

Optima Dry Lining System

High Performing, Easy & Quick



**1ST NSAI
CERTIFIED**
Dry Lining System
in Ireland





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Introduction

There are more options than ever available to residential and commercial builders. Timber frame or masonry construction; high performance acoustic insulation to combat noise pollution; thermal insulation to help improve the BER rating of the building; using an airtightness system to ensure you meet airtightness regulations...and many more.

But the choices boil down to one question: how will these products improve comfort of the building?

ISOVER has a range of solutions to help you do just that. This guide outlines the ISOVER Optima solution – high performing, easy & quick dry lining system.

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



Free Phone (ROI): 1800 744480

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Services and Support

As well as offering a comprehensive range of products, we can provide specialist technical expertise and resources. From product specification to promoting best practice installation, we are committed to working closely with our customers to help them get the most out of our products and services.

About ISOVER

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

With a presence in over 60 countries and a workforce of almost 200,000 employees, the group's global reach allows ISOVER to draw on unrivalled technological and financial resources to meet the changing needs of customers and communities in the 21st century.



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 facade 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.



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 does not need to be glued and thus, does 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
- ✓ Optional airtightness & moisture control feature
- ✓ Economical

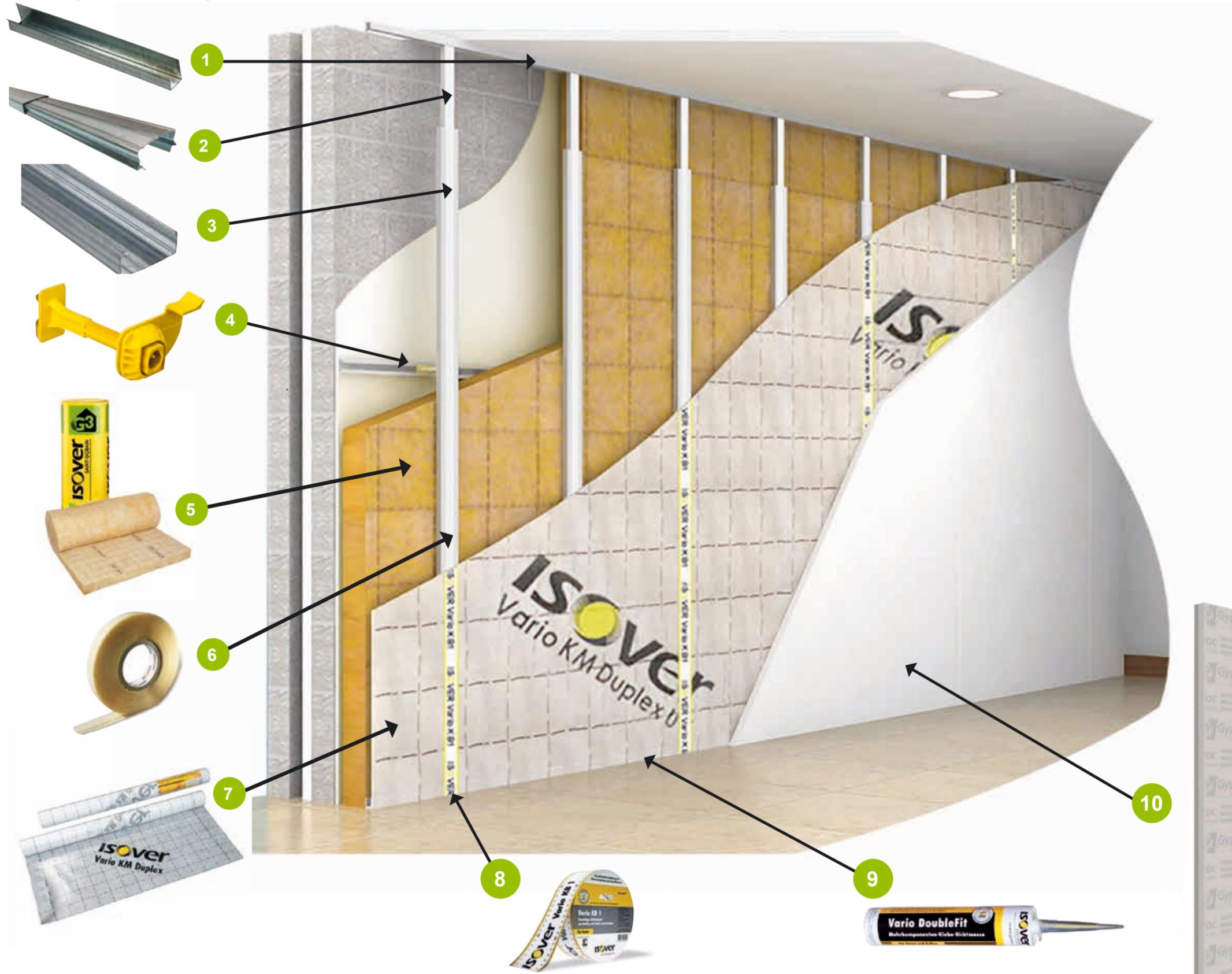
WHERE TO USE

Residential

Non Residential

New and Old

Optima 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/m)

III. Airtightness & Moisture control layer (optional)

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)

Optima 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:



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 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 that 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.

The Optima System in detail

Optima System Components – Metal Frame & Insulation

I. Metal frame

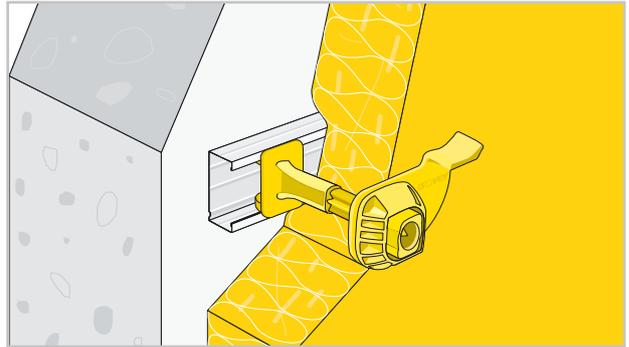
Optima Metal frame – light, solid, flexible

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 2.40m metal stud) together with Optima 300 and 500 extension pieces can be used to extend or adjust to the required height.

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



Plastic Clip Locking System



Height adjustable metal studs

II. Insulation

ISOVER insulation for Optima

Choose between various ISOVER insulation such as Metac Roll ($\lambda = 0.034 \text{ W/mK}$), Comfort Roll 35 ($\lambda = 0.035 \text{ W/mK}$) or Comfort Panel 32 ($\lambda = 0.032 \text{ W/mK}$)

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
- ✓ "A" Fire rating and CE mark certified



Optima System Components – Vario®

III. Air tightness & Moisture control

Vario® is ISOVER’s solution to air tightness 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 system, meaning you can achieve high levels of airtightness, whether on a new or renovation project.



IN SUMMER

As the structure warms in summer, the membrane’s micropores open, allowing vapour to escape into the building interior.

IN WINTER

In winter, the membrane prevents vapour from the warm interior diffusing into the timber structure.



Optima 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
HANGING STRENGTH, ACOUSTIC PERFORMANCE AND IMPACT
RESISTANCE**

Products Specification



ISOVER Insulation Material

ISOVER Comfort Panel 32		ISOVER Comfort 35 Roll	
Thickness (mm)	60		140
Length (mm)	1200		3400
Width (mm)	600		1200
U-value (W/mK)	0,032		0,035

ISOVER Metac Roll							
Thickness (mm)	100	220	150	150	180	180	50
Length (mm)	6000	2900	4100	4100	3400	3400	9300
Width (mm)	1200	1200	1200	3x400	1200	3x400	1200
U-value (W/mK)	0,034	0,034	0,034	0,034	0,034	0,034	0,034

The Accessories

Optima

Article No. 5200425735	Packaging
Optima Floor and ceiling U-channel length: 2.35m	Pallet of 12 bundles of 20 units = 564 m



Article No. 5200425740	Packaging
Optima C-channel Length: 2.4m	Pallet of 40 bundles of 10 units = 960 m



Article No. 5200425741	Packaging
Optima 500mm extension	Pallet of 40 bundles of 10 units = 200 m



Article no. 5200544332	Packaging
Optima Support 75	50 pieces

Article no. 5200544335	Packaging
Optima Support 100	50 pieces



Article no. 5200544337	Packaging
Optima Support 120	50 pieces

Article no. 5200544354	Packaging
Optima Support 140	50 pieces



Article no. 5200544358	Packaging
Optima Direct Support (70 - 160)	40 pieces

Article No. 5200537462	Packaging
Optima Connector	25 pieces



Vario®

Vario® KM Duplex UV 5200300299	
Length - Width	Packaging
40 m - 1.5 m	60 m2/ roll



Vario® KB1 - Single sided tape 5200300297	
Length - Width	Packaging
40 m - 60 mm	5 rolls = 200 m



Vario® DoubleTwin Tape 5200300296	
Length - Width	Packaging
10 m - 25 mm	5 rolls = 50 m



Vario® DoubleFit Mastic 5200300295	
Length - Width	Packaging
310 ml	12 pieces



Vario® Multi tape SL 5200431017	
Length - Width	Packaging
25 m - 60 mm	10 rolls = 250 m





WHY CHOOSE ISOVER G3 TOUCH MINERAL WOOL?



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



Where can the Optima system be used?

Where can the Optima system be used?

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

Cavity Wall Partial Fill

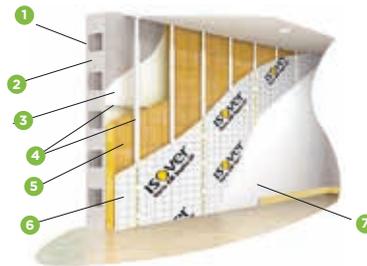
- 1 15mm external render + 100mm block
- 2 50mm cavity + 50mm foam (O.038)
- 3 100mm block + 13mm plaster
- 4 Optima metal studs + fixings
- 5 ISOVER insulation
- 6 Vario* membrane + tapes
- 7 Gyproc Habito Plasterboard



Insulation	U-value (W/m²K)	Total Thickness Of Drylining 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

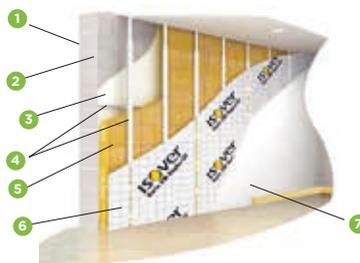
- 1 15 mm external render
- 2 215mm hollow block
- 3 13 mm Gyproc Plaster
- 4 Optima metal studs + fixings
- 5 ISOVER insulation
- 6 Vario* membrane + tapes placed on studs
- 7 Gyproc Habito Plasterboard



Insulation	U-value (W/m²K)	Total Thickness Of Drylining 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 15 mm external render
- 2 200mm concrete
- 3 13 mm Gyprocs plaster
- 4 Optima metal studs + fixings
- 5 ISOVER insulation
- 6 Vario* membrane + tapes
- 7 Gyproc Habito Plasterboard



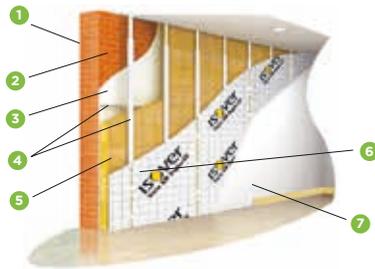
Insulation	U-value (W/m²K)	Total Thickness Of Drylining System (mm)
25mm Acoustic roll	0.72	57.5
50mm Metac	0.46	82.5
60mm Comfort 32	0.39	92.5
100mm Metac	0.27	132.5
140mm Comfort 35	0.21	172.5
150mm Metac	0.19	182.5

Where can the Optima system be used?

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 Plaster
- 4 Optima metal studs + fixings
- 5 ISOVER insulation
- 6 Vario* membrane + tapes placed on studs
- 7 Gyproc Habito Plasterboard

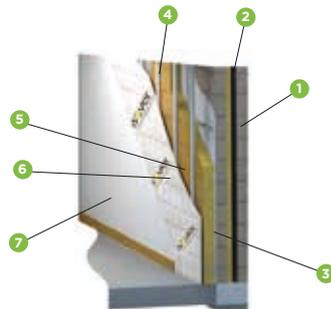


Insulation	U-value (W/m²K)	Total Thickness Of Drylining System (mm)
25mm Acoustic roll	0.72	57.5
50mm Metac	0.45	82.5
60mm Comfort 32	0.38	92.5
For greater thicknesses of insulation, please contact our technical department.		

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

Partial / Full Fill + Optima

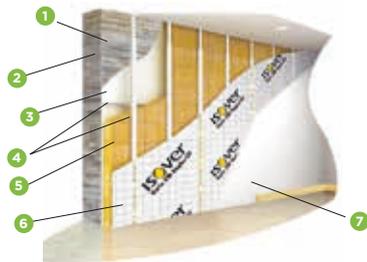
- 1 15mm external render + 100mm block
- 2 Cavity + ISOVER Hi-Cav32
- 3 100mm block + 13mm Gyproc plaster
- 4 Optima metal studs + fixings
- 5 ISOVER insulation
- 6 Vario* membrane + tapes
- 7 Gyproc Habito Plasterboard



Insulation	U-value (W/m²K)	Total Thickness Of Drylining 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/m²K)	Total Thickness Of Drylining 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.

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 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.



Parochial House Restoration in Kilkenny

Parochial House
The Glebe
Johnstown
Co Kilkenny
Ireland

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 meters 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 centers, with an accompanying horizontal c-channel at every 1 meter 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 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 and as I get Specure with Optima, it takes a lot of weight off my mind if anything needs to be looked at again - particularly in a project like this. All in all, the Optima system ticks all of the boxes for dry lining old stone walls."





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The home of free residential and commercial insulation, airtightness & dry lining technical documents.

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- ✓ FREE entry to the ISOVER Awards 2018
- ✓ Track & update your projects to keep your documentation safe and secure for each project
- ✓ FREE access to our online calculator tool, CAD drawings and BIM files for the most up to date and highest performing solutions
- ✓ Access exclusive events and competitions

Register today to gain access to all this great content and earn unique rewards visit www.isover.ie

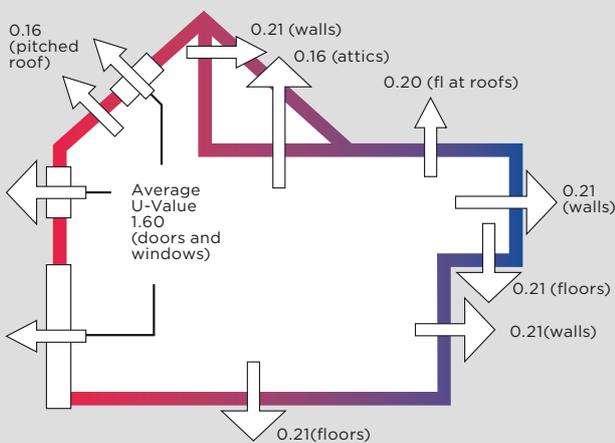
Regulations

New Dwellings – Republic of Ireland

Part L – Conservation of Fuel and Energy

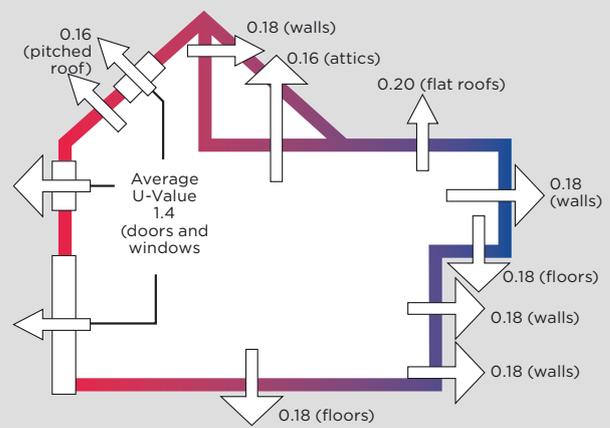
Part L 2011 and now with the 2017 edition now introduces the nearly Zero Energy Buildings (nZEB) which will affect all new dwellings by 1st April 2019. In order to achieve this, it is proposed the Maximum Permitted Energy Performance Co-Efficient (MPEPC) will reduce from 0.40 to 0.30 and the Maximum Permitted Carbon Performance Co-Efficient (MPCPC) will reduce from 0.46 to 0.35.

Current standards for U-Values



Maximum Permitted Energy Performance Coefficient (MPEPC): 0.40
Upper limit of air permeability is 7m³/(h.m²)

Proposed nZEB standards (2019)



25% increase in overall energy efficiency (MPEPC = 0.30)
Upper limit of 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.

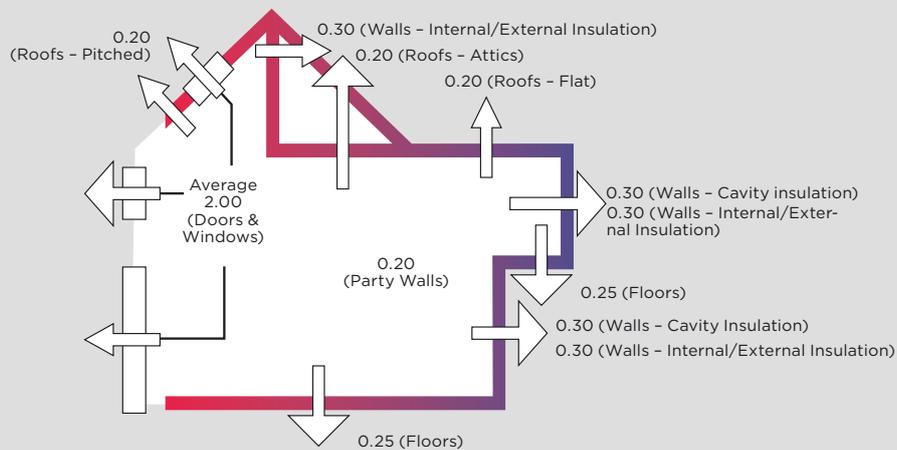
New Dwellings – Northern Ireland

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 $10\text{m}^3/(\text{h}\cdot\text{m}^2)$

Note: The party wall has a default U-Value of $0.50\text{ W/m}^2\text{K}$ 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 meters 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 draft Building Regulations 2018 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 50 Pa. 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 500 m^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 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

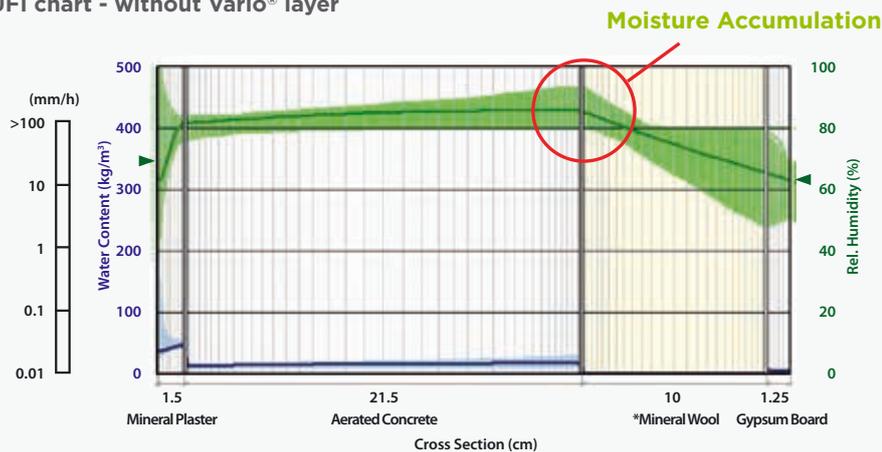
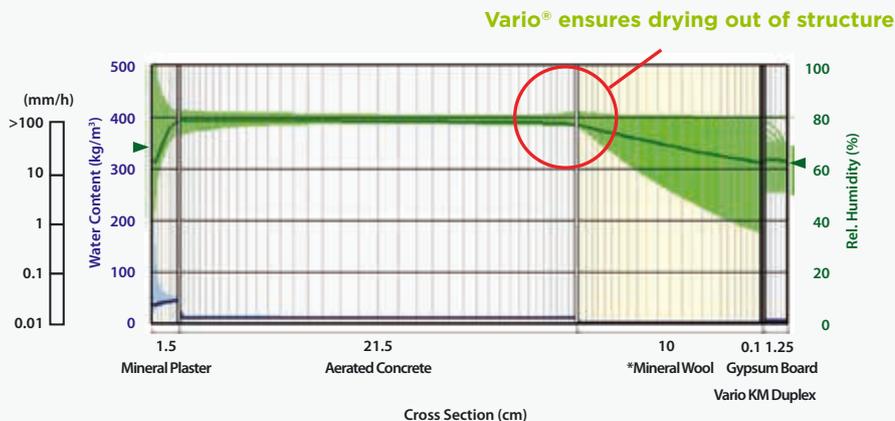


Fig 6: WUFI chart - with Vario® layer



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 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 system to one side.

Base Construction	Thickness of ISOVER glass wool	Optima Lining	In-situ Sound insulation Performance <small>R_w dB</small>		
			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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With purpose built facilities and dedicated resources, Saint-Gobain offers a wide range of FREE training courses to upskill and educate all within the construction industry.



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

- Airtightness and moisture management
- Acoustics
- Dry lining systems for installers and supervisors
- nZEB in Practice (with Passive House Accreditation available)
- Fire performance in buildings

NEW

- HVAC insulation solutions
- Renovation solutions
- CPD's

and much more

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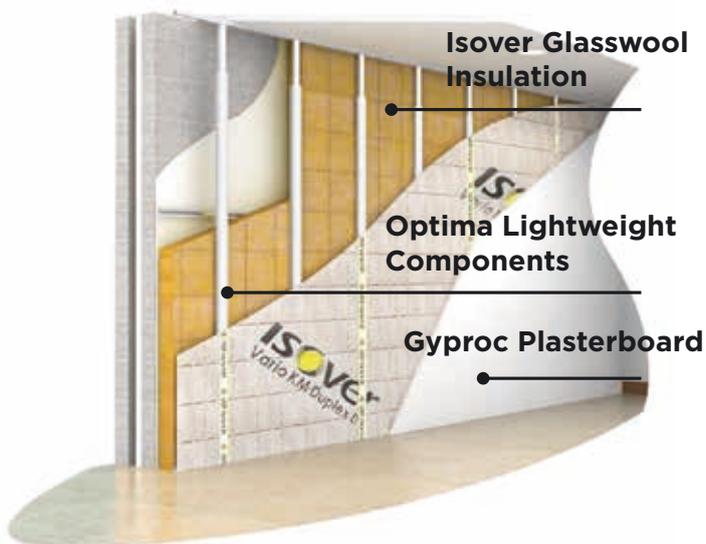
www.saint-gobain.ie/technical-academy

Installation Details

Optima System - Sample Calculation (5m x 2.8m wall)

What you would need to install the Optima System on five metres of wall?

Optima Floor and ceiling U-channel	5 lengths
Optima 2.4m C-channel	12 lengths
Optima 500mm Extension piece	10 pieces
Optima Clip system	10 pieces
ISOVER Insulation material eg Metac 100mm	15m ²
Vario® DoubleFit Mastic	2 cartridges of 310ml
Vario® KM Duplex UV	15m ²
Vario® KB1	5.2m
Vario® DoubleTwin	1 roll
Habito Plasterboard	6 boards





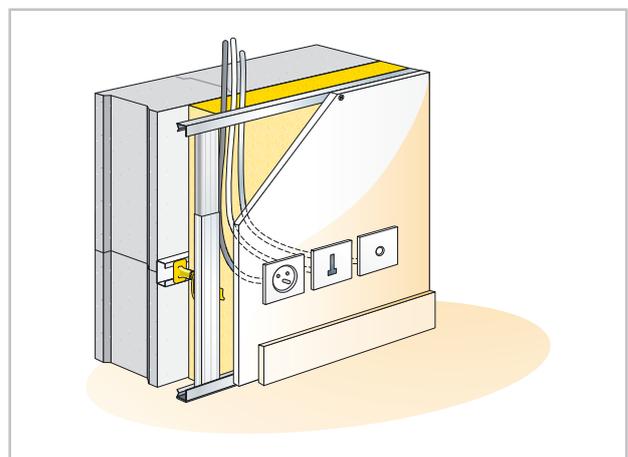
Integrated Services and Window Details

Dealing with Specific Issues

Integrating Services

Standard electrical appliances, home automation and networking have led to an increase in cabling and ducting that need to be included in buildings (Picture 1).

The Optima System allows the integration of such networks in the lining without compromising insulation. The networks are run between ISOVER glass wool and plaster boards. Vario® Multitape SL is used to ensure service penetrations are both vapour and air tight.



Picture 1

Window Details

The position of the windows has to be taken into account. Frame out window using C-channel above and below window as shown (Picture 2).

The Optima connector (Picture 3) is used to construct T-joints between Optima vertical and perpendicular studs, for instance to accommodate a window frame (Picture 4).



Picture 2



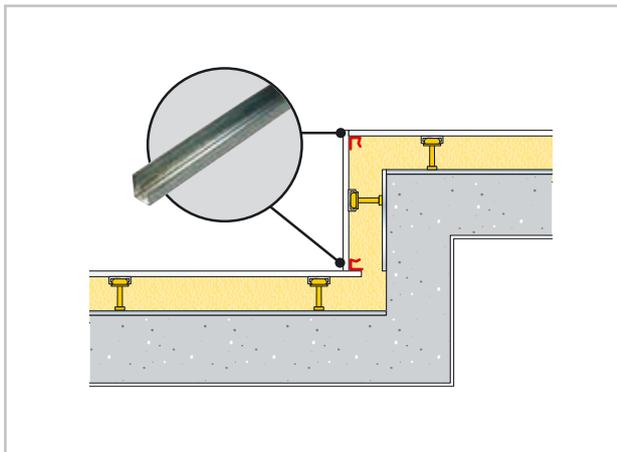
Picture 3



Picture 4

Cornering Details

An Optima Floor and Ceiling U-channel can be used for corner detailing (Picture 5 and 6).



Picture 5



Picture 6

Why ISOVER ?



Sustainable Insulation Solutions



LOSING HEAT THROUGH YOUR WALLS?

The best solution is Optima Drylining System. Watch our “Optima” movie to find out more.



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 on ISOVER.ie



CONVERTING YOUR ATTIC?

Check out the “Metac” movie.

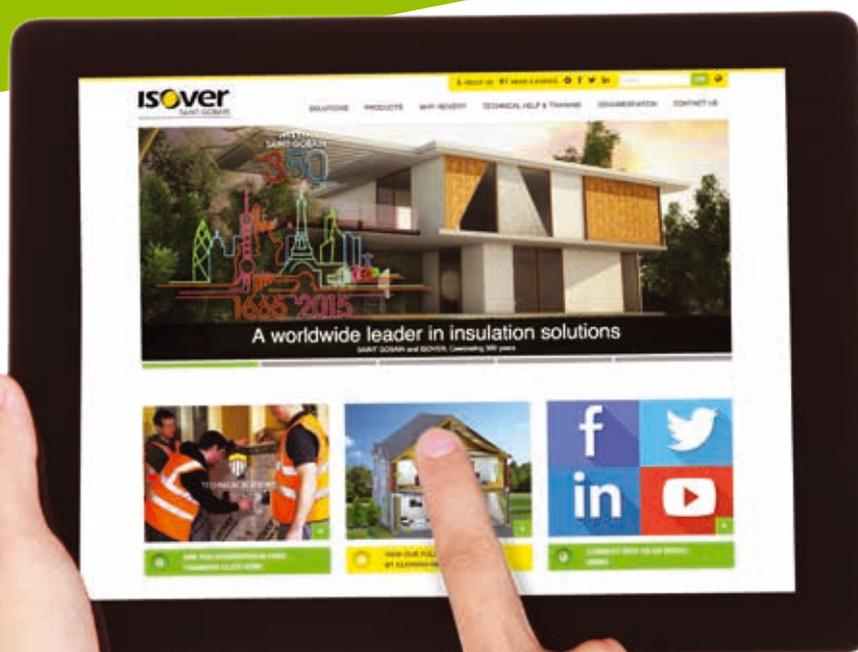
NEED HELP? DO YOU HAVE A QUESTION?

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