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**Agrément Certificate**  
**17/5402**  
Product Sheet 2

## ROCKWOOL INSULATION SYSTEMS

### RAINSCREEN DUO SLAB FOR USE IN TIMBER OR STEEL FRAME CONSTRUCTIONS

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to Rainscreen Duo Slab<sup>(2)</sup> for use in Timber or Steel Frame Constructions, a mineral wool insulation slab for use as thermal insulation on new and existing conventional timber- or steel-frame walls. The product is used as an insulated sheathing in domestic and non-domestic buildings with a masonry outer leaf.

(1) Hereinafter referred to as 'Certificate'.

(2) Rainscreen Duo Slab is a registered trademark.

#### 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 product has a declared thermal conductivity ( $\lambda_D$ ) of 0.034 or 0.035  $W \cdot m^{-1} \cdot K^{-1}$ , depending on the thickness (see section 6).

**Condensation risk** — the product can contribute to limiting the risk of condensation (see section 7).

**Behaviour in relation to fire** — the product is classified as Class A1 in accordance with BS EN 13501-1 : 2007 (see section 8).

**Durability** — the product will have a life equivalent to that of the wall structure in which it is incorporated (see section 12).

The BBA has awarded this Certificate to the company named above for the product described herein. This product 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

Date of First issue: 15 March 2017

John Albon – Head of Approvals  
Construction Products

Claire Curtis-Thomas  
Chief Executive

*Certificate amended on 11 June 2019 to include Regulation 7(2) for England and associated text.*

*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](http://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.*

*Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.*

#### British Board of Agrément

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## Regulations

In the opinion of the BBA, Rainscreen Duo Slab for use in Timber or Steel Frame Constructions, 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)

<b>Requirement:</b>	<b>B3(1)(4)</b>	<b>Internal fire spread (structure)</b>
Comment:	The use of the product is unrestricted by this Requirement. See section 8.1 of this Certificate.	
<b>Requirement:</b>	<b>B4(1)</b>	<b>External fire spread</b>
Comment:	The product is unrestricted by this Requirement. See section 8.1 of this Certificate.	
<b>Requirement:</b>	<b>C2(b)</b>	<b>Resistance to moisture</b>
Comment:	The product can contribute to satisfying this Requirement. See section 10.1 of this Certificate.	
<b>Requirement:</b>	<b>C2(c)</b>	<b>Resistance to moisture</b>
Comment:	The product can contribute to satisfying this Requirement. See sections 7.1 and 7.5 of this Certificate.	
<b>Requirement:</b>	<b>L1(a)(i)</b>	<b>Conservation of fuel and power</b>
Comment:	The product can contribute to satisfying this Requirement. See section 6 of this Certificate.	
<b>Regulation:</b>	<b>7</b>	<b>Materials and workmanship (applicable to Wales only)</b>
<b>Regulation:</b>	<b>7(1)</b>	<b>Materials and workmanship (applicable to England only)</b>
Comment:	The product is acceptable. See section 12 and the <i>Installation</i> part of this Certificate.	
<b>Regulation:</b>	<b>7(2)</b>	<b>Materials and workmanship (applicable to England only)</b>
Comment:	The product is unrestricted by this Regulation. See section 8.1 of this Certificate.	
<b>Regulation:</b>	<b>26</b>	<b>Co<sub>2</sub> emission rates for new buildings</b>
<b>Regulation:</b>	<b>26A</b>	<b>Fabric energy efficiency rates for new dwellings (applicable to England only)</b>
<b>Regulation:</b>	<b>26A</b>	<b>Primary energy consumption rates for new buildings (applicable to Wales only)</b>
<b>Regulation:</b>	<b>26B</b>	<b>Fabric performance values for new dwellings (applicable to Wales only)</b>
Comment:	The product can contribute to satisfying these Regulations, but compensating fabric and/or services measures may need to be taken. See section 6 of this Certificate.	



### The Building (Scotland) Regulations 2004 (as amended)

<b>Regulation:</b>	<b>8(1)</b>	<b>Durability, workmanship and fitness of materials</b>
Comment:	The product is acceptable. See section 12 and the <i>Installation</i> part of this Certificate.	
<b>Regulation:</b>	<b>9</b>	<b>Building standards applicable to construction</b>
Standard:	2.4	Cavities
Standard:	2.6	Spread to neighbouring buildings
Comment:	The use of the product is unrestricted by these Standards with reference to clauses 2.4.4 <sup>(1)</sup> , 2.4.6 <sup>(2)</sup> , 2.6.1 <sup>(2)</sup> , 2.6.5 <sup>(1)</sup> and 2.6.6 <sup>(2)</sup> . See section 8.1 of this Certificate.	
Standard:	3.10	Precipitation
Comment:	The product can contribute to satisfying this Standard, with reference to clauses 3.10.1 <sup>(1)</sup> and 3.10.3 <sup>(1)</sup> . See section 10.1 of this Certificate.	
Standard:	3.15	Condensation
Comment:	The product can contribute to satisfying this Standard, with reference to clauses 3.15.1 <sup>(1)(2)</sup> , 3.15.4 <sup>(1)(2)</sup> and 3.15.5 <sup>(1)(2)</sup> . See sections 7.1 and 7.6 of this Certificate.	

Standard:	6.1(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The product can contribute to satisfying clauses, or parts of, 6.1.1 <sup>(1)</sup> , 6.1.3 <sup>(2)</sup> , 6.1.5 <sup>(2)</sup> , 6.1.6 <sup>(1)</sup> , 6.2.1 <sup>(1)</sup> , 6.2.3 <sup>(1)</sup> , 6.2.4 <sup>(1)</sup> , 6.2.5 <sup>(1)(2)</sup> and 6.2.10 <sup>(2)</sup> of these Standards. See section 6 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The product 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 product can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4 <sup>(1)(2)</sup> [Aspects 1 <sup>(1)(2)</sup> and 2 <sup>(1)</sup> ], 7.1.6 <sup>(1)(2)</sup> [Aspects 1 <sup>(1)(2)</sup> and 2 <sup>(1)</sup> ] and 7.1.7 <sup>(1)(2)</sup> [Aspect 1 <sup>(1)(2)</sup> ]. See section 6.1 of this Certificate.
<b>Regulation:</b>	<b>12</b>	<b>Building standards applicable to conversions</b>
Comment:		Comments made in relation to the product under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 <sup>(1)(2)</sup> and Schedule 6 <sup>(1)(2)</sup> .
		(1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



## The Building Regulations (Northern Ireland) 2012 (as amended)

<b>Regulation:</b>	<b>23</b>	<b>Fitness of materials and workmanship</b>
Comment:		The product is acceptable. See section 12 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>28(b)</b>	<b>Resistance to moisture and weather</b>
Comment:		The product can contribute to satisfying this Regulation. See section 10.1 of this Certificate.
<b>Regulation:</b>	<b>29</b>	<b>Condensation</b>
Comment:		The product can contribute to satisfying this Regulation. See section 7.1 of this Certificate.
<b>Regulation:</b>	<b>35(1)(4)</b>	<b>Internal fire spread - structure</b>
Comment:		The use of the product is unrestricted by this Regulation. See section 8.1 of this Certificate.
<b>Regulation:</b>	<b>39(a)(i)</b>	<b>Conservation measures</b>
<b>Regulation:</b>	<b>40(2)</b>	<b>Target carbon dioxide emission rate</b>
Comment:		The product is acceptable. See section 6 of this Certificate.

## Construction (Design and Management) Regulations 2015

## Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See section:                    3 *Delivery and site handling* (3.3) of this Certificate.

## Additional Information

### NHBC Standards 2017

Subject to a 50 mm minimum residual cavity being maintained, NHBC accepts the use of Rainscreen Duo Slab for use in Timber or Steel Frame Constructions, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapters 6.2 *External timber framed walls* and 6.10 *Light steel framed walls and floors*.

### CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard BS EN 13162 : 2012. An asterisk (\*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

## Technical Specification

### 1 Description

1.1 Rainscreen Duo Slab for use in Timber or Steel Frame Constructions is a mineral wool insulation slab with the option of glass tissue facers on one or both faces. The slabs have the nominal characteristics shown in Table 1.

Length (mm)	1200
Width (mm)	600
Thickness (mm) <sup>(1)</sup>	50, 60, 75, 100, 125, 150, 180
Edge profile	Square

(1) Other slab thicknesses up to 230 mm are available on request.

1.2 The slabs are fixed against the external face of the sheathing board/studs in conjunction with the masonry outer leaf.

1.3 Ancillary items for use with the product, but outside the scope of this Certificate, are:

- insulation fasteners/fixings
- sheathing and lining board
- breather membranes.

### 2 Manufacture

2.1 The insulation is manufactured from molten stone in a controlled way. The length of fibres and degree of granulation are subject to regular quality control checks by the manufacturer.

2.2 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.

2.3 The management systems of ROCKWOOL Ltd have been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by BSI (Certificate FM 02262).

### 3 Delivery and site handling

3.1 Slabs are delivered to site compression-wrapped in polythene. Each pack carries a label bearing the manufacturer's name, product description and the BBA logo incorporating the number of this Certificate.

3.2 Packs should be stored under cover until required for use.

3.3 It is recommended that dust masks, gloves and long-sleeved clothing are worn during cutting and handling of the product.

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Rainscreen Duo Slab for use in Timber or Steel Frame Constructions.

## Design Considerations

### 4 Use

4.1 Rainscreen Duo Slab for use in Timber or Steel Frame Constructions is effective in reducing the U value (thermal transmittance) of external walls of timber-frame or steel-frame buildings. It is essential that such walls are designed and constructed to incorporate the normal precautions against moisture ingress, including the use of a breather membrane over the timber sheathing in framing board applications.

4.2 Buildings subject to the national Building Regulations should be designed and constructed in accordance with the relevant recommendations of:

- BS EN 1995-1-1 : 2004, BS EN 1996-1-1 : 2005 and BS EN 1996-2 : 2006 and their respective UK National Annexes
- BS EN 351-1 : 2007.

4.3 New buildings not subject to these Regulations should also be built in accordance with the Standards given in section 4.2 of this Certificate.

4.4 Wall ties and fixings to BS EN 845-1 : 2013 should be used for structural stability in accordance with BS EN 1995-1-1 : 2004, BS EN 1996-1-1 : 2005 and BS EN 1996-2 : 2006.

4.5 Services which penetrate the dry lining (eg light switches and power outlets) must be kept to a minimum to limit damage to vapour checks. In addition, to preserve the fire resistance of the wall, any penetrations should be enclosed in plasterboard, stone mineral wool or a suitably-tested proprietary fire-rated system.

4.6 This application requires a vapour control layer (VCL) behind the internal finish, which should be a minimum thickness of 0.125 mm (500 gauge) polyethylene, or plasterboard backed with a vapour control membrane or similar.

4.7 The product will not contribute to the structural performance of the timber frame.

4.8 Care must be taken in the overall design and construction of walls incorporating the product to ensure the provision of appropriate:

- cavity trays and damp-proof courses (dpc's)
- cavity barriers and fire dampers
- resistance to the ingress of precipitation, moisture and dangerous gases from the ground
- resistance to sound transmission when flanking separating walls and floors.

4.9 The use of cavity battens or boards is strongly recommended to prevent thermal bridging by mortar droppings.

**Residual cavity width for insulated sheathing (buildings up to 25 metres high)**

4.10 The minimum residual cavity width to be maintained during construction must be 25 mm. To achieve this, a greater nominal residual cavity width may need to be specified at the design stage (to allow for inaccuracies inherent in the building process). The specifier may either:

- design a nominal residual cavity width of 50 mm (a residual cavity nominally at least 50 mm wide will be required by the NHBC), or
- design a cavity width which takes into account the dimensional tolerances of the components which make up the wall (by reference to the British Standards relating to the bricks, blocks and boards, or by using the data from the respective manufacturers). Allowances may need to be made for the quality of building operatives and the degree of site supervision or control available. The limitations in respect of exposure of the proposed building as set out in Table 2 must also be observed.

*Table 2 Maximum allowable total exposure factors of different constructions*

Construction	Maximum allowable exposure factor $E^{(1)}$
All external masonry walls protected by: rendering (to BS EN 13914-1 : 2016), tile or slate hanging, or timber, plastic or metal weatherboarding or cladding	No restriction
One or more external masonry walls constructed from facing clay brickwork or natural stone, the porosity of which exceeds 20% by volume. Mortar joints must be flush pointed or weatherstruck	100
One or more external masonry walls constructed from calcium silicate bricks, concrete blocks, reconstituted stone, or natural stone, the porosity of which is less than 20% by volume, or any material with raked mortar joints	88

(1) To BS 5618 : 1985.

4.11 From ground level, the maximum height of continuous cavity walls must not exceed 12 metres; above 12 metres, the maximum height of continuous cavity walls must not exceed 7 metres. In both cases, breaks should be in the form of continuous horizontal cavity trays and weepholes discharging to the outside.

4.12 An external render coat or other suitable finish should be applied in locations where such application would be normal practice; care should be taken to ensure that the residual cavity is not bridged by mortar.

**5 Practicability of installation**

The product is designed to be installed by a competent general builder, or a contractor, experienced with this type of product.

**6 Thermal performance**



6.1 Calculations of the thermal transmittance (U value) should be carried out in accordance with BS EN ISO 6946 : 2007 and BRE Report BR 443 : 2006, using the thermal conductivities\* ( $\lambda_D$ ) of the product as shown in Table 3.

*Table 3 Declared thermal conductivity value*

Insulation thickness (mm)	Thermal conductivity* ( $W \cdot m^{-1} \cdot K^{-1}$ )
50 to 90	0.034
90 to 230	0.035

6.2 The U value of a completed wall construction will depend on the insulation thickness, number and type of fixings, the insulating value of the substrate and its internal finish. Calculated U values for example constructions are given in Tables 4 and 5.

Table 4 Example U values — timber frame

Timber frame <sup>(1)(2)</sup>		
U Value (W·m <sup>-2</sup> ·K <sup>-1</sup> )	Insulation thickness installed against the sheathing board – with a clear 140 mm timber frame (mm) <sup>(3)</sup>	Insulation thickness installed against the sheathing board – with a fully filled 140 mm timber frame (mm) <sup>(4)</sup>
0.18	180	60
0.19	180	60
0.25	125	50
0.26	125	50
0.27	100	50
0.28	100	(5)
0.30	100	(5)
0.35	75	(5)

(1) Construction, external to internal, comprises:

102.5 mm brick ( $\lambda = 0.77 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ), 50 mm clear cavity, Rockwool Rainscreen Duo Slab, breather membrane, 9 mm timber OSB (oriented strand board) sheathing board ( $\lambda = 0.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ), 140 mm timber frame (15% fraction), VCL and 15 mm plasterboard ( $\lambda = 0.25 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ).

(2) Calculations based upon cavity wall ties of 4.4 stainless steel fixings per m<sup>2</sup> (6.6 mm<sup>2</sup> cross-sectional area,  $\lambda = 17 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ).

(3) Insulation installed against the timber sheathing board with no insulation in the timber frame.

(4) Insulation installed against the timber sheathing board with 140 mm of insulation in the timber frame ( $\lambda = 0.035 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ) with a 15% timber frame fraction.

(5) Achieves the U Value with no additional insulation.

Table 5 Example U values — steel frame

Steel frame system <sup>(1)(2)</sup>		
U Value (W·m <sup>-2</sup> ·K <sup>-1</sup> )	Insulation thickness installed against the sheathing board – with a clear 90 mm steel frame (mm) <sup>(3)</sup>	Insulation thickness installed against the sheathing board –with a fully filled 90 mm steel frame (mm) <sup>(4)</sup>
0.18	180	125
0.19	180	125
0.25	125	75
0.26	125	60
0.27	100	60
0.28	100	125
0.30	100	100
0.35	75	75

(1) Construction, external to internal, comprises:

102.5 mm brick ( $\lambda = 0.77 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ), 50 mm clear cavity, Rockwool Rainscreen Duo Slab, breather membrane, 9 mm timber OSB (oriented strand board) sheathing board ( $\lambda = 0.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ), 90 mm light-steel-frame system (0.2% fraction), VCL and 15 mm plasterboard ( $\lambda = 0.25 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ).

(2) Calculations based upon cavity wall ties of 4.4 stainless steel fixings per m<sup>2</sup> (6.6 mm<sup>2</sup> cross-sectional area,  $\lambda = 17 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ).

(3) Insulation installed against the timber sheathing board with no insulation in the steel frame.

(4) Insulation installed against the timber sheathing board with 90 mm of insulation in the steel frame ( $\lambda = 0.038 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ) with a 0.2% steel-frame fraction.

## Junctions



6.3 Care must be taken in the overall design and construction of junctions with other elements and openings to minimise thermal bridges and air infiltration. Detailed guidance can be found in the documents supporting the national Building Regulations.

## 7 Condensation risk

### Interstitial condensation



7.1 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.

7.2 The insulation water vapour resistance factor ( $\mu$ ) may be taken as 1.

7.3 If the product is to be used on the external walls of rooms expected to have high humidity, care must be taken to provide adequate permanent ventilation to avoid possible problems from the formation of interstitial condensation in the internal wall leaf.

7.4 A VCL should be used in steel and timber constructions should the condensation risk analysis show this is necessary.

### Surface condensation



7.5 Walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed  $0.7 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$  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.



7.6 Walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed  $1.2 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$  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.

## 8 Behaviour in relation to fire



8.1 The product has an A1 reaction to fire classification to BS EN 13501-1 : 2007. It is non-combustible in accordance with the national Building Regulations and is not subject to any restriction on building height or proximity to boundaries.

8.2 Designers should refer to the relevant national Building Regulations and guidance for detailed conditions of use including the substrate (timber frame and sheathing boards), particularly in respect of requirements for substrate fire performance, cavity closers and barriers, fire stopping of service penetrations and combustibility limitations for other materials and components used in the overall wall construction.

## 9 Proximity of flues and appliances

When the product is installed in close proximity to certain flue pipes and/or heat-producing appliances, the following provisions to the national Building Regulations are applicable:

**England and Wales** — Approved Document J

**Scotland** — Mandatory Standard 3.19, clauses 3.19.1<sup>(1)(2)</sup> to 3.19.4<sup>(1)(2)</sup> and 3.19.8<sup>(1)(2)</sup>

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

**Northern Ireland** — Technical Booklet L.

## 10 Water resistance



10.1 Constructions incorporating the product as insulated sheathing, and built in accordance with the Standards listed in section 4.2, will resist the transfer of precipitation to the inner leaf and satisfy the national Building Regulations.



10.2 In all situations, it is particularly important to ensure during installation that:

- wall ties are installed correctly and are thoroughly clean
- excess mortar is cleaned from the cavity face of the brick leaf and any debris removed from the cavity
- mortar droppings are cleaned from the exposed edges of installed slabs
- insulation slabs are properly installed and butt-jointed
- installation is carried out to the highest level on each wall, or the top edge of the insulation is protected by a cavity tray
- at lintel level, a cavity tray, stop ends and weep holes are provided
- cavity battens and/or boards are used during construction to prevent bridging by mortar droppings
- dpc's at ground level do not project into the cavity as they can form a trap for mortar bridging
- raked or recessed mortar joints are avoided in very severe exposure areas.

## 11 Maintenance

As the product is confined between the wall and the cladding and has suitable durability (see section 12), and provided the integrity of the cladding is maintained throughout the life of the system, maintenance is not required.

## 12 Durability



The product is unaffected by the normal conditions in a wall and is durable, rot proof, water resistant and sufficiently stable to remain effective as insulation for the life of the building.

## 13 Reuse and recyclability

Mineral wool is recyclable and material waste during installation or at end of life can be recycled by the Certificate holder.

## Installation

### 14 General

14.1 Installation of the product should be in accordance with the Certificate holder's instructions and current good building practice.

14.2 The product can be cut using a fine-toothed saw or sharp knife but care must be taken to prevent damage, particularly to edges.

14.3 Cavity barriers should be provided at the junction of the external wall and roof space.

14.4 It is important to ensure a tight fit between slabs. Trimming must be accurate, to achieve close-butted joints and continuity of insulation.

### 15 Procedure

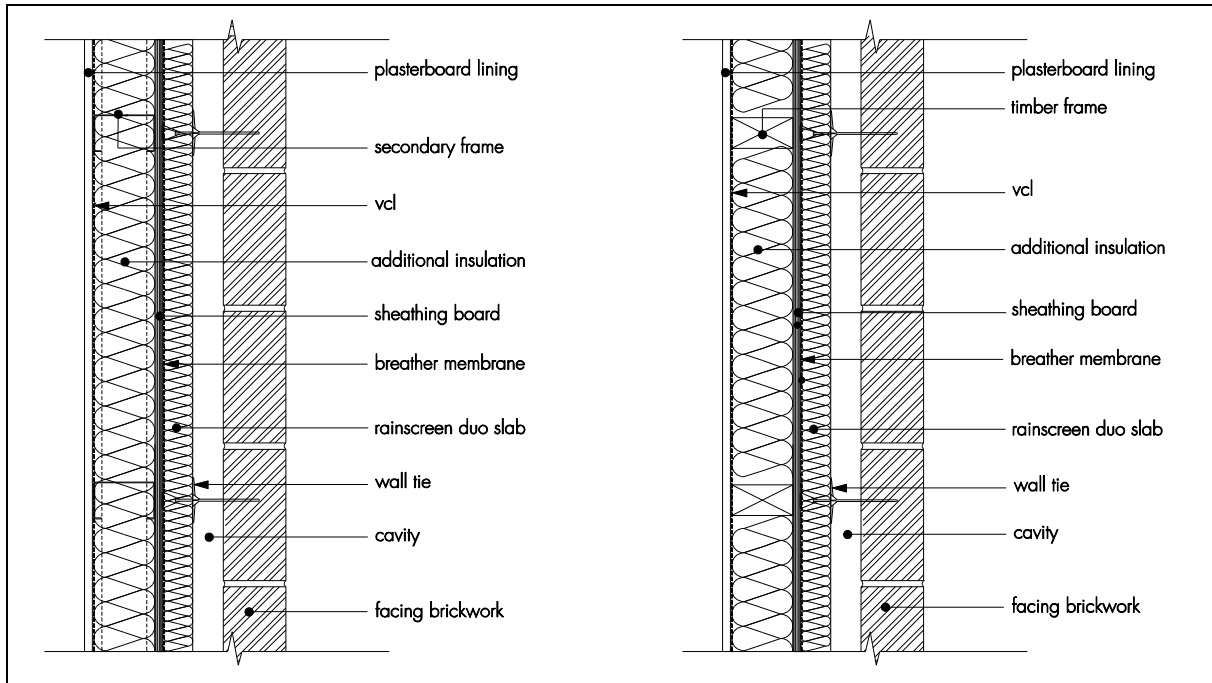
15.1 The product should be applied with the printed patterned side (where appropriate) facing outwards.

15.2 The slabs should be close-butted at all vertical and horizontal joints, and at corners. The horizontal joints of the slabs should be staggered, in accordance with good practice.

15.3 Slabs should be carefully cut to fit around any protrusions into the cavity.

15.4 A VCL is placed between the plasterboard and the timber frame. A breathable membrane is placed between the sheathing board and the product — see Figure 1.

Figure 1 Lightweight steel frame and timber frame application



15.5 The insulation should be installed to coincide with the steel/timber frame, with retaining discs used in conjunction with the wall ties at no more than 600 mm horizontally and 450 mm vertically.

### Mortar droppings

15.6 After each section of the leading leaf is built, excess mortar should be removed from the cavity face and mortar droppings cleaned from exposed edges of the installed board, before installation of the next run of boards. Use of a cavity board or a cavity batten will protect the installed board edges and help to keep the cavity clean as the following leaf is built.

## Technical Investigations

### 16 Tests

Results of tests were assessed to determine:

- reaction to fire
- thermal conductivity
- dimensional stability
- slab dimensions.

### 17 Investigations

17.1 A calculation was undertaken to confirm the thermal conductivity ( $\lambda_D$ ).

17.2 A series of U Value calculations were carried out.

17.3 An assessment of the risk of interstitial condensation was made.

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

## Bibliography

BS 5250 : 2011 + A1 : 2016 *Code of practice for control of condensation in buildings*

BS 5618 : 1985 *Code of practice for thermal insulation of cavity walls (with masonry or concrete inner and outer leaves) by filling with urea-formaldehyde (UF) foam systems*

BS EN 351-1 : 2007 *Durability of wood and wood-based products — Preservative-treated solid wood — Classification of preservative penetration and retention*

BS EN 845 : 2013 *Specification for ancillary components for masonry — Lintels*

BS EN 1995-1-1 : 2004 + A1 : 2014 *Eurocode 5 : Design of timber structures — General — Common rules and rules for buildings*

NA to BS EN 1995-1-1 : 2004 + A1 : 2014 *UK National Annex to Eurocode 5 : Design of timber structures — General — Common rules and rules for buildings*

BS EN 1996-1-1 : 2005 + A1 : 2012 *Eurocode 6 : Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

NA to BS EN 1996-1-1 : 2005 + A1 : 2012 *UK National Annex to Eurocode 6 : Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

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 13914-1 : 2016 *Design, preparation and application of external rendering and internal plastering — External rendering*

BS EN 13162 : 2012 + A1 : 2015 *Thermal insulation products for buildings – Factory made mineral wool (MW) products - specification*

BS EN 13501-1 : 2007 + A1 : 2009 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*

BS EN ISO 6946 : 2007 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*

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

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

### 18 Conditions

#### 18.1 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.

18.2 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.

18.3 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.

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

18.5 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.

18.6 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.

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**Agrément Certificate**  
**17/5402**  
Product Sheet 1

## ROCKWOOL INSULATION SYSTEMS

### RAINSCREEN DUO SLAB FOR USE IN RAINSCREEN CLADDING SYSTEMS

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to Rainscreen Duo Slab<sup>(2)</sup> for use in Rainscreen Cladding Systems, a mineral wool insulation slab for use as thermal insulation on new and existing timber- or steel-frame walls or masonry walls. The product is used in domestic and non-domestic buildings in conjunction with weathertight ventilated cladding systems.

(1) Hereinafter referred to as 'Certificate'.

(2) Rainscreen Duo Slab is a registered trademark.

#### 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 product has a declared thermal conductivity ( $\lambda_D$ ) of 0.034 or 0.035  $W \cdot m^{-1} \cdot K^{-1}$ , depending on the thickness (see section 6).

**Condensation risk** — the product can contribute to limiting the risk of condensation (see section 7).

**Behaviour in relation to fire** — the product is classified as Class A1 in accordance with BS EN 13501-1 : 2007 (see section 8).

**Durability** — the product will have a life equivalent to that of the wall structure in which it is incorporated (see section 13).

The BBA has awarded this Certificate to the company named above for the product described herein. This product 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

Date of First issue: 15 March 2017

John Albon – Head of Approvals  
Construction Products

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](http://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, Rainscreen Duo Slab for use in Rainscreen Cladding Systems, 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)

<b>Requirement:</b>	<b>B3(1)(4)</b>	<b>Internal fire spread (structure)</b>
Comment:		The use of the product is unrestricted by this Requirement. See section 8 of this Certificate.
<b>Requirement:</b>	<b>C2(c)</b>	<b>Resistance to moisture</b>
Comment:		The product can contribute to satisfying this Requirement. See sections 7.1 and 7.5 of this Certificate.
<b>Requirement:</b>	<b>L1(a)(i)</b>	<b>Conservation of fuel and power</b>
Comment:		The product can contribute to satisfying this Requirement. See section 6 of this Certificate.
<b>Regulation:</b>	<b>7</b>	<b>Materials and workmanship</b>
Comment:		The product is acceptable. See section 13 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>26</b>	<b>Co<sub>2</sub> emission rates for new buildings</b>
<b>Regulation:</b>	<b>26A</b>	<b>Fabric energy efficiency rates for new dwellings (applicable to England only)</b>
<b>Regulation:</b>	<b>26A</b>	<b>Primary energy consumption rates for new buildings (applicable to Wales only)</b>
<b>Regulation:</b>	<b>26B</b>	<b>Fabric performance values for new dwellings (applicable to Wales only)</b>
Comment:		The product can contribute to satisfying these Regulations, but compensating fabric and/or services measures may need to be taken. See section 6 of this Certificate.



### The Building (Scotland) Regulations 2004 (as amended)

<b>Regulation:</b>	<b>8(1)</b>	<b>Durability, workmanship and fitness of materials</b>
Comment:		The product is acceptable. See section 13 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>9</b>	<b>Building standards applicable to construction</b>
Standard:	2.4	Cavities
Standard:	2.6	Spread to neighbouring buildings
Comment:		The use of the product is unrestricted by these Standards with reference to clauses 2.4.4 <sup>(1)</sup> , 2.4.6 <sup>(2)</sup> , 2.6.5 <sup>(1)</sup> and 2.6.6 <sup>(2)</sup> . See section 8 of this Certificate.
Standard:	3.15	Condensation
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 3.15.1 <sup>(1)(2)</sup> , 3.15.4 <sup>(1)(2)</sup> and 3.15.5 <sup>(1)(2)</sup> . See sections 7.1 and 7.6 of this Certificate.
Standard:	6.1(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The product can contribute to satisfying clauses, or parts of, 6.1.1 <sup>(1)</sup> , 6.1.3 <sup>(2)</sup> , 6.1.5 <sup>(2)</sup> , 6.1.6 <sup>(1)</sup> , 6.2.1 <sup>(1)</sup> , 6.2.3 <sup>(1)</sup> , 6.2.4 <sup>(1)</sup> , 6.2.5 <sup>(1)(2)</sup> and 6.2.10 <sup>(2)</sup> of these Standards. See section 6 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The product 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 product can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with

<b>Regulation:</b>	<b>12</b>	reference to clauses 7.1.4 <sup>(1)(2)</sup> [Aspects 1 <sup>(1)(2)</sup> and 2 <sup>(1)</sup> ], 7.1.6 <sup>(1)(2)</sup> [Aspects 1 <sup>(1)(2)</sup> and 2 <sup>(1)</sup> ] and 7.1.7 <sup>(1)(2)</sup> [Aspect 1 <sup>(1)(2)</sup> ]. See section 6.1 of this Certificate.
<b>Comment:</b>		<b>Building standards applicable to conversions</b> Comments made in relation to the product under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 <sup>(1)(2)</sup> and Schedule 6 <sup>(1)(2)</sup> .
		(1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



## The Building Regulations (Northern Ireland) 2012 (as amended)

<b>Regulation:</b>	<b>23</b>	<b>Fitness of materials and workmanship</b>
<b>Comment:</b>		The product is acceptable. See section 13 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>29</b>	<b>Condensation</b>
<b>Comment:</b>		The product can contribute to satisfying this Regulation. See section 7.1 of this Certificate.
<b>Regulation:</b>	<b>35(1)(4)</b>	<b>Internal fire spread - structure</b>
<b>Comment:</b>		The use of the product is unrestricted by this Regulation. See section 8 of this Certificate.
<b>Regulation:</b>	<b>39(a)(i)</b>	<b>Conservation measures</b>
<b>Regulation:</b>	<b>40(2)</b>	<b>Target carbon dioxide emission rate</b>
<b>Comment:</b>		The product is acceptable. See section 6 of this Certificate.

## Construction (Design and Management) Regulations 2015

## Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See section: 3 *Delivery and site handling* (3.3) of this Certificate.

## Additional Information

### NHBC Standards 2017

NHBC accepts the use of Rainscreen Duo Slab for use in Rainscreen Cladding Systems, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapters 6.2 *External timber framed walls*, 6.9 *Curtain walling and cladding* and 6.10 *Light steel framed walls and floors*. Current NHBC guidance precludes the use of façade systems not utilising a drained cavity.

### CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard BS EN 13162 : 2012. An asterisk (\*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

## Technical Specification

### 1 Description

1.1 Rainscreen Duo Slab for use in Rainscreen Cladding Systems is a mineral wool insulation slab with the option of glass tissue facers on one or both faces. The slabs have the nominal characteristics shown in Table 1.

**Table 1 Nominal Characteristics**

Length (mm)	1200
Width (mm)	600
Thickness (mm) <sup>(1)</sup>	50, 60, 75, 100, 125, 150, 180
Edge profile	Square

(1) Other slab thicknesses up to 230 mm are available on request.

1.2 The slabs are fixed against the external face of the sheathing board/studs or against the external face of masonry substrates, in conjunction with masonry cladding or weathertight rainscreen cladding<sup>(1)</sup>, maintaining a cavity to ensure drainage.

(1) Rainscreen cladding systems are proprietary and utilise various mechanisms for attaching cladding panels to the wall structure. Site work guidance should be sought from the system manufacturers.

1.3 Weather resistance is provided by an external cladding system (outside the scope of this Certificate).

1.4 Ancillary items for use with the product, but outside the scope of this Certificate, are:

- rainscreen cladding and insulation fasteners/fixings
- sheathing and lining board
- breather membranes.

## 2 Manufacture

2.1 The insulation is manufactured from molten stone in a controlled way. The length of fibres and degree of granulation are subject to regular quality control checks by the manufacturer.

2.2 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.

2.3 The management systems of ROCKWOOL Ltd have been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by BSI (Certificate FM 02262).

## 3 Delivery and site handling

3.1 Slabs are delivered to site compression-wrapped in polythene. Each pack carries a label bearing the manufacturer's name, product description and the BBA logo incorporating the number of this Certificate.

3.2 Packs should be stored under cover until required for use.

3.3 It is recommended that dust masks, gloves and long sleeved clothing are worn during cutting and handling of the product.

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Rainscreen Duo Slab for use in Rainscreen Cladding Systems.



### 4 Use

4.1 Rainscreen Duo Slab for use in Rainscreen Cladding Systems is effective in reducing the U value (thermal transmittance) of external walls of timber-frame, steel-frame or masonry buildings. It is essential that such walls are designed and constructed to incorporate the normal precautions against moisture ingress, including the use of a breather membrane over the timber sheathing in framing board applications.

4.2 Certain rainscreen systems, such as those with open joints, may require the addition of a breather membrane incorporated into their system. The requirement of a membrane is determined by the system designer and is outside the scope of this Certificate.

4.3 Care must also be taken in the overall design and construction of elements incorporating the product to ensure appropriate:

- sheathing or bracing for frame elements. The product must not be relied on to provide any structural contribution, eg racking strength
- fire resistance, for both elements and junctions
- continuity of insulation to minimise thermal bridging
- resistance to the ingress of precipitation and moisture from the ground.

4.4 The wall and sub-frame should be structurally sound, and should have been designed and constructed in accordance with the following Standards and, where appropriate, their UK National Annexes:

- BS 8000-3 : 2001
- BS EN 351-1 : 2007
- BS EN 1993-1-3 : 2006
- BS EN 1995-1-1 : 2004
- BS EN 1996-1-1 : 2005
- BS EN 1996-1-2 : 2005
- BS EN 1996-2 : 2006
- BS EN 1996-3 : 2006.

4.5 The designer should select a construction appropriate to the local wind-driven rain index to BS EN 1996-2 : 2006 and its UK National Annex, paying due regard to the design detailing, workmanship and materials to be used.

4.6 The air gap between the face of the insulation and the back of the rainscreen panels should be of sufficient width to allow any water passing the joints to run down the back of the rainscreen panels and be discharged externally without wetting the insulation or the backing wall. The minimum width for air gaps required by NHBC is:

- 50 mm for panels with open joints
- 38 mm for panels with baffled or labyrinth (rebated) joints.

4.7 The construction should be made weathertight as soon as is practically possible to ensure maximum protection of the product.

### 5 Practicability of installation

The product is designed to be installed by a competent general builder, or a contractor, experienced with this type of product.

## 6 Thermal performance



6.1 Calculations of the thermal transmittance (U value) should be carried out in accordance with BS EN ISO 6946 : 2007 and BRE Report BR 443 : 2006, using the thermal conductivities\* ( $\lambda_D$ ) of the product shown in Table 2.

*Table 2 Declared thermal conductivity value*

Insulation thickness (mm)	Thermal conductivity* ( $W \cdot m^{-1} \cdot K^{-1}$ )
50 to 90	0.034
90 to 230	0.035

6.2 The U value of a completed wall construction will depend on the insulation thickness, number and type of fixings, the insulating value of the substrate and its internal finish. Calculated U values for example constructions are given in Tables 3, 4 and 5.

*Table 3 Example U values — timber frame*

Timber frame rainscreen system <sup>(1)(2)</sup>		
U Value ( $W \cdot m^{-2} \cdot K^{-1}$ )	Insulation thickness installed against the sheathing board – no insulation in the 140 mm timber frame (mm) <sup>(3)</sup>	Insulation thickness installed against the sheathing board – fully-filled with insulation in the 140 mm timber frame (mm) <sup>(4)</sup>
0.18	— <sup>(5)</sup>	— <sup>(5)</sup>
0.19	— <sup>(5)</sup>	— <sup>(5)</sup>
0.25	230	125
0.26	230	100
0.27	230	100
0.28	180	75
0.30	180	50
0.35	125	50

(1) Construction, external to internal:

10 mm rainscreen cladding, open fully-ventilated 50 mm clear cavity, Rockwool Rainscreen Duo Slab, breather membrane, 9 mm timber OSB (oriented strand board) sheathing board ( $\lambda = 0.13 W \cdot m^{-1} \cdot K^{-1}$ ), 140 mm timber frame ( $\lambda = 0.13 W \cdot m^{-1} \cdot K^{-1}$ ) (15% fraction), VCL and 15 mm plasterboard ( $\lambda = 0.25 W \cdot m^{-1} \cdot K^{-1}$ ).

(2) A fixing correction factor ( $\Delta U_f$ ) of  $0.1 W \cdot m^{-1} \cdot K^{-1}$  has been applied, to allow for the thermal bridging of the rainscreen brackets.

(3) Insulation installed against the timber sheathing board with no insulation in the timber frame.

(4) Insulation installed against the timber sheathing board with 140 mm of insulation in the timber frame ( $\lambda = 0.035 W \cdot m^{-1} \cdot K^{-1}$ ) with a 15% timber frame fraction.

(5) Additional insulation required.

Table 4 Example U values — steel frame

Steel frame rainscreen system <sup>(1)(2)</sup>		
U Value (W·m <sup>-2</sup> ·K <sup>-1</sup> )	Insulation thickness installed against the sheathing board – no insulation in the 90 mm steel-frame system (mm) <sup>(3)</sup>	Insulation thickness installed against the sheathing board – fully-filled with insulation in the 90 mm steel-frame system (mm) <sup>(4)</sup>
0.18	— <sup>(5)</sup>	— <sup>(5)</sup>
0.19	— <sup>(5)</sup>	— <sup>(5)</sup>
0.25	230	150
0.26	230	150
0.27	230	125
0.28	180	125
0.30	180	100
0.35	125	75

(1) Construction, external to internal:

10 mm rainscreen cladding, open fully-ventilated 50 mm clear cavity, Rockwool Rainscreen Duo Slab, breather membrane, 9 mm timber OSB (oriented strand board) sheathing board ( $\lambda = 0.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ), 90 mm light steel frame system (0.2% fraction), VCL and 15 mm plasterboard ( $\lambda = 0.25 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ).

(2) A fixing correction factor ( $\Delta U_f$ ) of  $0.1 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$  has been applied, to allow for the thermal bridging of the rainscreen brackets.

(3) Insulation installed against the timber sheathing board with no insulation in the steel frame.

(4) Insulation installed against the timber sheathing board with 90 mm of insulation in the steel frame ( $\lambda = 0.038 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ) with a 0.2% steel frame fraction.

(5) Additional insulation required.

Table 5 Example U Values — solid concrete

Solid concrete rainscreen system <sup>(1)(2)</sup>	
U Value (W·m <sup>-2</sup> ·K <sup>-1</sup> )	Insulation thickness installed against the reinforced concrete panel (mm)
0.18	— <sup>(3)</sup>
0.19	— <sup>(3)</sup>
0.25	230
0.26	230
0.27	230
0.28	180
0.30	180
0.35	125

(1) Construction, external to internal:

10 mm rainscreen cladding, open fully-ventilated 50 mm clear cavity, Rockwool Rainscreen Duo Slab, 150 mm reinforced concrete (1% steel), 15 mm dot and dab adhesive cavity (20% adhesive bridge) and 15 mm plasterboard ( $\lambda = 0.25 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ).

(2) A fixing correction factor ( $\Delta U_f$ ) of  $0.1 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$  has been applied, to allow for the thermal bridging of the rainscreen brackets.

(3) Additional insulation required.

## Junctions



6.3 Care must be taken in the overall design and construction of junctions with other elements and openings to minimise thermal bridges and air infiltration. Detailed guidance can be found in the documents supporting the national Building Regulations.

## 7 Condensation risk

### Interstitial condensation



7.1 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.

7.2 The insulation water vapour resistance factor ( $\mu$ ) may be taken as 1.

7.3 If the product is to be used on the external walls of rooms expected to have high humidity, care must be taken to provide adequate permanent ventilation to avoid possible problems from the formation of interstitial condensation in the internal wall leaf.

7.4 A vapour control layer (VCL) should be used in steel and timber constructions should the condensation risk analysis show this is necessary.

### Surface condensation



7.5 Walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed  $0.7 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$  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.



7.6 Walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed  $1.2 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$  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.

## 8 Behaviour in relation to fire



The fire classification\* of the product is Class A1 in accordance with BS EN 13501-1 : 2007. It is therefore non-combustible and so its use is unrestricted by the requirements of the national Building Regulations.

## 9 Strength and stability

9.1 Although the product will not be exposed to wind, it will experience substrate movement and therefore each installation should be designed to withstand, without damage or permanent deformation, the pressures imposed by wind forces.

9.2 The wall and sub-frame to which the product is fixed, or which it is installed between, should be structurally sound and constructed in accordance with section 4.3 of this Certificate. However, when designing the wall for strength, stability and racking, no contribution from the insulation should be assumed.

9.3 Wind loads should be calculated in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex. The higher pressure coefficients applicable to corners of buildings should be used.

9.4 The adequacy of fixing to the structural frame or substrate for specific installations is outside the scope of this Certificate and must be verified by a suitably experienced and qualified individual. Particular care is required around window and door openings to ensure that the structure is capable of sustaining the additional weight of reveal/frame details.

9.5 The cladding must be fixed to the frame or masonry substrate and designed by a suitably qualified and experienced individual in accordance with relevant Standards and Requirements.

## 10 Resistance to moisture

10.1 External masonry walls should be in good condition and must resist the ingress of rain when the construction is in accordance with the relevant Standards given in section 4.4 of this Certificate.

10.2 Care must be taken to ensure that the types of façades and wall finishes, and the design and detailing around openings, are appropriate for the anticipated exposure conditions and, if appropriate, resist the movement of the frame.

10.3 The product should be kept dry before the cladding is applied.

10.4 To resist the passage of moisture from the ground, adequate damp-proof courses and membranes must be provided in accordance with conventional good practice. The boards must not be used in situations where they bridge the damp-proof course in walls.

## 11 Proximity of flues and appliances

When the product is installed in close proximity to certain flue pipes and/or heat-producing appliances, the following provisions to the national Building Regulations are applicable:

**England and Wales** — Approved Document J

**Scotland** — Mandatory Standard 3.19, clauses 3.19.1<sup>(1)(2)</sup> to 3.19.4<sup>(1)(2)</sup> and 3.19.8<sup>(1)(2)</sup>

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

**Northern Ireland** — Technical Booklet L.

## 12 Maintenance

As the product is confined between the wall and the cladding and has suitable durability (see section 13), and provided the integrity of the cladding is maintained throughout the life of the system, maintenance is not required.

## 13 Durability



The product is unaffected by the normal conditions in a wall and is durable, rot proof, water resistant and sufficiently stable to remain effective as insulation for the life of the building.

## 14 Reuse and recyclability

Mineral wool is recyclable and material waste during installation or at end of life can be recycled by the Certificate holder.

## Installation

### 15 General

15.1 Installation of the product should be in accordance with the Certificate holder's instructions and current good building practice.

15.2 The product can be cut using a fine-toothed saw or sharp knife but care must be taken to prevent damage, particularly to edges.

15.3 Cavity barriers should be provided at the junction of the external wall and roof space.

15.4 It is important to ensure a tight fit between slabs. Trimming must be accurate, to achieve close-butted joints and continuity of insulation.

## 16 Procedure

16.1 The product should be applied with the printed patterned side (where appropriate) facing outwards.

16.2 Slabs should be close-butted at all vertical and horizontal joints. The horizontal joints of the insulation should be staggered in accordance with good practice.

16.3 Fixings should have a minimum head diameter of 70 mm. A typical fixing pattern has three fixings per square metre with one metal fixing at the centre of every slab (see section 9.4 of this Certificate).

16.4 The product should be cut and tightly fitted around wall brackets where these occur.

16.5 For a typical installation, a breathable membrane is placed between the sheathing board and the product (see Figures 1 and 2). A VCL is placed between the plasterboard and the frame (see Figures 1 to 3).

*Figure 1 Timber Frame substrate*

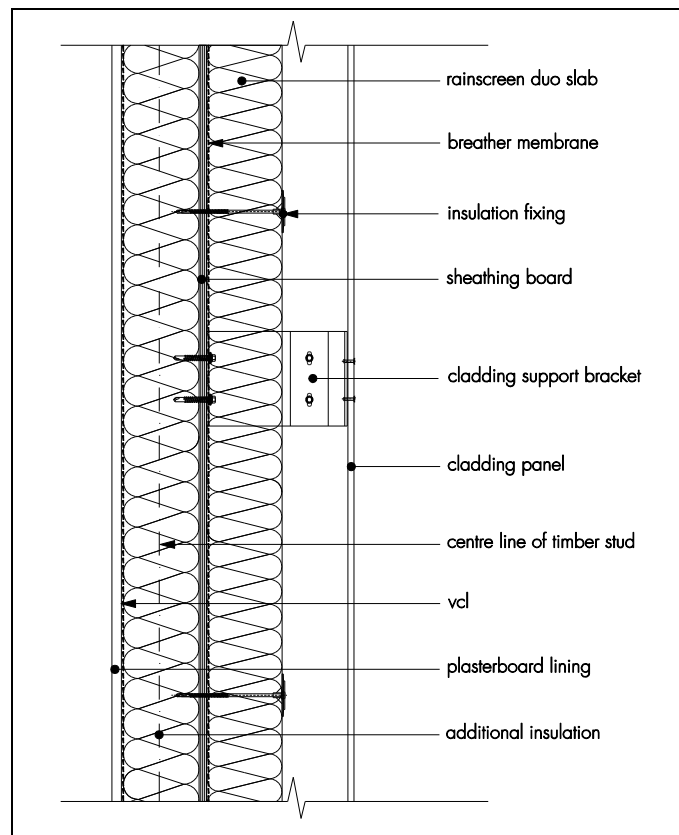


Figure 2 Lightweight steel frame substrate

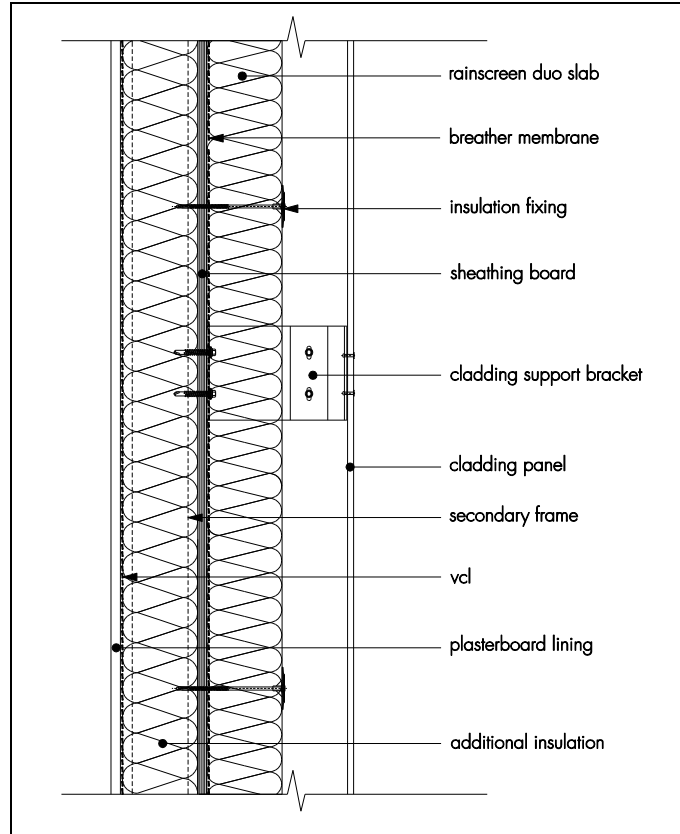
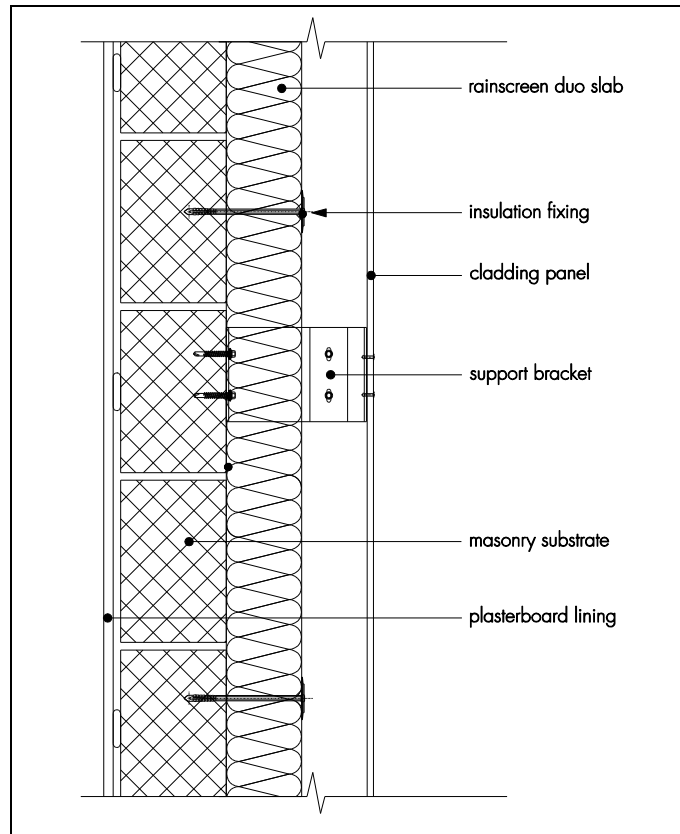


Figure 3 Masonry substrate



### 17 Tests

Results of tests were assessed to determine:

- reaction to fire
- thermal conductivity
- dimensional stability
- slab dimensions.

### 18 Investigations

18.1 A calculation was undertaken to confirm the thermal conductivity ( $\lambda_D$ ).

18.2 A series of U Value calculations were carried out.

18.3 An assessment of the risk of interstitial condensation was made.

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



## Bibliography

- BS 5250 : 2011 + A1 : 2016 *Code of practice for control of condensation in buildings inner and outer leaves*
- BS 8000-3 : 2001 *Workmanship on building sites — Code of practice for masonry*
- BS EN 351-1 : 2007 *Durability of wood and wood-based products — Preservative-treated solid wood — Classification of preservative penetration and retention*
- BS EN 1991-1-4 : 2005 + A1 : 2010 *Eurocode 1: Actions on structures — General actions — Wind actions*  
NA to BS EN 1991-1-4 : 2005 + A1 : 2010 *UK National Annex to Eurocode 1: Actions on structures — General actions — Wind actions*
- BS EN 1993-1-3 : 2006 *Eurocode 3: Design of steel structures — General rules — Supplementary rules for coldformed members and sheeting*
- BS EN 1995-1-1 : 2004 + A2 : 2014 *Eurocode 5: Design of timber structures — General — Common rules and rules for buildings*
- BS EN 1996-1-1 : 2005 + A1 : 2012 *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*  
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*
- BS EN 13162 : 2012 + A1 : 2015 *Thermal insulation products for buildings – Factory made mineral wool (MW) products - specification*
- BS EN 13501-1 : 2007 + A1 : 2009 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*
- BS EN ISO 6946 : 2007 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*
- BS EN ISO 9001 : 2008 *Quality management systems — Requirements*
- BRE Report BR 262 : 2002 *Thermal insulation: avoiding risks*
- BRE Report BR 443 : 2006 *Conventions for U-value calculations*

### 19 Conditions

#### 19.1 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 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.

19.2 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.

19.3 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.

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

19.5 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.

19.6 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.