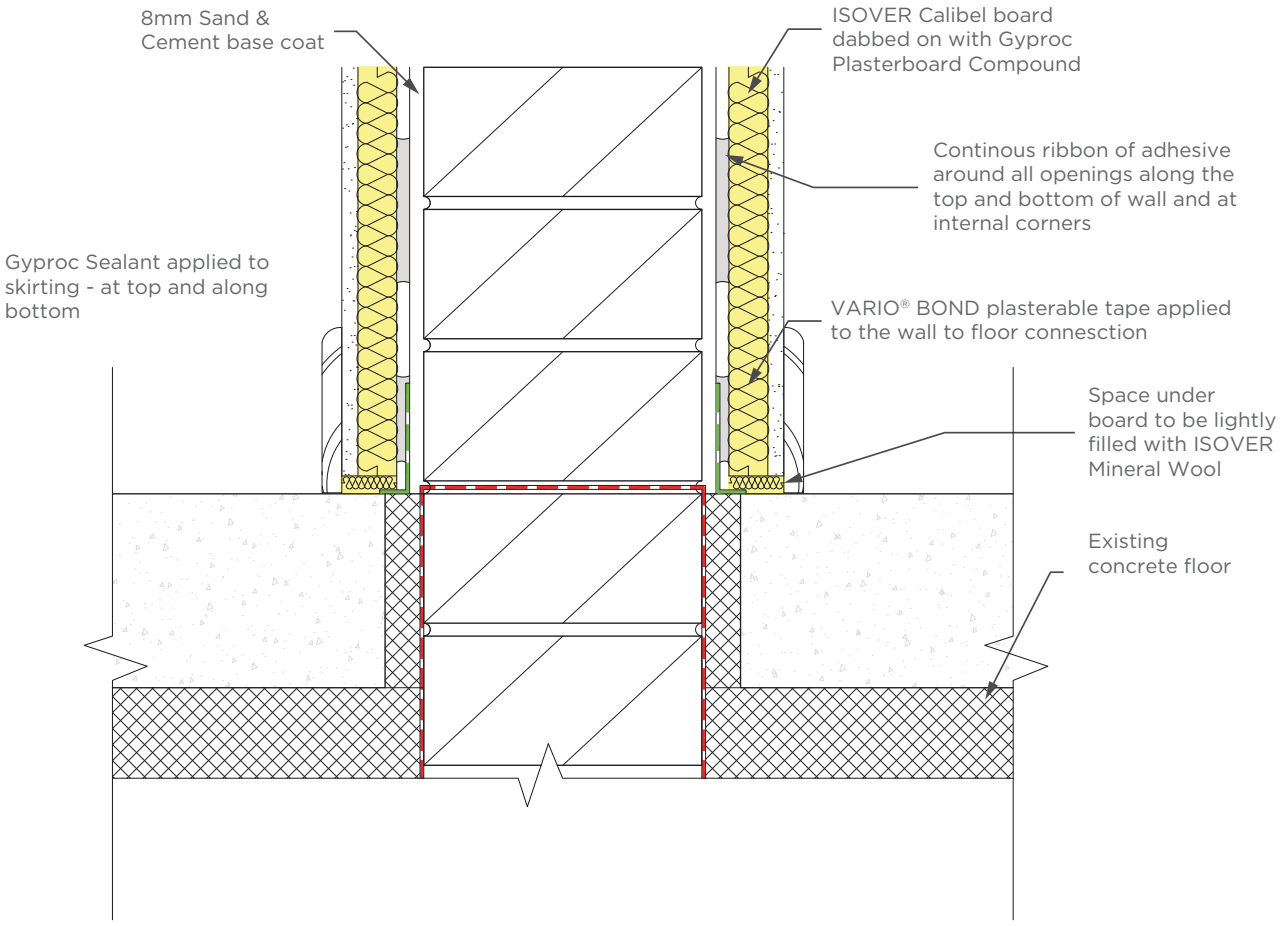



| Product | Wall Type | $R_w$ dB |
|---|---|---|
| 42.5mm Calibel Board dot & dabbed on one side of a separating party wall using Gyproc Plasterboard Compound | 215 dense concrete block, laid block on flat | 54 |

ISOVER PRODUCTS

Calibel Board

## Application CAD Details




Adhesive dabs should be applied in a regular pattern in accordance with BS 8212 : 1995 and EN 8000 Part 8: 1994 to give a minimum area of contact between board and background of 20%.

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

**More CAD details and application variants are available to download by registering and logging into www.isover.ie/spechub**

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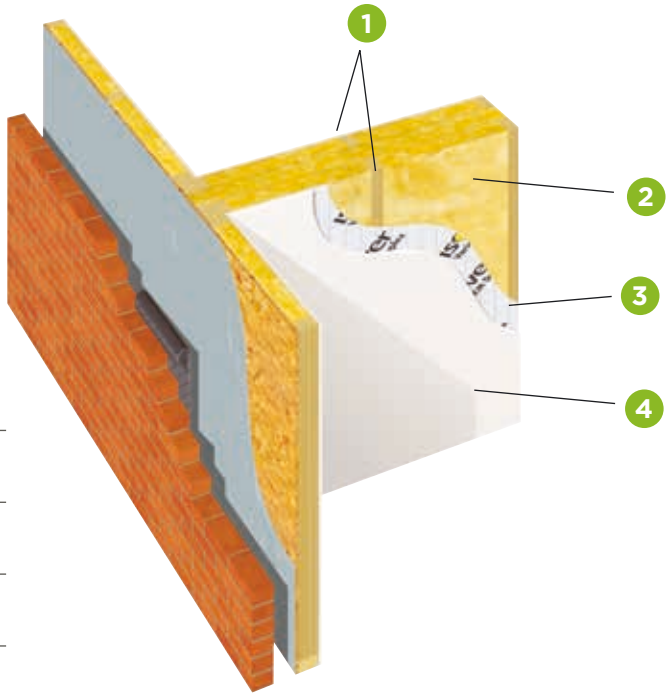
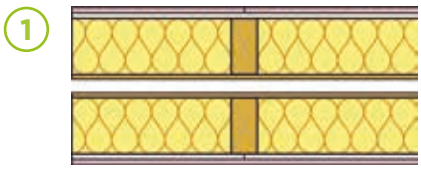
# Timber Frame Separating Party Wall




## Twin Leaf Construction

1. Two frameworks of timberstud
2. ISOVER insulation (fully filled for zero U-value)
3. Vario® membrane + tapes
4. 2 x Gyproc plasterboard




## Performance Table

| Board Type | | Lining Thickness | Sheathing | Stud Size | Insulation Studs | Optional Cavity Insulation* |
|---|---|---|---|---|---|---|
| 60 | Minutes Fire Resistance | | | | | |
| 1 | FireLine (outer) & WallBoard (inner) | 2 x 15mm | OSB | 89 x 38 | 100mm Spacesaver Plus | 50mm Acoustic Roll |
| 1 | FireLine (outer) & WallBoard (inner) | 1 x 12.5mm (outer) & 1 x 15mm (inner) | OSB | 89 x 38 | 100mm Spacesaver Plus | 50mm Acoustic Roll |

*Required in Northern Ireland to eliminate thermal bypass for a zero U-Value, also in comparative testing fully fillling the cavity improved the acoustic performance by 7dB

ISOVER PRODUCTS


Acoustic Roll

OR

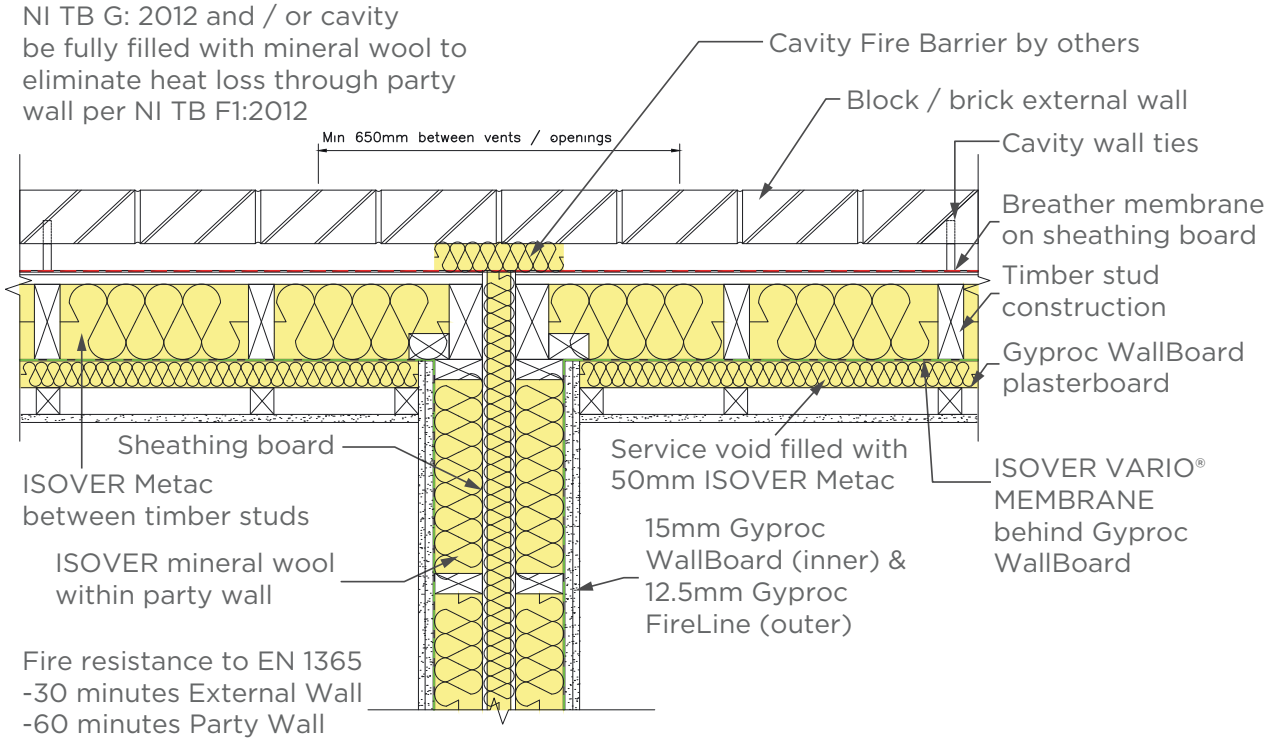

Modular Roll

+


Vario® System

## Application CAD Details

Mineral wool should return min 300mm into Party Wall cavity per NI TB G: 2012 and / or cavity be fully filled with mineral wool to eliminate heat loss through party wall per NI TB F1:2012




Fire resistance to EN 1365
-30 minutes External Wall
-60 minutes Party Wall

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)

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

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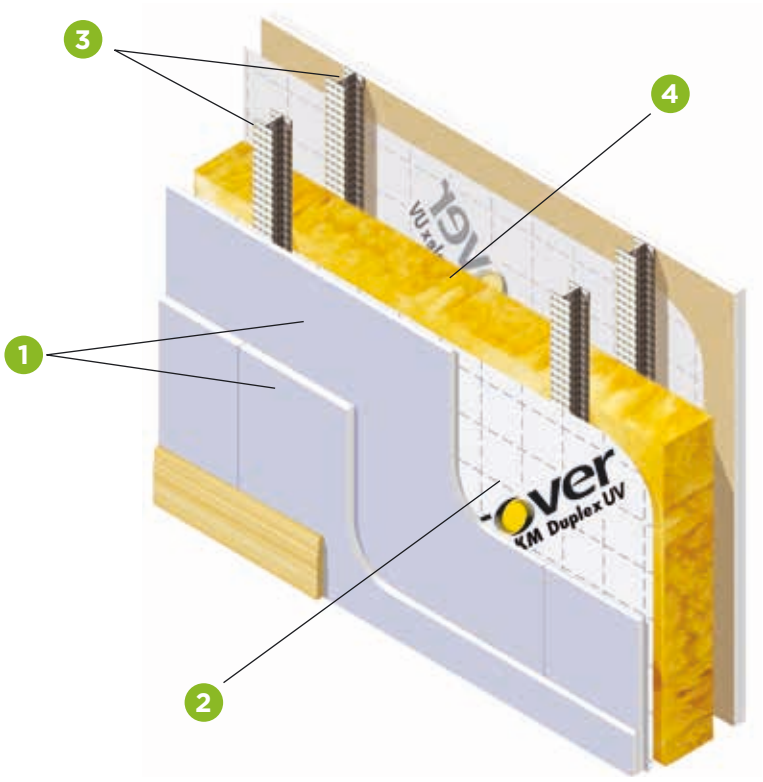
# Metal Stud Separating Party Wall

## 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




| Insulation | Gyproc Plasterboard | Lab Sound Insulation 100 - 3150 Hz, $R_w$ dB | Fire Resistance (mins.) | Overall Thickness (mm) |
|---|---|---|---|---|
| 50mm ISOVER Acoustic Roll | 2 x 15mm Gyproc SoundBloc fixed to 48 I 50 "I" Studs | 66 ($R_w$ dB) 58 ($R_w + C_{tr}$)* | 60 | 200 |
| 100mm ISOVER Acoustic Roll | 2 x 15mm Gyproc SoundBloc fixed to 60 I 50 "I" Studs | 70 ($R_w$ dB) 62 ($R_w + C_{tr}$)* | 90 | 250 |

* Isover insulation used in conjunction with Gyproc plasters & plasterboards can meet the requirements of the guidance for Separating Walls in Northern Ireland Building Regulations Technical Booklet G 2012. The above are based on GypWall Quiet IWL systems PSR. No. A216013 & A216014 designed to achieve the minimum $D_{nTw} + C_{tr}$ 45 subject to pre-completion testing.

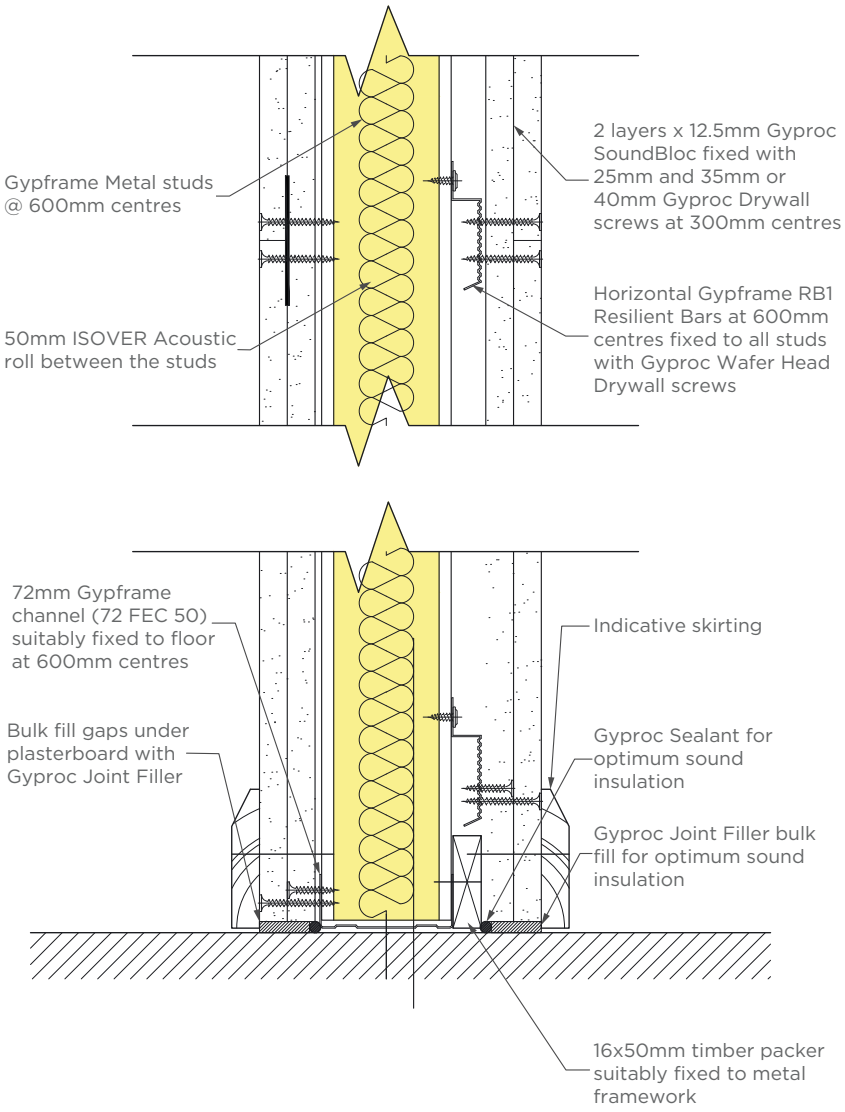
ISOVER PRODUCTS


Acoustic Roll

+


Vario® System

## Application CAD Details




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

**More CAD details and application variants are available to download by registering and logging into www.isover.ie/spechub**

Please contact us for more information on this and other applications:

**Free Phone (ROI):** 1800 744480

**Free Phone (NI):** 0845 3990159

**Email:** tech.ie@saint-gobain.com

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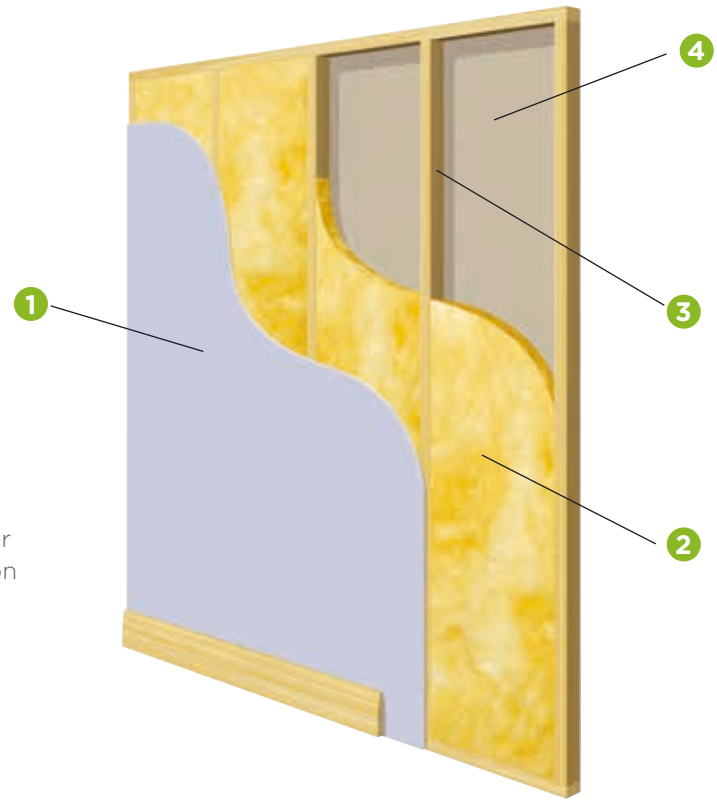
# Internal Partitions

## Timber Studs

1. 12.5mm Gyproc Plasterboard
2. ISOVER Acoustic Roll / Batt
3. 75 x 38mm timber studs
4. 12.5mm Gyproc Plasterboard

A partition wall constructed from one layer of 12.5mm Gyproc Plasterboard each side of timber studs at 600 mm centres, with ISOVER insulation within the cavity.




| Insulation | Gyproc Plasterboard | Lab Sound Insulation 100 - 3150 Hz, $R_w$ dB | Fire Resistance (mins) | Timber Stud Thickness (mm) |
|---|---|---|---|---|
| 25mm ISOVER Acoustic Roll* | 12.5mm Gyproc WallBoard Premium | ** | 30 | 75 |
| 25mm ISOVER Acoustic Roll* | 12.5mm Gyproc SoundBloc | 40 | 30 | 75 |
| 25mm ISOVER Acoustic Roll* | 2 x 12.5mm Gyproc SoundBloc | 46 | 60 | 75 |

* ISOVER recommends full filling of timber stud with acoustic insulation for optimum performance.
** ISOVER Acoustic Roll used in conjunction with Gyproc WallBoard Premium meets the requirements of the guidance for Internal wall type B as per examples given in Northern Ireland Building Regulations Technical Booklet G 2012.

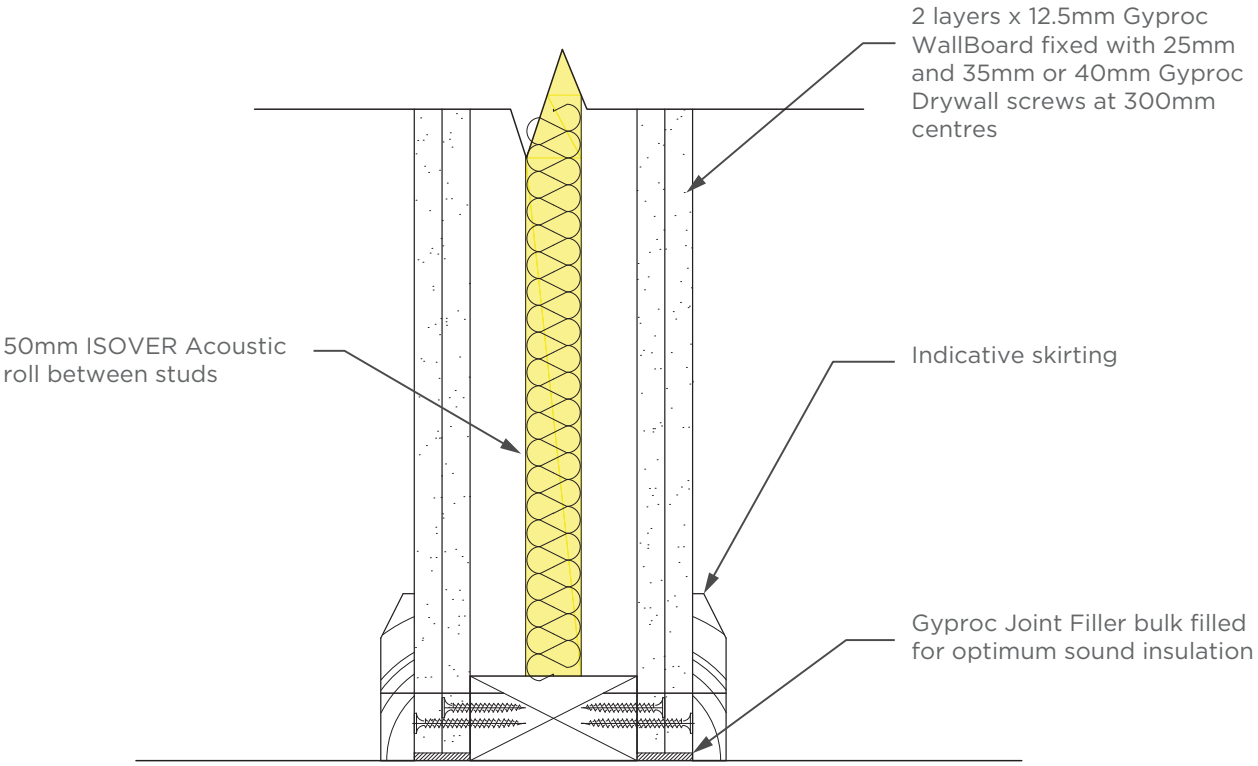
ISOVER PRODUCTS


Acoustic Roll

OR


Acoustic Slab

## Application CAD Details

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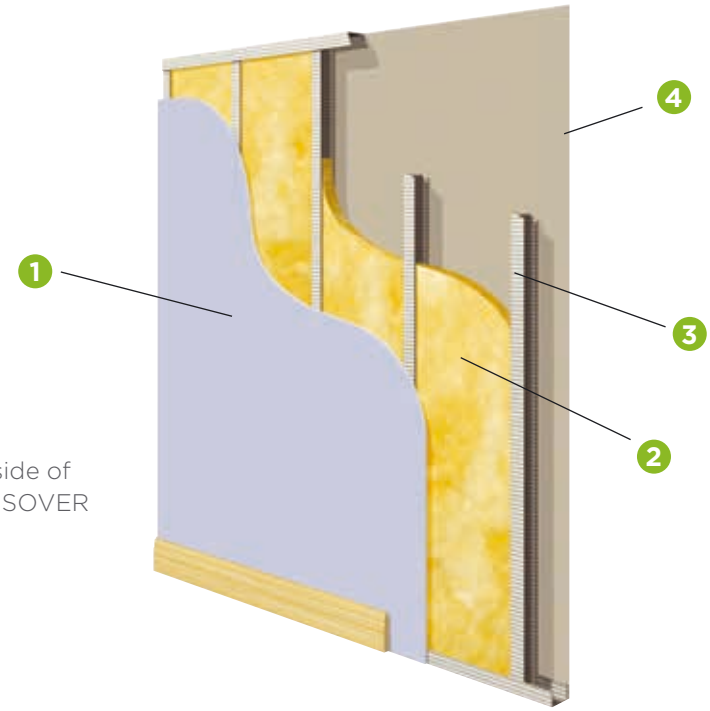
# Internal Partitions

## Metal Studs

1. 12.5mm Gyproc Plasterboard
2. ISOVER Acoustic Roll / Batt
3. 70mm Gypframe metal studs
4. 12.5mm Gyproc Plasterboard

One layer of 12.5mm Gyproc Plasterboard each side of Gypframe metal studs at 600 mm centres, with ISOVER insulation within the cavity.




| Insulation | Gyproc Plasterboard | Lab Sound Insulation 100 - 3150 Hz, $R_w$ dB | Fire Resistance (mins) | Metal Stud Thickness (mm) |
|---|---|---|---|---|
| 25mm ISOVER Acoustic Roll* | 12.5mm Gyproc WallBoard Premium | ** | 30 | 70 |
| 25mm ISOVER Acoustic Roll* | 12.5mm Gyproc SoundBloc | 45 | 30 | 70 |
| 50mm ISOVER Acoustic Roll* | 12.5mm Gyproc SoundBloc | 47 | 30 | 70 |
| 50mm ISOVER Acoustic Roll* | 2 x 12.5mm Gyproc SoundBloc | 53 | 60 | 70 |

* ISOVER recommends full filling of metal stud with acoustic insulation for optimum performance.
** ISOVER Acoustic Roll used in conjunction with Gyproc WallBoard Premium meets the requirements of the guidance for Internal wall type B as per examples given in Northern Ireland Building Regulations Technical Booklet G 2012.

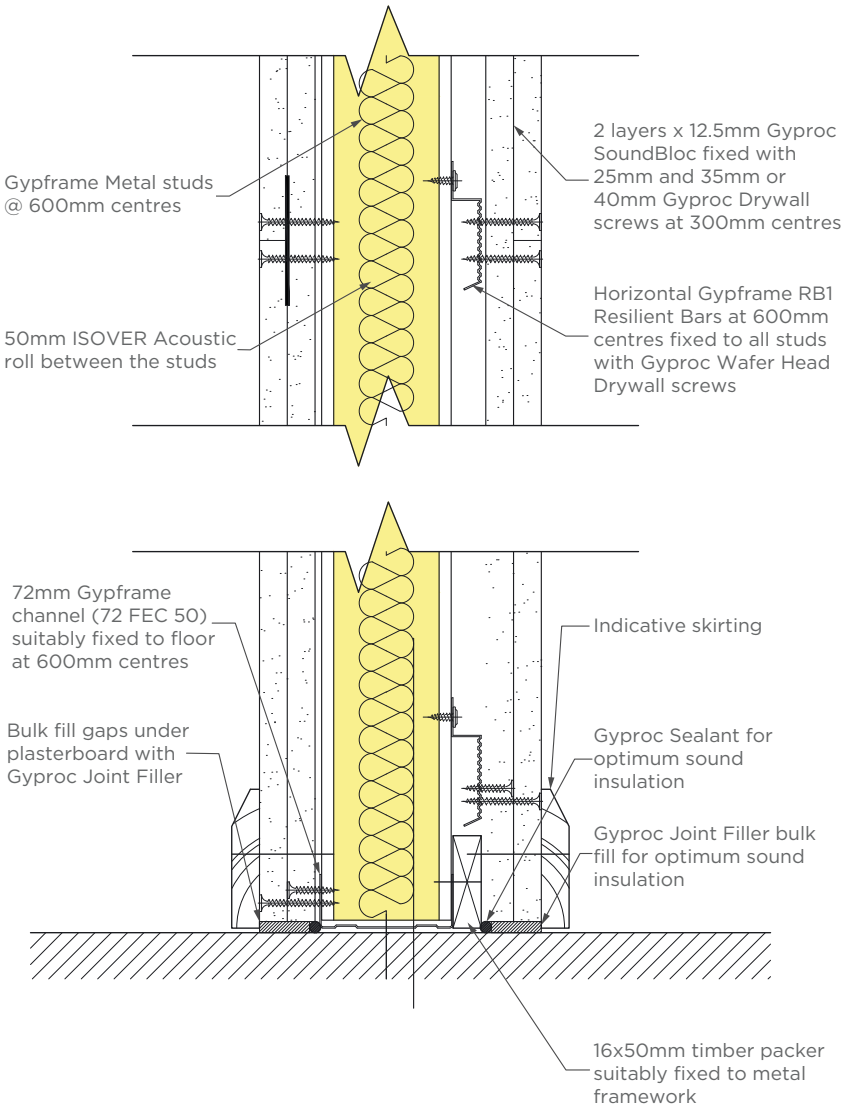
ISOVER PRODUCTS


Acoustic Roll

OR


Acoustic Slab

## Application CAD Details

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# ISOVER
# Acoustic Roll

FOR USE IN **WALLS PARTITION • WALLS EXTERNAL & SEPARATING • FLOORS FLOATING UNDER/BETWEEN**

A mineral wool roll providing high levels of acoustic insulation in partitions, walls and floors to meet acoustic requirements in domestic and non-residential applications.


Acoustic insulation · Fire Protection · Moisture Control · Breathable · Minimal waste · Easy to transport · Energy Savings · Easy to install · Recycled glass UP TO 75% · Protected planet $CO_2$ · Thermal Insulation · Euroclass A1 fire rating

**W/mK** 0.036

| Product | Lead Time | Order Code | Thickness (mm) | Width (mm) | Length (mm) | Pack Area (m2) | Pack Per Pallet |
|---|---|---|---|---|---|---|---|
| Acoustic Roll G3 Touch | A | **5200625536** | 25 | 1200 | 20000 | 24.00 | 24 |
| Acoustic Roll G3 Touch | A | **5200625538** | 50 | 1200 | 12000 | 14.40 | 24 |
| Acoustic Roll G3 Touch | A | **5200625546** | 70 | 1200 | 9000 | 10.80 | 24 |
| Acoustic Roll (Combi) G3 Touch | A | **5200625540** | 100 | 1160 | 6500 | 7.54 | 24 |
| Acoustic Roll (Combi) G3 Touch | A | **5200625542** | 150 | 1160 | 4500 | 5.22 | 24 |
| Acoustic Roll (Combi) G3 Touch | C | **5200625544** | 200 | 1160 | 2700 | 3.13 | 24 |

# ISOVER
# Acoustic Batt

FOR USE IN **PITCHED ROOF – ATTICS • WALLS INTERNALLY INSULATED • WALLS PARTITION**

A mineral wool batt fixed for lightweight constructions, providing excellent thermal and acoustic insulation.


Acoustic insulation · Fire Protection · Moisture Control · Breathable · Minimal waste · Easy to transport · Energy Savings · Easy to install · Recycled glass UP TO 75% · Protected planet $CO_2$ · Thermal Insulation · Euroclass A1 fire rating

**W/mK** 0.036

| Product | Lead Time | Order Code | Thickness (mm) | Width (mm) | Length (mm) | Pack Area (m2) | Pack Per Pallet |
|---|---|---|---|---|---|---|---|
| Acoustic Batt (Steel Frame Infill Batt) G3 Touch | C | **5200625382** | 50 | 600 | 1200 | 11.52 | 20 |
| Acoustic Batt (Steel Frame Infill Batt) G3 Touch | C | **5200625384** | 75 | 600 | 1200 | 7.2 | 20 |
| Acoustic Batt (Steel Frame Infill Batt) G3 Touch | C | **5200625386** | 100 | 600 | 1200 | 5.76 | 20 |

# ISOVER
# Calibel Board

FOR USE IN **WALLS INTERNALLY INSULATED • WALLS SEPARATING**

A laminated insulation board composed of a base of mineral wool, assuring excellent thermal & acoustic performance, finished with a plasterboard lining.


Acoustic insulation · Fire Protection · Moisture Control · Breathable · Minimal waste · Easy to transport · Energy Savings · Easy to install · Recycled glass UP TO 75 % · Protected planet $CO_2$

**0.948** $m^2K/W$

| Product | Lead Time | Order Code | Thickness (mm) | Width (mm) | Length (mm) | Board Area (m2) | Boards Per Pallet |
|---|---|---|---|---|---|---|---|
| Calibel G3 Touch | A | **5200877369** | 42.5 | 1200 | 2438 | 2.93 | 22 |

# ISOVER
# Spacesaver Plus Roll

FOR USE IN **PITCHED ROOF – ATTICS**

A mineral wool roll providing increased thermal and acoustic insulation for domestic attic floors and external walls. Rolls are pre-perforated to 3 x 386mm and 2 x 580mm widths to fit between common joist spacings.


Acoustic insulation · Fire Protection · Moisture Control · Breathable · Minimal waste · Easy to transport · Energy Savings · Easy to install · Recycled glass UP TO 75 % · Protected planet $CO_2$ · Thermal Insulation · Euroclass A1 fire rating

**W/mK** 0.040

| Product | Lead Time | Order Code | Thickness (mm) | Width (mm) | Length (mm) | Pack Area ($m^2$) | Pack Per Pallet |
|---|---|---|---|---|---|---|---|
| Spacesaver Plus G3 Touch | A | **5200625357** | 100 | 1160 | 7000 | 8.12 | 24 |
| Spacesaver Plus G3 Touch | B | **5200625359** | 150 | 1160 | 4670 | 5.42 | 24 |
| Spacesaver Plus G3 Touch | C | **5200625361** | 200 | 1160 | 3500 | 4.06 | 24 |

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# Case Study

## Donabate – LoughGlynn Developments

### Project Overview

**Building Owner:** Beresford, Turvey Avenue, Donabate, Co.Dublin

**Architect:** McCrosson O'Rourke Manning

**Main Contractor:** LoughGlynn Developments (Hora)

**Products Used:** Calibel

## Project Background

Hora Homes is a family run house building business. Hora Homes are a well-known and respected house builder is the Greater Dublin Area, having been established in 1973. Long associated with quality and luxury housing developments which are finished and maintained to the highest standards, the company prides itself in the meticulous attention to detail followed through all stages of its residential developments from planning and design, to construction and sales, right through to its customer care and after sales service. They are a medium sized residential development company who aim to be the best in our local market. Hora endeavour to create stable communities for our residents by building quality homes and only selling to owner occupiers.

Beresford is a high quality development located on the grounds of the historic Beverton House and Gate Lodge. The development consists of three and four bedroom houses of 1,200 – 1,475 sq.ft and four bedroom detached houses of 1,475 – 1,650 sq.ft. All homes will be built and finished to the highest standard and will only be sold to owner occupiers.

## Project Challenge

The challenge in any development that has terraced or semi-detached homes is to ensure a minimization of acoustic noise from one residence to the other. In this case, high performance acoustic insulation slabs were needed to achieve this. In addition to this, an easy to use and quick to install product was needed to ensure on site workflow was not hindered.

## The Approach

Calibel was identified as the right solution to provide the required regulatory acoustic performance between residences. Calibel was chosen as the party wall insulation solution for the semi-detached residences within the development; and was chosen as it offered excellent acoustic comfort results to residents. Hora have used Calibel in developments in the past and have done so because the product offers consistently excellent acoustic comfort, as well as a track record of meeting acoustic regulations for party walls.

Throughout the life of the project, site visits and product training was offered and completed to ensure Calibel was installed and performed as required by the design team.

Moreover, Isover helped with workflow as the sales team was able to offer ongoing support to ensure the project was delivered to a high spec and within the desired timelines. The end result was a high performance home that delivered on government and project stakeholder requirements.

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# ISOVER
# AIRTIGHTNESS & MOISTURE CONTROL SOLUTIONS

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

# 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

WHERE TO USE

Residential | Non Residential | Airtightness & Moisture Control

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## Membrane Performance Overview

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

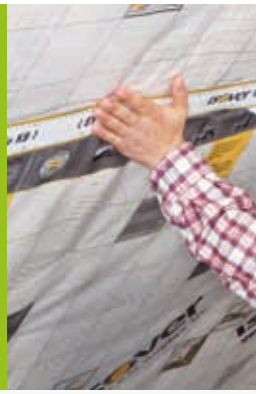
**Water vapour transmission:** 0,3 ≤ $S_d$ ≤ 5 (KM Duplex) 0,3 ≤ $S_d$ ≤ 20 (Xtra)

**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 |

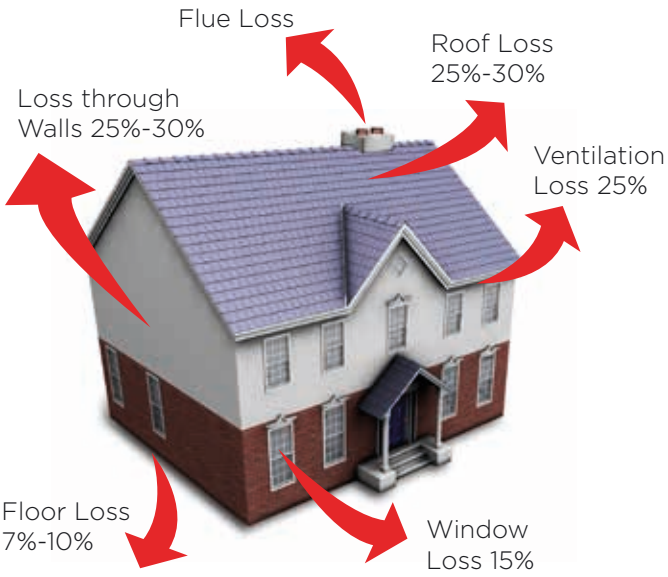
# Where should you use Vario®?

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.

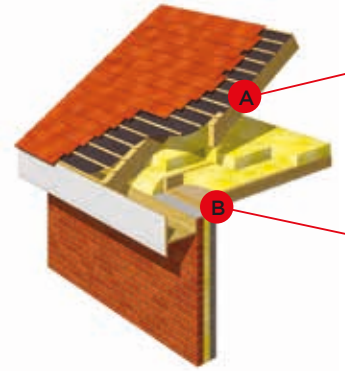
### Steel Frame Buildings

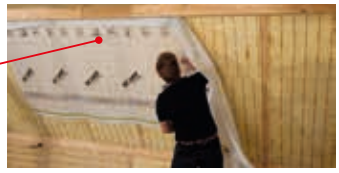
In steel frame structures such as commercial and retail buildings, Vario® can be used in the same applications as on timber frame structures, except tapes are used instead of staples.

## 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.

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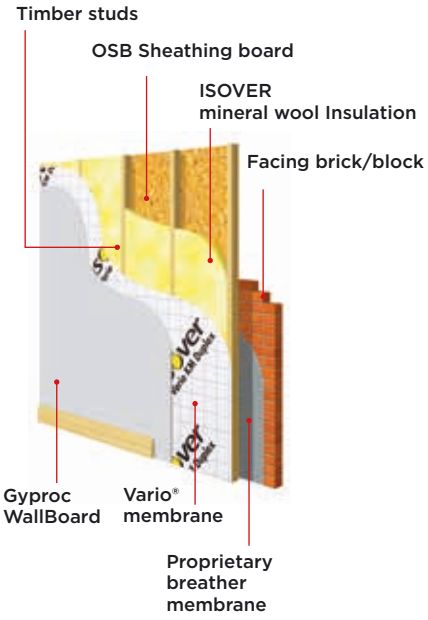
## Walls - Timber Frame Buildings

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.

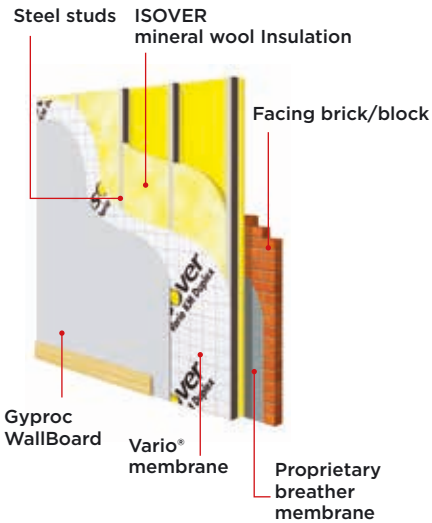
The Vario® membrane is stapled to the underside of joists below the attic and then sealed to walls. Where separating timber floors join outer block walls, Vario® tapes are used to seal potential leaks.

**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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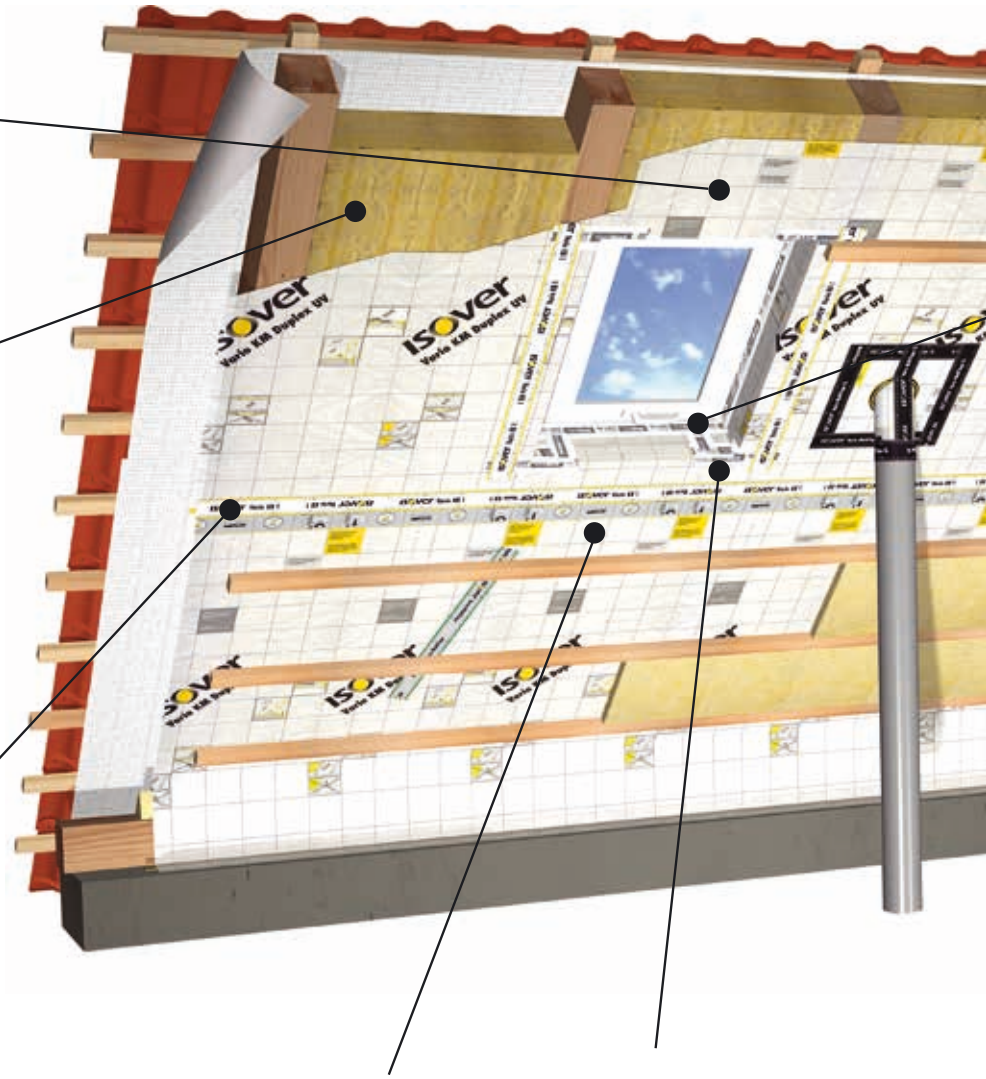
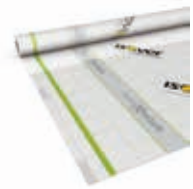
# A quick guide to what, where and how to use the Vario® system

**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

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

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

### JUNCTIONS

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

### SUBSTRATES

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

* 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.

ISOVER SAINT-GOBAIN

**NEW BUILD U-VALUES:**
0.16 PITCHED ROOF
**RENOVATION U-VALUES:**
0.25 PITCHED ROOF

# Building Regulations
# **Republic of Ireland**

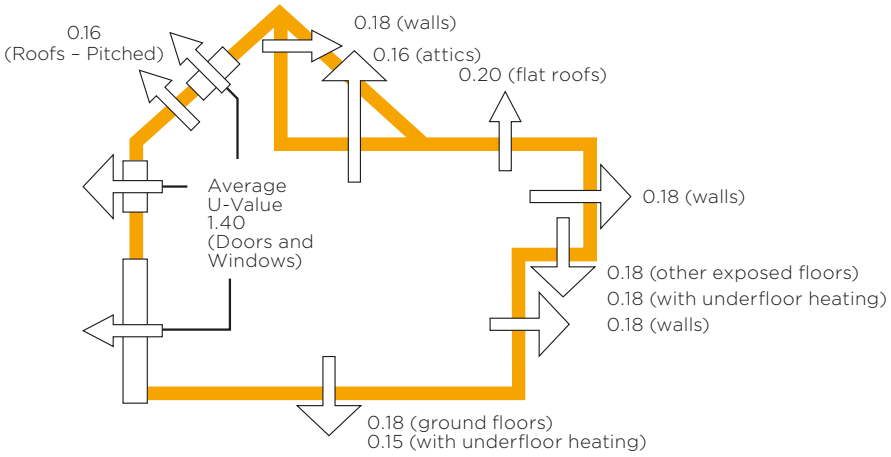
The following is a guide to thermal building regulations for new & existing dwellings, delivering comfort and energy savings through effective thermal insulation.

## Republic of Ireland

**New Dwellings TGD – Part L – 2019**

Minimum standards for
U-Values

Upper limit for air permeability is 5m³/(h.m²)

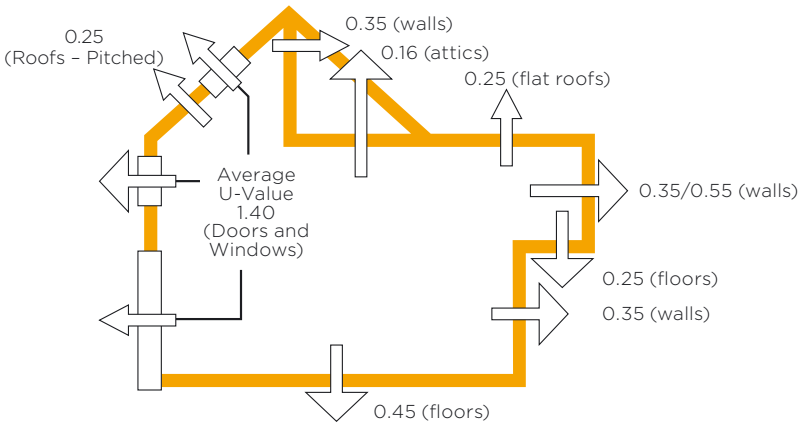



For more information you can contact our technical team on free phone (ROI) 1800 744480 or go to www.isover.ie

## Republic of Ireland

**Existing Dwellings TGD – Part L – 2019**

Minimum standards for
U-Values




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

CONTACT OUR TECHNICAL TEAM FOR MORE INFO:
ROI: 1800 744480 • NI: 0845 399 0159 • tech.ie@saint-gobain.com

NEW BUILD U-VALUES:
0.20 PITCHED ROOF
RENOVATION U-VALUES:
0.18 PITCHED ROOF

# Building Regulations **Northern Ireland**

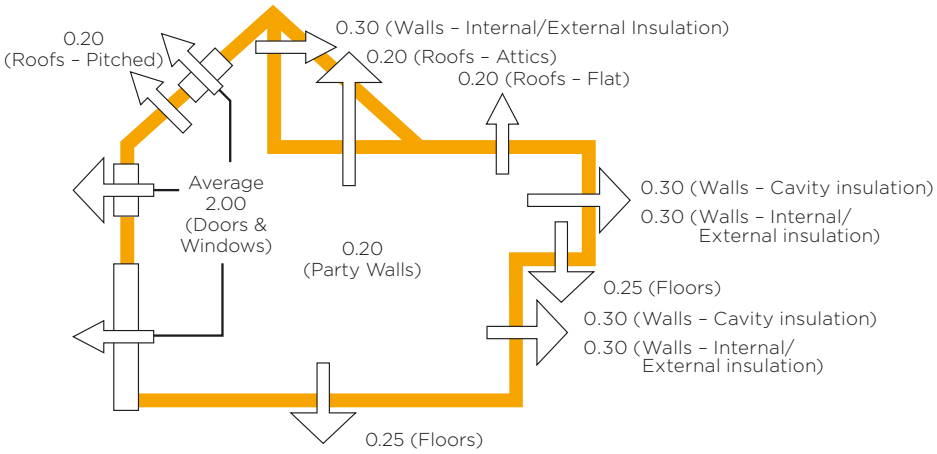
The following is a guide to thermal building regulations for new & existing dwellings, delivering comfort and energy savings through effective thermal insulation.

## Northern Ireland

**New Dwellings – DFP Technical Booklet F1:2012**

Minimum standards for U-Values

Upper limit for air permeability is 10m³/(h.m²)



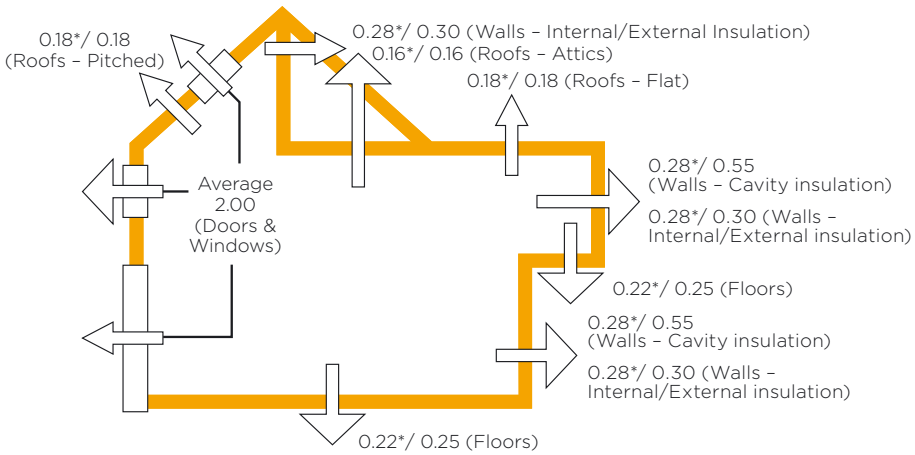

For more information you can contact our technical team on phone (NI) 0845 339 0159 or go to www.isover.ie

## 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
SAINT-GOBAIN

# 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


## WHERE TO USE

Walls, Roof & Floors – Internally

## Intelligent Variable Sd Membranes

| Product | Order Code | Width (mm) | Length (m) | M² Per Roll | Pack | Packs Per Pallet | CE |
|---|---|---|---|---|---|---|---|
| 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 | CE |
|---|---|---|---|---|---|---|---|
| Vario® StopVap Membrane | **5200815577** | 1500 | 40 | 60 | 1 Roll | 46 Rolls |  |
| Vario® StopVap Membrane | **5200846100** | 3000 | 40 | 120 | 1 Roll | 46 Rolls |  |

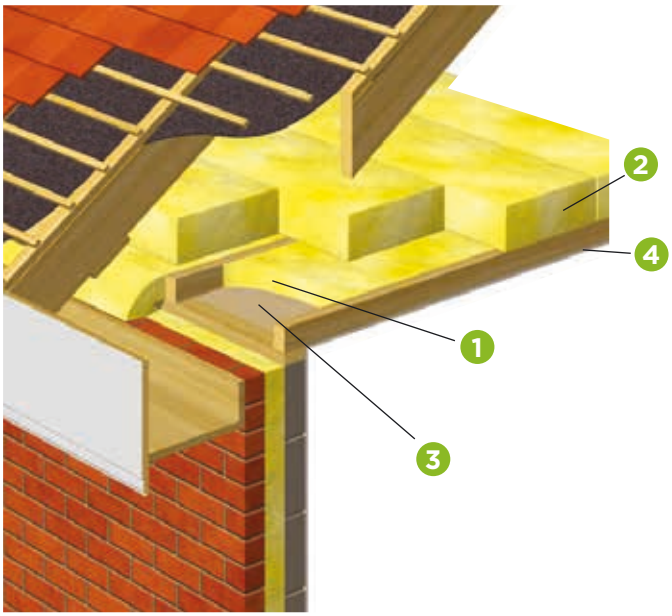
## Airtightness Tapes & Mastic

| Product | Order Code | Width (mm) | Length (m) / ml | M² Per Roll | Pack | Packs Per Pallet | CE |
|---|---|---|---|---|---|---|---|
| Vario® KB1 Single Sided Tape | **5200300297** | 60 | 40 | 2.4 | 5 Rolls | 120 Boxes (600 Rolls) |  |
| Vario® Multitape SL 60 | **5200431017** | 60 | 25 | 1.5 | 10 Rolls | 80 Boxes (800 Rolls) |  |
| Vario® Multitape SL 150 | **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) |  |

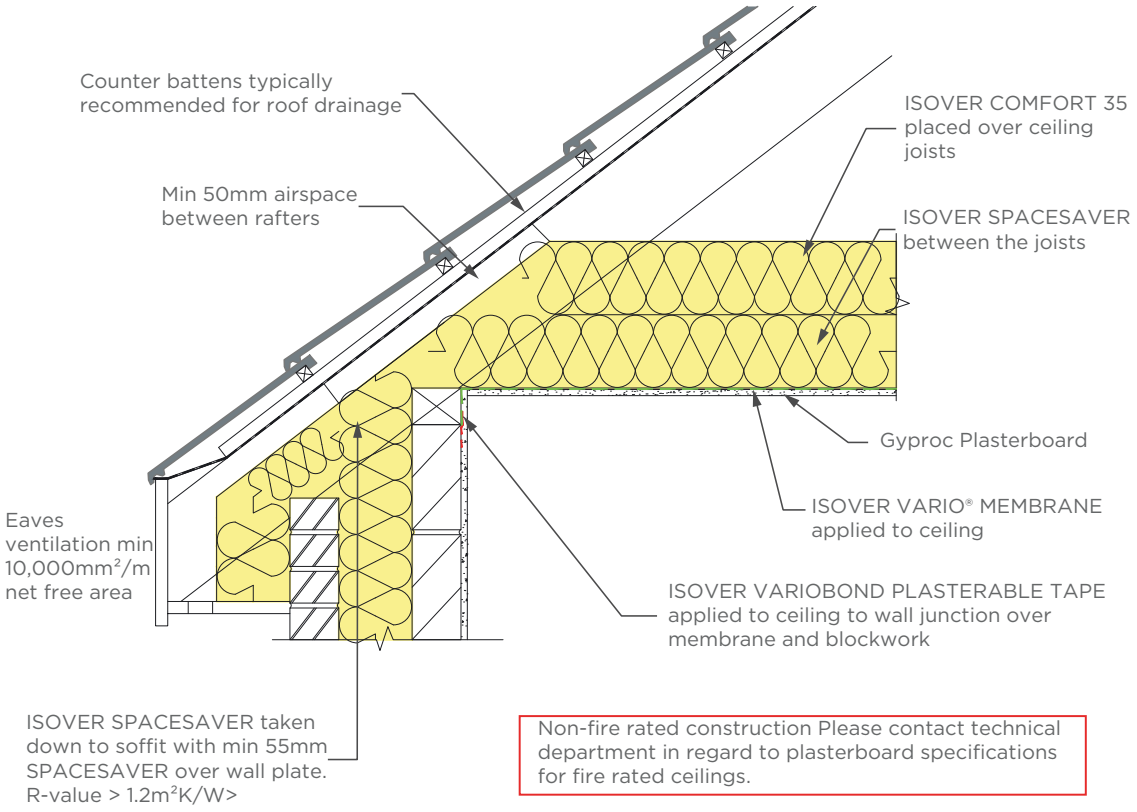
# Attics

## Twin Leaf Construction

1. ISOVER insulation between joists
2. Second layer of ISOVER insulation cross laid over joists
3. Vario® membrane + tapes
4. Gyproc WallBoard




## Application CAD Details




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

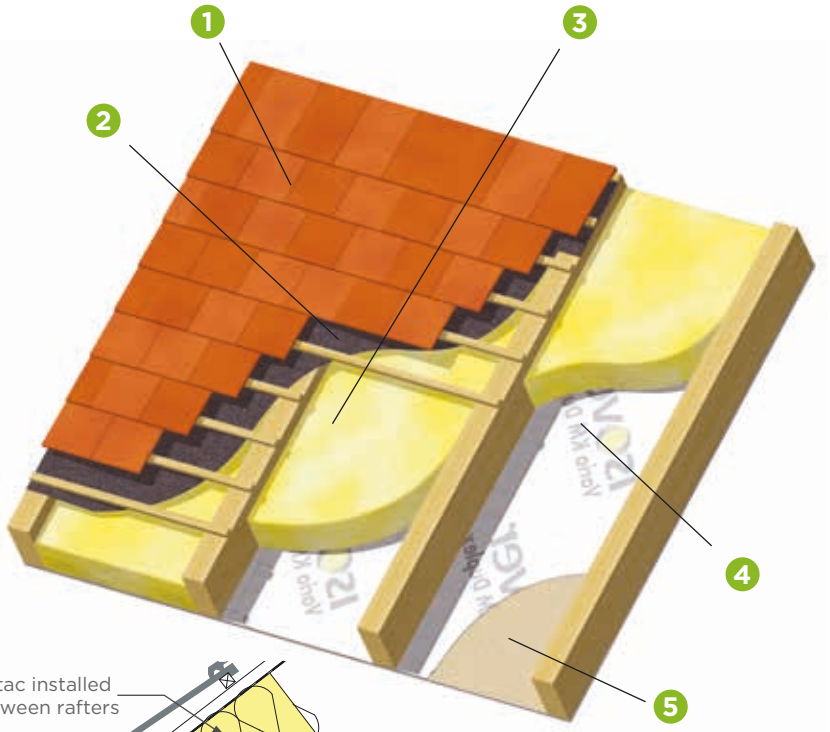
**ISOVER PRODUCTS**

Spacesaver Roll + Comfort 35 + Vario® System

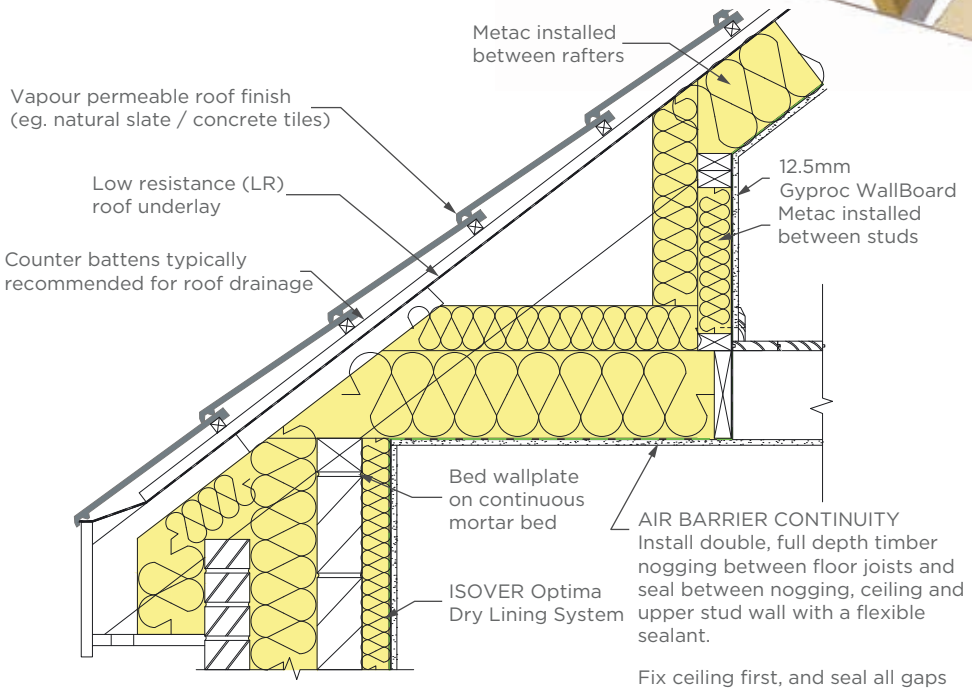
# Pitched Roofs

## 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




## Application CAD Details



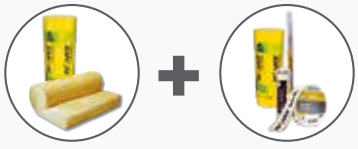

AIR BARRIER CONTINUITY
Install double, full depth timber nogging between floor joists and seal between nogging, ceiling and upper stud wall with a flexible sealant.

Fix ceiling first, and seal all gaps between ceiling and masonry wall with either adhesive or flexible sealant

Seal all penetrations using a flexible sealant

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

ISOVER PRODUCTS

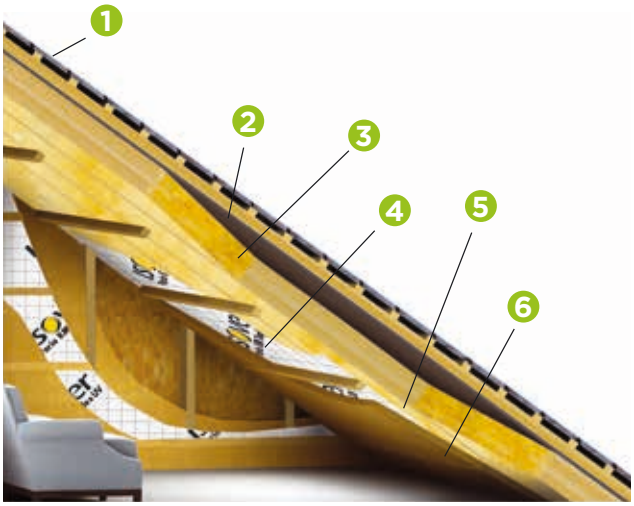


Metac Roll + Vario® System

# Pitched Roof with Internal Counter Batten

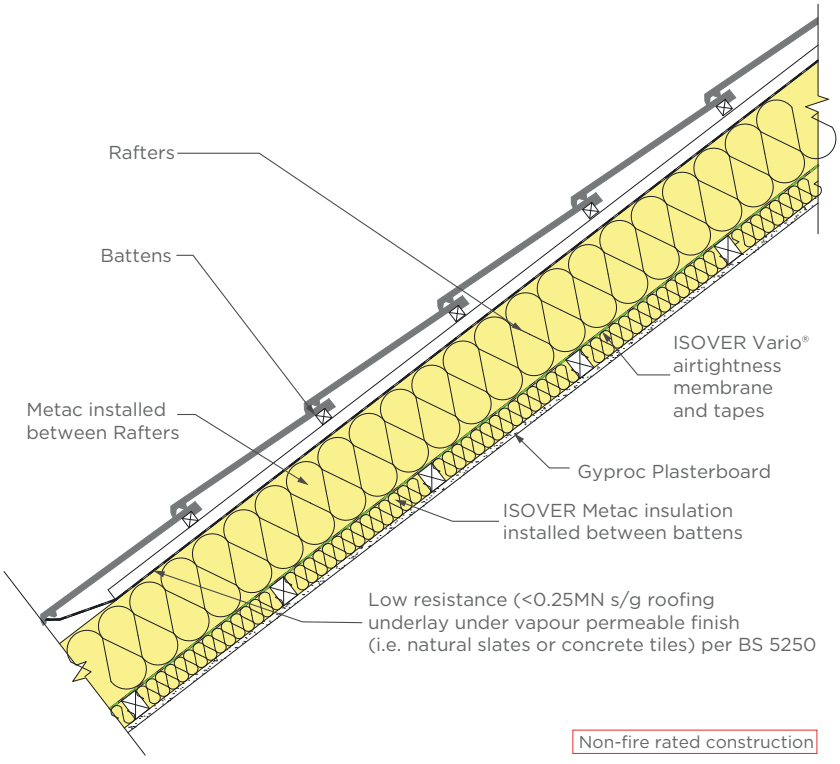
## Insulation full filled between rafters + Vario® + internal counter battens

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

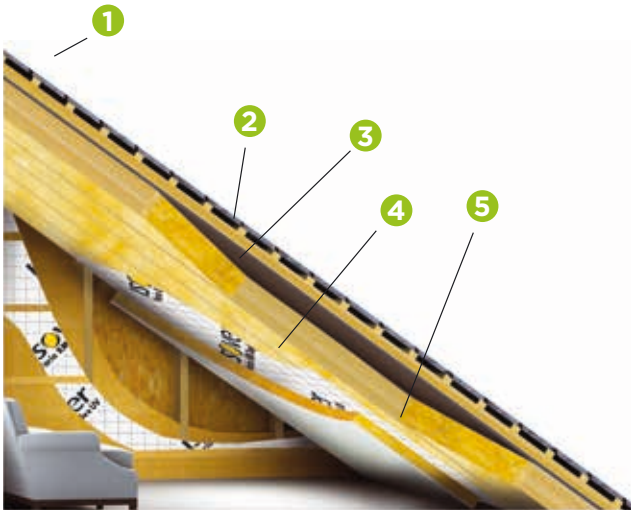
+


Vario® System

# Pitched Roof with ISOVER InLiner Board

## Insulation fully filled between rafters with Vario® and ISOVER InLiner board

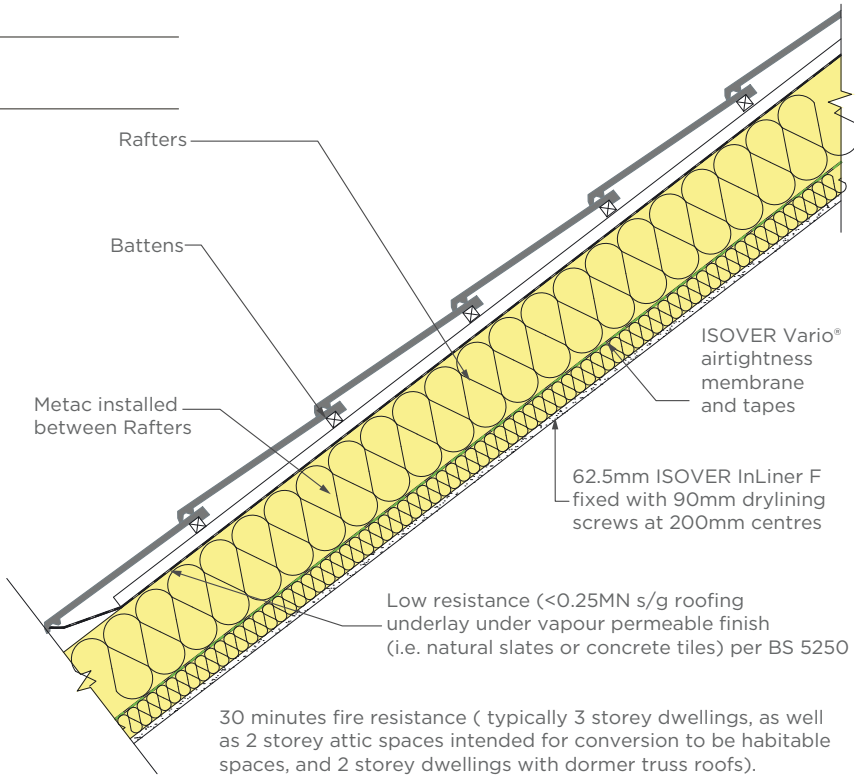
ISOVER Metac can be full filled between rafters with Vario® KM Duplex and an InLiner Board, where there are air-open tiles/slates with no counter battens/ ventilation space on outside roof structure.




1. Air-open tiles/slates on tiling battens (counterbattens recommended but not required)
2. Low resistance Underlay per BS 5250
3. ISOVER insulation installed between rafters
4. Vario® membrane and tapes
5. InLiner Board

## Application CAD Details

If installing in a non air-permeable roof finish i.e. Fibre Cement slates with no counter battens on exterior, a 50mm ventilation space must be left between insulation and roof membrane.




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

ISOVER PRODUCTS


Metac 034 or Metac 031


Vario® System

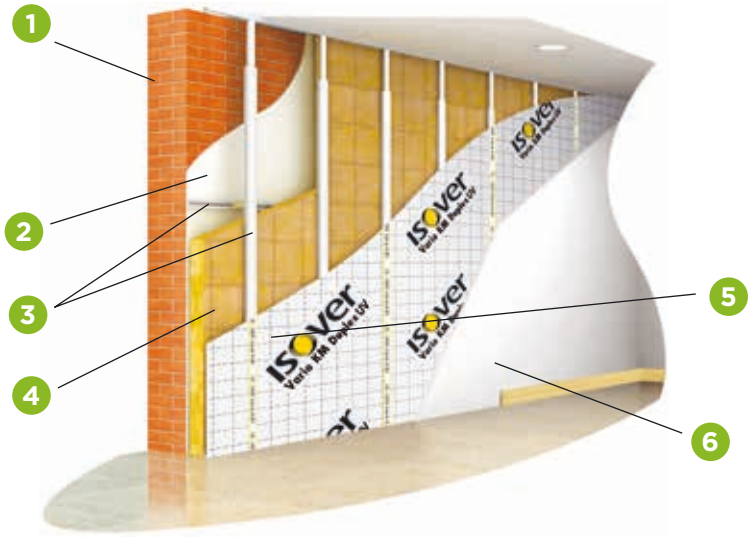

InLiner A Board


InLiner F Board

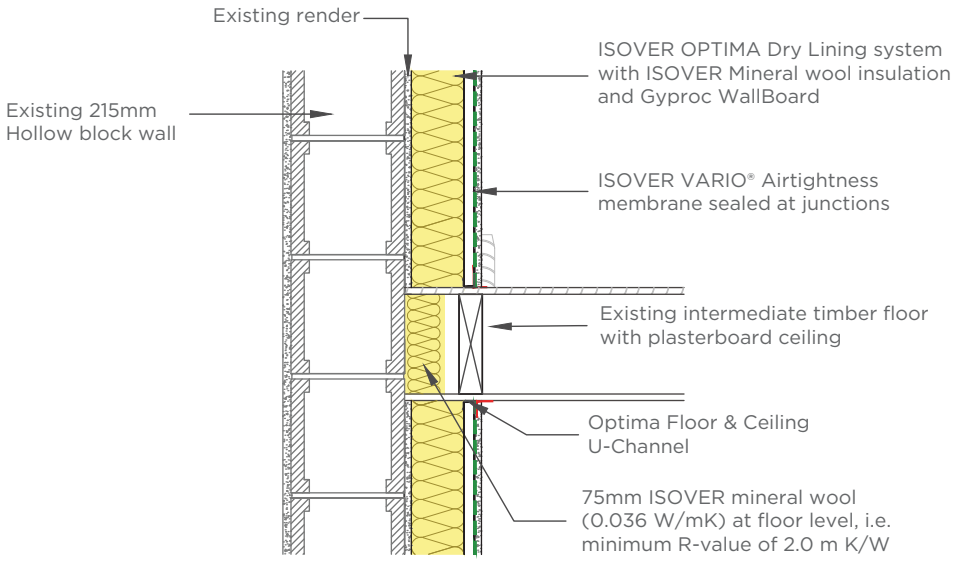
# Dry Lining

## 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

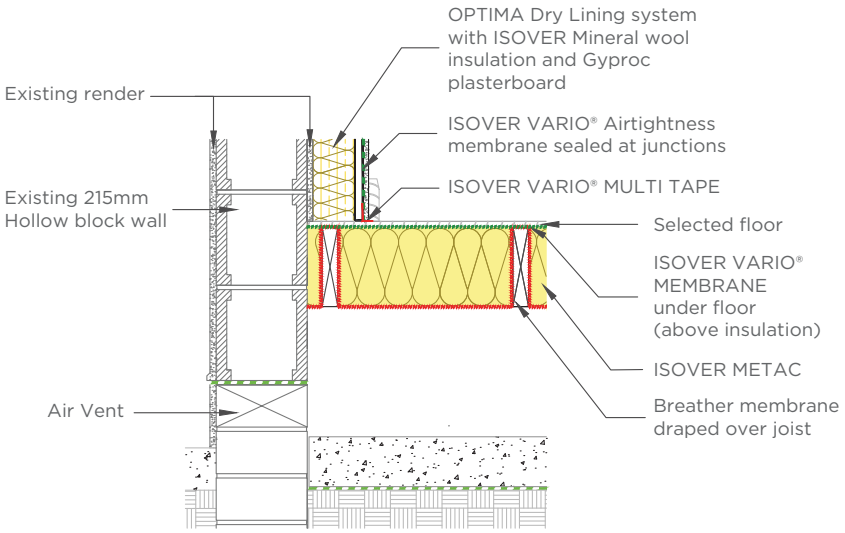
OR


Metac

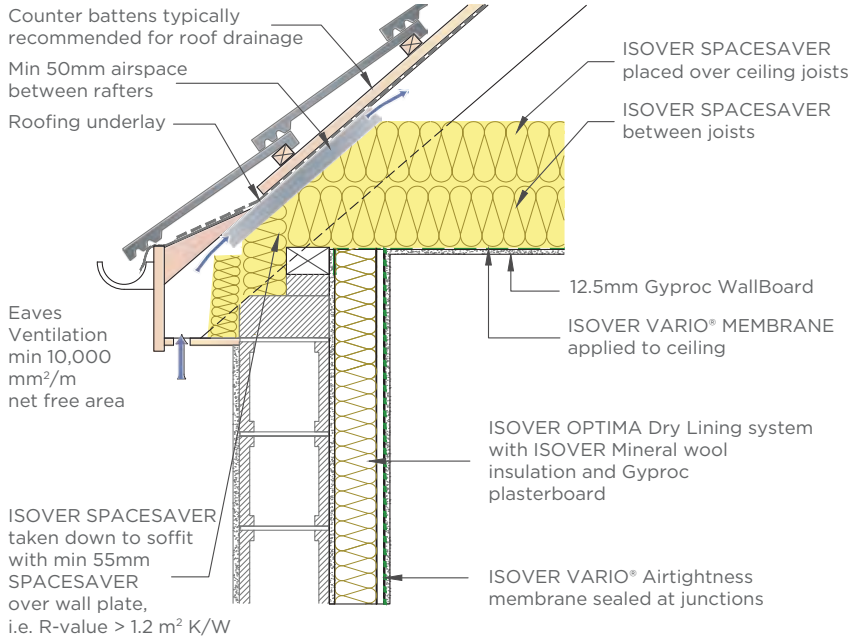
+


Vario® System

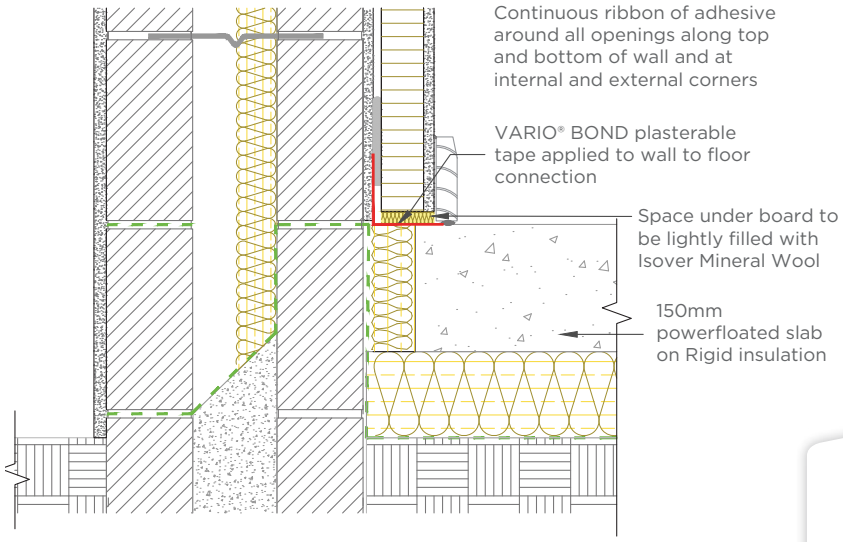
## Hollow block wall to ground floor junction




## Wall to attic junction



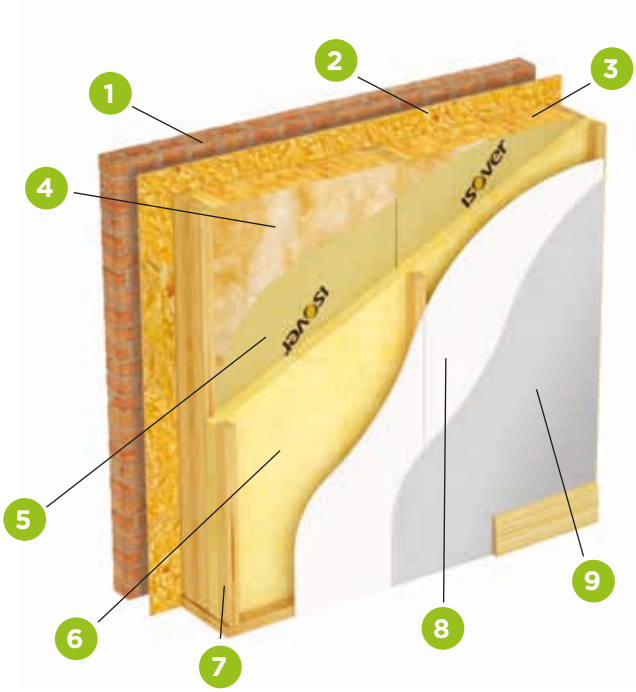

## Masonry wall to ground floor junction



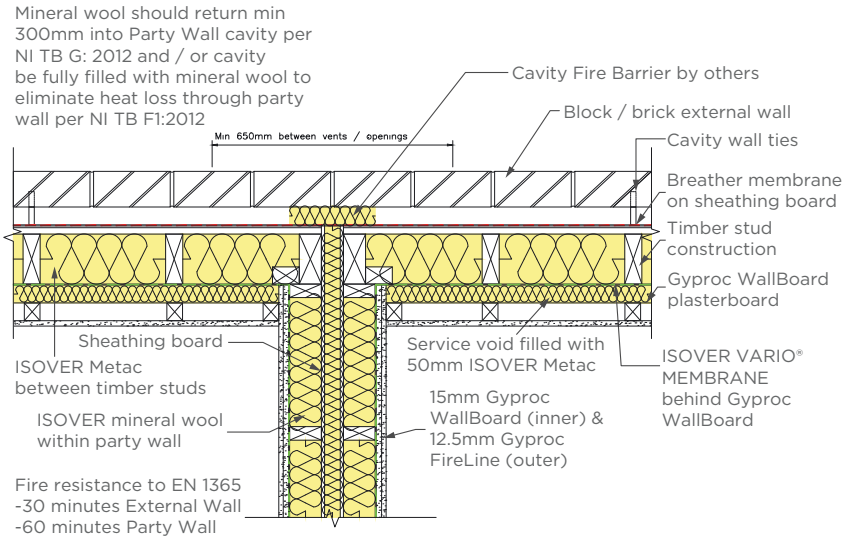
# Timber Frame Wall

## Insulation between studs

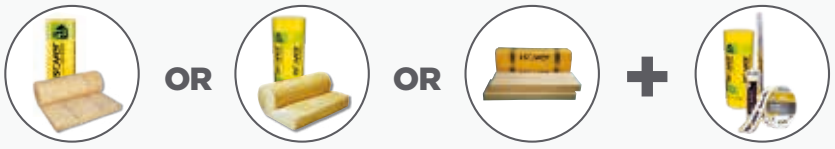
| | |
|---|---|
| 1 | Brick Outer Leaf |
| 2 | Cavity 25mm secured with wall ties |
| 3 | Breather membrane on OSB affixed to timber studs on the cavity side of the build up |
| 4 | ISOVER Insulation Metac 031 140mm friction fit between 600mm studs |
| 5 | ISOVER StopVap or KM Duplex Airtightness Membrane 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 |




## Application CAD Details



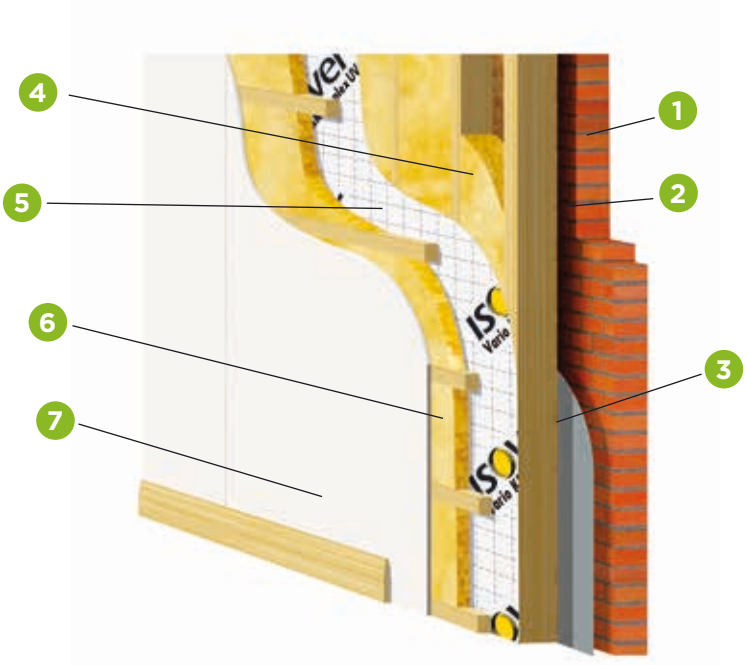

ISOVER PRODUCTS



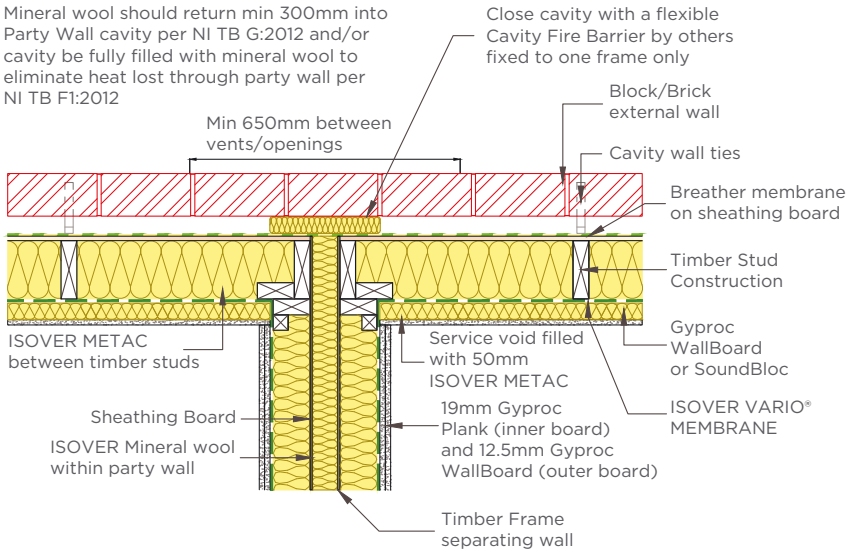
Comfort Roll 35 OR Metac OR Comfort Panel 32 + Vario® System

## Insulation between timber studs and counter battens

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



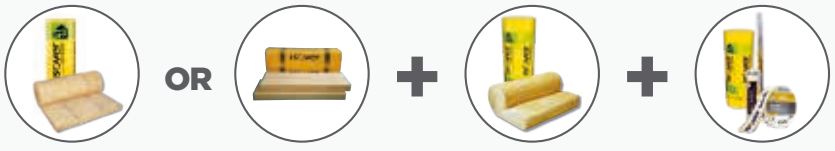

## Application CAD Details




**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

TECHNICAL ACADEMY

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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



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www.saint-gobain.ie

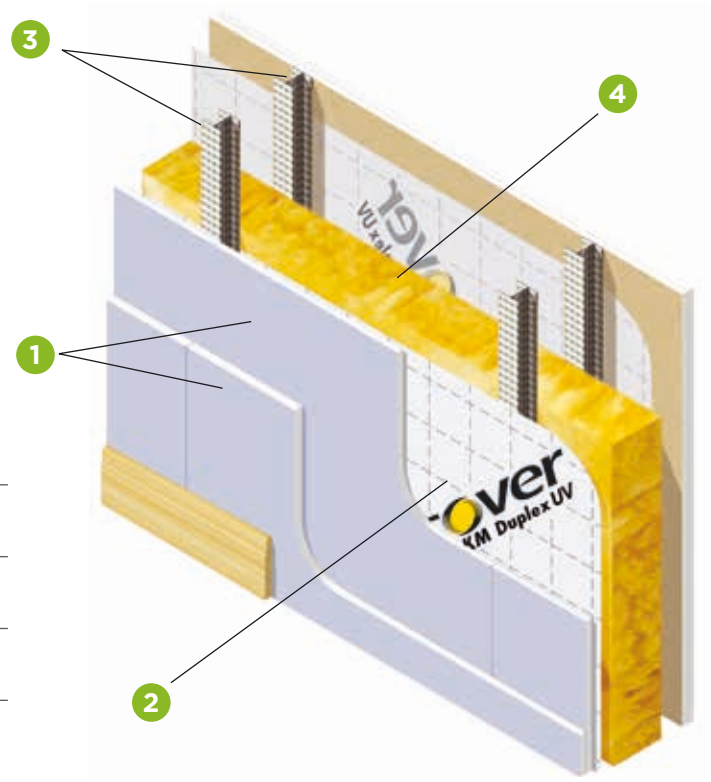
# REGISTER NOW

SAINT-GOBAIN

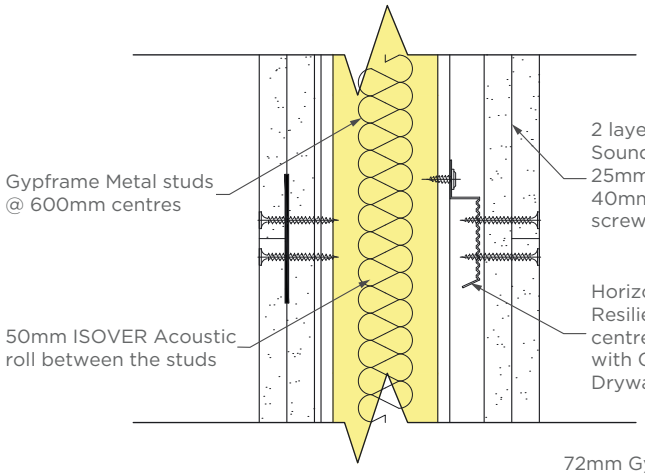
# Metal Stud Separating Party Wall

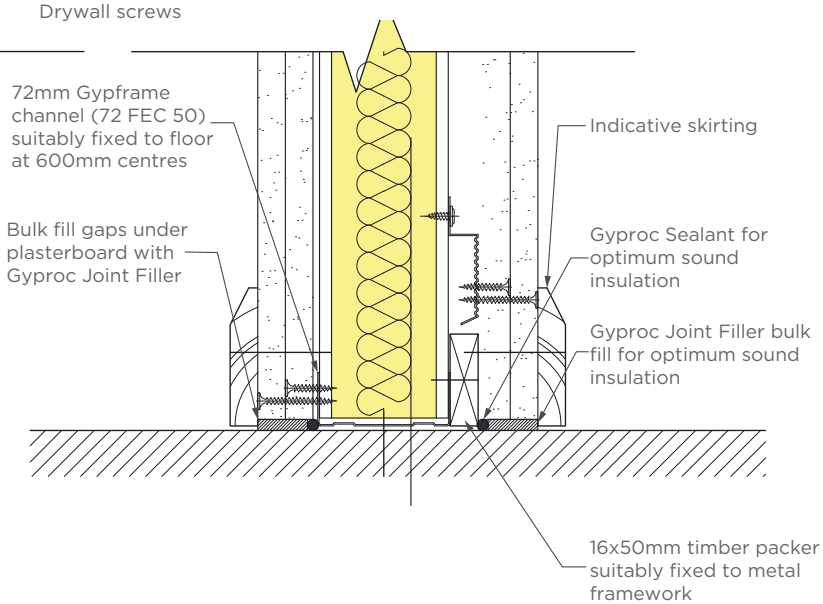
## Twin leaf construction Overall construction nominal width 250mm

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

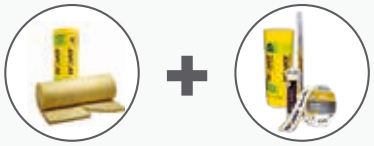



## Application CAD Details




**ISOVER PRODUCTS**

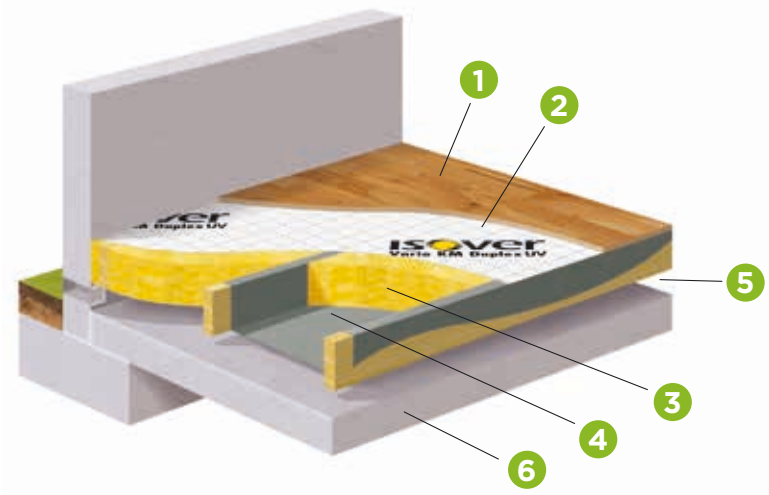


Acoustic Roll + Vario® System

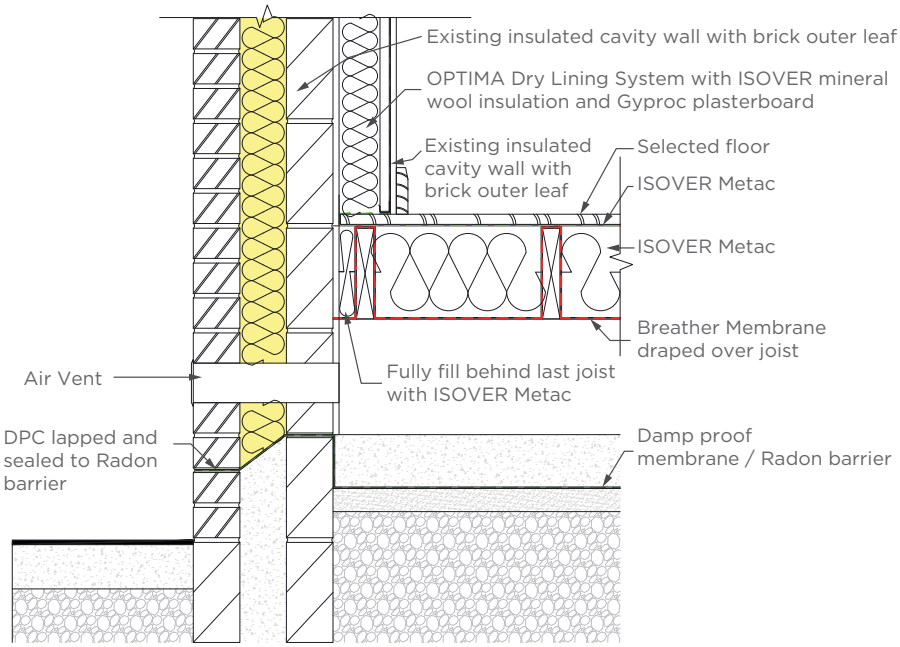
# Suspended Ground Floor

## 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 Challenges

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

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# DRY LINING SOLUTIONS

Optima Dry Lining System

# Contents

# The Optima Dry Lining System

## What is Optima?

Optima is the high performance solution for insulating new and older houses from the inside. Essentially, it's an innovative Dry Lining System developed by insulation specialists Isover to significantly improve thermal and acoustic insulation.

Our insulation products are renowned for their quality and reliability. Optima is designed specifically for homes where outer façade or wall cavity insulation is simply not a viable option.

Optima addresses this with an easy-to-install, cost-effective, high performance alternative for renovating and insulating external walls from the inside.

1ST NSAI CERTIFIED
Dry Lining System in Ireland

NSAI

BBA BRITISH BOARD OF AGREMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

## Why choose Optima?

Optima is ideal for use in conservation of old buildings where there is solid wall construction, as it uses traditional, natural materials: mineral wool insulation and gypsum board, which do not need to be glued and thus, do not impact on the existing structure. The system further mitigates impact on the building by accommodating new services, and is designed for deconstruction with the mineral wool, clips and steel frame highly suitable for reuse.

Additional key benefits are presented below:

- ✔ Excellent thermal and acoustic performance
- ✔ Eliminates thermal bridges
- ✔ Adjustable system addresses all wall types and issues
- ✔ Dry, clean, lightweight system with minimal waste, enabling rapid construction times
- ✔ Airtightness & moisture control feature
- ✔ Economical

**WHERE TO USE**

Residential | Non Residential | 10+ YEARS New and Old


Any values are indicative, please contact our technical support team for values pertaining to your project.

isover SAINT-GOBAIN

# 1st NSAI Certified System in Ireland – what does it really mean?

The ISOVER Optima Dry Lining System is the 1st NSAI Certified System in Ireland which is a big recognition but what does it really mean?

NSAI Agreement Certification establish proof that the certified products are 'proper materials' suitable for their intended use.

## 1. Optima minimises the risk of condensation

Now required for internal insulation of solid walls under BS 5250, the Code of practice for control of condensation in buildings, ISOVER Ireland has carried out a dynamic condensation and moisture risk analysis. The study was conducted on different external wall substrates in two locations in Ireland (Dublin and Cork) using the method specified in I.S. EN 15026 Hygrothermal performance of building components and building elements - Assessment of moisture transfer by numerical simulation. Risk analysis proved that the Optima Dry Lining System mitigates the risk of condensation.

Keeping in mind the potential consequences of condensation in the building such as mould growth, insulation degradation, poor air quality, health problems, construction damage; avoiding it should be one of the main considerations when reviewing Dry Lining Systems. Better insulation, draught-proofing on doors and sealing windows minimise draughts and stop heat escaping from the building which is hugely important from the energy saving perspective. However, those actions can also reduce water vapour escaping that leads to increased condensation risk. Optima decreases that risk significantly due to Vario® intelligent membrane which helps with airtightness as well as moisture management and construction breathability.

## 2. Optima eliminates thermal bridges

The linear thermal transmittance 'Ψ' (Psi) describes the additional heat loss associated with junctions and around openings. As part of the NSAI assessment process, the ISOVER Optima Dry Lining System was applied to a range of typical external wall build-ups and both the Ψ-value and temperature factor (fRsi) were calculated for all junctions. When installed in accordance with these details thermal bridging will be minimised and local condensation problems will be mitigated.

Traditionally, Dry Lining Systems that are using PIR boards are installed with metal mushroom fixings which create thermal bridging. Thermal bridging can lead to further heat losses and summer heat gains for conditioned spaces in buildings. Moreover, if the indoor environment is not adequately ventilated, thermal bridging may cause the building material to absorb humidity into the wall, which can result in mould growth (as demonstrated in the photo below).

Contact our Technical Department to obtain a copy of the NSAI certified thermal bridge details and Contractor Survey/Installation guidance.

# WHY CHOOSE ISOVER MINERAL WOOL?

| | | | | | |
|---|---|---|---|---|---|
| **Healthy Indoor Environment** | = | Eurofins Air Comfort Gold Award | **Low Dust** | = | Pleasant Installation |
| **Soft Touch** | = | Gentle to Install | **A1 Fire Rating** | = | Highest Rating for Insulation Materials |
| **Excellent Recovery & Strength** | = | No Slumping and High Tear Strength | **Cost effective** | = | No wastage, installed in less time |
| **Natural Materials** | = | Made from Recycled Materials, No Odour | **Simple to use** | = | User friendly rolls for easy installation at home |


**NEED HELP? DO YOU HAVE A QUESTION?**
Contact our technical team:
ROI: 1800 744 480
NI: 0845 399 0159
tech.ie@saint-gobain.com
**www.isover.ie**

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# Optima Dry Lining System Overview

## I. Metal frame

1. Optima Floor and Ceiling U-channel
2. Optima 500mm Extension
3. Optima 2.4m C-channel
4. Optima Clip system: Optima Support (for new walls) or Optima Direct Support (70 – 160) (for renovation walls)

## II. Insulation

5. ISOVER insulation material, e.g. Standard Performance Comfort Roll 35 (0.035W/mK) or Ultra Performance Comfort Panel 32 (0.032 W/mK)

## III. Airtightness & Moisture control layer

6. Vario® DoubleTwin
7. Vario® KM Duplex UV airtightness & moisture control layer
8. Vario® KB1 one-sided adhesive tape
9. Vario® DoubleFit

## IV. Facing

10. Gyproc Plasterboard (Various specifications of boards available)



ISOVER
SAINT-GOBAIN

# Optima Dry Lining System Overview

## Basic installation steps

**1.** Secure 2.4m C-channel

**2.** Secure Floor and Ceiling U-channel

**3.** Fix plastic clip on horizontal C-channel

**4.** Hang insulation on plastic clips

**5.** Fix plastic clip on vertical C-channel, adjust until plumb and lock in place


**6.** Fix Vario® and accessories

**For further details view our**

# OPTIMA INSTALLER GUIDE

visit isover.ie
or scan below:

# Installation and design considerations

The dwelling should be surveyed initially to identify the key characteristics of the building; most importantly the wall construction, its overall condition and penetrations. Wall features, thermal bridges, ventilation requirements, reveals, signs of damp and suitability for fixings should be assessed as key parts of the appraisal.

Certain wall types, such as single leaf solid brick or stone walls require more careful attention. The more porous the wall construction, the greater the risk of interstitial condensation (i.e. within the construction), therefore the selection and thickness of insulation are to be carefully considered. Excessive internal insulation on a porous wall can be detrimental if designed incorrectly, particularly in multi-storey solid wall buildings where joist ends may be built into the wall. Heat from the building assists in keeping the joists dry. This effect is then limited by internal insulation if it is not given special consideration as outlined below.

The unique intelligent characteristics of the ISOVER Optima internal insulation system using Vario® technology allows for summer drying of the wall which is facilitated by the vapour permeable characteristics of ISOVER glass mineral wool insulation and Gyproc plasterboard lining. This has been assessed on a range of wall types for application in Ireland. For more challenging scenarios such as those described below, breathable water proofing treatments to the wall exterior, i.e. hydrophobic coatings can help improve the dryness while maintaining the drying capability of the wall which thereby accommodates further internal insulation of the wall.

Under normal conditions of internal humidity, Optima is highly suitable and adaptable for internal insulation (R-value up to 4.5) of hollow block, solid blockwork and cavity walls. Furthermore, it may typically be used on rendered brick walls or unrendered stone walls in good order up to one-storey with limited thicknesses of insulation (R-value up to 1.5) and rendered stone walls above one-storey (R-value up to 3.0).

Unrendered solid brick walls require treatment to the exterior as indicated above. Internal insulation to zones of higher internal humidity will require use of ISOVER StopVap membrane in lieu of Vario® but also the application of a suitable external wall treatment.


**Please refer to the Code of Practice for Retrofit 2014**

http://www.ili.co.uk/en/S.R.54-2014.pdf

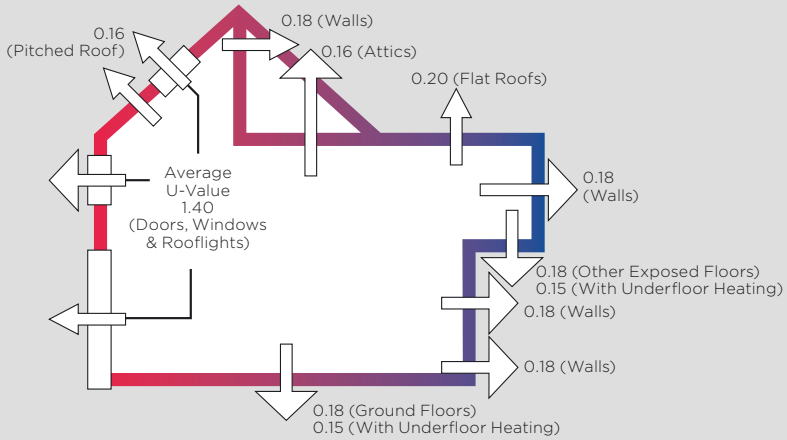
This is the key document that is the backbone of NSAI, SEAI and Building Standards for Retrofit in Ireland.

# New Dwellings
# **Republic of Ireland**

## Part L – Conservation of Fuel and Energy

Part L 2019 introduces the nearly Zero Energy Buildings (nZEB) which affects all new dwellings from 1st November 2019. In order to achieve this, the Maximum Permitted Energy Performance Co-Efficient (MPEPC) reduced from 0.40 to 0.30 and the Maximum Permitted Carbon Performance Co-Efficient (MPCPC) reduced from 0.46 to 0.35.

**TGD Part L 2019**




25% increase in overall energy efficiency (MPEPC = 0.30)
Upper limit or air permeability is 5m³/(h.m²)

## Sound Performance Levels – New Build

| Separating Construction | Airborne Sound Insulation $D_{nT,w}$dB | Impact Sound Insulation $L'_{nT,w}$dB |
|---|---|---|
| Walls | 53 (min) | - |
| Floors (including stairs with a separating function) | 53 (min) | 58 (max) |

Note: Unlike the regulations for Northern Ireland, there is no provision in the regulations for the adoption of 'Robust Details' to completely avoid on-site testing however the requirement for testing may be reduced.

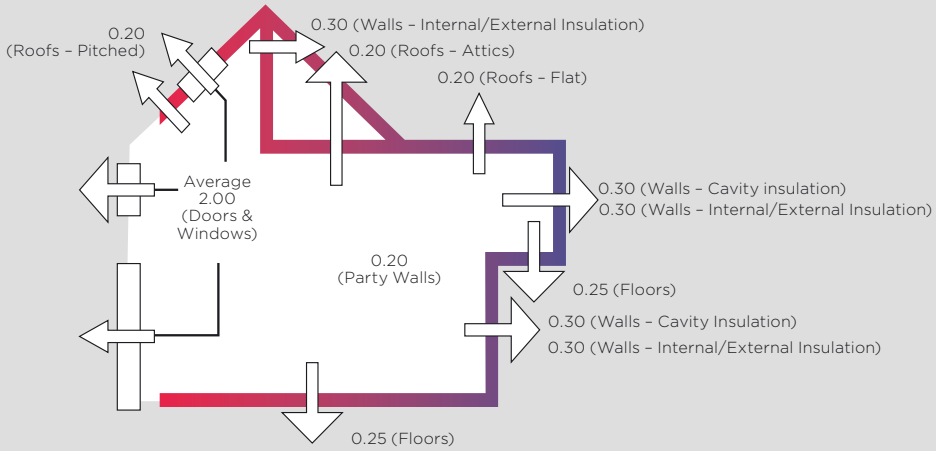
# New Dwellings
# **Northern Ireland**

## Technical Booklet F1 – Conservation of Fuel and Power in Dwellings

Although minimum standards have not changed since 2012, expectations in the market have moved as the cost effectiveness of higher performance has been proven and the UK has signalled a move towards nZEB/zero Carbon by 2020. Therefore, U-Values in line with ROI are highly recommended along with an integrated approach to airtightness and ventilation.

The rate of carbon dioxide emissions from a dwelling (DER) must not exceed the (TER) Target Emission Rate, 25% below the notional dwelling (2006 standards)

**DFP Technical Booklet F1:2012**




Minimum standards for U-Values
Upper limit for air permeability is 10m$^3$/(h.m$^2$)

Note: The party wall has a default U-Value of 0.50 W/m$^2$K which may be reduced to 0.20 where effective edge sealing is provided around all exposed edges and in line with insulation layers in abutting elements. This may be further reduced to zero where the cavity is also fully filled.

# Airtightness Regulations

## Airtightness

### Republic of Ireland

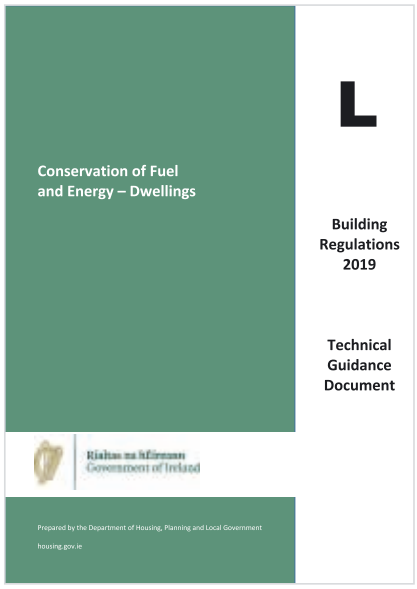
The airtightness of a dwelling, or its air permeability, is expressed in terms of air leakage in cubic metres per hour per square metre of the dwelling envelope area when the building is subjected to a differential pressure of 50 Pascals ($m^3/(h.m^2)$@50Pa).

The Building Regulations 2019 TGD L Dwellings indicates that reasonable provision for airtightness is to achieve a pressure test result of no worse than $5m^3/(h.m^2)$@50Pa. Current good practice for energy efficient dwellings includes achieving airtightness of better than $3m^3/(h.m^2)$@50Pa and best practice is less than $0.6m^3/(h.m^2)$@50Pa. The airtightness appropriate for a particular dwelling design will depend upon the Building Energy Rating the builder is aiming to achieve. Care should be taken to ensure compliance with the ventilation requirements and permanent air supply of Part F and of Part J of the Building Regulations respectively.

### Northern Ireland

The DFPNI Technical Booklet F1 for new dwellings will require, type-testing of all new dwellings to an airtightness standard of no greater than 10 $m^3/(h.m^2)$ at 50Pa. For some dwellings where the carbon emission rate is difficult to meet, the airtightness target may also need to be reduced to meet the overall carbon emission rate required by the Regulations.

The DFPNI Technical Booklet F2 for work in buildings other than dwellings requires all commercial and industrial buildings with a gross floor area greater than $500m^2$ to be tested for air permeability to a minimum standard of $10m^3/(h.m^2)$@50Pa.




# Moisture Control Performance

## Ireland's high levels of humidity make it essential to ensure that no condensation risks can occur within the construction.

Simulating the Optima Dry Lining System on 215mm Aerated Concrete using WUFI*, we can see that moisture accumulation is not an issue due to the performance of the Vario® vapour control membrane.

The example shown is a 3 year simulated model of a 215mm aerated concrete block that is insulated internally with worst case scenario conditions i.e. North orientated with a high internal moisture load.

Without Vario®, a moisture accumulation on the internal face of the concrete wall can be seen in Fig 5, however when Vario® is introduced not only is the structure airtight but you are also protected from moisture Fig 6.

*WUFI-ORNL/IBP is a menu-driven PC program which allows realistic calculation of the transient coupled one-dimensional heat and moisture transport in multi-layer building components exposed to natural weather.

**Fig 5: WUFI chart - without Vario® layer**

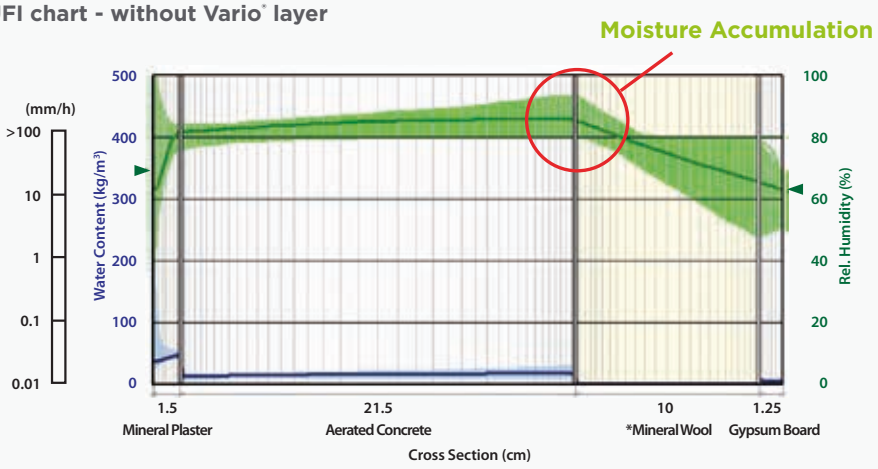
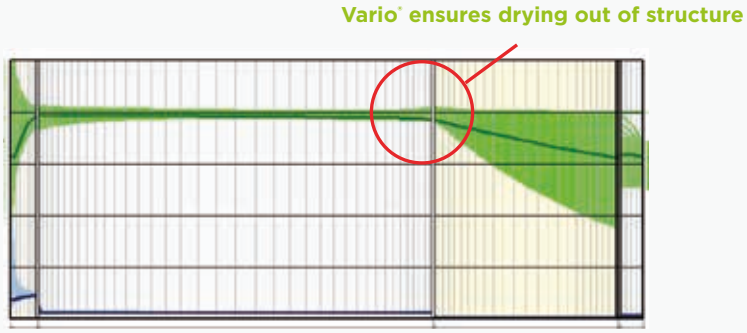



**Fig 6: WUFI chart - with Vario® layer**




Note: We strongly recommend that Designers and Contractors attend Optima training with the Saint-Gobain Technical Academy prior to specification and installation due to the complexity of use of internal insulation on solid wall construction in particular.

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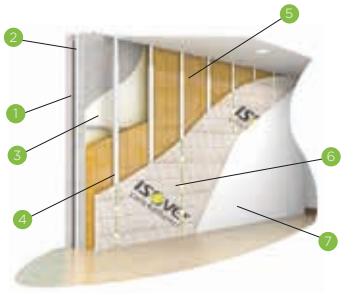
# Where can the Optima Dry Lining System be used?

## Ideally in rendered stone, block or cavity walls and single storey rendered brick walls.

### Cavity Wall Partial Fill

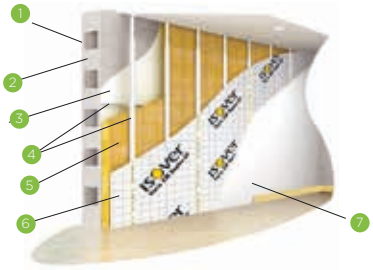
1. 15mm external render + 100mm block
2. 50mm cavity + 50mm foam (0.038)
3. 100mm block + Gyproc Skimcoat
4. Optima metal studs + fixings
5. ISOVER insulation
6. Vario® membrane + tapes
7. Gyproc Habito® Plasterboard



| Insulation | U-value ($W/m^2K$) | Total Thickness Of Dry Lining System (mm) |
|---|---|---|
| 25mm Acoustic roll | 0.35 | 57.5 |
| 50mm Metac | 0.27 | 82.5 |
| 60mm Comfort 32 | 0.25 | 92.5 |
| 100mm Metac | 0.20 | 132.5 |
| 140mm Comfort 35* | 0.16 | 172.5 |
| 150mm Metac | 0.15 | 182.5 |

### Hollow Block

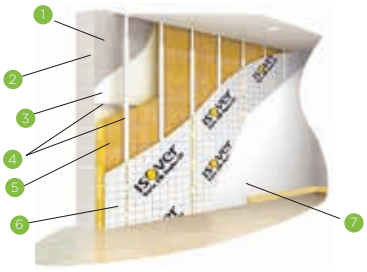
1. 15mm external render
2. 215mm hollow block
3. 13mm Gyproc Skimcoat
4. Optima metal studs + fixings
5. ISOVER insulation
6. Vario® membrane + tapes placed on studs
7. Gyproc Habito®® Plasterboard



| Insulation | U-value ($W/m^2K$) | Total Thickness Of Dry Lining System (mm) |
|---|---|---|
| 25mm Acoustic roll | 0.76 | 57.5 |
| 50mm Metac | 0.47 | 82.5 |
| 60mm Comfort 32 | 0.40 | 92.5 |
| 100mm Metac | 0.28 | 132.5 |
| 140mm Comfort 32* | 0.21 | 172.5 |
| 150mm Metac | 0.20 | 182.5 |

### Concrete wall

1. 15mm external render
2. 200mm concrete
3. 13mm Gyproc Skimcoat
4. Optima metal studs + fixings
5. ISOVER insulation
6. Vario® membrane + tapes
7. Gyproc Habito® Plasterboard

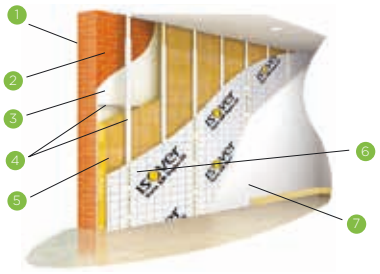


| Insulation | U-value ($W/m^2K$) | Total Thickness Of Dry Lining System (mm) |
|---|---|---|
| 25mm Acoustic roll | 0.72 | 57.5 |
| 50mm Metac | 0.46 | 82.5 |
| 60mm Comfort 32 | 0.39 | 92.5 |
| 100mm Metac | 0.27 | 132.5 |
| 140mm Comfort 35 | 0.21 | 172.5 |
| 150mm Metac | 0.19 | 182.5 |

## Ideally in rendered stone, block or cavity walls and single storey rendered brick walls.

### Brick Construction*

1. External Render
2. 215mm brick
3. 13mm Gyproc Skimcoat
4. Optima metal studs + fixings
5. ISOVER insulation
6. Vario® membrane + tapes placed on studs
7. Gyproc Habito® Plasterboard

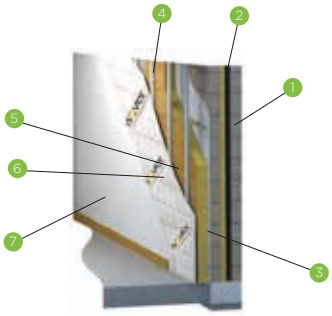


*Please note that for unrendered brick walls or multi-storey rendered brick walls a hydrophobic coating is required.

| Insulation | U-value ($W/m^2K$) | Total Thickness Of Dry Lining System (mm) |
|---|---|---|
| 25mm Acoustic roll | 0.72 | 57.5 |
| 50mm Metac | 0.45 | 82.5 |
| 60mm Comfort 32 | 0.38 | 92.5 |
| For greater thicknesses of insulation, please contact our technical department. | | |

### Partial / Full Fill + Optima

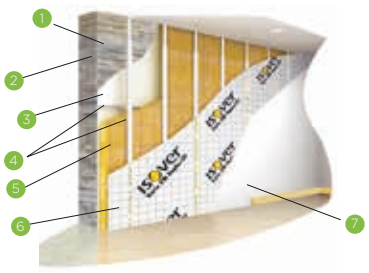
1. 15mm external render + 100mm block
2. Cavity + ISOVER Hi-Cav32
3. 100mm block + 13mm Gyproc Skimcoat
4. Optima metal studs + fixings
5. ISOVER insulation
6. Vario® membrane + tapes
7. Gyproc Habito® Plasterboard



| Insulation | U-value ($W/m^2K$) | Total Thickness Of Dry Lining System (mm) |
|---|---|---|
| 25mm Acoustic roll | 0.20 | 57.5 |
| 50mm Metac | 0.17 | 82.5 |
| 60mm Comfort 32 | 0.16 | 92.5 |
| 100mm Metac* | 0.14 | 132.5 |
| 140mm Comfort 35 | 0.12 | 172.5 |
| 150mm Metac | 0.11 | 182.5 |

### Stone wall*

1. 18mm lime render
2. 600mm limestone wall
3. 18mm lime plaster
4. Optima metal studs + fixings
5. ISOVER insulation
6. Vario® membrane + tapes
7. Gyproc Habito® Plasterboard



| Insulation | U-value ($W/m^2K$) | Total Thickness Of Dry Lining System (mm) |
|---|---|---|
| 25mm Acoustic Roll | 0.59 | 57.5 |
| 50mm Metac | 0.40 | 82.5 |
| 60mm Comfort 32 | 0.35 | 92.5 |
| For greater thicknesses of insulation, please contact our technical department. | | |

*Please note that for unrendered wide single storey stone walls, the insulation should be limited to 50mm Metac. For insulation greater than 100mm or on unrendered multi-storey stone walls a hydrophobic coating should be used.

# Acoustic Performance

## Indoor acoustic comfort should be provided by the building envelope to protect against noises from outside and adjoining properties.

When applied to existing wall constructions, the Optima Dry Lining System can significantly increase the sound insulation performance of a building, providing an increased level of personal privacy in the home.

The acoustic insulation of a construction in-situ is determined by the Apparent Weighted Sound Reduction Index: $R_w$. This index is expressed in decibels (dB), whereby the higher the $R_w$ value the better the sound insulation performance.

The table below lists some examples of estimated $R_w$ values for common construction types in Ireland and the expected improvement following the installation of the Optima Dry Lining System to one side.

| Base Construction | Thickness of ISOVER glass wool | Optima Lining | In-situ Sound insulation Performance $R_w$ dB | | |
|---|---|---|---|---|---|
| | | | Base Construction | Base Construction + Optima | Gain in Sound Insulation Performance, dB |
| 215mm solid blocks with 12.5mm sand/ cement render on both sides | 50mm | 12.5mm Plasterboard | 54 | 63 | 9 |
| | 100mm | | | 64 | 10 |
| | 160mm | | | 65 | 11 |
| 200mm precast concrete | 50mm | 12.5mm Plasterboard | 55 | 64 | 9 |
| | 100mm | | | 65 | 10 |
| | 160mm | | | 66 | 11 |
| 215mm concrete block | 50mm | 12.5mm Plasterboard | 53 | 65* | 12 |
| | 100mm | | | 66* | 13 |
| | 160mm | | | 67* | 14 |
| Two leaves of 100mm dense concrete blocks with 100mm cavity | 50mm | 12.5mm Plasterboard | 58 | 67* | 9 |
| | 100mm | | | 68* | 10 |
| | 160mm | | | 68* | 10 |

*This level of sound insulation performance is based on a construction comprising the described base construction only. Any compound elements to the overall construction, e.g. windows, doors etc., will result in a significant reduction in the overall performance.

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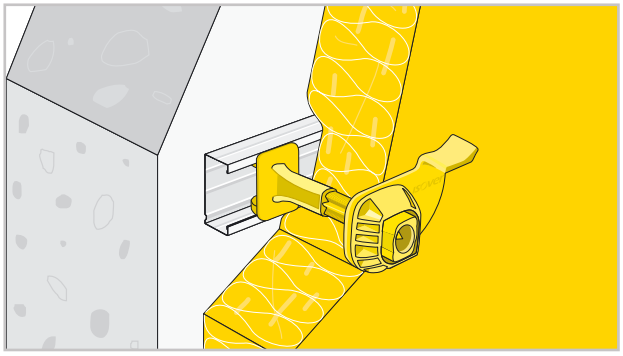
# Optima Dry Lining System Components – **Metal Frame & Insulation**

## I. Metal frame

### Optima Metal frame – light, solid, flexible

The standard elements that make up the Optima frame ensure the system is both mechanically stable and economical. The structure can be adapted to fit many building types and manage any discrepancies in the existing wall surfaces.

For the facing support, the Optima C-channel (a 2.4m metal stud) together with Optima 300 and 500 extension pieces can be used to extend or adjust to the required height.



Plastic Clip Locking System

Height adjustable metal studs

#### SUMMARY OF BENEFITS

- ✔ Avoids thermal bridges, as the insulation layer is continuous
- ✔ Precise, easy and practical installation and adjustment
- ✔ Plastic clip locking system ensures studs are firmly secured in position
- ✔ Time saving installation

## II. Insulation

### ISOVER insulation for Optima

Choose between various ISOVER insulation such as Metac Roll (λ = 0.034 W/mK), Comfort Roll 35 (λ = 0.035W/mK) or Comfort Panel 32 (λ = 0.032 W/mK)

#### SUMMARY OF BENEFITS

- ✔ Products with low thermal conductivity save space and increase thermal insulation performance
- ✔ Soft tissue faced for easy handling, with gridlines to aid installation
- ✔ Compressed products save space and time, both for transport and distribution on site
- ✔ “A1” Fire rating and CE mark certified

# Optima Dry Lining System Components – **Vario®**

## III. Airtightness & Moisture control

### Vario® is ISOVER's solution to airtightness and protection against moisture.

The ISOVER Vario® System is an intelligent airtightness and moisture control system. The Vario® membranes adapts and reacts naturally, changing its permeability according to humidity conditions, allowing closed building systems to increase their drying potential.

This means Vario® is truly multifunctional, acting as a barrier in winter and a breathable membrane in summer.

Vario® is compatible with the Optima Dry Lining System, meaning you can achieve high levels of airtightness, whether on a new or renovation project.



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# Optima Dry Lining System Components – **Facings**

## IV. Facings

Gyproc plasterboards are the modern way to provide high quality, high performance linings for today's buildings. Available in an unrivalled range of types and sizes.

Choose from:

**Gyproc Habito®** - Is a revolutionary plasterboard that provides enhanced acoustic performance, impact resistance and direct fixing capabilities. Optima has been tested for suitability with Habito® and offered superior fixing strength and low movement.

**Gyproc SoundBloc** - Has a higher density core than standard plasterboard and is designed for use in Gyproc wall and partition systems where greater levels of sound insulation are required.

**Gyproc Moisture Resistant** - Contains a water repellent additive in the core and paper liners and is best used as a base for ceramic tiling and in areas of intermittent high humidity.

**Gyproc WallBoard** - Is a general purpose plasterboard suitable for most applications where basic fire, structural and acoustic levels are required.

### SUMMARY OF BENEFITS

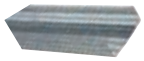
- ✔ Quick assembly
- ✔ Smooth and level surface
- ✔ Wide choice of boards to suit specific performance requirements

**COMPATIBLE WITH GYPROC HABITO® PLASTERBOARD FOR ADDED FIXING CAPABILTY, ACOUSTIC PERFORMANCE AND IMPACT RESISTANCE**

# ISOVER Optima Dry Lining System

FOR USE IN **WALLS INTERNALLY INSULATED**

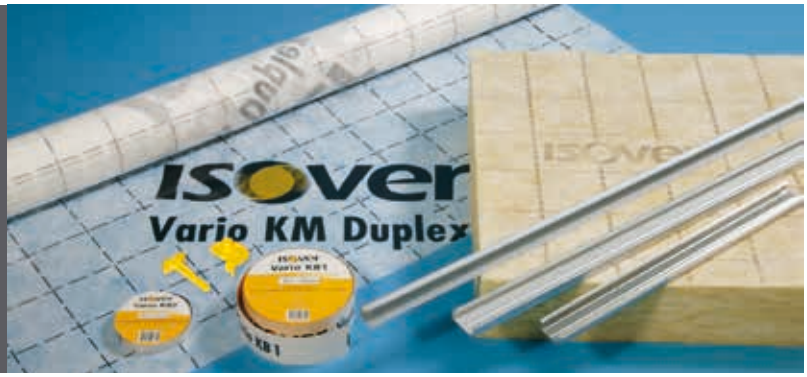
A high performance Dry Lining system, perfect for interior thermal and acoustic Dry Lining of walls, eliminates thermal bridges. Adjustable system for various wall types.

| Product | Lead Time | Order Code | Pallet | Units Per Pack | |
|---|---|---|---|---|---|
| Optima Floor and ceiling U-channel | A | 5200425735 | 60 packs | 20 |  |
| Optima C-channel | A | 5200425740 | 40 packs | 10 |  |
| Optima 500mm extension | A | 5200425741 | 40 packs | 10 | |

| Product | Lead Time | Order Code | Pallet | Units Per Pack | |
|---|---|---|---|---|---|
| Optima Connector | A | 5200537462 | 252 packs | 25 |  |
| Optima Support 75mm<br>Optima Support 100mm<br>Optima Support 120mm<br>Optima Support 140mm | A | 5200544332<br>5200544335<br>5200544337<br>5200544354 | 126 packs<br>126 packs<br>126 packs<br>126 packs | 50 |  |
| Optima Direct Support (70mm - 160mm) | A | 5200544358 | 126 packs | 40 |  |

First **NSAI certified Dry Lining system in Ireland**

NSAI

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# Case Study

## The Glebe, Johnstown Co Kilkenny, Ireland

### Project Overview

**Parochial House Restoration in Kilkenny**

## Overview

This parochial house required a building fabric that consisted of a 'breathable' wall lining system both internally and externally. The house dates back to 1828, and was built as a one off residential building. Prior to the renovation, the existing walls were extremely cold and needed to be upgraded thermally. Because the building was a listed building by the Local Authorities, it was exempt from BER certification. The walls could not be sealed due to the conservation policies. Therefore, a 'breathable' system was installed internally using the Optima Dry Lining System.

The restoration had three crucial aspects:

- ✔ Thermal upgrade to external walls
- ✔ Fully 'breathable' walls
- ✔ Improving sound insulation

## Challenges

Because the house was a 3-storey building, the walls were 3.5 metres high. This was challenging for contractor Sean Moore and his team, as it meant that the chosen Optima Dry Lining System C-channels needed to be installed at 400mm centres, with an accompanying horizontal C-channel at every 1 metre height. Certain areas of the house had curved details that needed to be dry lined, which required a member of the team to design according to the curve.

The shutter windows in the building had deep reveals, which also needed to be lined. This was tricky but was solved by using a narrower acoustic insulation. Because the building structure needed to be maintained and restored close to its original state, the team had to ensure that they were limiting damage to the structure. To ensure that this would not occur, Sean and his team researched a lot of products and systems prior to undertaking the restoration and determined that Optima provided for the least impact and most adaptable solution, easily accommodating services. Value for money was also a key aspect of this research and Sean found that the Optima Dry Lining System was the most suited option for their budget; as it helped speed up installation and reduce the installation cost for the dry lining of the project.

## Results

Optima Dry Lining System gave the team the flexibility the restoration required, and allowed for easy removal and refit, which can sometimes be needed on renovation projects of historical buildings – unlike a sprayfoam system, where application cannot be redone.

Sean said himself that, "The Optima Dry Lining System is very user friendly to install. Along with the help of the ISOVER team, who came on site to carry out site demonstrations, we put the system together with ease. The system is extremely cost effective when compared to other breathable systems. All in all, the Optima Dry Lining System ticks all of the boxes for dry lining old stone walls."

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# Notes

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