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Agrément Certificate
14/5097
Product Sheet 1

SAINT GOBAIN ISOVER INTERNAL WALL INSULATION SYSTEM

ISOVER OPTIMA INTERNAL WALL INSULATION SYSTEM

This Agrément Certificate Product Sheet⁽¹⁾ relates to Isover Optima Internal Wall Insulation System, comprising unfaced glass mineral wool (MW) batts or rolls, a vapour control layer, metal framing and plasterboard, for use as an internal insulated dry lining system to external masonry walls in new and existing domestic and non-domestic buildings. The system is attached to the existing wall using polyamide mechanical fixings on a metal frame.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

KEY FACTORS ASSESSED

Thermal performance — the system can contribute to limiting heat loss through walls. The U values achieved will depend on the overall construction and insulation thickness (see section 6).

Condensation risk — the system can limit the risk of surface condensation, and the risk of interstitial condensation should be assessed in each case (see section 7).

Behaviour in relation to fire — the plasterboard lining has a classification of A2-s1,d0 to BS EN 13501-1 : 2007 (see section 8).

Durability — under normal conditions, the components of the system are rot-proof, dimensionally stable and durable and will have a service life equal to the building in which they are installed (see section 14).



The BBA has awarded this Certificate to the company named above for the system described herein. This system has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

A handwritten signature in black ink, appearing to read 'John Albon'.

Date of First issue: 28 February 2014

John Albon — Head of Approvals
Energy and Ventilation

A handwritten signature in black ink, appearing to read 'Claire Curtis-Thomas'.

Claire Curtis-Thomas
Chief Executive

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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Regulations

In the opinion of the BBA, Isover Optima Internal Insulation Wall System, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

Requirement: B2	Internal fire spread (linings)
Comment:	The system is unrestricted under this Requirement. See section 8 of this Certificate.
Requirement: B3(4)	Internal fire spread (structure)
Comment:	The system can contribute to satisfying this Requirement. See section 8 of this Certificate.
Requirement: C2(c)	Resistance to moisture
Comment:	The system can contribute to satisfying this Requirement. See sections 7.1 and 7.3 of this Certificate.
Requirement: L1(a)(i)	Conservation of fuel and power
Comment:	The system can contribute to satisfying this Requirement. See sections 6.1 and 6.2 of this Certificate.
Regulation: 7	Materials and workmanship
Comment:	The system is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.
Regulation: 26	CO₂ emission rates for new buildings
Comment:	The system can contribute to satisfying this Regulation. See sections 6.1 and 6.2 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation: 8(1)	Durability, workmanship and fitness of materials
Comment:	The system is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.
Regulation: 9	Building standards applicable to construction
Standard:	2.4 Cavities
Comment:	The system can contribute to satisfying this Standard, with reference to clause 2.4.2 ⁽¹⁾⁽²⁾ . See section 8 of this Certificate.
Standard:	2.5 Internal linings
Comment:	The system is unrestricted under this Standard, with reference to clause 2.5.1 ⁽¹⁾⁽²⁾ . See section 8 of this Certificate.
Standard:	3.15 Condensation
Comment:	The system can contribute to satisfying this Standard, with reference to clauses 3.15.1 ⁽¹⁾⁽²⁾ , 3.15.4 ⁽¹⁾⁽²⁾ and 3.15.5 ⁽¹⁾⁽²⁾ . See sections 7.2 and 7.3 of this Certificate.
Standard:	6.1(b) Carbon dioxide emissions
Standard:	6.2 Building insulation envelope
Comment:	The system can contribute to satisfying clauses or parts of 6.1.1 ⁽¹⁾ , 6.1.2 ⁽²⁾ , 6.1.6 ⁽¹⁾ , 6.2.1 ⁽¹⁾⁽²⁾ , 6.2.3 ⁽¹⁾ , 6.2.4 ⁽²⁾ , 6.2.5 ⁽²⁾ , 6.2.6 ⁽¹⁾ , 6.2.7 ⁽¹⁾ , 6.2.8 ⁽¹⁾⁽²⁾ , 6.2.9 ⁽¹⁾⁽²⁾ , 6.2.10 ⁽¹⁾⁽²⁾ , 6.2.11 ⁽¹⁾⁽²⁾ , 6.2.12 ⁽²⁾ and 6.2.13 ⁽¹⁾⁽²⁾ of these Standards. See sections 6.1 and 6.2 of this Certificate.
Standard:	7.1(a)(b) Statement of sustainability
Comment:	The system can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard. In addition, the system can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4 ⁽¹⁾⁽²⁾ [Aspects 1 ⁽¹⁾⁽²⁾ and 2 ⁽¹⁾], 7.1.6 ⁽¹⁾⁽²⁾ [Aspects 1 ⁽¹⁾⁽²⁾ and 2 ⁽¹⁾] and 7.1.7 ⁽¹⁾⁽²⁾ [Aspect 1 ⁽¹⁾⁽²⁾]. See sections 6.1 and 6.2 of this Certificate.
Regulation: 12	Building standards applicable to conversions
Comment:	All comments given for the system under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



The Building Regulations (Northern Ireland) 2012

Regulation: 23	Fitness of materials and workmanship
Comment:	The system is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.
Regulation: 29	Condensation
Comment:	The system can contribute to satisfying this Regulation. See section 7.3 of this Certificate.
Regulation: 34	Internal fire spread – Linings
Comment:	The system is unrestricted under this Regulation. See section 8 of this Certificate.
Regulation: 35(4)	Internal fire spread – Structure
Comment:	The system can contribute to satisfying this Regulation. See section 8 of this Certificate.
Regulation: 39(a)(i)	Conservation measures
Regulation: 40(2)	Target carbon dioxide emission rate
Comment:	The system can contribute to satisfying these Regulations. See sections 6.1 and 6.2 of this Certificate.

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See section: 3 *Delivery and site handling* (3.7) and 18 *General* (18.2 and 18.6) of this Certificate.

Additional Information

NHBC Standards 2014

NHBC accepts the use of Isover Optima Internal Insulation Wall System when used with the static vapour control layer (VCL), provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards, Chapter 8.2 Wall and ceiling finishes*.

Technical Specification

1 Description

1.1 Isover Optima Internal Insulation Wall System consists of unfaced glass mineral wool (MW) insulation batts or rolls and a VCL fixed within a metal frame and finished with a plasterboard.

1.2 The system comprises (see Figures 1 and 2):

Insulation

- Isover Renovation Roll Thermal (glass mineral wool) insulation rolls — 5000 mm by 1160 mm, available in a thickness of 100 mm with a nominal density of 19 kg·m⁻³. Rolls are manufactured to comply with the requirements of BS EN 13162 : 2012
- Isover Renovation Batt 35 (glass mineral wool) insulation batts — 1200 mm by 600 mm, available in a thickness of 100 mm with a nominal density of 19 kg·m⁻³. Battas are manufactured to comply with the requirements of BS EN 13162 : 2012
- Isover Renovation Batt 32 (glass mineral wool) insulation batts — 1200 mm by 600 mm available in thicknesses of 85 mm, 100 mm and 125 mm with a nominal density of 33 kg·m⁻³. Battas are manufactured to comply with the requirements of BS EN 13162 : 2012.

Connectors

- Isover Optima IWI Support 75 mm — Polyamide support bracket
- Isover Optima IWI Support 100 mm — Polyamide support bracket
- Isover Optima IWI Support 120 mm — Polyamide support bracket
- Isover Optima IWI Support 140 mm — Polyamide support bracket
- Isover Optima IWI Support Key — Polyamide support bracket locking device.

Steel rails

- Gyframe GL1 Lining Channel — British Gypsum metal channel (vertical channel for board fixing and wall mounted anchor point). 0.5 mm thick galvanized steel roll-formed from material with a Z140 coating complying with BS EN 10346 : 2009, available in lengths of 2400 mm, 2700 mm, 3000 mm and 3600 mm
- Gyframe GL8 Track — British Gypsum metal channel (floor and ceiling track for fixing vertical GL1 Channels to). 0.5 mm thick galvanized steel roll-formed from material with a Z140 coating complying with BS EN 10346 : 2009, available in a length of 3600 mm.

Vapour Control Layer (VCL)

- Isover Vario KM Duplex UV Membrane System — a polyamide sheet vapour control/air barrier layer, reinforced with non-woven polypropylene, with a variable water vapour transmission of $0.3 \leq S_d \leq 5$ m, used with the following ancillary items:
 - Vario KB1 Tape — a single-sided adhesive tape for jointing seams
 - Vario DS Sealant — a durable elastic sealant for use at overlaps
 - Vario Multitape — for use to produce airtight joints around junctions and penetrations
 - Vario ProTape — double-sided tape for fixing to non-timber building elements.
- A static VCL with a water vapour transmission of at least (S_d) of 20 m, for areas of high humidity (see section 7.7).

Plasterboard

- Gyproc WallBoard — 12.5 mm Type A British Gypsum standard Gyproc Wallboard
- Gyproc Duraline — 15.0 mm Type D, F, I, R British Gypsum glassfibre reinforced Gyproc Wallboard.

1.3 Ancillary items, which are outside the scope of this Certificate, include:

- Gyproc Drywall Screws (22 – 90 mm depending on application requirement)
- Gyproc Drywall Timber Screw (32 – 60 mm depending on application requirement)
- Gyproc Wafer Head Drywall Screw
- Gypframe GL11 Gyplyner Anchors
- Gyproc Thermaline PLUS 22 mm (or suitable Gyproc Thermaline product to fit opening reveal detail)
- Thistle Mutli-Finish (Skim coat plaster)
- Gyproc Joint Tape.

Figure 1 Isover Optima Internal Insulation Wall System components

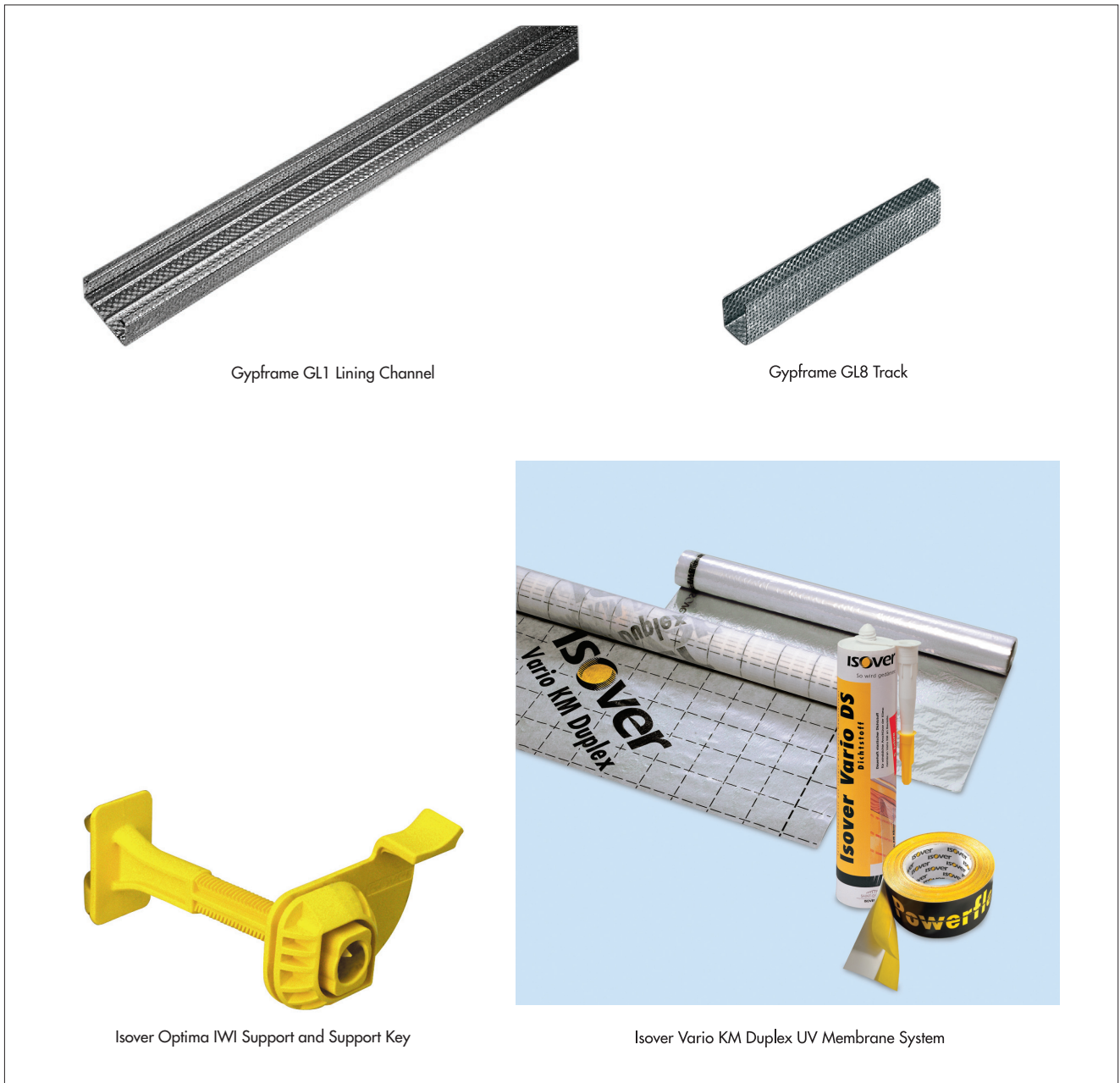
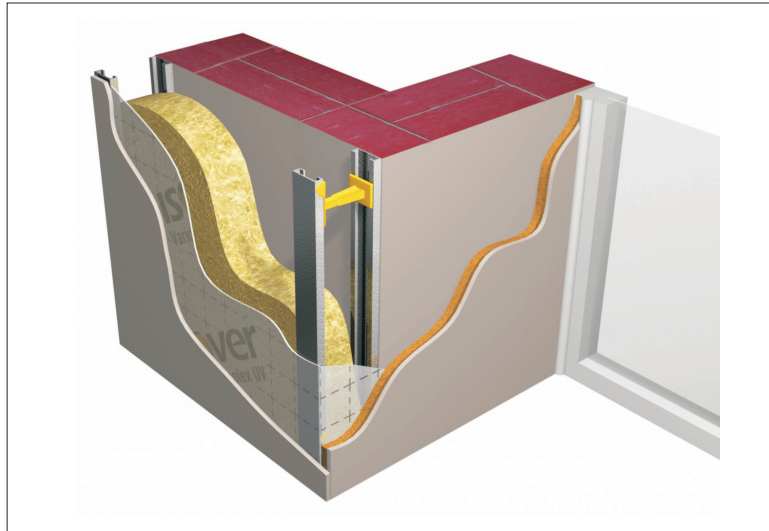


Figure 2 Isover Optima Internal Insulation Wall System



2 Manufacture

2.1 Isover mineral wool is manufactured from raw materials, mixed to a controlled formulation, are melted in a furnace to produce molten glass. Glass fibres are produced from the molten glass using a rotary spinning process. The fibres are treated with a resin and formed into a continuous matt to the required thickness. The matt then passes into an oven which cures the resin. Slabs or rolls are then cut to the required dimensions.

2.2 The Optima connectors are made using conventional injection moulding techniques.

2.3 The Gypframe metal components are roll-formed using conventional techniques to controlled specifications.

2.4 British Gypsum plasterboards are manufactured to BS EN 520 : 2004.

2.5 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

2.6 The management system of Saint Gobain Isover UK has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 (Certificate FM 01032) and BS EN ISO 14001 : 2004 (Certificate EMS 551706) by BSI.

3 Delivery and site handling

3.1 The insulation products are supplied wrapped in polythene to provide short term protection. Each pack carries a label bearing the manufacturer's name, product description, essential instructions for installation.

3.2 The metal frame components are delivered in packs of ten.

3.3 The VCL rolls are delivered to site packaged in transparent LDPE film. Each pallet contains 42 rolls packaged in cardboard cartons.

3.4 Isover Optima Supports are delivered to site packaged in branded cardboard boxes. Each box contains 50 Supports and bears a label detailing the supports specific information pertaining to length, use and identification codes.

3.5 The plasterboards are delivered to site shrink-wrapped in polythene on pallets. Each board has the manufacturing code printed on the surface and each pack carries a label with the product description, manual handling advice and manufacturer's name.

3.6 It is essential that all the components are raised off the ground and stored inside or under cover on a clean, dry, level surface in a well-ventilated area. The components must be protected from rain, snow and prolonged exposure to sunlight.

3.7 It is recommended that dust masks, gloves and long sleeved clothing should be worn during cutting and handling of the components.

3.8 Damaged, contaminated or wet products must not be used.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Isover Optima Internal Insulation Wall System.

Design Considerations

4 General

4.1 Isover Optima Internal Insulation Wall System is satisfactory for use as an insulating dry lining system and is effective in reducing the thermal transmittance (U value) of external solid or cavity masonry walls of new and existing domestic and non-domestic buildings.

4.2 The system may be installed on masonry construction including clay and calcium silicate bricks, concrete blocks, and natural and reconstituted stone blocks. It is essential that such walls are constructed having regard to the local wind-driven rain index.

4.3 Walls should be designed and constructed in accordance with the relevant recommendations of:

- BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006, BS EN 1996-3 : 2006 and their respective UK National Annexes
- BS 8000-3 : 2001.

4.4 The system is not intended to offer resistance to rain penetration or rising dampness, walls to be insulated with dry lining must be already rain resistant and show no signs of water ingress or rising damp.

4.5 If present, mould or fungal growth should be treated prior to the application of the system. The Certificate holder recommends precautionary treatment even if signs of mould and fungi are not apparent.

4.6 Application of an external render coat or water repellent treatment may be needed in areas of severe and very severe exposure.

4.7 When insulating solid walls, particularly older exposed walls, designers should consider the extent to which the wall and components in the wall can tolerate the lower temperatures and prolonged drying time resulting from the application of the insulating dry lining. Care should also be taken to assess the risks of interstitial condensation forming on thermal bridges that cannot be effectively insulated.

4.8 It is recommended that services which penetrate the dry lining, eg light switches and power outlets, are kept to a minimum to limit damage to the vapour control layer. Where these occur, the vapour control layer should be carefully sealed in line with the certificate holder's instruction.

4.9 Suitable isolation methods, such as a conduit or capping, must be used to ensure cables do not come into contact with the insulation.

4.10 The installation of insulating dry lining system requires careful detailing around doors and windows to achieve a satisfactory surface for finishing. In addition, every attempt should be made to minimise the risk of thermal bridging at reveals and where heavy separating walls are attached to the external wall. New work must be designed to accommodate the thickness of the dry lining, particularly at reveals, heads and sills and in relation to ceiling height (see Figure 2). Where the dimensions of fixtures are critical (eg bathrooms), these should be checked before installation. Installers should refer to the Isover Optima IWI System Installation Guide for guidance.

5 Practicability of installation

The system should be installed only by specialised contractors who have successfully undergone training and registration by the Certificate holder.

Note: The BBA operates a UKAS-Accredited Approved Installer Scheme for internal wall insulation; details of installer companies approved are included on the BBA website (www.bbacerts.co.uk).

6 Thermal performance



6.1 Calculations of thermal transmittance (U value) should be carried out in accordance with BS EN ISO 6946 : 2007 and BRE Report BR 443 : 2006, using the declared thermal conductivity (λ_D value) for the insulation component as given in Table 1 and a default value of $0.25 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ for the plasterboard.

Table 1 Thermal conductivities for the mineral wool insulation

Insulation	λ_D value ($\text{W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$)
Renovation Roll Thermal	0.035
Renovation Batt 35	
Renovation Batt 32	0.032

6.2 The U value of a wall will depend on the insulation value of the wall and its finishes and the thickness of insulation. Example U values are given in Table 2.

Table 2 Example U values for walls

Insulation thickness (mm)	U value ($W \cdot m^{-2} \cdot K^{-1}$)			
	215 mm brickwork, $\lambda = 0.77 W \cdot m^{-1} \cdot K^{-1}$		200 mm dense blockwork, $\lambda = 1.75 W \cdot m^{-1} \cdot K^{-1}$	
	Renovation Roll and Batt 35	Renovation Batt 32	Renovation Roll and Batt 35	Renovation Batt 32
85	—	0.30	—	0.32
100	0.29	0.27	0.30	0.28
125	—	0.22	—	0.23

- Fixing correction may be disregarded due to $\Delta U_i/U$ being < 3%.
- 18 mm air cavity bridged by 0.2% of metal.
- 12.5 mm plasterboard with $\lambda = 0.25 W \cdot m^{-1} \cdot K^{-1}$.

6.3 The system can maintain, or contribute to maintaining, continuity of thermal insulation at junctions between elements and openings. For Accredited Construction Details, the corresponding ψ -values (Psi) in BRE Information Paper IP 1/06, Table 3, may be used in carbon emission calculations in Scotland and Northern Ireland. Detailed guidance for other junctions and on limiting heat loss by air infiltration can be found in:


England and Wales — Approved Documents to Part L and, for new thermal elements to existing buildings, Accredited Construction Details (version 1.0). For new-build, see also SAP 2009 Appendix K and the *iSBEM User Manual*


Scotland — Accredited Construction Details (Scotland)

Northern Ireland — Accredited Construction Details (version 1.0).


7 Condensation risk

Surface condensation

 7.1 Walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed $0.7 W \cdot m^{-2} \cdot K^{-1}$ at any point and the junctions with other elements are designed in accordance with the guidance referred to in section 6.3 of this Certificate.

 7.2 For buildings in Scotland, constructions will be acceptable where the thermal transmittance (U value) does not exceed $1.2 W \cdot m^{-2} \cdot K^{-1}$ at any point and the junctions with other elements are designed in accordance with the guidance referred to in BS 5250 : 2011, Annex G. Further guidance may be obtained from BRE Report BR 262 : 2002 and section 6.3 of this Certificate.


Interstitial condensation

 7.3 Walls will adequately limit the risk of interstitial condensation when they are designed and constructed in accordance with BS 5250 : 2011, Annexes D and G, and the relevant guidance.

7.4 In areas of severe and very severe exposure, an external render coat or water repellent treatment will be needed unless a dynamic condensation analysis in accordance to BS EN 15026 : 2007 shows it to be unnecessary.

7.5 For situations with internal conditions above humidity class 3 in BS 5250 : 2011, a static VCL with a water vapour transmission of at least (S_d) 20 m will be required.

8 Behaviour in relation to fire

 8.1 The fire classification of the plasterboards is A2-s1,d0 in accordance with BS EN 13501-1 : 2007. The products can therefore be considered to be non-combustible.

8.2 The fire classification of the mineral wool insulation is Class A1 in accordance with BS EN 13501-1 : 2007. The products can therefore be considered to be non-combustible.

9 Impact resistance

The Isover Optima Internal Insulation Wall System supported at 600 mm centres, when tested for resistance to 'soft body' impact, may be considered suitable for use in the location categories given in Table 3 of this Certificate, as defined in BS 5234-2 : 1992.

Table 3 – Impact categories of use

Plasterboard	Impact grade	Category of duty	Examples
12.5 mm Gyproc WallBoard	Heavy duty	Adjacent space frequently used by the public and others with little incentive to exercise care. Chances of accident occurring and of misuse	Public circulation areas Industrial areas
15.0 mm DuraLine Wallboard	Severe duty	Adjacent space intensively used by the public and others with little incentive to exercise care. Prone to vandalism and abnormally rough use	Major circulation areas Heavy industrial areas

10 Materials in contact – wiring installations

10.1 As with any form of insulation, de-rating of electrical cables should be considered where the insulation restricts the air cooling of cables.

10.2 Electrical cables that are likely to come into contact with the insulation component of the system are required to be protected by a suitable conduit or PVC-U trunking. The installation of electrical services must be carried out in accordance with BS 7671 : 2008.

11 Infestation

Use of the system does not in itself promote infestation. The creation of voids within the structure, eg gaps between the wall lining and the system, may provide habitation for insects or vermin in areas already infested. Care should be taken to ensure that, wherever possible, all voids are sealed because any infestation may be difficult to eradicate. There is no food value in the materials used.

12 Wall-mounted fittings

The recommendations of the Certificate holder must be followed. Any objects fixed to the wall, other than lightweight items, are outside the scope of this Certificate.

13 Maintenance

The system, if damaged during use, can be removed and replaced.

14 Durability



Provided the system is fixed to a satisfactory stable and durable wall supporting structure, it should have a life equal to the building in which it is installed. Under normal conditions of occupancy, it is unlikely to suffer damage, but if damage does occur, the system can be repaired or replaced.

15 Reuse and recyclability

British Gypsum Wallboards can be recycled using the British Gypsum Plasterboard Recycling Scheme (PRS). Gypframe metal components can also be recycled. The VCL's are made from a mix of polyolefins that can be recycled.

Installation

16 Site survey and preliminary work

16.1 A pre-installation survey of the property must be carried out by a suitably trained contractor to determine suitability for treatment and any repairs necessary to the building structure undertaken before application of the Isover Optima Internal Insulation Wall System. A specification is prepared for each elevation of the building indicating:

- suitability of substrate
- position and detailing around windows and doors
- position and numbers of electrical sockets and switches
- position and numbers of radiators and heating appliances
- wall fittings and fixtures — including coving and skirting
- junction details with separating walls
- any existing sources or evidence of moisture ingress or accumulation
- areas where flexible sealants must be used
- ventilation plates.

16.2 Any remedial work identified as required to the existing external wall substrate must be carried out prior to installation of the Isover Optima system. The pre-installation survey must be repeated after the completion of any remedial works, with particular emphasis on assessing the success of the remedial work.

17 Approved installers

Application of the system, within the context of the Certificate, is carried out by approved installers who have received system specific training and are recognised by the Certificate holder as a registered installer. Such an installer is a company:

- employing operatives who have been trained and approved by the Certificate holder to install the system
- which has undertaken to comply with the Certificate holder's application procedure, containing the requirement for each application team to include at least one member operative trained by the Certificate holder
- subject to at least one inspection per annum by the Certificate holder to ensure suitable site practices are being employed. This may include unannounced site inspections.

18 General

18.1 A qualified plumber is required to make alterations to heating systems and ensure adequate ventilation for existing and new appliances, in compliance with gas safe regulation (ACOP assessment required). A qualified electrician must be used to make good the electrical wirings and services.

18.2 Appropriate Personal Protective Equipment (PPE) must be used for all activities required for the application of the Isover Optima Internal Wall Insulation System (see the Certificate holder's guidelines).

18.3 Before starting to fit the system, the position of all main service cable and pipe runs must be clearly marked on the walls to avoid damage. All wallpaper, plaster coving, skirting boards, architraves, loose plaster finishes, decorative finishes such as wood panelling and laminate floor angle beads etc must be removed.

18.4 Before fixing the system, sufficient time must be allowed for damp-proofing treatments, where applied, to dry out; information is given in BS 6576 : 2005 for dry lining in conjunction with a chemical dpc application.

18.5 Care must be taken when exposing electrical cables (see section 10).

18.6 The plasterboards can be cut using a fine-toothed saw or scored and broken. Cutting should be done in a ventilated space, outside or in an area with dust extraction.

18.7 The plasterboards are cut using a fine-toothed saw, to fit around windows, doors and air bricks. It is essential that cut pieces completely fill the spaces for which they are intended and are adequately secured.

19 Procedure

19.1 Installation of the system must be carried out in accordance with the Isover Optima IWI System Installation Guide.

19.2 For existing walls, picture rails and projecting windows, boards may have to be removed.

19.3 The wall should be surveyed to establish its flatness and suitability for receiving the system. The system may be used on stable, dry walls capable of taking the fixings for the metal frame.

19.4 The required cavity depth (ie, thickness of insulation being used) should be measured out from the face of the wall. Chalk lines are marked to the floor, ceiling and abutting walls to indicate the fixing positioning of the Gypframe GL8 Tracks, which are then fixed to the perimeters using appropriate fixings (as specified by the Certificate holder) at a maximum of 600 mm fixing centres.

19.5 To form a generic anchor point, Gypframe GL1 Lining Channels are fixed to the wall using appropriate fixings (as specified by the Certificate holder), at a maximum of 600 mm fixing centres. For applications with ceiling heights up to 2700 mm, only one fixing point is required per vertical stud at 1350 mm from floor height. For application heights greater than 2700 mm, additional supports will be required (one support for every vertical 1000 mm). The appropriate length of Isover Optima support brackets is attached to the anchoring Gypframe GL1 Lining Channel at 600 mm centres. The selected Isover mineral wool insulation is installed over the support brackets and secured in place using the support bracket locking key and vertical Gypframe GL1 Lining Channel.

19.6 Further Gypframe GL1 Lining Channels are inserted into the Gypframe GL8 Tracks at floor and ceiling level and clipped into position on the support bracket locking key.

19.7 The VCL is applied to the studs (ie, Gypframe GL1 and GL8 channels) using the Isover Vario ProTape. The perimeter is sealed with Vario DS Sealant or Vario Multitape as appropriate. All joints should be lapped a minimum of 100 mm and sealed with Vario KB1 tape.

19.8 The plasterboard, minimum 12.5 mm thickness, is fixed to the vertical channels and horizontal tracks. The plasterboard is then both jointed and primed or skim plastered to receive a breathable paint finish.

19.9 If existing windows have trickle vents, the reveal insulation must be of a thickness to ensure that the vent is not blocked or compromised.

19.10 Installers should refer to the Isover Optima IWI System Installation Guide for guidance on reveal detailing, corner detailing, reveal insulation, finishing membranes at windows, electrical penetrations, provision of collars at vents/other penetrations and the use of support plates/grounds where necessary (also see Figure 2).

Finishing

19.11 Jointing and finishing of the plasterboard lining is carried out in the appropriate manner, applying plasterer's scrim to all joints and a thin coat of plaster.

19.12 Any gaps between the ceiling and the wall must be filled.

20 Tests

Results of tests were assessed to determine:

- resistance to soft body impact.

21 Investigations

21.1 The manufacturing process was evaluated, including methods for quality control, and details were obtained of the quality and composition of the materials used.

21.2 A confirmation of the thermal conductivity (λ_D values) was made.

21.3 A dynamic condensation risk analysis was carried out.

21.4 A series of U value calculations was carried out.

21.5 An assessment was made of the components' compliance with the Standards as listed below:

- mineral wool insulation to BS EN 13162 : 2012
- plasterboard to BS EN 520 : 2004.

Bibliography

BS 5234-2 : 1992 *Partitions (including matching linings) — Code of practice for design and installation*

BS 5250 : 2011 *Code of practice for control of condensation in buildings*

BS 6576 : 2005 *Code of practice for diagnosis of rising damp in walls of buildings and installation of chemical damp-proof courses*

BS 7671 : 2008 *Requirements for electrical installations — IET Wiring Regulations — Seventeenth edition*

BS 8000-3 : 2001 *Workmanship on building sites — Code of practice for masonry*

BS 8104 : 1992 *Code of practice for assessing exposure of walls to wind-driven rain*

BS EN 520 : 2004 *Gypsum plasterboards — Definitions, requirements and test methods*

BS EN 1996-1-1 : 2005 *Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

NA to BS EN 1996-1-1 : 2005 *UK National Annex to Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

BS EN 1996-1-2 : 2005 *Eurocode 6 — Design of masonry structures — General rules — Structural fire design*

NA to BS EN 1996-1-2 : 2005 *UK National Annex to Eurocode 6 — Design of masonry structures — General rules — Structural fire design*

BS EN 1996-2 : 2006 *Eurocode 6 — Design of masonry structures — Design considerations, selection of materials and execution of masonry*

NA to BS EN 1996-2 : 2006 *UK National Annex to Eurocode 6 — Design of masonry structures — Design considerations, selection of materials and execution of masonry*

BS EN 1996-3 : 2006 *Eurocode 6 — Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*

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BS EN 10346 : 2009 *Continuously hot-dip coated steel flat products — Technical delivery conditions*

BS EN 13162 : 2012 *Thermal insulation products for buildings — Factory made mineral wool (MW) products — Specification*

BS EN 13501-1 : 2007 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*

BS EN 15026 : 2007 *Hygrothermal performance of building components and building elements — Assessment of moisture transfer by numerical simulation*

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BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

BS EN ISO 14001 : 2004 *Environmental management systems — Requirements with guidance for use*

BRE Digest 465 : 2002 *U-values for light steel-frame construction*

BRE Information Paper IP 1/06 *Assessing the effects of thermal bridging at junctions and around openings*

BRE Report BR 262 : 2002 *Thermal Insulation: avoiding risks*

BRE Report BR 443 : 2006 *Conventions for U-value calculations*

22 Conditions

22.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page — no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

22.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

22.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

22.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

22.5 In issuing this Certificate, the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

22.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.