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Appendix E – External Insulation (Rainscreen Duo Slab)

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BBA APPROVAL INSPECTION TESTING CERTIFICATION
TECHNICAL APPROVALS FOR CONSTRUCTION

Agrément Certificate
17/5402
Product Sheet 1

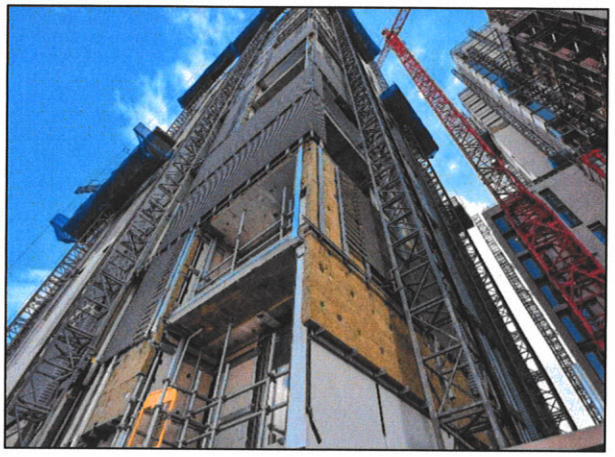
ROCKWOOL INSULATION SYSTEMS

RAINSCREEN DUO SLAB FOR USE IN RAINSCREEN CLADDING SYSTEMS

This Agrément Certificate Product Sheet(1) relates to Rainscreen Duo Slab(2) 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 (λ_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

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)

Requirement:	**B3(1)(4**	**Internal fire spread (structure)**
Comment:		The use of the product is unrestricted by this Requirement. See section 8 of this Certificate.
Requirement:	**C2(c)**	**Resistance to moisture**
Comment:		The product can contribute to satisfying this Requirement. See sections 7.1 and 7.5 of this Certificate.
Requirement:	**L1(a)(i)**	**Conservation of fuel and power**
Comment:		The product can contribute to satisfying this Requirement. See section 6 of this Certificate.
Regulation:	**7**	**Materials and workmanship**
Comment:		The product is acceptable. See section 13 and the *Installation* part of this Certificate.
Regulation:	**26**	**Co_2 emission rates for new buildings**
Regulation:	**26A**	**Fabric energy efficiency rates for new dwellings (applicable to England only)**
Regulation:	**26A**	**Primary energy consumption rates for new buildings (applicable to Wales only)**
Regulation:	**26B**	**Fabric performance values for new dwellings (applicable to Wales only)**
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)

Regulation:	**8(1)**	**Durability, workmanship and fitness of materials**
Comment:		The product is acceptable. See section 13 and the *Installation* part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
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(1), 2.4.6(2), 2.6.5(1) and 2.6.6(2). 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(1)(2), 3.15.4(1)(2) and 3.15.5(1)(2). 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(1), 6.1.3(2), 6.1.5(2), 6.1.6(1), 6.2.1(1), 6.2.3(1), 6.2.4(1), 6.2.5(1)(2) and 6.2.10(2) 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[(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 section 6.1 of this Certificate.
Regulation:	**12**	**Building standards applicable to conversions**
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[(1)(2)] and Schedule 6[(1)(2)].
		(1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).

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

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

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)(1)	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(1), 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* (λ_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[1][2]		
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)[3]**	**Insulation thickness installed against the sheathing board – fully-filled with insulation in the 140 mm timber frame (mm)[4]**
0.18	—[5]	—[5]
0.19	—[5]	—[5]
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 (λ = 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 (λ = 0.25 $W \cdot m^{-1} \cdot K^{-1}$).

(2) A fixing correction factor (ΔUf) 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 (λ = 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[1][2]		
U Value ($W \cdot m^{-2} \cdot K^{-1}$)	**Insulation thickness installed against the sheathing board – no insulation in the 90 mm steel-frame system (mm)[3]**	**Insulation thickness installed against the sheathing board – fully-filled with insulation in the 90 mm steel-frame system (mm)[4]**
0.18	—[5]	—[5]
0.19	—[5]	—[5]
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 ($\lambda = 0.13\ W \cdot m^{-1} \cdot K^{-1}$), 90 mm light steel frame system (0.2% fraction), VCL and 15 mm plasterboard ($\lambda = 0.25\ W \cdot m^{-1} \cdot K^{-1}$).
(2) A fixing correction factor (ΔUf) 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 steel frame.
(4) Insulation installed against the timber sheathing board with 90 mm of insulation in the steel frame ($\lambda = 0.038\ W \cdot m^{-1} \cdot K^{-1}$) with a 0.2% steel frame fraction.
(5) Additional insulation required.

Table 5 Example U Values — solid concrete

Solid concrete rainscreen system[1][2]	
U Value ($W \cdot m^{-2} \cdot K^{-1}$)	**Insulation thickness installed against the reinforced concrete panel (mm)**
0.18	—[3]
0.19	—[3]
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 ($\lambda = 0.25\ W \cdot m^{-1} \cdot K^{-1}$).
(2) A fixing correction factor (ΔUf) of $0.1\ W \cdot m^{-1} \cdot K^{-1}$ 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 (μ) may be taken as 1.

7.3 If the product is 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 $W \cdot m^{-2} \cdot K^{-1}$ at any point, and the junctions with other elements are designed in accordance with the guidance referred 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 $W \cdot m^{-2} \cdot K^{-1}$ 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.

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[(1)(2)] to 3.19.4[(1)(2)] and 3.19.8[(1)(2)]

(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

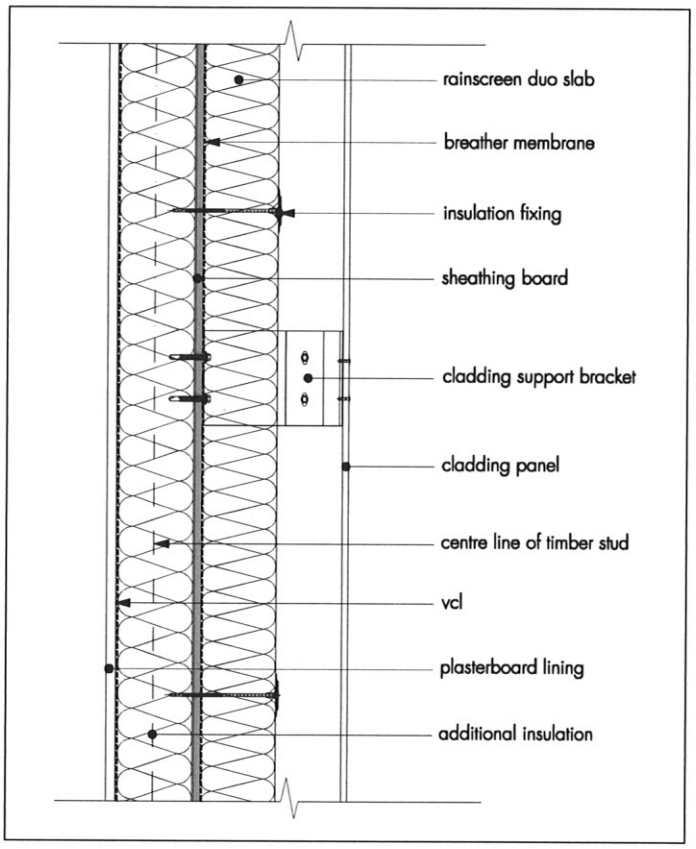


Figure 2 Lightweight steel frame substrate

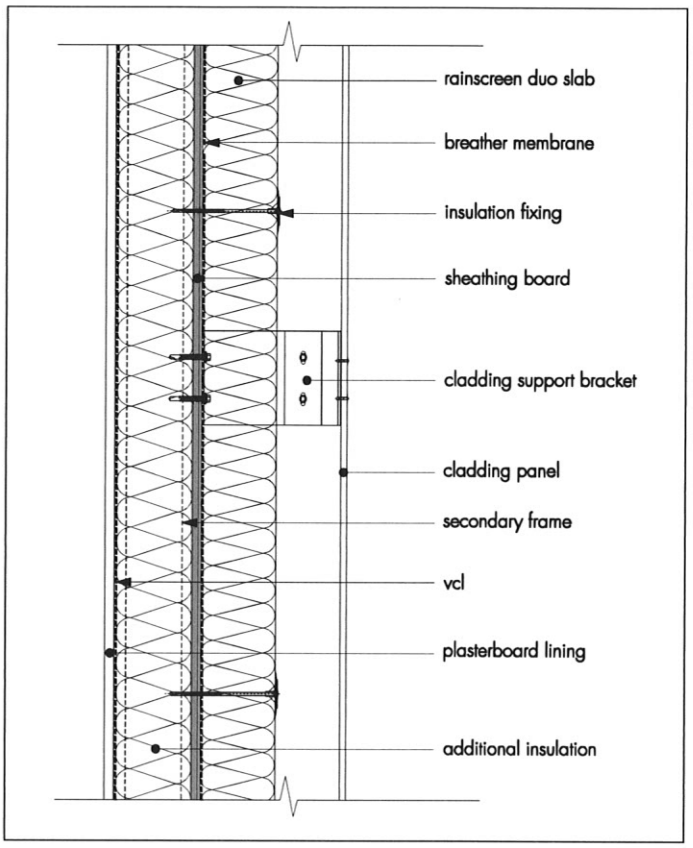
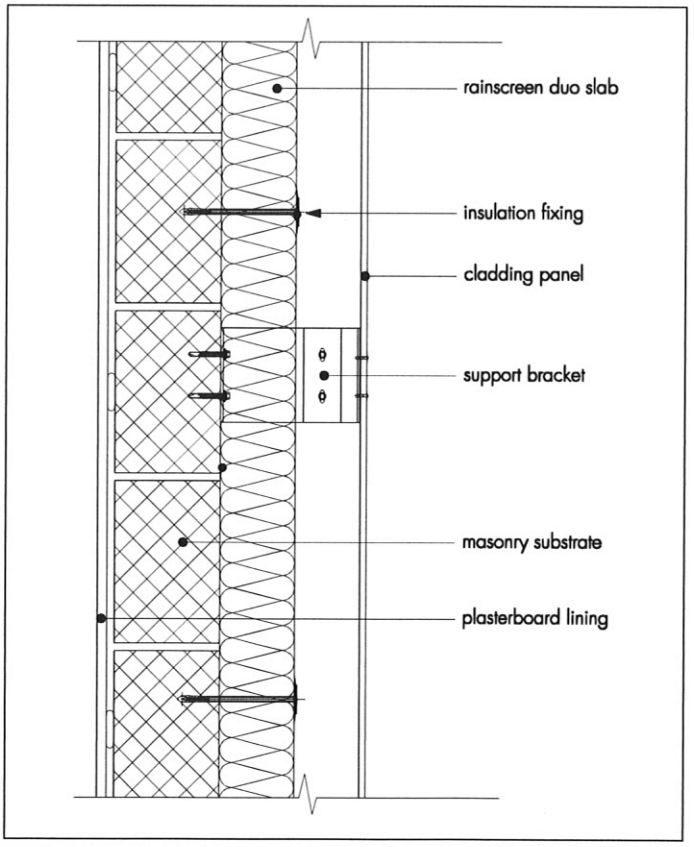


Figure 3 Masonry substrate



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 (λ_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.

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RAINSCREEN DUO SLAB®

Non-combustible insulation for ventilated façades

ROCKWOOL®

RAINSCREEN DUO SLAB®

Effective non-combustible thermal and acoustic insulation for ventilated façades

RAINSCREEN DUO SLAB is a dual-density insulation specifically developed for use within ventilated cladding systems, as well as sealed systems such as curtain walling. Once installed, the robust outer surface of the slabs, in combination with a factory-applied water repelling agent, acts to resist rain ingress during construction.

Advantages

- Designed for use on high rise buildings
- Water-repellent: Fibres impregnated with a water-repelling agent during manufacture
- Fewer fixings required for installation compared to standard stone wool slabs
- Robust front face resists damage and over-driving of fixings

Description

RAINSCREEN DUO SLAB is a dual-density insulation, meaning that the outer layer of each slab is manufactured to a higher density than the remainder of the product. This results in a robust outer surface designed to withstand the rigours imposed on site, and a resilient inner face designed to accommodate any irregularities in the substrate.

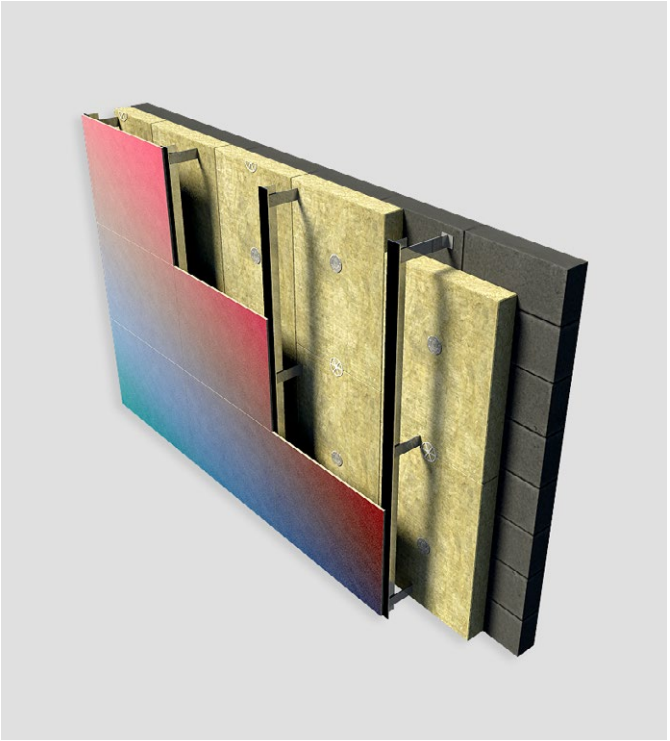
A water-repelling agent is added to the product during manufacture, which in combination with a robust outer surface and random fibre orientation, prevents water transmission through the insulation layer. As such the slab is well-designed for use in conditions of severe climatic exposure.

The product can be easily fitted around brackets and other awkward details, and when tightly butt jointed the fibres of adjacent slabs will knit together to provide a continuous thermal performance – eliminating heat losses that could otherwise be caused by gaps and joints.

Its unique dual-density construction also means that RAINSCREEN DUO SLAB requires fewer fixings, making it a cost-effective solution that is quick to install.

Applications

RAINSCREEN DUO SLAB is designed for use within ventilated cladding systems, as well as sealed systems such as curtain walling.



Performance

Fire
Rated Euroclass A1 when assessed to EN 13501-1 using test data from reaction-to-fire tests.

Wind resistance
RAINSCREEN DUO SLAB fixed as indicated in Figure 1 has successfully undergone wind resistance testing by the Building Research Establishment.

Wind loading fatigue tests were used to simulate the performance of the slabs when fully exposed and subjected to fluctuating wind loads during the construction stages of buildings. The tests simulated and exceeded the maximum UK basic wind speed of 56 m/s as defined by BS CP3: Chapter 5: Part 2: 1972. Test report reference BRE GI2801.

Water resistance
ROCKWOOL stone wool repels liquid water due to its fibre orientation and the presence of water-repellent additives.

Acoustic performance
The airborne sound reduction of several typical rainscreen build-ups incorporating RAINSCREEN DUO SLAB was tested at the Sound Research Laboratories (SRL), with results of up to Rw 62 dB. For more information, please see the 'Acoustic Performance of Rainscreen Façade Systems' brochure available on our website.

Condensation control
The vapour resistivity of ROCKWOOL mineral wool is 5.9MNs/gm. The slabs therefore reduce the risk of condensation, allowing natural drying-out of the structure. See typical relative humidity / temperature graph below.

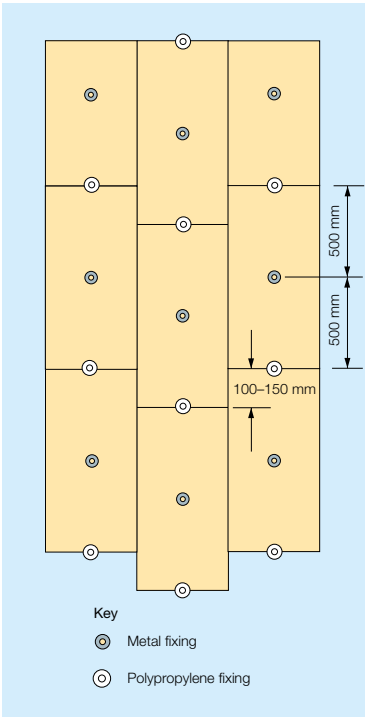
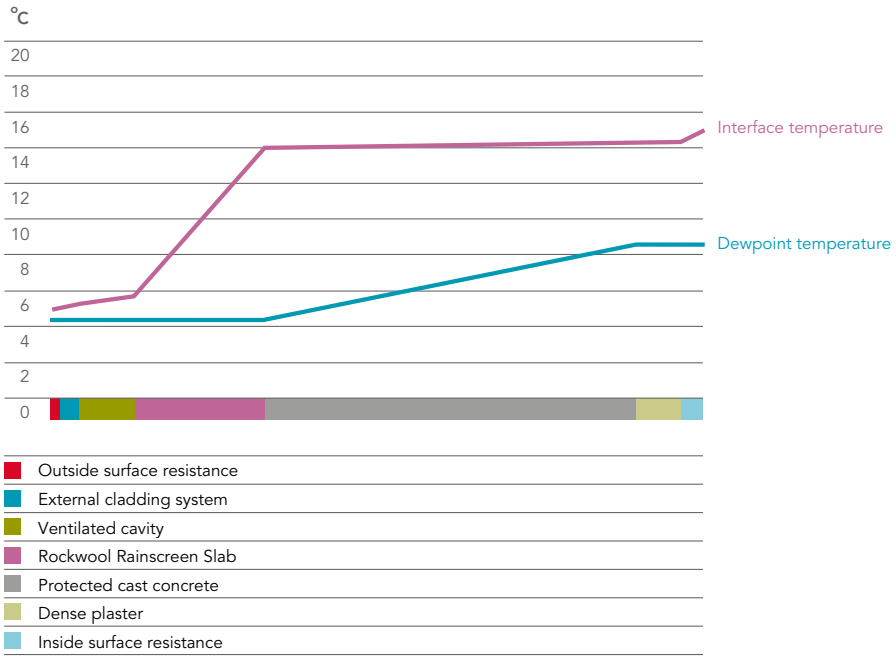


Figure 1
Typical fixing pattern with 3 fixings per square metre



Technical information

Standards and approvals

RAINSCREEN DUO SLAB has been examined by the British Board of Agrémént (BBA) and granted Certificate 17/5402 for use in Ventilated Rainscreen Cladding Systems on both domestic and non-domestic buildings.

RAINSCREEN DUO SLAB satisfies the requirements of BS EN 13162 – "Thermal insulation products for buildings. Factory made mineral wool (MW) products".

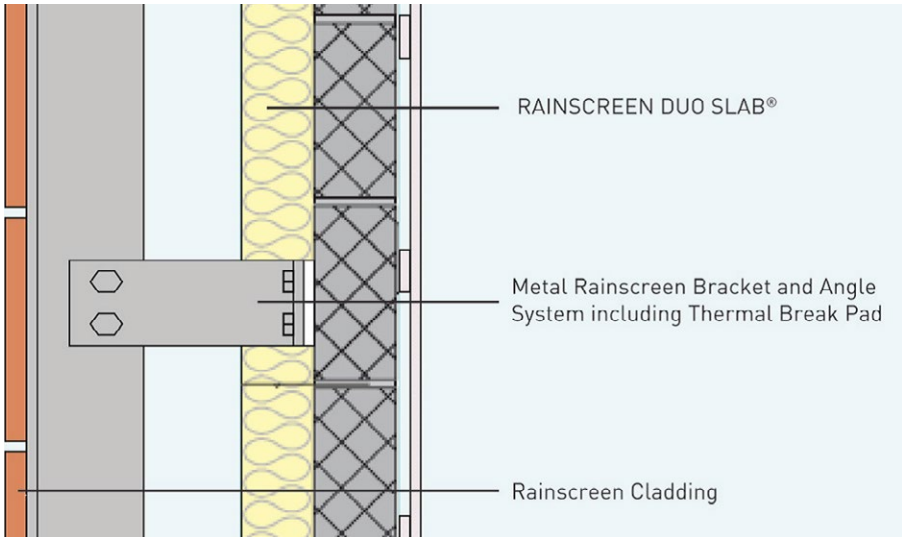
Dimensions

Length (mm)	Width (mm)	Standard thicknesses (mm)
1200	600	50 / 60 / 75 / 100 / 110 / 125 / 150 / 180 / 190 / 200

U-values

Construction 1
RAINSCREEN DUO SLAB® between Metal Bracket System on 150mm Reinforced Concrete or dense block wall. Internal finishes: (a) plaster (b) plasterboard on dabs

Internal finish Thickness (mm)	a U-Values W/m²K	b U-Values W/m²K
125	0.35	0.34
150	0.32	0.31
175	0.28	0.28
200	0.26	0.26
275	0.22	0.22
325	0.20	0.20

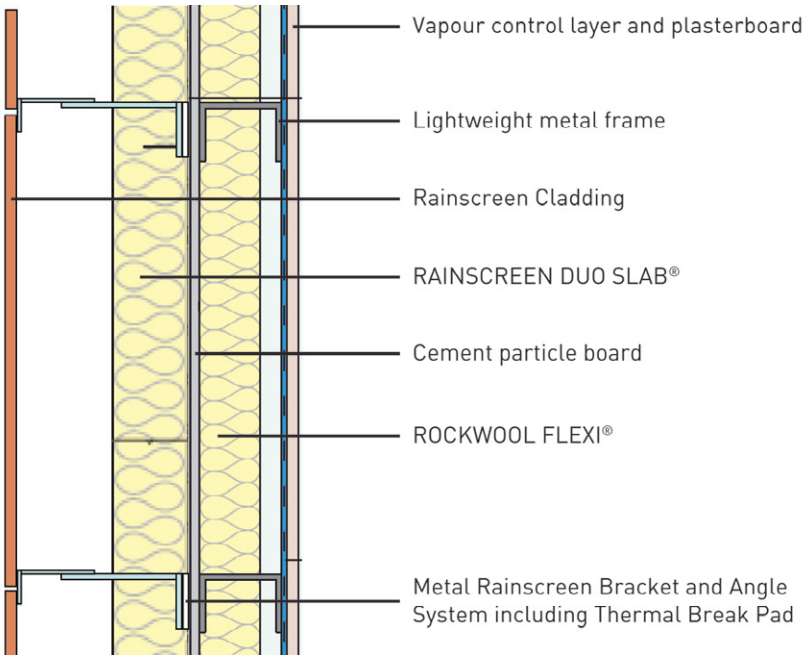


Notes

- Tables based on pointloss scenarios where only the rainscreen brackets bridge the thermal insulation layer.
- A thermal bridging allowance of 0.1W/m²K has been added to the wall U-value (e.g. a calculated U-value of 0.25 will be increased to 0.35W/(m²K) to allow for predicted bridging). (Based on data supplied by the BRE using a 5mm thick thermal break pad and brackets at 600mm x 600mm fixing matrix).

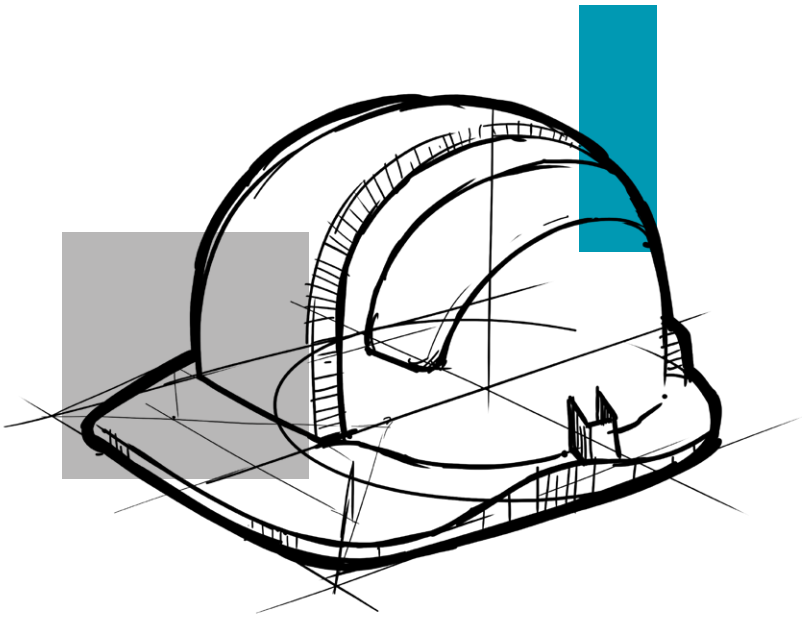
Construction 2
RAINSCREEN DUO SLAB® on 150mm deep metal studs at 600mm centres with 140mm ROCKWOOL FLEXI installed within the frame.

Thickness (mm)	ROCKWOOL FLEXI® thickness (mm)	U-Values W/m²K
75	140	0.25
100	140	0.22
125	140	0.20
150	140	0.18
180	140	0.17



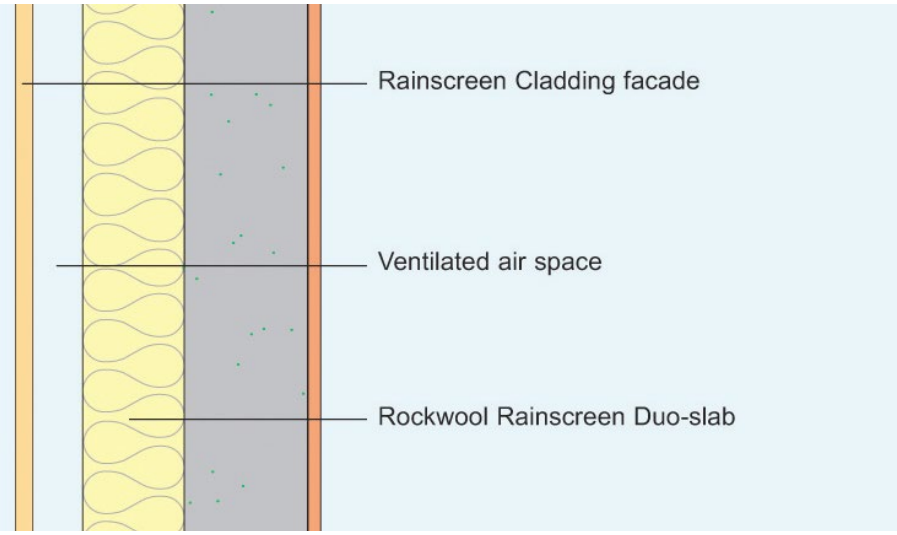
Notes

- U-values shown have been calculated with a thermal bridging allowance which has been determined using a 3-Dimensional analysis in accordance with BR443. The systems modelled included 8mm ROCKPANEL Rockclad and FastFrame rainscreen Brackets



Construction 3
RAINSCREEN DUO SLAB® between timber rails on 150mm Dense Concrete or dense block wall. Internal finishes: (a) plaster-Lambda 0.180W/mk (b) Plasterboard on dabs

Internal finish Thickness (mm)	a U-Values W/m²K	b U-Values W/m²K
100	0.35	0.34
125	0.29	0.28
140	0.26	0.26
150	0.25	0.24
200	0.19	0.19
225	0.17	0.17



Typical specification

The rainscreen insulation is to be RAINSCREEN DUO SLAB® ..... mm thickness, as manufactured by ROCKWOOL Limited, Pencoed, Bridgend cf 35 6ny, secured to the substrate with metal and polypropylene fixings in accordance with RAINSCREEN DUO SLAB® Data sheet.

Horizontal joints should be staggered and all joints tight butted.

The Slabs should be fixed with the robust (patterned) surface facing outwards.

Installation

Work on site

RAINSCREEN DUO SLAB® are light and easy to cut to any shape with a sharp knife. They are shrink wrapped in polyethene and supplied on pallets that are shrouded with a waterproof hood suitable for outside storage. Once installed, due to their robust outer facing surface, the slabs can be left unprotected for an extended period of time prior to fixing the rainscreen cladding.

Workability

Light and easy to handle, the slabs are easy to cut to shape or size with a sharp knife, to suit the cladding system.

Rainscreen cladding – Metal rail systems

To obtain the optimum performance of the system, the Slabs should be applied with the patterned side facing outwards (see Figure 4). The resilient inner layer will accommodate surface irregularities (see Figure 3).

Close butt the slabs at all vertical and horizontal joints.

Stagger the horizontal joints of the insulation in accordance with good fixing practice.

Fix using a combination of metal and polypropylene fixings in accordance with the detail shown in Figure 1. Fixings should have a minimum head diameter of 70 mm.

RAINSCREEN DUO SLAB® should be cut and tightly fitted around wall brackets where these occur. See 'Construction 1' on the back page for typical U- values relating to this construction.

Suitable Fixing Manufacturers
Hilti: 0800 886100
ITW Construction Products Ltd.: 01592 771132
Ejot: 01977 687040
Fischer: 01491 827900

Rainscreen cladding – Timber rail application

The Slabs should be tightly fitted between the treated timber rails prior to the installation of the external cladding boards and mechanically fixed as shown in Figure 2. Provision should be made for a minimum 25 mm ventilated air space behind the cladding boards.

All horizontal joints should be closely butted to optimise the insulation performance.

See 'Construction 3' on the back page for typical U-values relating to this construction.

Specification Clauses

The following NBS Plus clauses include RAINSCREEN DUO SLAB®: H92:776, H20:10, H11:110, P10:42, 217

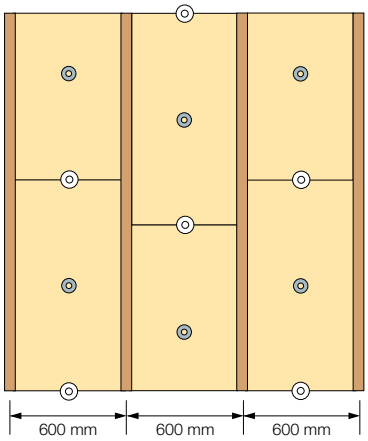


Figure 2
Typical fixing pattern between treated timber cladding rails

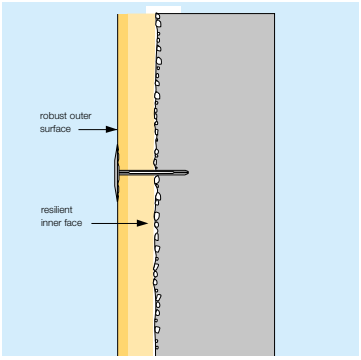


Figure 3
Dual density

Figure 4
Textured outer face of slab

Sustainability

As an environmentally conscious company, ROCKWOOL promotes the sustainable production and use of insulation and is committed to a continuous process of environmental improvement.

All ROCKWOOL products provide outstanding thermal protection as well as four added benefits:

- **Fire resistance**
- **Acoustic comfort**
- **Sustainable materials**
- **Durability**

Environment

Made from a renewable and plentiful naturally occurring resource, ROCKWOOL insulation saves fuel costs and energy in use and relies on trapped air for its thermal properties.

ROCKWOOL insulation does not contain (and has never contained) gases that have ozone depletion potential (ODP) or global warming potential (GWP).

ROCKWOOL is approximately 97% recyclable. For waste ROCKWOOL material that may be generated during installation or at end of life, we are happy to discuss the individual requirements of contractors and users considering returning these materials to our factory for recycling.

Health & Safety

The safety of ROCKWOOL stone wool is confirmed by current UK and Republic of Ireland health & safety regulations and EU directive 97/69/EC:ROCKWOOL fibres are not classified as a possible human carcinogen.

A Material Safety Data Sheet is available and can be downloaded from www.rockwool.co.uk to assist in the preparation of risk assessments, as required by the Control of Substances Hazardous to Health Regulations (COSHH).

Interested?

For further information, contact the Technical Solutions Team on 01656 868490 or email technical.solutions@rockwool.co.uk

Visit www.rockwool.co.uk to view our complete range of products and services.

The ROCKWOOL Trademark

ROCKWOOL® - our trademark

The ROCKWOOL trademark was initially registered in Denmark as a logo mark back in 1936. In 1937, it was accompanied with a word mark registration; a registration which is now extended to more than 60 countries around the word.

The ROCKWOOL trademark is one of the largest assets in the ROCKWOOL Group, and thus well protected and defended by us throughout the world.

If you require permission to use the ROCKWOOL logo for your business, advertising or promotion. You must apply for a Trade Mark Usage Agreement. To apply, write to: marketcom@rockwool.com.

Trademarks

The following are registered trademarks of the ROCKWOOL Group:

ROCKWOOL®

ROCKCLOSE®

RAINSCREEN DUO SLAB®

HARDROCK®

ROCKFLOOR®

FLEXI®

BEAMCLAD®

FIREPRO®

Disclaimer

ROCKWOOL Limited reserves the right to alter or amend the specification of products without notice as our policy is one of constant improvement. The information contained in this brochure is believed to be correct at the date of publication. Whilst ROCKWOOL will endeavour to keep its publications up to date, readers will appreciate that between publications there may be pertinent changes in the law, or other developments affecting the accuracy of the information contained in this brochure. The applications referred to within the brochure do not necessarily represent an exhaustive list of applications. ROCKWOOL Limited does not accept responsibility for the consequences of using ROCKWOOL in applications different from those described within this brochure. Expert advice should be sought where such different applications are contemplated, or where the extent of any listed application is in doubt.

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Notes

September 2018

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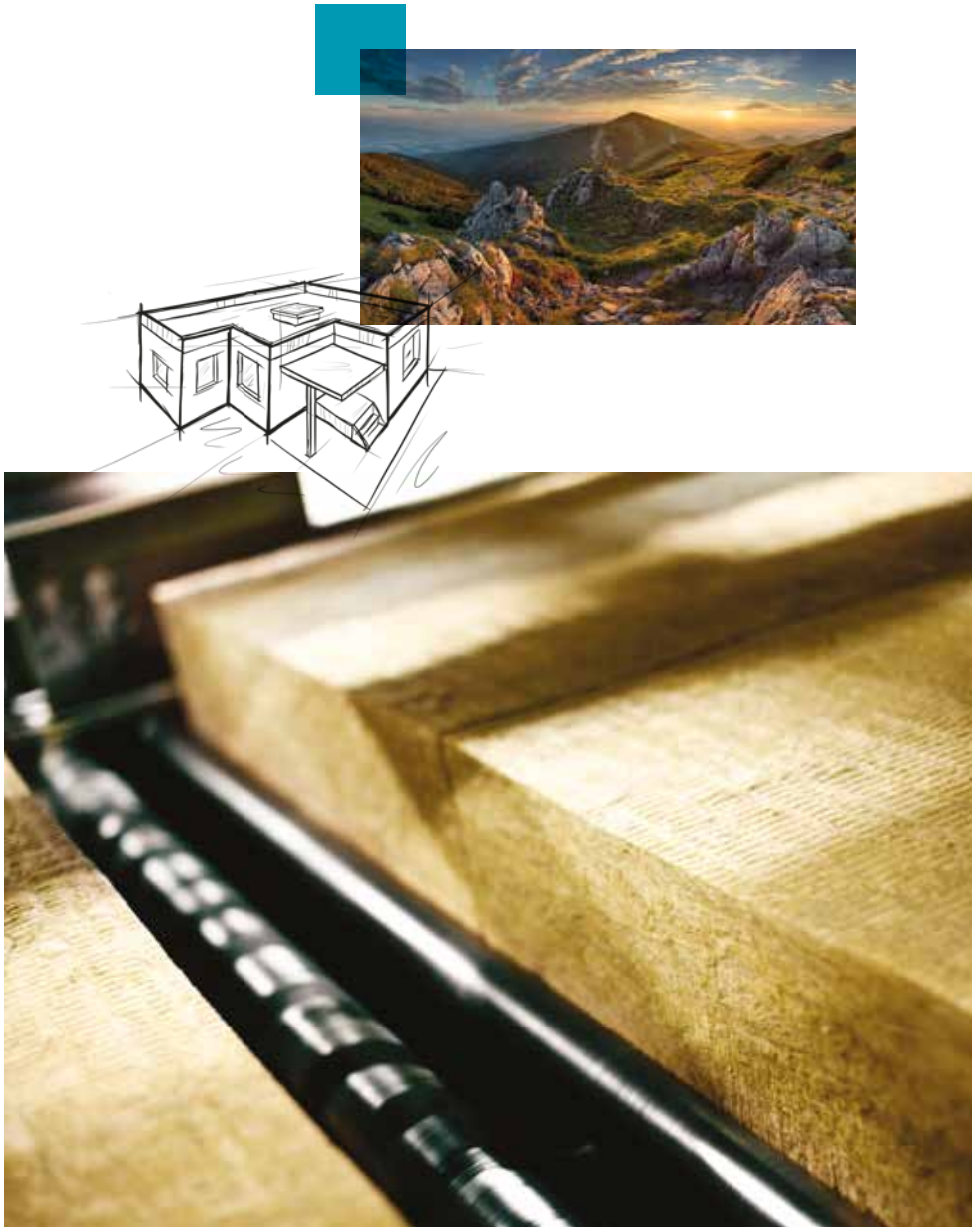
Product Application Guide

ROCKWOOL®

Contents

Product Application Guide



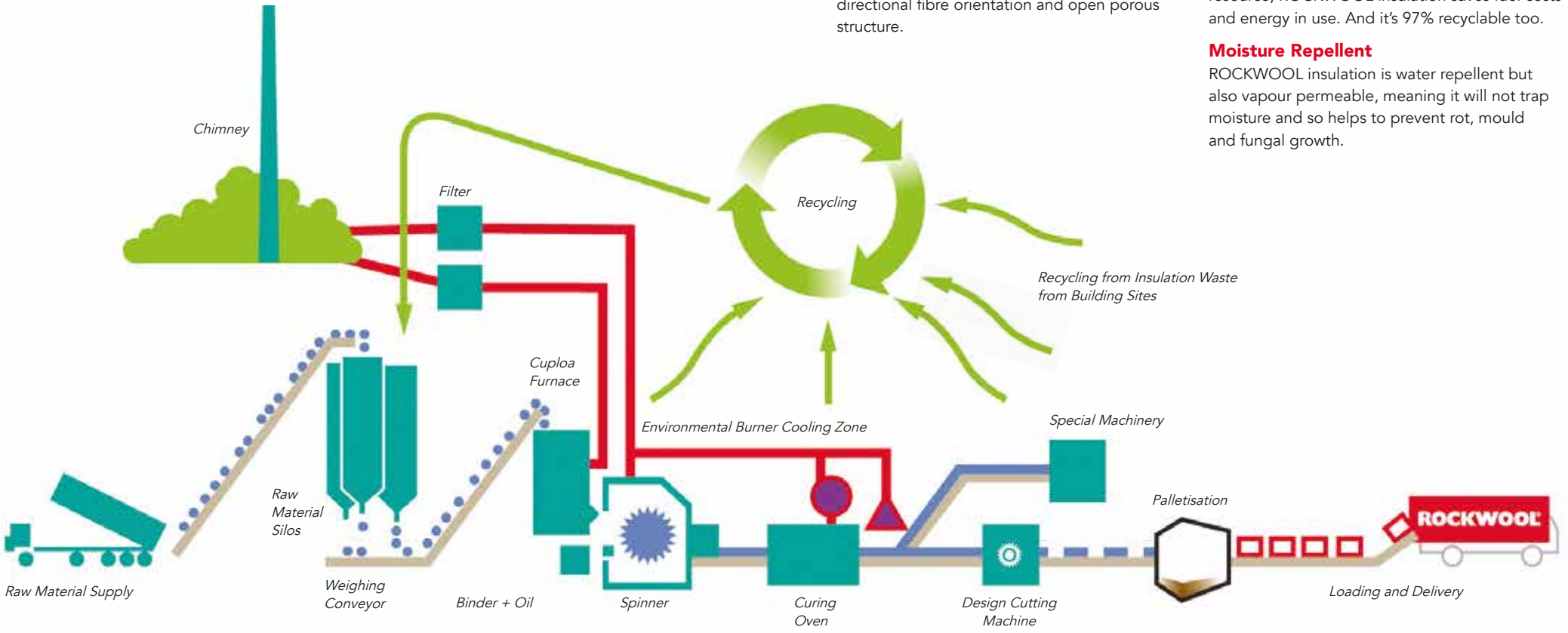
Introduction to the ROCKWOOL Group

ROCKWOOL is one of the world's largest insulation producers, manufacturing and supplying a full range of sustainable insulation systems and solutions for the entire building envelope. ROCKWOOL insulation solutions protect people from the cold, the heat, the risk of fire and noise - whether it is from outdoors or adjacent rooms.

How ROCKWOOL insulation is made

The production of ROCKWOOL insulation mimics the natural process that occurs inside volcanoes, melting, spinning and cooling a lava-like substance in a controlled environment.

The raw material, diabase rock, is a renewable and plentiful natural resource, making ROCKWOOL stone wool environmentally friendly and sustainable. During its lifetime, ROCKWOOL insulation will save many more times the amount of energy than is used in it's manufacture.



Why use ROCKWOOL Insulation?

ROCKWOOL insulation products are made from volcanic, diabase rock. With unrivalled durability at no cost to the environment, ROCKWOOL provides many benefits beyond thermal performance:

Superior Fire Resistance

ROCKWOOL insulation is non combustible, so will not burn, nor smoke, and is able to withstand temperatures of over 1,000°C. ROCKWOOL insulation carries the highest Euroclass A1 fire rating and works as a barrier to fire, improving the safety of occupants and protecting both property and contents.

Excellent Acoustics

Made from stone, ROCKWOOL insulation absorbs airborne sound waves and reduces impact vibration thanks to its density, non-directional fibre orientation and open porous structure.

Ease and Speed of Installation

ROCKWOOL rolls and slabs are quick and easy to cut, shape and fit - even around awkward spaces.

Unrivalled Durability

Nothing lasts like solid rock. ROCKWOOL insulation won't shrink, won't move and won't crumble. It is so durable it will maintain its performance for the lifetime of the building.

Sustainability

Made from a renewable and plentiful natural resource, ROCKWOOL insulation saves fuel costs and energy in use. And it's 97% recyclable too.

Moisture Repellent

ROCKWOOL insulation is water repellent but also vapour permeable, meaning it will not trap moisture and so helps to prevent rot, mould and fungal growth.

Building Regulations Fire

UK Statutory Fire Safety Requirements

There are different regulatory frameworks covering different phases of construction of a building. They are primarily concerned with life safety.

Fire safety of buildings is covered by the following:

- During Construction - The Construction (Design and Management) Regulations 2015
- Performance of the Building – Building Regulations – Approved Document B
- Management during occupation and use - Regulatory Reform (Fire Safety) Order

Approved Documents and Technical Guidance Documents offer guidance on how to comply with the building regulations across the UK and Ireland.

Building Regulations – Approved Document B (fire safety) Volume 1: Dwelling Houses & Volume 2: Buildings other than dwelling houses

The Regulations consider various aspects of fire safety in the construction of buildings:

- Requires safe means of escape from the building
- Requires the stability of a building to be maintained in a fire, both internally and externally
- Fire and smoke will be prohibited from spreading to concealed spaces in a buildings structure
- Externally - the external walls and roof will resist spread of fire to walls and roofs of other buildings
- The building will be easily accessible for fire fighters and their equipment.

Building Regulations now require a developer or architect to hand over "sufficient" fire safety information to the buildings future "responsible person", so they may commission an appropriate "Fire Risk Assessment", for the new building and its occupiers and/or users.

When specifying building materials careful consideration needs to be given to the potential fire risk in buildings, with particular emphasis put on compartmentation to allow safe evacuation, reduce the risk of fire spread within the building and to enable access for fire fighters.

To be able to achieve this, it's important to fully understand the difference between the two types of fire classification related to the fire properties of the insulation material being specified and the building elements it's included within.

Fire properties are measured in two key ways, Reaction to fire and Resistance to fire.

The two types of classification can be defined as follows:

- **Reaction to fire:** The measurement of how a product or material will contribute to the fire development and spread, particularly in the very early stages of a fire, when evacuation is crucial
- **Resistance to fire:** The measurement of the ability of a structure or system to resist, and ideally prevent, the passage of fire from one distinct area to another. Every element that is deemed to have or to be fire resistant, whether it is the door, floor, roof or wall, is tested.

Why are these measures important?

Reaction to Fire

The contribution of a product when exposed to a developing fire, in terms of ease of ignition, energy produced, heat, flame spread and smoke & toxic gas emission will have an impact on how easy it is for people to escape from the area of the fire.

When at the specification stage, it is important for contractors to consider how the material will react in a developing fire. Primarily they should be asking whether the material has a Euroclass Reaction to Fire Rating.

At a fundamental level the Euroclass system separates products into two groups i.e:

- **Non-combustible:** Made of material that does not burn if exposed to fire
- **Combustible:** Able to catch fire and burn easily.

The European Reaction to Fire classification system (Euroclasses) is the EU common method for assessing the qualities of building materials in the event of a fire. This information is relevant for the United Kingdom and the Republic of Ireland.

Euroclasses arise from classification systems for 'reaction to fire' performance of construction products. It provides a common method for comparing the performance of products in a fire.

The Euroclass system:

- Compares ignitability, flame spread, heat release, smoke production and propensity for producing flaming droplets/particles etc
- Is accepted by all European Union States (mandatory where there is a Harmonised Product Standard)
- Includes seven classification levels, from A1 to F.

Euroclass	Definition	Example Materials
A1	**Non-combustible**	**Stone Wool, Glass Wool, Concrete, Bricks**
A2	Limited combustibility	Some A1 Materials with Organic Facings
B	Combustible	Some Phenolic Foams
C	Combustible	Phenolic, some PIR
D	Combustible	PIR
E	Combustible	Flame Retarded EPS/XPS, PUR
F	Combustible	PUR

Understanding these Euroclass classifications is vitally important.

The Euroclass system states that products achieving A1 classification are defined as non-combustible under these Regulations. Products achieving an A2 classification are recognised as products of limited combustibility, offering "no significant contribution to fire growth."

Products achieving a rating of B-F are deemed to be combustible. Where a product has not been measured for fire safety under the Euroclass system then it will be classed as F, meaning no performance declared (NPD).

ROCKWOOL Stone wool insulation can achieve a reaction-to-fire rating of A1 under the British and European standard for the fire classification of construction materials BS EN 13501-1: 2007, or non-combustible.

Resistance to Fire

A resistance to fire rating is much harder to achieve, as this involves large scale testing of building elements to verify how they react in a fire. The common ratings for fire resistance provide an indication of the time that the element will resist a fire for and typically range from 30 minutes to 240 minutes.

The resistance is typically measured in two key forms i.e. Insulation and Integrity, we will briefly explain what these are:

- **Integrity:** Measures the ability of the element to prevent flames and hot gases spreading from the fire side to the non-fire side. Preventing the spread of flames and hot gases, stops fire spreading and allows valuable time for escape
- **Insulation:** Measures the ability of the element to prevent the heat from the fire passing from the fire side to the non-fire side of the element. Preventing the transfer of this heat stops items on the non-fire side from combusting and creating a further fire.

Building Regulations Thermal

PART L Required Performance Standards

Thermal regulations across England, Scotland, Wales and Northern Ireland can be split into two main categories with sub-sections as described below:

Conservation of Fuel and Power in Dwellings

- New dwellings
- Existing dwellings: Extensions
- Existing dwellings: Refurbishment, renovation and thermal upgrade.

Conservation of Fuel and Power in Buildings other than Dwellings

- New buildings other than dwellings
- Existing buildings other than dwellings: Extensions
- Existing buildings other than dwellings: Refurbishment, renovation and thermal upgrade.

The following tables provide a summary of the notional U-values as described within the following documents:

England: ADL1A (2013), ADL1B (2010), ADL2A (2013), ADL2B (2010).

Scotland: Section 6 2015 (Technical Handbook for Energy).

Wales: ADL1A (2014), ADL1B (2014), ADL2A (2014), ADL2B (2014).

Table 1a: Dwellings (New)

Fabric Element	Part L1a 2013 (England)	Section 6 2015 (Scotland)	Part L1a 2014 (Wales)
Wall	0.18 W/m²K	0.17 W/m²K	0.18 W/m²K
Roof	0.13 W/m²K	0.11 W/m²K	0.13 W/m²K
Floor	0.13 W/m²K	0.15 W/m²K	0.13 W/m²K
Party Wall	0.00 W/m²K	0.00 W/m²K	0.00 W/m²K

Table 1b: Dwellings (Existing)

Fabric Element	Part L1a 2013 (England)		Section 6 2015 (Scotland)		Part L1a 2014 (Wales)	
	Extension (W/m²K)	Thermal Upgrade (W/m²K)	*Extension (W/m²K)	Thermal Upgrade (W/m²K)	Extension (W/m²K)	Thermal Upgrade (W/m²K)
Wall	0.28	0.55 (cavity) 0.30 (external or internal)	0.22	0.30	0.21	0.55 (cavity) 0.30 (external or internal)
Pitched Roof - Ceiling	0.16	0.16	0.15	0.25	0.15	0.16
Pitched Roof - Rafter	0.18	0.18	0.18	0.25	0.15	0.18
Flat Roof	0.18	0.18	0.18	0.25	0.15	0.18
Floor	0.22	0.25	0.18	0.25	0.18	0.25

* U-values quoted assume that the existing walls and roof are better than 0.70 and 0.35 respectively.

Table 2a: Buildings other than Dwellings (New)

Fabric Element	Part L2a 2013 (England)	Section 6 2015 (Scotland)		Part L2a 2014 (Wales)
		Naturally Ventilated	Mechanically Ventilated	
Wall	0.26 W/m²K	0.23 W/m²K	0.20 W/m²K	0.26 W/m²K
Roof	0.18 W/m²K	0.18 W/m²K	0.16 W/m²K	0.18 W/m²K
Floor	0.22 W/m²K	0.22 W/m²K	0.20 W/m²K	0.22 W/m²K

Table 2b: Buildings other than Dwellings (Existing)

Fabric Element	Part L2b 2013 (England)		Section 6 2015 (Scotland)		Part L2b 2014 (Wales)	
	Extension (W/m²K)	Thermal Upgrade (W/m²K)	Extension (W/m²K)	Thermal Upgrade (W/m²K)	Extension (W/m²K)	Thermal Upgrade (W/m²K)
Wall	0.28	0.55 (cavity) 0.30 (external or internal)	0.25	0.30	0.26	0.55 (cavity) 0.30 (external or internal)
Pitched Roof - Ceiling	0.16	0.16	0.15	0.25	0.15	0.16
Pitched Roof - Rafter	0.18	0.18	0.15	0.25	0.18	0.18
Flat Roof	0.18	0.18	0.15	0.25	0.18	0.18
Floor	0.22	0.25	0.20	0.25	0.22	0.25

Up-to-date U-value data for your project

Download the latest calculator (incorporating BIM) from the ROCKWOOL website for access to all the technical and construction information you need to calculate the thermal performance of walls, floors and roofs for your project.

To download search 'ROCKWOOL Tools' in Google.

Building Regulations Acoustic

PART E Required Performance Standards

The requirements of E1 may be met by achieving the sound insulation values set out in Tables 1a and 1b of Approved Document E. A summary of these values is shown below.
Compliance is established by on-site pre-completion testing.

The requirements of E2 for internal wall and floor constructions will be met by achieving the sound insulation values set out in Table 2, which are based upon laboratory-tested values. **Pre-completion on-site testing is not required for compliance with E2.**

The new performance requirements are now more stringent due to the addition of a low frequency correction factor (Ctr) which must be applied to the pre-completion measure of airborne sound. The new values will therefore be more difficult to achieve for many types of construction.

Please note that the associated flanking constructions should be followed, and that the person carrying out the building work should arrange for sound insulation testing to be carried out by a test body with appropriate third party accreditation.

PART E Performance Standards

For separating walls, floors and stairs that have a separating function.

Table 1a: Dwelling - Houses and Flats		Sound Insulation: Airborne $D_{nT,w} + C_{tr}$ dB (minimum values)	Sound Insulation: Impact $L'_{nT,w}$ dB (maximum values)
Purpose-built dwelling:	Walls	45	-
	Floors and stairs	45	62
Formed by material change of use:	Walls	43	-
	Floors and stairs	43	64

Table 1b: Rooms for Residential Purposes			
Purpose-built rooms:	Walls	43	-
	Floors and stairs	45	62
Formed by material change of use:	Walls	43	-
	Floors and stairs	43	64

Table 2: Laboratory Values for New Internal Walls and Floors within Dwelling		Airborne Sound Insulation R_w dB (minimum values)
Houses, flats and rooms for residential purposes, whether purpose-built or formed by material change of use:	Walls	40
	Floors	40

Technical Expertise

Our U-value calculation tool allows you to quickly and easily calculate the thermal performance of walls, floors and roofs, with around 2,500 pre-determined calculations all completed under the BBA/TIMSA U-value competency scheme.

It also helps you to specify the correct product and thickness to meet your customers' requirements.

For further assistance with U-value calculations, fire protection, guidance on meeting an acoustic requirement or advice on many other issues then please visit our website or contact our technical team at:

Web: rockwool.co.uk
Email: technical.solutions@rockwool.co.uk
Telephone: 01656 868490

ROCKWOOL offers a comprehensive technical service that provides industry-leading technical advice.

ROCKWOOL will be happy to assist you with:

- Condensation Risk Analysis
- Acoustic Performance
- Passive Fire Protection
- Rain Noise Issues
- Installation Guidance and Considerations
- Meeting Building Regulations
- Sustainable Housing
- Industrial Applications
- Marine and Offshore Applications.

Visit www.rockwool.co.uk to view our latest installation videos.

Floors

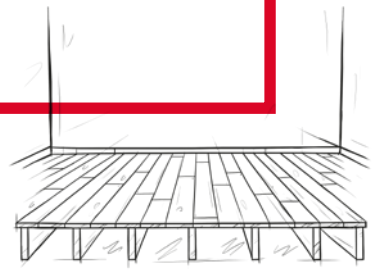
Product Application Guide

Ground Floors

- Ground Bearing Slab
- Suspended Concrete Beam and Block
- Suspended Timber Floor

Separating Floors

- Timber Separating Floor
- Upgraded Fire Floor



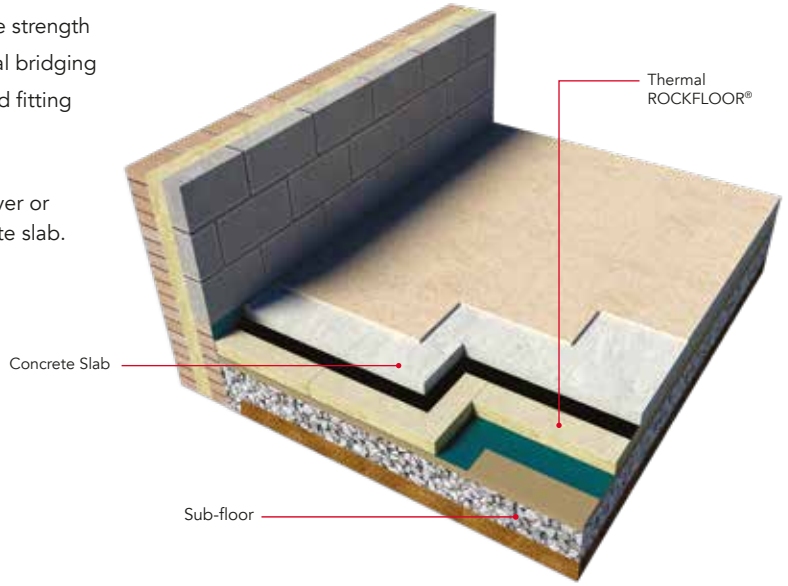
Ground Floors

Ground Bearing Slab

Thermal ROCKFLOOR® is a dual density thermal insulation solution designed for ground floors, and can be placed below the concrete slab or below screed. The dual density allows for unevenness and imperfections on the sub-floor side to be absorbed, while the high density surface provides the required load resistance.

Key Benefits

- High compressive strength
- Minimises thermal bridging
- Easy handling and fitting
- Absorbs subfloor imperfections
- Can be placed over or under the over site slab.



ROCKWOOL Thermal ROCKFLOOR®

Properties	Details
Length	1000mm
Width	600mm
Thickness	50, 60, 80,100mm
Facing	White Tissue
Thermal Conductivity	0.038 W/mK
Fire Classification	A1 (BS EN 13501-1)
Certification	LUL Authorised* (327)

* The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with the ROCKWOOL Product Data Sheet - please refer to the LUL Approved Product Register at www.LU-apr.uk for specific details.

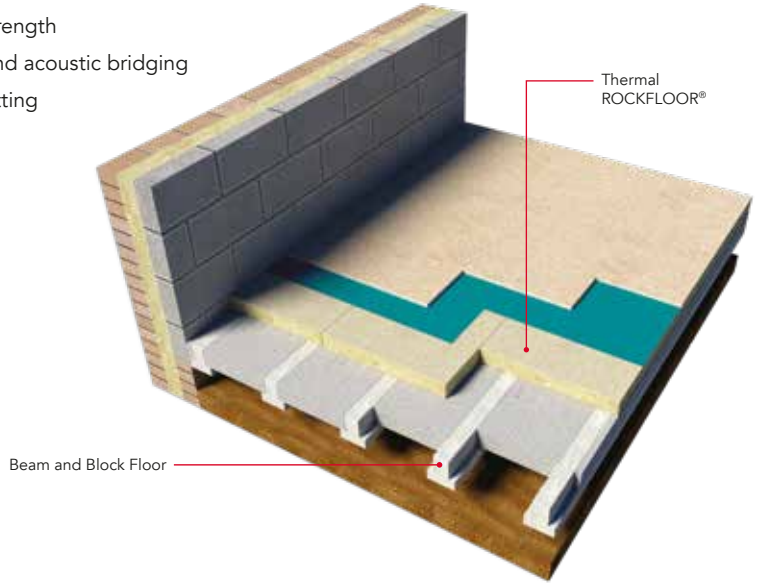
The following NBS clauses include ROCKFLOOR®:
E20:30, E20:200, K11:25, K11:215, K11:225, K11:235, K:11:245, K21:111, M10:40, M10:290, M10:295, M13:20, M13:260, M13:265

Suspended Concrete Beam and Block

Thermal ROCKFLOOR® is a dual density thermal insulation solution designed for ground floors, and is suitable for use under most floor constructions including flooring gradeT&G chipboard, OSB or plywood. The dual density allows for unevenness and imperfections on the sub-floor side to be absorbed, while the high density surface provides the required load resistance.

Key Benefits

- High compressive strength
- Minimises thermal and acoustic bridging
- Easy handling and fitting
- Absorbs subfloor imperfections.



ROCKWOOL Thermal ROCKFLOOR®

Properties	Details
Length	1000mm
Width	600mm
Thickness	50, 60, 80,100mm
Facing	White Tissue
Thermal Conductivity	0.038 W/mK
Fire Classification	A1 (BS EN 13501-1)
Certification	LUL Authorised* (327)

* The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with the ROCKWOOL Product Data Sheet - please refer to the LUL Approved Product Register at www.LU-apr.uk for specific details.

The following NBS clauses include ROCKFLOOR®:
E20:30, E20:200, K11:25, K11:215, K11:225, K11:235, K:11:245, K21:111, M10:40, M10:290, M10:295, M13:20, M13:260, M13:265

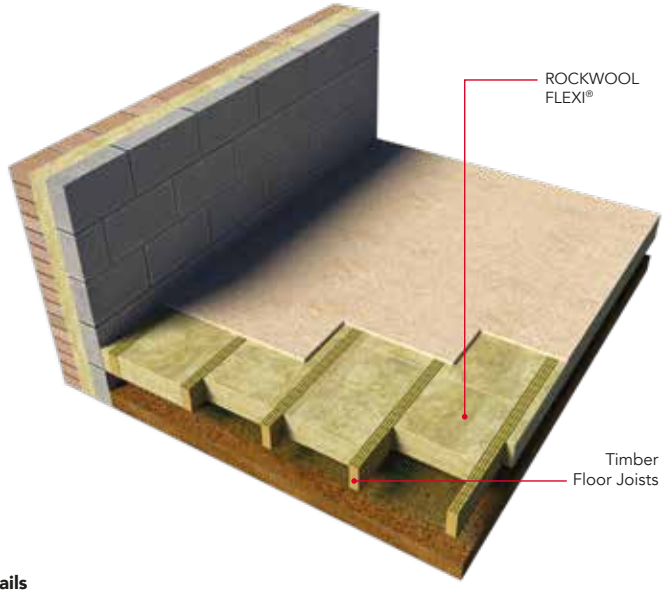
Ground Floors

Suspended Timber

ROCKWOOL FLEXI® provides thermal insulation for suspended timber floors. The flexible edge enables a tight friction fit that eliminates gaps; reducing thermal bridging and cold spots. ROCKWOOL FLEXI® is installed between the joists and supported by a continuous layer of plastic or wire netting. Joists running parallel to the wall need to be a minimum of 35mm away to allow insulation to placed in between.

Key Benefits

- Patented FLEXI® edge offers accurate fit to all widths
- Will expand as joists dry out
- Fits standard floor joists
- Excellent thermal, acoustic and fire properties
- Non-combustible (Euroclass A1)
- Fast and easy to handle and install.



ROCKWOOL FLEXI®

Properties	Details
Length	1200mm
Width	400mm, 600mm
Thickness	50-200mm
Facing	Plain
Thermal Conductivity	50-120mm: 0.038 W/mK 140-200mm: 0.035 W/mK
Acoustic Properties	Achieves Part E (resistance to sound) when installed in accordance with the ROCKWOOL guidelines
Fire Classification	A1 (BS EN 13501-1)
Certification	LPCB 022e/04, LUL Authorised* (295)

* The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with the ROCKWOOL Product Data Sheet - please refer to the LUL Approved Product Register at www.LU-apr.uk for specific details.

A1

NBSPlus

The following NBS clauses include ROCKWOOL FLEXI®: p10:140, p10:210, p10:230, p10:240,p10:250, k10:115, k10:125, k10:145, k10:155, k10:165, k10:185, k10:420, k11:215, k11:225, k11:235, k11:245, k20:150, k20:160, m10:290, m13:260

Thermal Calculations

Typical U-values for Floors (based on the specifications shown on pages 12-14)

Note: Some thicknesses quoted may be non-standard.

Ground Bearing Slab

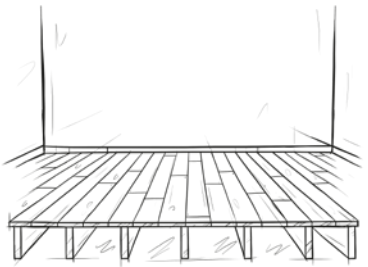
U-value / P/A Ratio	0.22	0.20	0.18	0.15	0.13
	ROCKFLOOR® Thickness Reqd (mm)				
0.1	0	0	0	40	70
0.2	50	65	85	120	160
0.3	80	95	115	150	190
0.4	95	110	130	170	210
0.5	100	120	150	180	220
0.6	110	130	150	190	230
0.7	115	130	150	200	230
0.8	120	140	160	200	240
0.9	125	140	160	200	240
1.0	130	145	165	200	240

Suspended Concrete Beam and Block

U-value / P/A Ratio	0.22	0.20	0.18	0.15	0.13
	ROCKFLOOR® Thickness Reqd (mm)				
0.1	30	50	65	110	150
0.2	80	100	120	160	200
0.3	100	120	140	180	210
0.4	115	130	150	190	230
0.5	120	135	160	200	230
0.6	125	140	160	200	250
0.7	130	145	165	210	250
0.8	130	145	165	210	250
0.9	130	150	170	210	250
1.0	135	150	170	210	250

Suspended Timber

U-value / P/A Ratio	0.22	0.20	0.18	0.15	0.13
	ROCKWOOL FLEXI® Thickness Reqd (mm)				
0.1	30	50	70	120	160
0.2	100	120	140	190	230
0.3	120	140	160	220	260
0.4	130	155	180	230	280
0.5	140	160	190	230	280
0.6	150	170	200	250	280
0.7	150	170	200	250	280
0.8	155	180	200	250	300
0.9	155	180	210	250	300
1.0	160	180	210	250	300



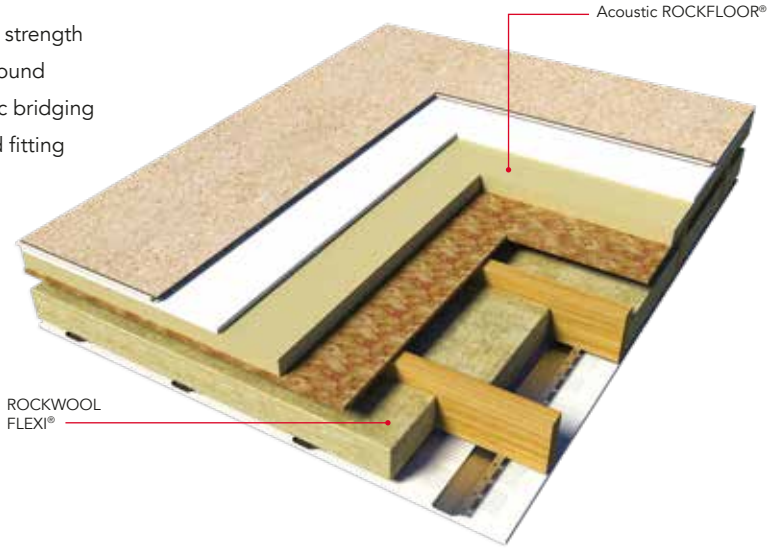
Separating Floors

Timber Separating

ROCKWOOL FLEXI® and Acoustic ROCKFLOOR® can be used separately or combined to provide high levels of airborne and impact sound reduction within separating floor structures. The combination of the two products also provide a non-combustible barrier that can reduce the spread of fire between floors.

Key Benefits

- High compressive strength
- Reduces impact sound
- Minimises acoustic bridging
- Easy handling and fitting
- Absorbs subfloor imperfections in concrete floors.



ROCKWOOL Acoustic ROCKFLOOR®

Properties	Details
Length	1000mm
Width	600mm
Thickness	25, 30, 50mm
Facing	White Tissue
Thermal Conductivity	0.040 W/mK
Acoustic Properties	Acoustic ROCKFLOOR® achieves Part E (resistance to sound) when installed in accordance with the ROCKWOOL guidelines
Fire Classification	A1 (BS EN 13501-1)
Certification	LUL Authorised* (326)

* The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with the ROCKWOOL Product Data Sheet - please refer to the LUL Approved Product Register at www.LU-apr.uk for specific details.

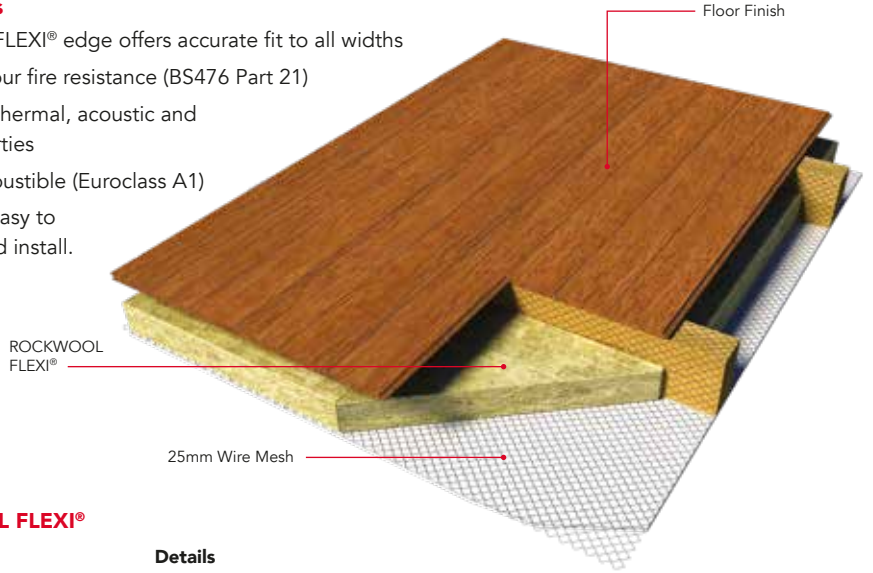
The following NBS clauses include ROCKFLOOR®: E20:30, E20:200, K11:25, K11:215, K11:225, K11:235, K:11:245, K21:111, M10:40, M10:290, M10:295, M13:20, M13:260, M13:265

Upgraded Fire Floor

ROCKWOOL FLEXI® can be used to upgrade timber joisted floors to provide a 1 hour fire rating in addition to providing high levels of airborne sound reduction. Combine with ROCKWOOL ROCKFLOOR® to achieve impact sound requirements for separating floor constructions. The Flexi fire floor can be installed from above or below and provides a non-combustible barrier that reduces the spread of fire between floors.

Key Benefits

- Patented FLEXI® edge offers accurate fit to all widths
- Up to 1 hour fire resistance (BS476 Part 21)
- Excellent thermal, acoustic and fire properties
- Non-combustible (Euroclass A1)
- Fast and easy to handle and install.



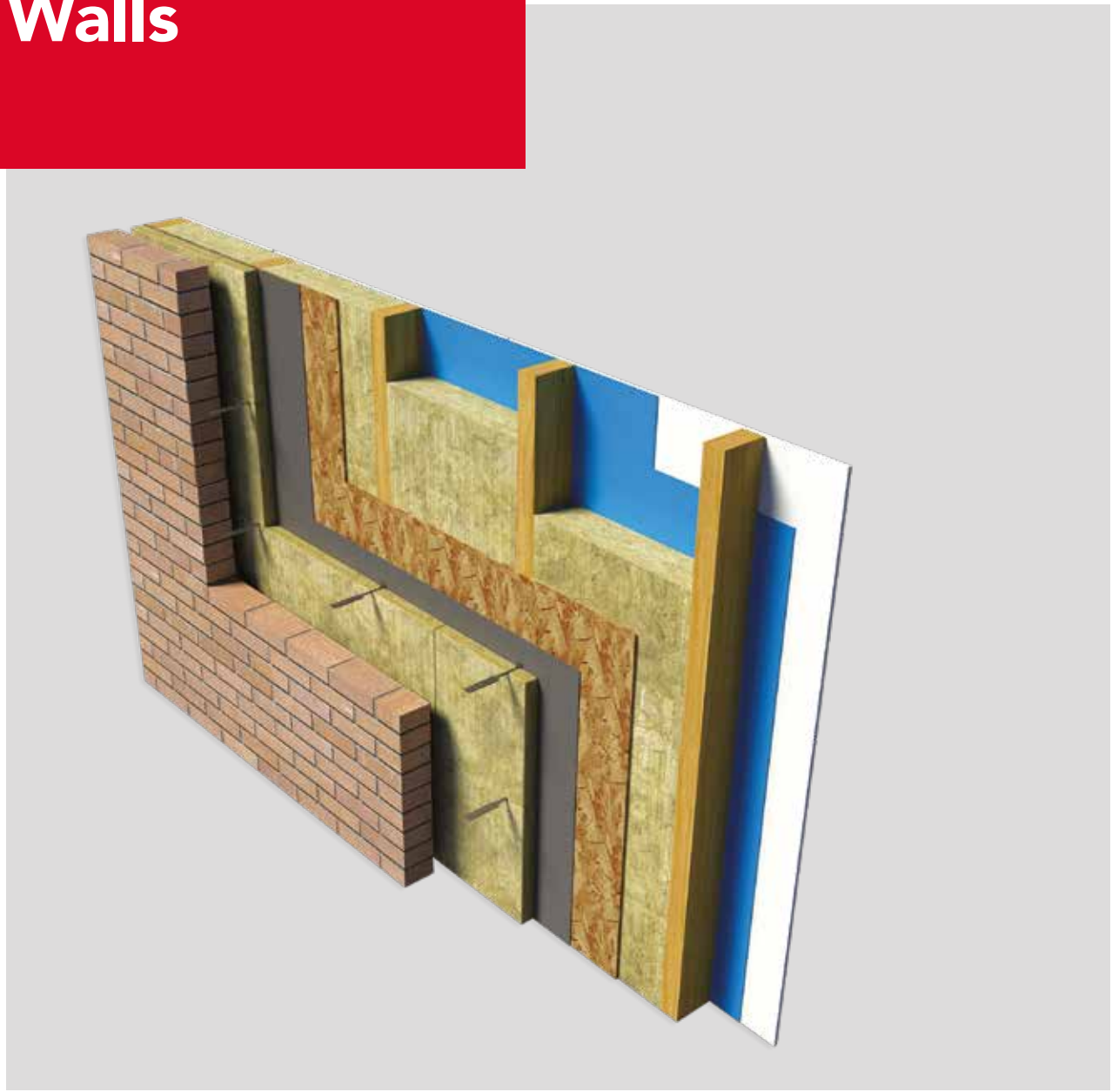
ROCKWOOL FLEXI®

Properties	Details
Length	1200mm
Width	400mm, 600mm
Thickness	50-200mm
Facing	Plain
Thermal Conductivity	50-120mm: 0.038 W/mK 140-200mm: 0.035 W/mK
Acoustic Properties	Achieves Part E (resistance to sound) when installed in accordance with the ROCKWOOL guidelines
Fire Classification	A1 (BS EN 13501-1)
Certification	LPCB 022e/04, LUL Authorised* (295)

* The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with the ROCKWOOL Product Data Sheet - please refer to the LUL Approved Product Register at www.LU-apr.uk for specific details.

The following NBS clauses include ROCKWOOL FLEXI®: p10:140, p10:210, p10:230, p10:240,p10:250, k10:115, k10:125, k10:145, k10:155, k10:165, k10:185, k10:420, k11:215, k11:225, k11:235, k11:245, k20:150, k20:160, m10:290, m13:260

Walls



Masonry External Walls

- Cavity Wall - Full Fill
- Cavity Wall - Partial Fill

Timber Frame External Walls

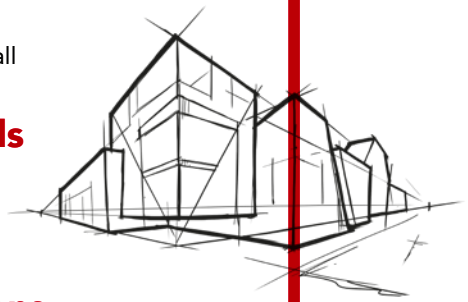
- Cavity Wall - Insulation between the Studs
- Cavity Wall - Insulation between the Studs and Insulated Sheathing

Cavity Closers

- Thermal Bridging around Windows and Doors

Party Wall Details

- Masonry Party Wall
- Timber Frame Party Wall



Separating Walls

- Timber Frame
- Metal Frame

Internal Partitions

- Timber/Metal Stud Partition
- Timber Stud Partition - Enhanced

Product Application Guide

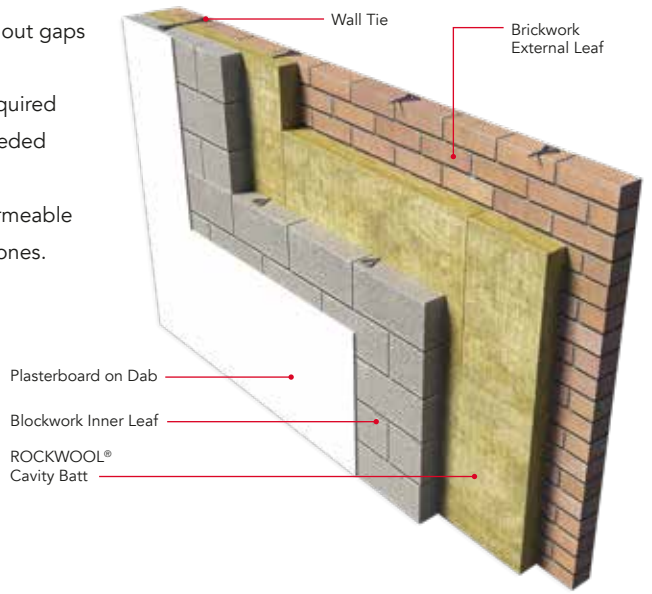
Masonry Cavity Walls

Full Fill for domestic and non-domestic exterior walls

ROCKWOOL® Full Fill Semi-rigid Cavity Batts are non-combustible, water repellent and vapour permeable, are quick and easy to fit without gaps, and do not require the use of additional cavity barriers and retaining clips. BBA certified for use in all exposure zones.

Key Benefits

- Quick and easy installation without gaps
- Low-cost solution
- No additional cavity barriers required
- No insulation retaining clips needed
- A1 fire rated
- Water repellent and vapour permeable
- BBA certified for all exposure zones.



ROCKWOOL® Cavity

Properties	Details
Length	1200mm
Width	455mm
Thickness	50-250mm
Facing	Plain
Thermal Conductivity	0.037 W/mK
Fire Classification	A1 (BS EN 13501-1)
Certification	BBA 94/3079, LPCB 022e/02, LUL Authorised* (313)

* The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with the ROCKWOOL Product Data Sheet - please refer to the LUL Approved Product Register at www.LU-apr.uk for specific details.

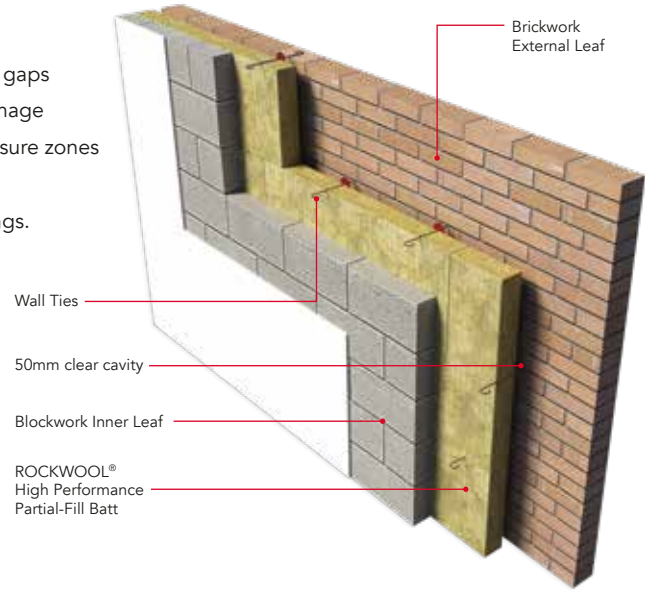
The following NBS clauses include ROCKWOOL® Cavity:
F30:10 , F30:150

Partial Fill for domestic and non-domestic exterior walls

ROCKWOOL® Partial Fill Semi-rigid Cavity Batts maximise energy efficiency by knitting together at the joints to eliminate performance reducing gaps. The batts are non-combustible, water repellent and vapour permeable, and are suitable for use in buildings up to 25 metres in height.

Key Benefits

- Slabs knit together to eliminate gaps
- Robust outer surface resists damage
- BBA certified for use in all exposure zones
- A1 fire rated
- Can be used in high-rise buildings.



ROCKWOOL® High Performance Partial Fill

Properties	Details
Length	1200mm
Width	455mm
Thickness	50-230mm
Facing	Plain (un-faced)
Thermal Conductivity	50mm - 90mm: 0.034 W/mK 100mm - 230mm: 0.035 W/mK
Fire Classification	A1 (BS EN 13501-1)
Certification	BBA 93/2884, LPCB 022e/02, LUL Authorised* (314)

* The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with the ROCKWOOL Product Data Sheet - please refer to the LUL Approved Product Register at www.LU-apr.uk for specific details.

The following NBS clauses include ROCKWOOL® High Performance Partial Fill Cavity Slab:
F30:12, F30:151

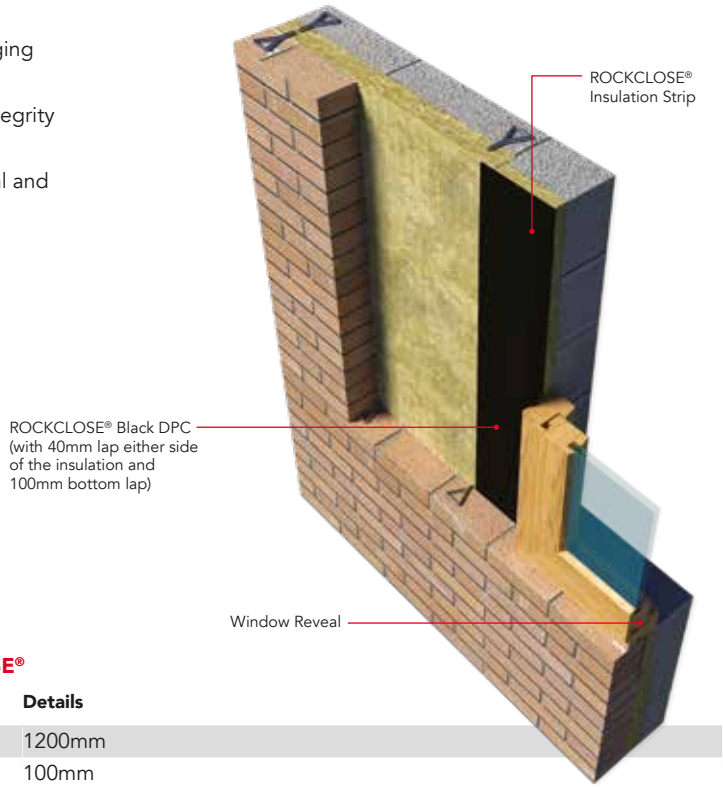
Masonry Cavity Walls

Cavity Closers

The patented ROCKCLOSE® Cavity Closer has been specifically developed to minimise thermal bridging at door and window reveals whilst also providing a fire resistant cavity closer. Consists of a strip of semi-rigid non-combustible ROCKWOOL insulation bonded to a black polyethylene DPC.

Key Benefits

- Minimises thermal bridging around openings
- Provides 60 mins fire integrity and 30 mins insulation
- Suitable for both vertical and horizontal installation
- Easy to install
- Self supporting.



ROCKWOOL ROCKCLOSE®

Properties	Details
Length	1200mm
Width	100mm
Thickness	20, 30, 50mm
Facing	Black Polythene DPC DPC Length: 1300mm DPC Width: 180mm (40mm side laps)
Thermal Conductivity	0.035 W/mK
Fire Performance	60 minutes integrity 30 minutes insulation

The following NBS Plus clauses include ROCKCLOSE®:
F30 :18, F30:180

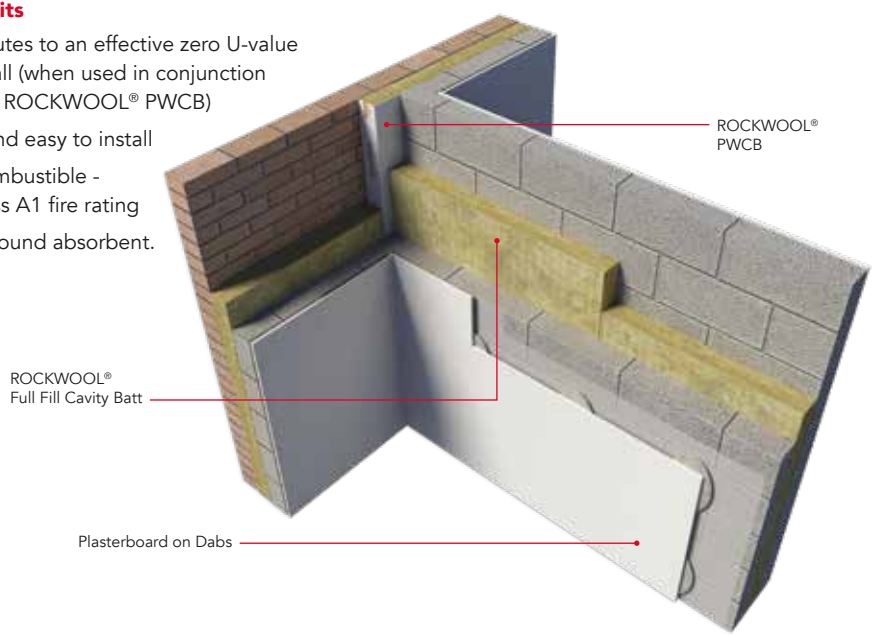
Party Walls

Masonry Cavity

The ROCKWOOL® Full Fill Cavity Batt provides a built-in full-fill solution to eliminate heat loss through the party wall through the 'Thermal Bypass Effect'. When used in conjunction with the ROCKWOOL® PWCB to provide perimeter edge sealing, the system delivers an effective zero U-value party wall.

Key Benefits

- Contributes to an effective zero U-value party wall (when used in conjunction with the ROCKWOOL® PWCB)
- Quick and easy to install
- Non-combustible - Euroclass A1 fire rating
- Highly sound absorbent.



ROCKWOOL® PWCB

Properties	Details
Length	1200mm
Width	200mm
Thickness	65-160mm
Suitable Cavity Widths	50-150mm
Facing	White Polythene Sleeve
Fire Performance	Up to 60 minutes integrity Up to 60 minutes insulation
Certification	LPCB 022b

The following NBS Plus clauses include TCB & PWCB Cavity Barriers:
F30-18, F30-180, K10-530, P10-70, P10-75, P10-420

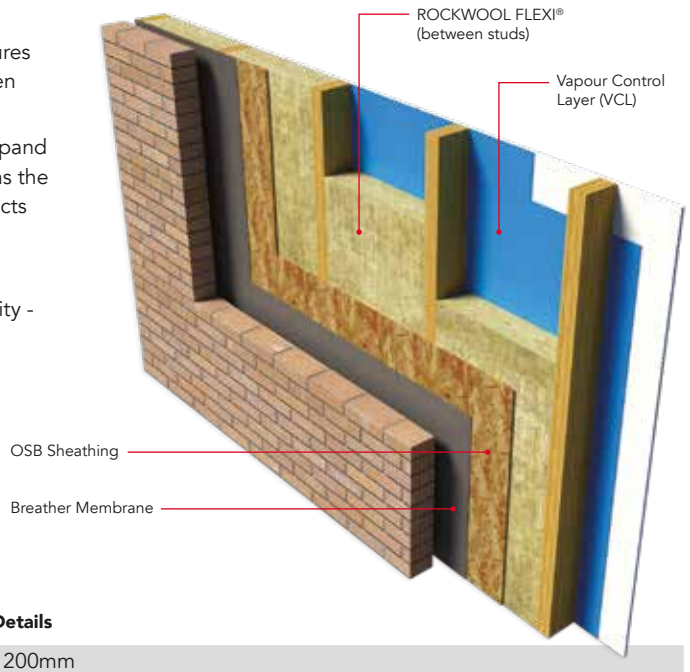
Timber Frame External Walls

Insulation Between the Studs

ROCKWOOL FLEXI® has a unique patented flexible edge developed specifically for quick and easy installation into framed constructions. The compressible edge ensures a snug fit between the studs. ROCKWOOL FLEXI® also provides excellent thermal performance, A1 fire resistance and is water repellent and vapour permeable.

Key Benefits

- Patented FLEXI® edge ensures fast and accurate fit between framework
- ROCKWOOL FLEXI® will expand and hold in timber frames as the timber dries out and contracts
- Excellent thermal, fire and acoustic performance
- Maintains shape and integrity - will not slump.



ROCKWOOL FLEXI®

Properties	Details
Length	1200mm
Width	400mm, 600mm
Thickness	50-200mm
Facing	Plain
Thermal Conductivity	50-120mm: 0.038 W/mK 140-200mm: 0.035 W/mK
Acoustic Properties	Provides good resistance to airborne and flanking sound
Fire Classification	A1 (BS EN 13501-1)
Certification	LPCB 022e/04, LUL Authorised* (295)

* The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with the ROCKWOOL Product Data Sheet - please refer to the LUL Approved Product Register at www.LU-apr.uk for specific details.

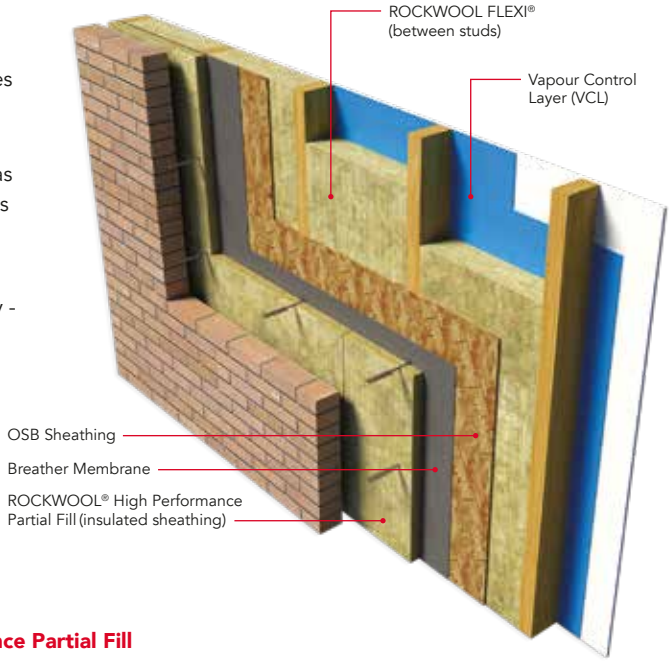
The following NBS clauses include ROCKWOOL FLEXI®: p10:140, p10:210, p10:230, p10:240,p10:250, k10:115, k10:125, k10:145, k10:155, k10:165, k10:185, k10:420, k11:215, k11:225, k11:235, k11:245, k20:150, k20:160, m10:290, m13:260

Insulation Between the Studs and Sheathing

ROCKWOOL FLEXI® has a unique patented flexible edge developed specifically for quick and easy installation into framed constructions. The compressible edge ensures a snug fit between the studs. ROCKWOOL FLEXI® also provides excellent thermal performance, A1 fire resistance and is water repellent and vapour permeable.

Key Benefits

- Patented FLEXI® edge ensures fast and accurate fit between framework
- Expands and holds in frame as timber dries out and contracts
- Excellent thermal, fire and acoustic performance
- Maintains shape and integrity - will not slump
- High Performance Partial Fill adds further thermal performance.



ROCKWOOL® High Performance Partial Fill

Properties	Details
Length	1200mm
Width	455mm
Thickness	50-230mm
Facing	Plain (un-faced)
Thermal Conductivity	50mm - 90mm: 0.034 W/mK 100mm - 135mm: 0.035 W/mK
Fire Classification	A1 (BS EN 13501-1)
Certification	BBA 93/2884, LPCB 022e/02, LUL Authorised* (314)

* The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with the ROCKWOOL Product Data Sheet - please refer to the LUL Approved Product Register at www.LU-apr.uk for specific details.

The following NBS clauses include ROCKWOOL® High Performance Partial Fill Cavity Slab: F30:12, F30:151

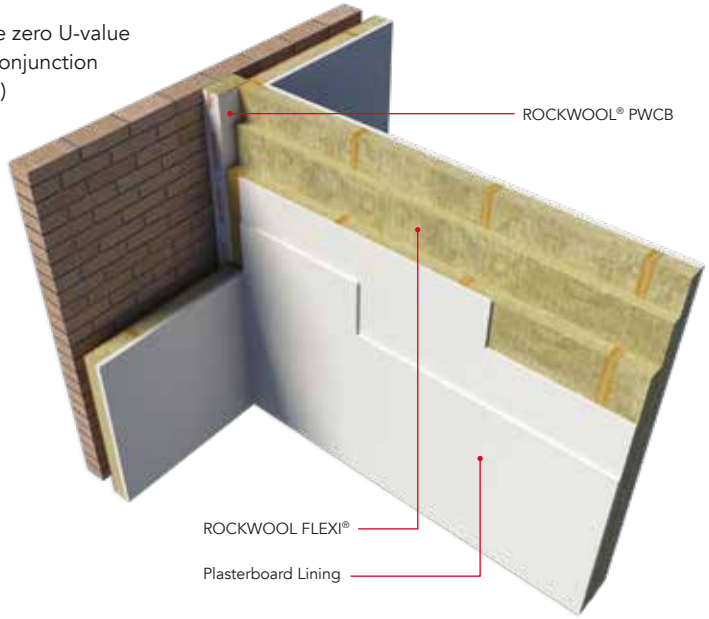
Timber Frame External Walls

Cavity Party Wall

ROCKWOOL FLEXI® can be used to provide a full-fill solution to eliminate heat loss through the party wall through the 'Thermal Bypass Effect' in timber frame party walls. When used in conjunction with ROCKWOOL® PWCB to provide perimeter edge sealing, the system delivers an effective zero U-value party wall.

Key Benefits

- Contributes to an effective zero U-value party wall (when used in conjunction with ROCKWOOL® PWCB)
- Quick and easy to install
- Patented FLEXI® edge ensures fast friction fit
- Non-combustible - Euroclass A1 fire rating
- Highly sound absorbent.



ROCKWOOL® PWCB

Properties	Details
Length	1200mm
Width	200mm
Thickness	65-160mm
Suitable Cavity Widths	50-150mm
Facing	White Polythene Sleeve
Fire Performance	Up to 60 minutes integrity Up to 60 minutes insulation
Certification	LPCB 022b

The following NBS Plus clauses include TCB & PWCB Cavity Barriers:
F30-18, F30-180, K10-530, P10-70, P10-75, P10-420

Thermal Calculations

Typical U-values for Walls (based on the specifications shown on pages 20-25)

Masonry Cavity Walls - Full Fill

Inner Block ROCKWOOL Cavity (mm)	Dense 1900-2250Kg/m³ U-value (W/m²K)	Medium Dense 1400-1450Kg/m³ U-value (W/m²K)	Aircrete Standard 630Kg/m³ U-value (W/m²K)
100	0.31	0.29	0.27
110	0.28	0.27	0.25
120	0.26	0.25	0.24
130	0.25	0.24	0.22
150	0.22	0.21	0.20
180	0.18	0.18	0.17

U-values are based on 102mm facing brick and an internal finish of plasterboard on dabs.

Masonry Cavity Walls - Partial Fill

Inner Block ROCKWOOL Cavity (mm)	Dense 1900-2250Kg/m³ U-value (W/m²K)	Medium Dense 1400-1450Kg/m³ U-value (W/m²K)	Aircrete Standard 630Kg/m³ U-value (W/m²K)
80	0.33	0.32	0.29
100	0.28	0.27	0.25
120	0.24	0.23	0.22
135	0.22	0.21	0.20
150	0.20	0.19	0.18
180	0.17	0.17	0.16

U-values are based on 102mm facing brick and an internal finish of plasterboard on dabs.

Timber Frame External Walls - Insulation Between Studs (brick outer leaf)

Breather Membrane		Standard	Tyvek Reflex*	Protect TF200*
ROCKWOOL FLEXI® (mm)	Stud Depth (mm)	U-value (W/m²K)	U-value (W/m²K)	U-value (W/m²K)
140	140	0.28	0.25	0.24
180	184	0.23	0.21	0.20
200	220	0.20	0.19	0.18

* Tyvek Reflex and Protect TF200 require a service void.

Timber Frame External Walls - Insulation Between Studs and Sheathing (brick outer leaf)

U-value W/m²K	Partial Fill (mm) Over Sheathing	ROCKWOOL FLEXI® (mm) Between Studs	Stud Depth (mm)
0.25	50	90	89
0.19	50	140	140
0.17	50	180	184
0.15	50	200	220

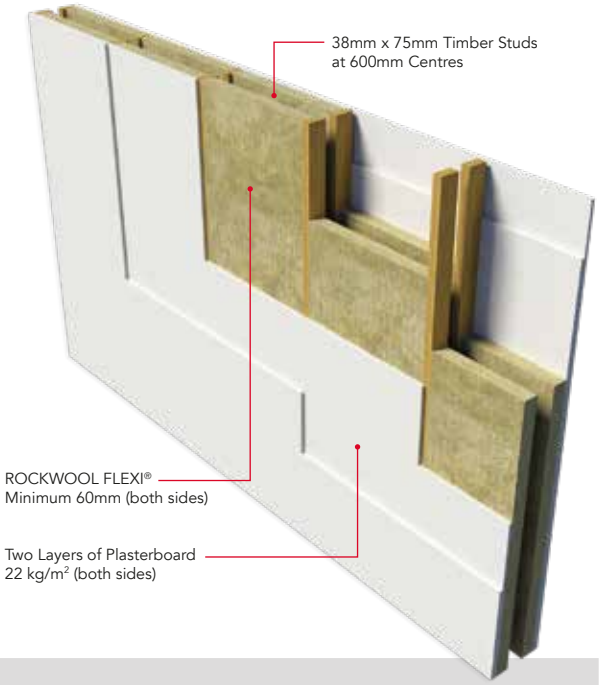
Separating Walls

Timber Frame

ROCKWOOL FLEXI® delivers exceptional acoustic performance, due to its density and non-directional fibre orientation; which traps sound waves and dampens vibration. Being made from stone also means excellent fire protection, being non-combustible and able to withstand temperatures up to 1000°C.

Key Benefits

- Patented FLEXI® edge provides an accurate fit in framed constructions and works with movement and contraction of the timber
- System meets Part E (Sound) and Part B (Fire) of the building regulations
- Robust Detail
- 60 mins fire resistance
- Highly sound absorbent
- Exceptional fire resistance - Euroclass A1 fire rating.



ROCKWOOL FLEXI®

Properties	Details
Length	1200mm
Width	400mm, 600mm
Thickness	50-200mm
Facing	Plain
Thermal Conductivity	50-120mm: 0.038 W/mK 140-200mm: 0.035 W/mK
Acoustic Properties	Achieves Part E (resistance to sound) when installed in accordance with the ROCKWOOL guidelines
Fire Classification	A1 (BS EN 13501-1)
Certification	LPCB 022e/04, LUL Authorised* (295)

* The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with the ROCKWOOL Product Data Sheet - please refer to the LUL Approved Product Register at www.LU-apr.uk for specific details.

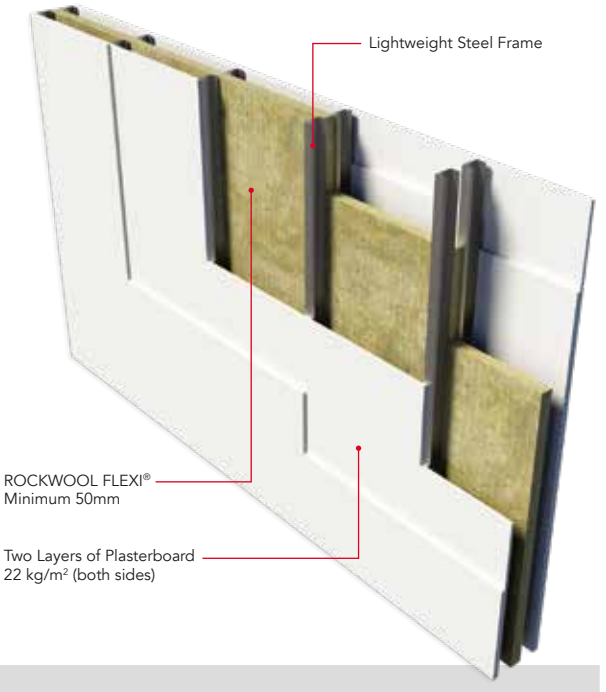
The following NBS clauses include ROCKWOOL FLEXI®: p10:140, p10:210, p10:230, p10:240,p10:250, k10:115, k10:125, k10:145, k10:155, k10:165, k10:185, k10:420, k11:215, k11:225, k11:235, k11:245, k20:150, k20:160, m10:290, m13:260

Metal Frame

ROCKWOOL FLEXI® delivers exceptional acoustic performance, due to its density and non-directional fibre orientation; which traps sound waves and dampens vibration. Being made from stone also means excellent fire protection, being non-combustible and able to withstand temperatures up to 1000°C.

Key Benefits

- Patented FLEXI® edge provides an accurate fit in framed constructions
- System meets Part E (Sound) and Part B (Fire) of the building regulations
- Robust Detail
- 60 mins fire resistance
- Highly sound absorbent
- Exceptional fire resistance - Euroclass A1 fire rating.



ROCKWOOL FLEXI®

Properties	Details
Length	1200mm
Width	400mm, 600mm
Thickness	50-200mm
Facing	Plain
Thermal Conductivity	50-120mm: 0.038 W/mK 140-200mm: 0.035 W/mK
Acoustic Properties	Achieves Part E (resistance to sound) when installed in accordance with the ROCKWOOL guidelines
Fire Classification	A1 (BS EN 13501-1)
Certification	LPCB 022e/04, LUL Authorised* (295)

* The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with the ROCKWOOL Product Data Sheet - please refer to the LUL Approved Product Register at www.LU-apr.uk for specific details.

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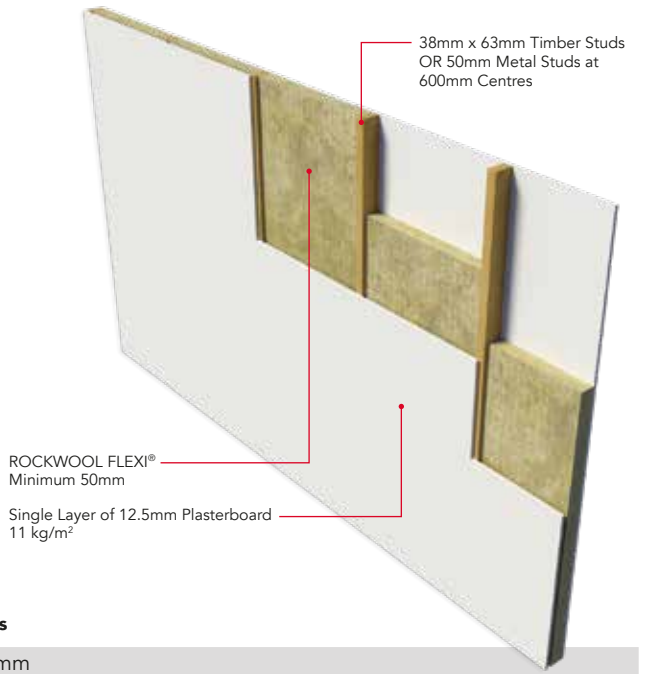
Internal Walls

Timber or Metal Stud

ROCKWOOL FLEXI® delivers exceptional acoustic performance, due to its density and non-directional fibre orientation; which traps sound waves and dampens vibration. Being made from stone also means excellent fire protection, being non-combustible and able to withstand temperatures up to 1000°C.

Key Benefits

- Patented FLEXI® edge provides an accurate fit in framed constructions and works with movement and contraction of the timber
- System meets Part E (Sound) and Part B (Fire) of the building regulations
- 40dB airbourne noise reduction
- 30 mins fire resistance
- Highly sound absorbent
- Exceptional fire resistance - Euroclass A1 fire rating.



ROCKWOOL FLEXI®

Properties	Details
Length	1200mm
Width	400mm, 600mm
Thickness	50-200mm
Facing	Plain
Thermal Conductivity	50-120mm: 0.038 W/mK 140-200mm: 0.035 W/mK
Acoustic Properties	Achieves Part E (resistance to sound) when installed in accordance with the ROCKWOOL guidelines
Fire Classification	A1 (BS EN 13501-1)
Certification	LPCB 022e/04, LUL Authorised* (295)

* The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with the ROCKWOOL Product Data Sheet - please refer to the LUL Approved Product Register at www.LU-apr.uk for specific details.

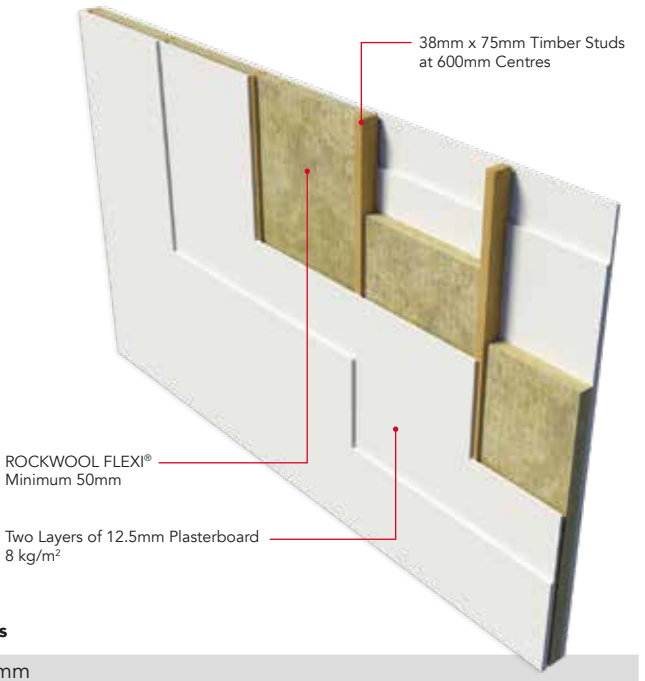
The following NBS clauses include ROCKWOOL FLEXI®: p10:140, p10:210, p10:230, p10:240,p10:250, k10:115, k10:125, k10:145, k10:155, k10:165, k10:185, k10:420, k11:215, k11:225, k11:235, k11:245, k20:150, k20:160, m10:290, m13:260

Timber Stud - Enhanced Performance

ROCKWOOL FLEXI® delivers exceptional acoustic performance, due to its density and non-directional fibre orientation; which traps sound waves and dampens vibration. Being made from stone also means excellent fire protection, being non-combustible and able to withstand temperatures up to 1000°C.

Key Benefits

- Patented FLEXI® edge provides an accurate fit in framed constructions and works with movement and contraction of the timber
- System meets Part E (Sound) and Part B (Fire) of the building regulations
- 46dB airbourne noise reduction
- 60 mins fire resistance
- Highly sound absorbent
- Exceptional fire resistance - Euroclass A1 fire rating.



ROCKWOOL FLEXI®

Properties	Details
Length	1200mm
Width	400mm, 600mm
Thickness	50-200mm
Facing	Plain
Thermal Conductivity	50-120mm: 0.038 W/mK 140-200mm: 0.035 W/mK
Acoustic Properties	Achieves Part E (resistance to sound) when installed in accordance with the ROCKWOOL guidelines
Fire Classification	A1 (BS EN 13501-1)
Certification	LPCB 022e/04, LUL Authorised* (295)

* The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with the ROCKWOOL Product Data Sheet - please refer to the LUL Approved Product Register at www.LU-apr.uk for specific details.

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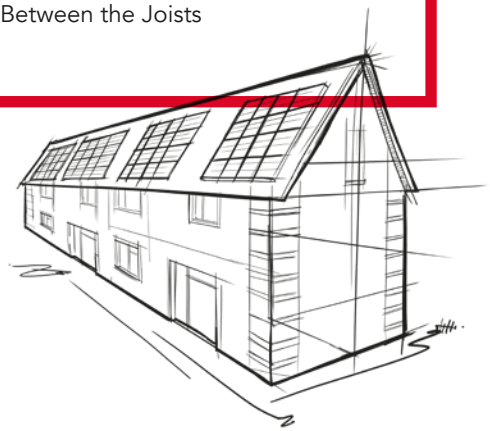
Pitched Roofs

Warm Roof

- Insulation Between the Rafters
- Insulation Between and Over the Rafters

Cold Roof

- Insulation Between the Joists



Product Application Guide

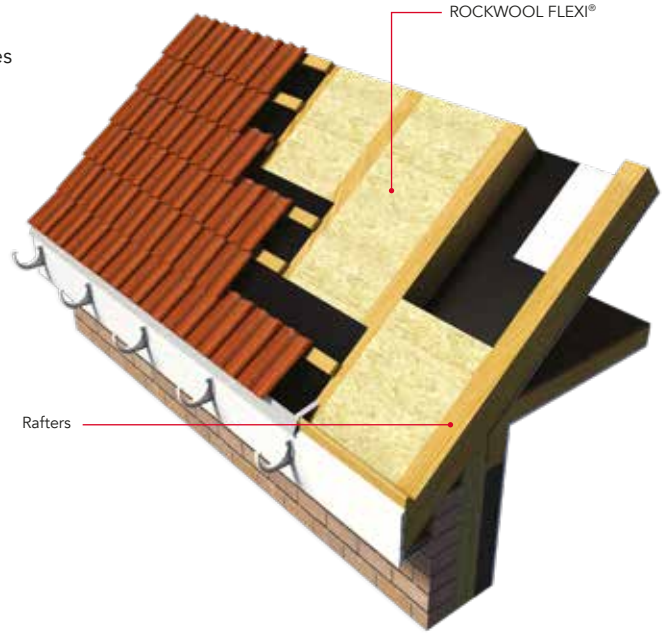
Warm Roof

Insulation Between the Rafters

ROCKWOOL FLEXI® has a unique patented flexible edge, making it perfect for friction fitting over head in roof rafters. The density and durability of ROCKWOOL FLEXI® means it will self support in overhead rafters without sagging or falling out, providing outstanding thermal, acoustic and fire performance for the lifetime of the building.

Key Benefits

- Patented FLEXI® edge provides secure friction fit between overhead rafters
- Outstanding thermal and acoustic properties
- Exceptional fire resistance - Euroclass A1 fire rating.



ROCKWOOL FLEXI®

Properties	Details
Length	1200mm
Width	400mm, 600mm
Thickness	50-200mm
Facing	Plain
Thermal Conductivity	50-120mm: 0.038 W/mK 140-200mm: 0.035 W/mK
Fire Classification	A1 (BS EN 13501-1)
Certification	LPCB 022e/04

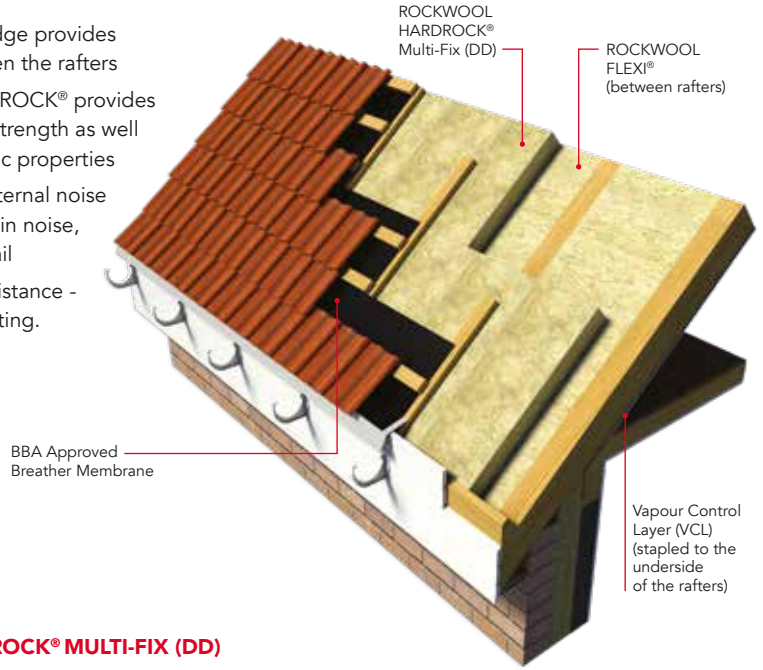
The following NBS clauses include ROCKWOOL FLEXI®: p10:140, p10:210, p10:230, p10:240,p10:250, k10:115, k10:125, k10:145, k10:155, k10:165, k10:185, k10:420, k11:215, k11:225, k11:235, k11:245, k20:150, k20:160, m10:290, m13:260

Insulation Between and Over the Rafters

The ROCKWOOL ROCKFALL® warm pitched roof system is totally fire safe, minimises thermal bridging and provides an effective barrier against external noise pollution. The system is made up of the HARDROCK® Multi-Fix (DD) over the rafters and ROCKWOOL FLEXI® fully filling the rafters, with an airtight VCL membrane stapled to the underside of the rafters, finished with a plasterboard.

Key Benefits

- Patented FLEXI® edge provides excellent fit between the rafters
- Dual density HARDROCK® provides high compression strength as well as excellent acoustic properties
- Protects against external noise pollution such as rain noise, aircraft, road and rail
- Exceptional fire resistance - Euroclass A1 fire rating.



ROCKWOOL HARDROCK® MULTI-FIX (DD)

Properties	Details
Length	1200mm
Width	1000mm
Thickness	50-185mm
Facing	Glass Mineral Fibre Fleece
Thermal Conductivity	0.039 W/mK
Fire Classification	A1 (BS EN 13501-1)
Certification	FM Approved, LPS 1181: Part 1 EXT A, LPCB 002e/07

The following NBS clauses include ROCKWOOL HARDROCK® Multi-Fix (DD): J41-10/425, J42-10/425

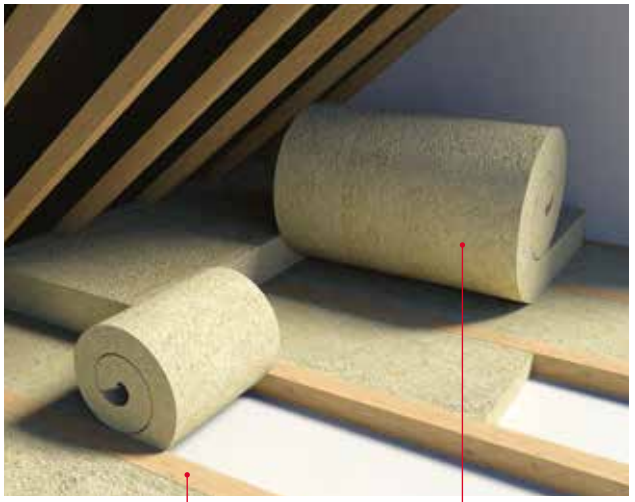
Cold Roof

Insulation Between the Joists

ROCKWOOL offer three effective, light density roll products in thicknesses ranging from 100mm to 220mm. ROCKWOOL® Roll consists of a single 1200mm width roll, Twin Roll consists of 2 pre-split 100mm thick layers in a pack to deliver two thickness application options, and Rollbatt is pre-cut insulation rolls, in either 400mm or 600mm widths.

Key Benefits

- Provides superb fit
- Outstanding thermal and acoustic properties
- Exceptional fire resistance
- Durable - will not slump over time, maintaining long-term performance
- Twin Roll can be used as a single 100mm layer between joists and as a 200mm layer over the joists.



ROCKWOOL® Roll, Twin Roll and Rollbatt

Properties	Details
Length	2500-4800mm
Width	400, 600, 1200mm
Thickness	100-220mm
Facing	Plain
Thermal Conductivity	0.044 W/mK
Fire Classification	A1 (BS EN 13501-1)

The following NBS clauses include ROCKWOOL Roll® products:
K10:115, K10:155, K10:165, K10:185, K11:215, K11:225, K11:235, P10:120, P10:125, P10:130, P10:135, P10:210, P10:240, P10:250

Thermal Calculations

Typical U-values for Pitched Roofs

(based on the specifications shown on pages 34-36)

Warm Roof - Insulation Between the Rafters

	ROCKWOOL FLEXI® Between Rafter	With 30mm insulated plasterboard (0.053 W/mK) under rafter	With 50mm insulated plasterboard (0.045 W/mK) under rafter
(mm)	U-value (W/m²K)	U-value (W/m²K)	U-value (W/m²K)
90	0.42	0.35	0.29
100	0.39	0.32	0.27
140	0.27	0.23	0.21
180	0.21	0.19	0.17
200	0.19	0.17	0.16

Warm Roof - Insulation Between and Over the Rafters

U-value W/m²K	HARDROCK® Multi-Fix (DD) (mm) Over Rafters	ROCKWOOL FLEXI® (mm) Between Rafters
0.25	60	100
0.19	60	140
0.16	60	180
0.15	60	200
0.14	60	220
0.21	85	100
0.17	85	140
0.15	85	180
0.14	85	200
0.13	85	220

Cold Roof - Insulation Between Ceiling Joists

U-value W/m²K	ROCKWOOL® Roll (mm) Between Joists	ROCKWOOL® Roll (mm) Over Joists	Total Thickness (mm)
0.16	100	170	270
0.14	100	200	300
0.13	100	220	320
0.11	100	300	400
0.10	100	320	420

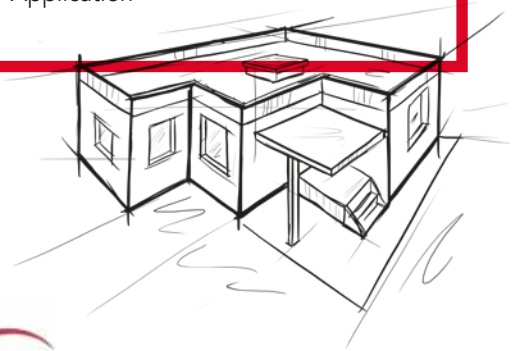
Warm Flat Roofs

Warm Systems

- Single Ply, EPDM and Liquid Waterproofing
- Bituminous Membrane
- Tapered Roofing

Refurbishment

- Overlay Application



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Product Application Guide

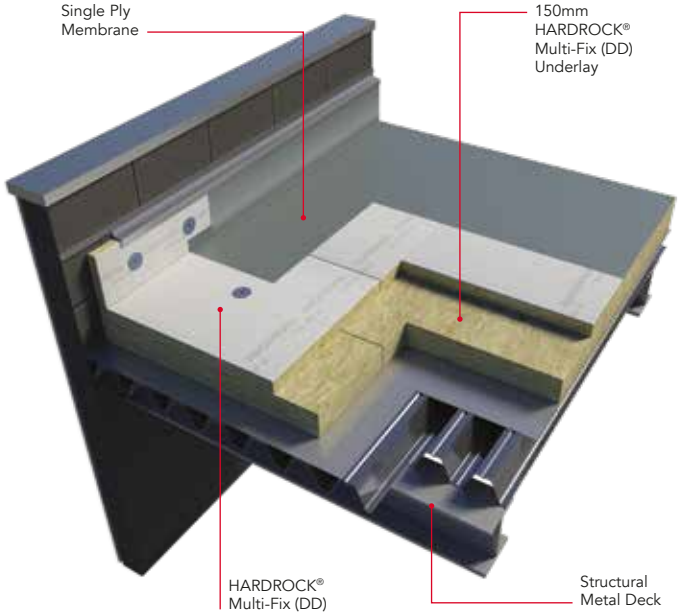
Warm Systems

Single Ply, EPDM & Liquid Waterproofing

HARDROCK® Multi-Fix (DD) is a versatile flat roof insulation board which carries with it exceptional acoustic and fire resistance properties. Suitable for any building type, HARDROCK® Multi-Fix (DD) is compatible with an array of single ply membranes in both mechanically fixed and bonded applications.

Key Benefits

- Compatible with multiple waterproof membranes
- Only 1 N° fixing per board (Mechanically fixed systems)
- Quick and easy installation
- Long term, stable thermal performance
- FM & LPCB Approved
- Cost effective acoustic and fire rated systems
- Can be recycled and reprocessed into new insulation
- Zero ODP and GWP.



ROCKWOOL HARDROCK® Multi-Fix (DD)

Properties	Details
Length	1200mm
Width	1000mm
Thickness	60-185mm
Facing	Glass Mineral Fibre Fleece
Thermal Conductivity	0.039 W/mK
Fire Performance	Up to 120 minutes integrity Up to 120 minutes insulation
Acoustic Performance	35-45 dB (60-335mm)
Fire Classification	A1 (BS EN 13501-1)
Certification	FM Approved, LPS 1181: Part 1 EXT A, LPCB 002e/07

N.B. HARDROCK® Multi-Fix (DD) is also suitable for EPDM, Green Roof and Liquid Membrane systems.

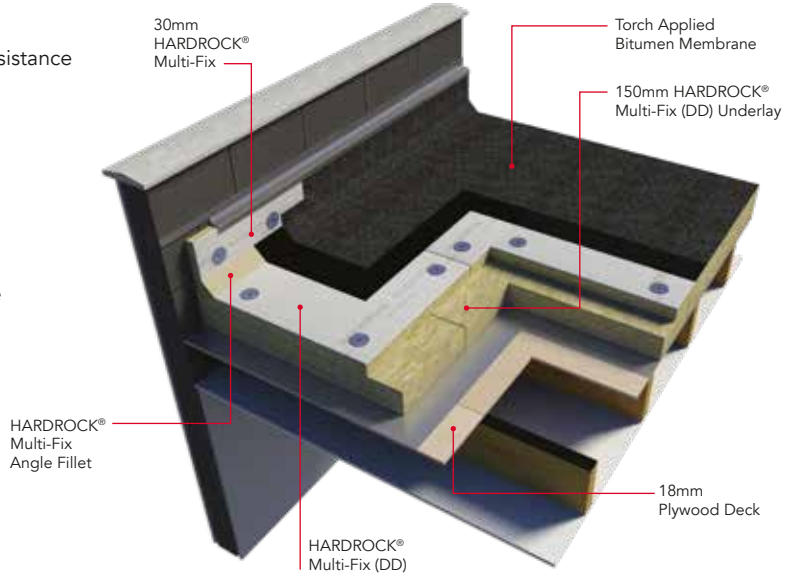
The following NBS clauses include ROCKWOOL HARDROCK® Multi-Fix (DD): J41-10/425, J42-10/425

Bituminous Membrane

HARDROCK® Multi-Fix (DD) is supplied with an integral glass mineral fibre facing which provides a compatible surface for torch applied bitumen felt. HARDROCK® Multi-Fix (DD) has excellent heat resistance and provides a strong bond between membrane and insulation.

Key Benefits

- Excellent heat resistance
- Torch directly to the installation
- No requirement for 3G layers
- Quick and easy installation
- Strong resistance to wind uplift.



ROCKWOOL HARDROCK® Multi-Fix (DD)

Properties	Details
Length	1200mm
Width	1000mm
Thickness	60-185mm
Facing	Glass Mineral Fibre Fleece
Thermal Conductivity	0.039 W/mK
Fire Performance	Up to 120 minutes integrity Up to 120 minutes insulation
Acoustic Performance	35-45 dB (60-335mm)
Fire Classification	A1 (BS EN 13501-1)
Certification	FM Approved, LPS 1181: Part 1 EXT A, LPCB 002e/07

N.B. HARDROCK® Multi-Fix (DD) is also suitable for EPDM, Green Roof and Liquid Membrane systems.

The following NBS clauses include ROCKWOOL HARDROCK® Multi-Fix (DD): J41-10/425, J42-10/425

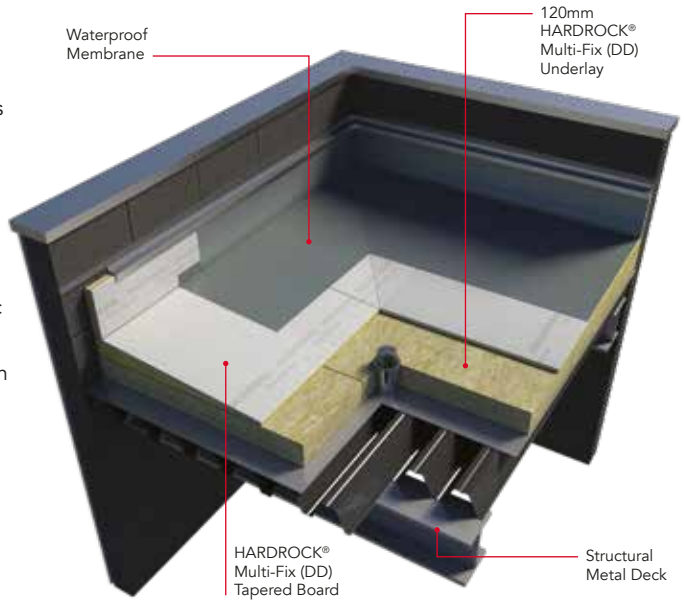
Warm Systems

Tapered Roofing

Designed for both new and existing flat roof constructions, HARDROCK® Multi-Fix Tapered System simplifies specification, providing a water management solution which delivers an effective thermal, acoustic and fire rated performance. The HARDROCK® Multi-Fix Tapered System is compatible with all common waterproof membranes and backed by a complete design to delivery service.

Key Benefits

- Reduces ponding or standing water
- Delivered in exact quantities to reduce waste
- Quick and easy design service
- Bespoke system design available
- Combined thermal, acoustic and fire rated performance
- Compatible with all common waterproof membranes.



ROCKWOOL HARDROCK® Multi-Fix Tapered

Properties	Details
Length	1200mm
Width	1000mm
Standard Falls	1:40, 1:60, 1:80 (min 10mm thickness)
Facing	Glass Mineral Fibre Fleece
Thermal Conductivity	0.039 W/mK
Fire Performance	Up to 120 minutes integrity Up to 120 minutes insulation
Acoustic Performance	35-45 dB (60-335mm)
Fire Classification	A1 (BS EN 13501-1)
Certification	FM Approved, LPS 1181: Part 1 EXT A, LPCB 002e/07

The following NBS clauses include ROCKWOOL HARDROCK® Multi-Fix (DD): J41-10/425, J42-10/425

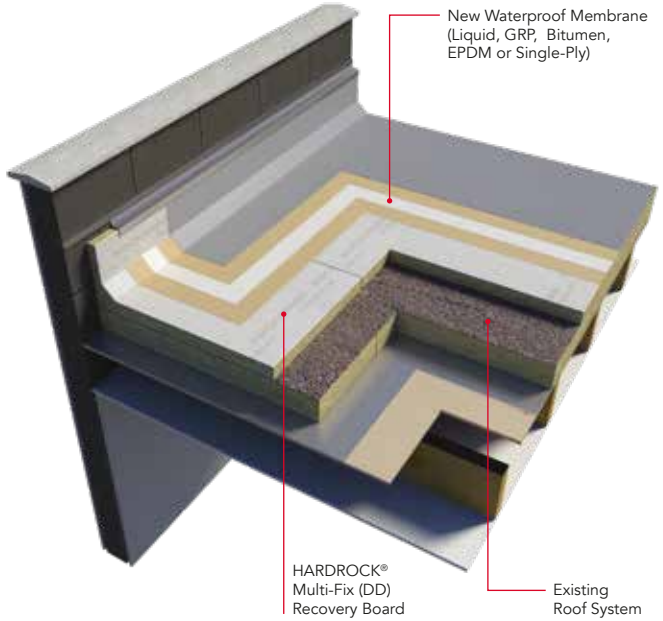
Refurbishment

Overlay Applications

The 30mm HARDROCK® Multi-Fix Recovery Board has been purposely designed to simplify repair and refurbishment of domestic or non-domestic flat roof systems. The ROCKWOOL Recovery Board can be used to isolate and prepare the surface of existing roof systems, providing the perfect platform for the installation of new waterproofing membranes.

Key Benefits

- Can be installed directly over the existing roof system
- Can be adhered or mechanically fixed
- Accommodates minor imperfections on the existing surface
- Single solution compatible with most roof coverings
- Significantly improves acoustic performance
- Cost effective refurbishment solution.

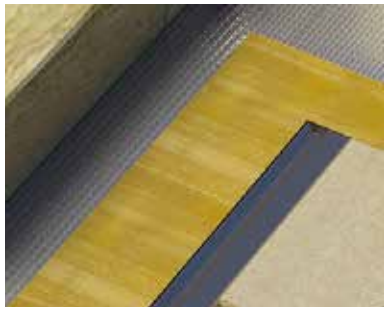


ROCKWOOL HARDROCK® Multi-Fix Recovery Board

Properties	Details
Length	1200mm
Width	1000mm
Thickness	30, 40mm
Facing	Glass Mineral Fibre Fleece
Thermal Conductivity	0.039 W/mK
Acoustic Performance	33 dB
Fire Classification	A1 (BS EN 13501-1)
Certification	FM Approved

The following NBS clauses include ROCKWOOL HARDROCK® Multi-Fix (DD): J41-10/425, J42-10/425

Ancillaries



Acoustic Membrane

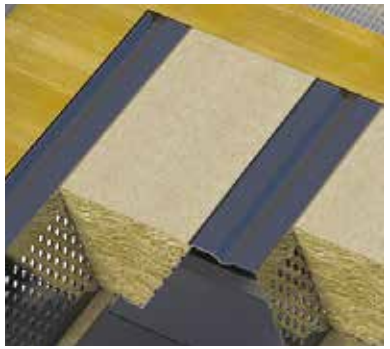
ROCKWOOL® Acoustic Membrane is a high performance, sound-deadening polymer mass layer which can be used to further enhance HARDROCK® Multi-Fix (DD) acoustic roof systems.

Installation Guidance

Lay directly onto the metal decking ensuring joints are overlapped by 50mm.

Product Specification

Weight Options	5kg and 10kg/m²
Dimensions	1220 x 6050mm (5kg), 1200 x 4000mm (10kg)
Thickness	2.5mm (5kg), 5mm (10kg)
Thermal Conductivity (λ)	0.45 W/mK



Acoustic Infills

ROCKWOOL® Acoustic Infills have been designed and tested for use within ROCKWOOL HARDROCK® roof systems. The ROCKWOOL® Acoustic Infill provides a combination of optimised density and excellent fit to deliver Class C sound absorption within perforated metal deck systems.

Installation Guidance

Place the ROCKWOOL Acoustic Infill directly within the trough of the metal deck ensuring the infills are tightly butted together.

Product Specification

Length	1000mm
Facing Options	Black or White Tissue, Plain
Core	Acoustic Stone Wool
Acoustic Performance	Class C Sound Absorption

Angle Fillet

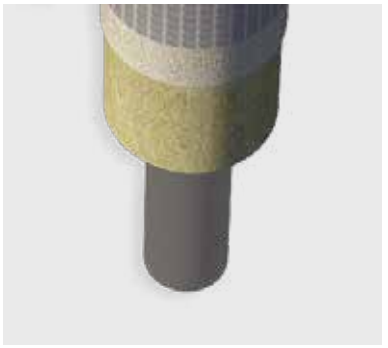
The new HARDROCK® Multi-Fix Angle Fillet has been designed to fully support the waterproof membrane at 90° abutments, providing a smooth transition between the horizontal and vertical interface.

Installation Guidance

Place the angle fillet along the 90° abutment between the horizontal and vertical interface.

Product Specification

Length	1200mm
Width	72.5mm
Thickness	30mm
Facing	Mineral Glass Fibre Fleece



TechTube

ROCKWOOL® Techtube has been engineered to provide the highest standard of noise control to circular and rectangular ductwork including rainwater, soil-vent and service pipes.

Installation Guidance

Techtube is generally secured with aluminium bands at a maximum of 200mm centres. All joints should be taped with self-adhesive aluminium foil tape.

Product Specification

Length	1000mm
To Suit Pipe O/D	21–610mm
ROCKWOOL Thickness	25-100mm*
Mass layer	5 Kg/m²

*Some combinations of O/D and thickness may not be available.

Technical Overview

Acoustic Performance

The inherent acoustic properties of ROCKWOOL HARDROCK® Multi-Fix (DD) can reduce or even eliminate the need for additional acoustic mass layers when meeting all but the most demanding specifications for the reduction of airborne and rain noise. For very high levels of acoustic treatment, performance can be enhanced with the addition of a ROCKFON ceiling or a layer of ROCKWOOL® Acoustic Membrane.

	Base layer	Upper Layer	Weighted Reduction (dB)
HARDROCK® Recovery Board	30mm		33
HARDROCK® Multi-Fix (DD)	150mm		41*
	170mm		44*
	185mm		45*
	150mm (Underlay)	60mm	46*
	150mm (Underlay)	85mm	47*
	150mm (Underlay)	105mm	48*
	150mm (Underlay)	115mm	48*

Notes

Acoustic, Fire and Thermal Performances are based on a construction of Metal Deck, VCL, thickness of HARDROCK® (DD) and Single Ply Membrane. No ceilings are taken into account within the constructions.

Acoustic Performance

* Prediction data based on a selection of ROCKWOOL test data.

Fire Performance

** All fire rated systems must comprise of two insulation layers with staggered joints to create the total thickness shown in the table.

Fire Performance

ROCKWOOL HARDROCK® Multi-Fix (DD) achieves a European 'Reaction to Fire' classification of A1 and is therefore defined as non-combustible in UK Building Regulations. In addition HARDROCK® Multi-Fix offers a high level of fire resistance, providing up to 2hrs for both integrity and insulation.

	Total Thickness	Fire Resistance	
		Integrity (mins)	Insulation (mins)
HARDROCK® Multi-Fix (DD)	105mm-120mm (underlay)	60**	60**
	150mm-185mm	90**	90**
	210mm	120**	120**

For more information please contact our Technical Solutions team on **01656 868 490.**

Thermal Performance

ROCKWOOL insulation offers excellent thermal properties and will help reduce energy usage and costs. Made from a renewable and plentiful resource it is a practical choice to maximise the performance of your building.

	Base layer	Upper Layer	Thermal
HARDROCK® Recovery Board	30mm		1.08
HARDROCK® Multi-Fix (DD)	60mm		0.59
	85mm		0.43
	105mm		0.35
	115mm		0.32
	120mm (Underlay)		0.31
	150mm		0.25
	170mm		0.22
	185mm		0.20
	150mm (Underlay)	60mm	0.18
	150mm (Underlay)	85mm	0.16
	150mm (Underlay)	105mm	0.15
	150mm (Underlay)	115mm	0.14
	150mm (Underlay)	170mm	0.12
	150mm (Underlay)	185mm	0.11

Cladding

Twin Skin Metal Cladding

- Built-up Metal Roof and Wall Cladding

Rainscreen Cladding Systems

- Lightweight Steel Frame and Masonry Substrates

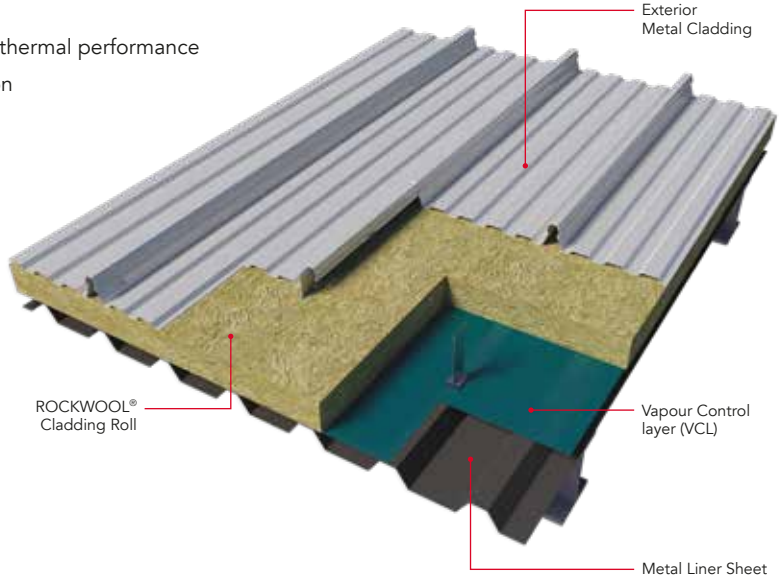
Twin Skin Metal Cladding

Built-up Metal Roof and Wall Systems

ROCKWOOL® Cladding Roll is a lightweight, flexible mat which delivers a combination of thermal, fire and acoustic performance. Suitable for use within built up metal roof and wall applications ROCKWOOL® Cladding Roll is available in a variety of thicknesses and can be produced with an aluminium facing for increased tensile strength in vertical wall applications.

Key Benefits

- Long term, stable thermal performance
- A1 fire classification (non-combustible)
- Water repellent
- Chemically inert
- Excellent acoustic properties
- EPD available.



ROCKWOOL® Cladding Roll

Properties	Details
Length	2200-5000mm
Width	1200mm
Thickness	60-220mm
Facing	Plain: Horizontal Applications Aluminium Foil: Vertical Applications
Thermal Conductivity	0.040 W/mK
Fire Classification	A1 (BS EN 13501-1)
Certification	LPCB 022e/01, LUL Authorised* (293, 294)

* The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with the ROCKWOOL Product Data Sheet - please refer to the LUL Approved Product Register at www.LU-apr.uk for specific details.

The following NBS clauses include Cladding Roll:
H31:254, H31:271

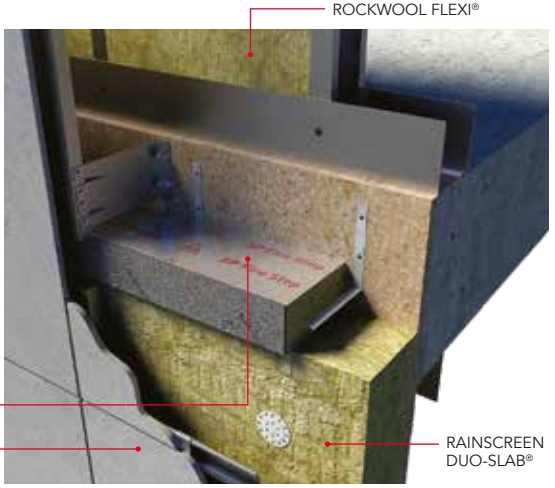
Rainscreen Cladding System

Lightweight Steel Frame and Masonry Substrates

RAINSCREEN DUO-SLAB® is a resilient, dual-density insulation board designed for use within ventilated Rainscreen systems, comprising of a robust outer surface and a resilient inner face has a high resistance to wind and rain during construction. Because of its unique dual density construction RAINSCREEN DUO-SLAB® requires fewer fixings, thus providing a cost- effective solution in over-cladding applications.

Key Benefits

- Non-combustible, suitable for buildings above 18m
- High resistance to wind and rain
- Fewer fixings required for installation
- Robust front face resists damage and over-driving of fixings
- Cost effective solution
- EPD available.



ROCKWOOL® Rainscreen Cladding Systems

	ROCKWOOL RAINSCREEN DUO SLAB®	ROCKWOOL® Firestop VRB
Properties	**Details**	**Details**
Length	1200mm	1000mm
Width	600mm	Suitable for Cavities <300mm
Thickness	50-230mm	75mm
Facing	Plain, Tissue, Aluminium Foil	Aluminium Foil
Fire Performance	N/A	Up to 60 minutes integrity Up to 60 minutes insulation
Thermal Conductivity	<90mm: 0.034 W/mK >90mm: 0.035 W/mK	N/A
Fire Classification	A1 (BS EN 13501-1)	N/A
Certification	LPCB 022e/04, LUL Authorised* (323, 324)	N/A

* The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with the ROCKWOOL Product Data Sheet - please refer to the LUL Approved Product Register at www.LU-apr.uk for specific details.

The following NBS Plus clauses include RAINSCREEN DUO SLAB®:
H92:776, H20:10, H11:110, P10:42, 217

SP Firestop VRB: H92-490, P10 - 435

Thermal Calculations

Typical U-values for Cladding

(based on the specifications shown on pages 50 and 51 of this brochure)

Built-up Metal Cladding - Walls

U-value W/m²K	Cladding Roll (Foil faced) Thickness Range (mm)
0.26	160-180
0.24	180
0.22	200
0.20	220

U-values shown are based on the Euroclad Elite System using ROCKWOOL® Cladding Roll

Built-up Metal Cladding - Roofs

U-value W/m²K	Cladding Roll (unfaced) Thickness Range (mm)
0.28	150
0.25	180-220
0.20	220-240
0.18	260-280
0.16	320
0.15	340-360

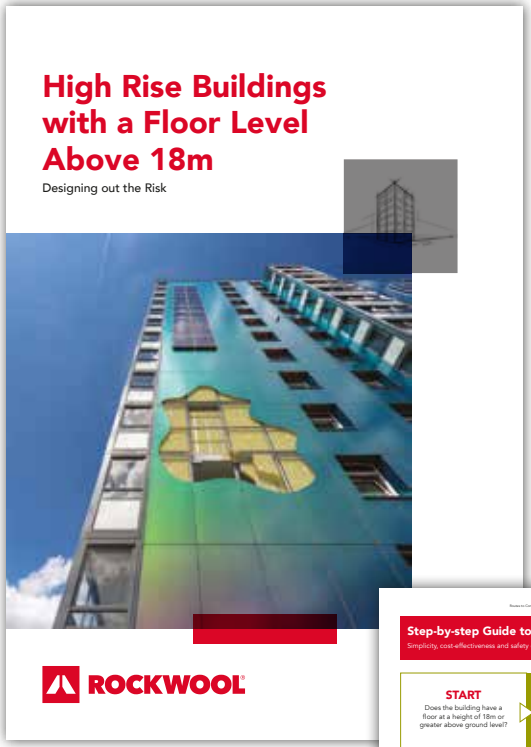
U-values shown are based on the Euroclad Elite System using ROCKWOOL® Cladding Roll

Rainscreen Cladding System - Lightweight Steel Frame

U-value W/m²K	RAINSCREEN DUO-SLAB® (mm)	ROCKWOOL FLEXI® (mm)
0.25	75	140
0.22	100	140
0.20	120	140
0.18	150	140
0.17	180	140

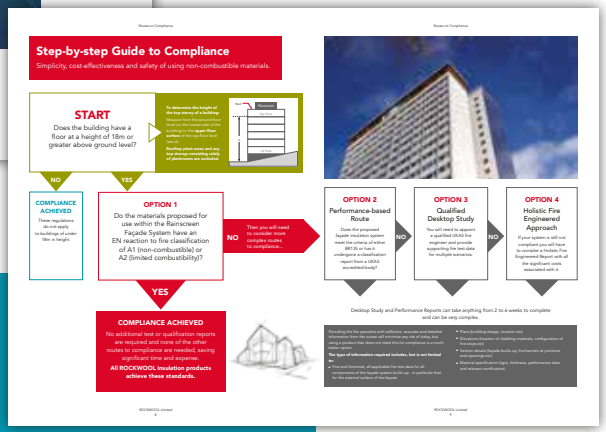
U-values shown have been calculated with a thermal bridging allowance which includes ROCKPANEL Rockclad 8mm and FastFrame Rainscreen brackets.

Designing Out the Risk



With literally thousands of materials and colour combinations available, Rainscreen Cladding and External Wall Systems offer designers increased flexibility and the freedom to design bespoke systems for clients and building owners.

To summarise and simplify the various regulations, standards and routes to compliance available, ROCKWOOL has developed a selection of supporting material to provide further guidance on the design of fire safe external wall systems in buildings above 18 metres.



To access more information please visit www.rockwool.co.uk where you can:

- Download our new technical guidance document
- Take the online CPD
- Access the online U-value calculator which includes improved U-values for Rainscreen systems.

Product Application Guide

RAINSCREEN DUO SLAB® is BBA approved.

RAINSCREEN DUO SLAB® is the first and only stone wool product to receive approval by the British Board of Agrément (BBA) for use in ventilated rainscreen systems.

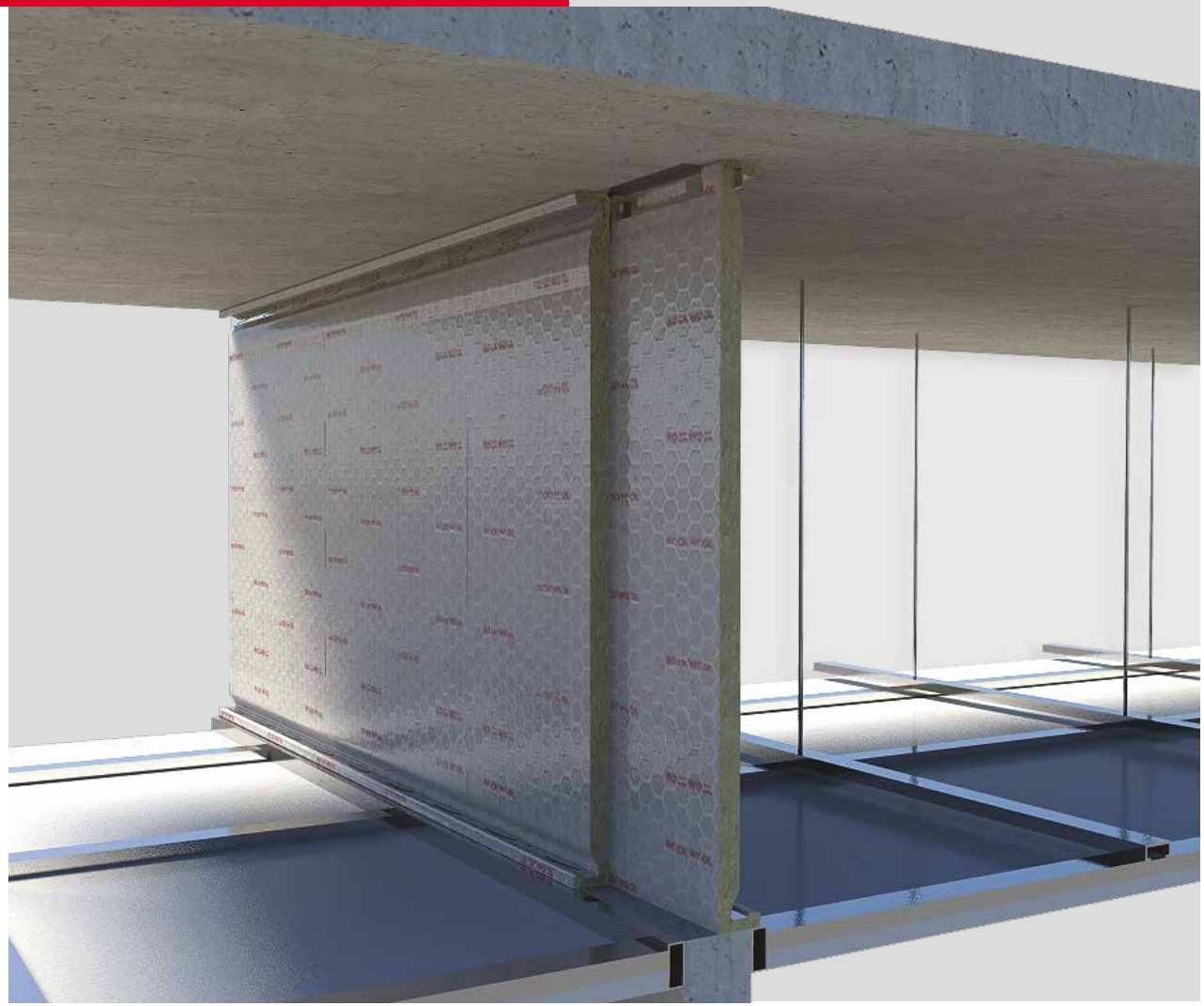
BBA certification is recognised throughout the construction industry and is a sought-after accreditation for manufacturers like ROCKWOOL. It is also incredibly important to specifiers, as it is a mark of quality, safety and reliability that provides complete product reassurance.

To meet UK British Regulations, our product was stringently tested for thermal performance, condensation risk, behaviour in relation to fire and durability. It easily met all of these requirements and has been certified by the BBA for use as a hybrid frame system and rainscreen system.

BBA APPROVAL INSPECTION TESTING CERTIFICATION

CERTIFICATE 17/5402

Fire Protection



Cavity Barriers

- Thermal Cavity Barriers (TCB) and Party Wall Cavity Barriers (PWCB)
- Slab Edge Firestoppping
- Fire and Smoke Barriers

Structural Protection

- Soffit Protection
- Structural Steel Protection

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FIREPRO®
SOLUTION FINDER TODAY

Search for FIREPRO or ROCKWOOL on Google Play or the App Store.

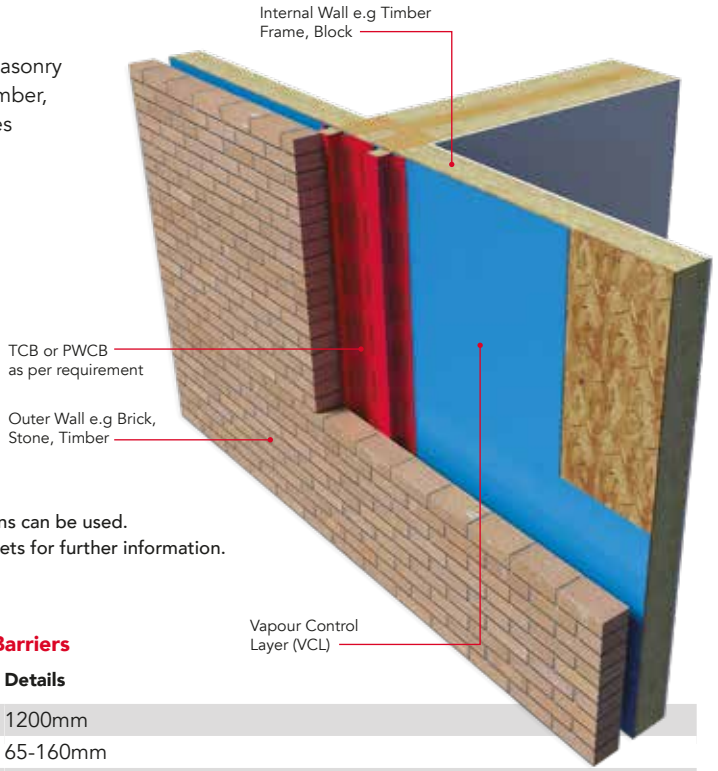
Cavity Barriers

Thermal Cavity Barriers (TCB) and Party Wall Cavity Barriers (PWCB)

ROCKWOOL® Cavity Barriers - TCB Cavity Barrier and PWCB Cavity Barrier - have been developed to exceed minimum building regulation requirements for fire resistance within concealed wall cavities. Tested and assessed to BS476: Part 20, they provide up to 60 minutes fire resistance (integrity and insulation).

Key Benefits

- Tested for use between masonry to masonry, masonry to timber, timber to timber substrates
- Durable
- Can be used vertically or horizontally
- Easy to install.



Other build-ups and constructions can be used. Please refer to product data sheets for further information.

ROCKWOOL® TCB Cavity Barriers

Properties	Details
Length	1200mm
Width	65-160mm
Thickness	65-160mm
Suitable Cavity Widths	50-150mm
Facing	Red Polythene Sleeve
Fire Performance	Up to 60 minutes integrity (depending on cavity size) Up to 60 minutes insulation (depending on cavity size)
Certification	LPCB 022b (LPS 1132: Issue 4: 1999)

The following NBS Plus clauses include TCB Cavity Barrier:
F30-18, F30-180, K10-530, P10-70, P10-75, P10-420

Slab Edge Firestopping

SP Firestop System

The SP FireStop Slab® has been specifically designed to form cavity fire stops within buildings. It is a one-piece system enabling easy cutting and installation, and also provides a unique lateral compression to facilitate a tight fit. The SP FireStop Slab® can be installed horizontally or vertically and is suitable for cavity widths between 50mm and 400mm in masonry constructions.

Key Benefits

- Up to 2 hour fire resistance
- Resists the passage of smoke
- Easy to cut and install
- Suitable for cavity widths up to 400mm.

Other build-ups and constructions can be used. Please refer to product data sheets for further information.

ROCKWOOL® SP Firestop System

Properties	Details
Length	1000mm
Width	650mm
Thickness	75, 90mm
Facing	Aluminium Foil
Fire Performance	Up to 120 minutes integrity Up to 120 minutes insulation
Certification	LPCB 022b, LUL Authorised* (2244)

* The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with the ROCKWOOL Product Data Sheet - please refer to the LUL Approved Product Register at www.LU-apr.uk for specific details.

The following NBS Plus clauses include SP Firestop System:
F30-18, F30-180, P10-432, P12-40, P12-360

Cavity Barriers

Fire and Smoke Barriers

Fire Barrier System

Fire Barrier Systems offer labour-saving solutions to prevent the spread of fire and smoke within roof and ceiling voids.

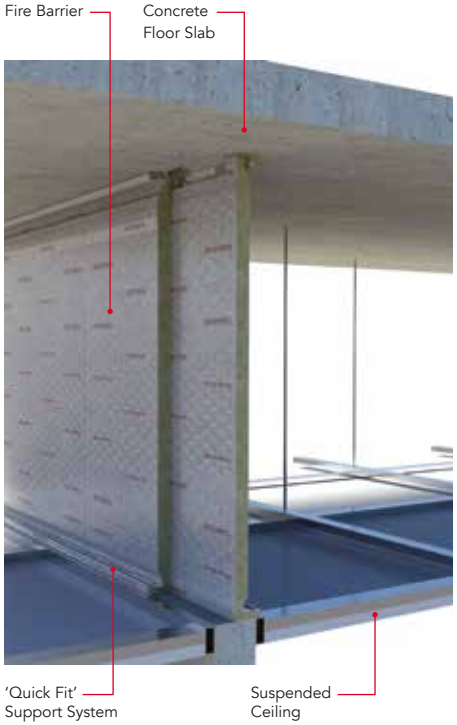
The ROCKWOOL® Fire Barrier Systems range comprises the following products:

- Fire Barrier
- Fire Barrier Slab
- Fire Barrier Easy Fix System.

Options are available to provide up to 4 hours fire protection and fixings to a variety of substrates.

Key Benefits

- Patented 'Quick Fit' support system cost effectively installs Fire Barriers for periods up to 60 minutes. Resists the passage of smoke
- Ease of construction and installation reduces the risk of installation errors
- Extended drops easily catered for with system capable of maintaining its performance in void heights up to 10.5 metres
- Systems available to provide up to 4 hours integrity.



ROCKWOOL® Fire Barrier System	Fire Barrier	Fire Barrier Slab
Properties	**Details**	**Details**
Length	3500, 4000mm	1000mm
Width	1000mm	666mm
Thickness	50, 60mm	100mm
Facing	Plain or Aluminium Foil	Aluminium Foil (2 sides)
Acoustic Performance	Up to 50 dB	
Fire Performance	Up to 240 minutes integrity Up to 120 minutes insulation	
Certification	LPCB 022c, LUL Authorised* (2230, 2231)	

* The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with the ROCKWOOL Product Data Sheet - please refer to the LUL Approved Product Register at www.LU-apr.uk for specific details.

The following NBS Plus clauses include Fire Barrier: K10-530, K10-545, K40-60, K40-287, K40-425, K40-431, K45-13, P10-75, P10-410, P10-430, P10-440

Fire Barrier Slab: F30-670, K10-545, P10-432, P12-40, P12-360

Other build-ups and constructions can be used. Please refer to product data sheets for further information.

Structural Protection

Soffit Protection

Soffit Slab

The Soffit Slab provides cost effective fire resistance and thermal insulation to concrete soffits and consists of a rigid ROCKWOOL insulation board in various thicknesses. It is available in black or white tissue facing, aluminium foil facing and also a non-combustible high impact board.

Key Benefits

- Excellent thermal and acoustic performance
- Non-combustible (Euroclass A1)
- Cost effective and easy to install, simply butt together at joints
- Water repellent
- Easily cut to accommodate services.

Other build-ups and constructions can be used. Please refer to product data sheets for further information.

ROCKWOOL® Soffit Slab

Properties	Details
Length	1000, 1200mm (High Impact)
Width	600mm
Thickness	130-180mm
Facing	Plain, Aluminium Foil, Tissue or 6mm High Impact Board
Thermal Conductivity	0.034 W/mK
Fire Performance	Up to 240 minutes integrity Up to 240 minutes insulation
Fire Classification	A1 (BS EN 13501-1)
Certification	LUL Authorised* (328)

* The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with the ROCKWOOL Product Data Sheet - please refer to the LUL Approved Product Register at www.LU-apr.uk for specific details.

The following NBS Plus Clauses include Soffit Slab: K11-885, K11-60, K11-890

Structural Protection

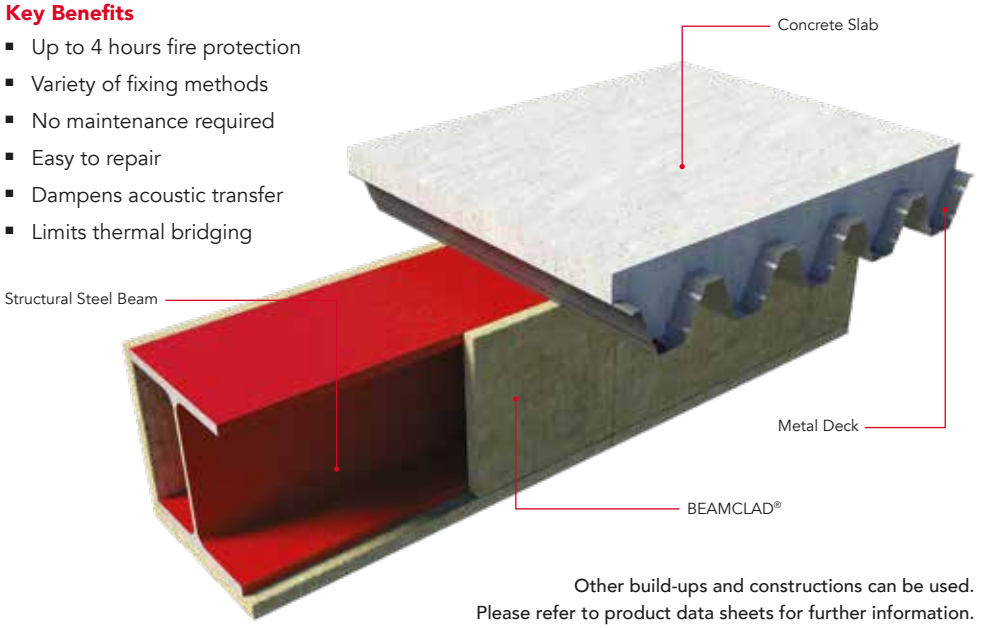
Structural Steel Protection

ROCKWOOL BEAMCLAD®

BEAMCLAD® systems provide fire protection for structural steel and cellular sections. They can be fitted in a variety of ways offering up to 4 hours fire protection and provide a complete 'tool box' of economical fire protection options for modern steel constructions.

Key Benefits

- Up to 4 hours fire protection
- Variety of fixing methods
- No maintenance required
- Easy to repair
- Dampens acoustic transfer
- Limits thermal bridging



Other build-ups and constructions can be used.
Please refer to product data sheets for further information.

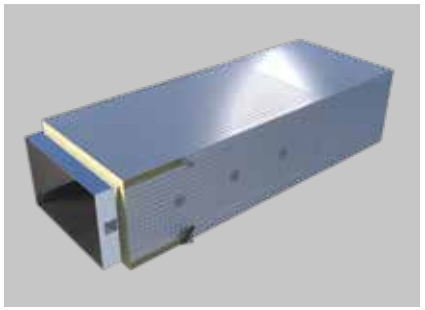
ROCKWOOL BEAMCLAD®

Properties	Details
Length	2000mm
Width	1200mm
Thickness	25-60mm
Facing	Plain, Aluminium Foil
Fire Performance	Up to 240 minutes integrity Up to 240 minutes insulation
Certification	LPCB 022d, LUL Authorised* (2221)

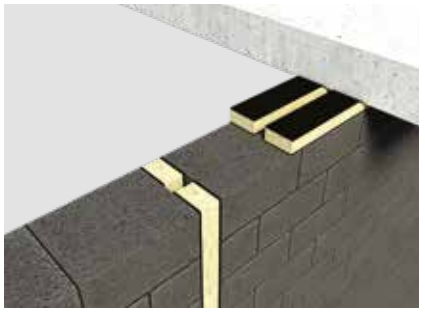
* The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with the ROCKWOOL Product Data Sheet - please refer to the LUL Approved Product Register at www.LU-apr.uk for specific details.

The following NBS Plus Clauses include ROCKWOOL BEAMCLAD® systems: K11-60, K11-885, K11-890

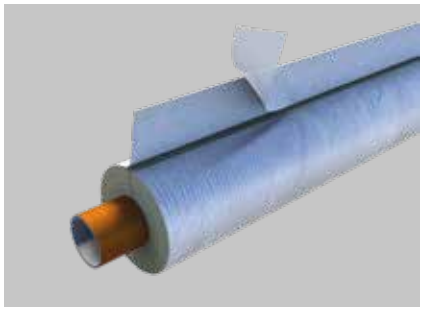
Other HVAC & Fire Stopping Solutions Available



Ducts - Thermal, Acoustic and Fire Rated

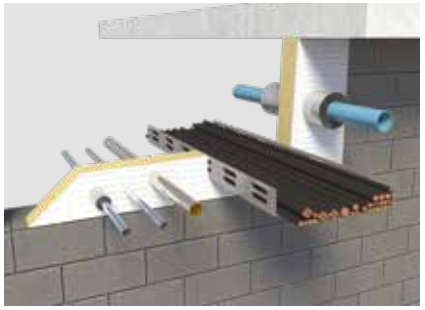


Linear Gaps and Seals



Pipes - Thermal, Acoustic and Fire Rated

Pipework and Trunking



Penetration Void Fillers

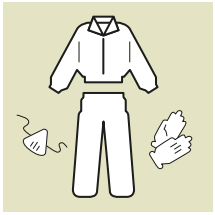
Sealants and Coatings

For more information on our full range of products please visit www.rockwool.co.uk

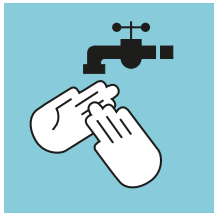
Health and Safety

In accordance with REACH health and environment regulations, there are no hazardous classifications associated with ROCKWOOL stone wool in respect to physical, health and environmental considerations.

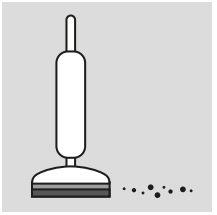
The mechanical effect of fibres in contact with skin may cause temporary itching.



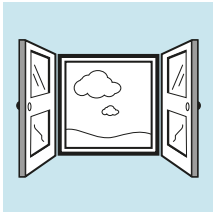
Cover exposed skin. When working in unventilated area wear disposable face mask.



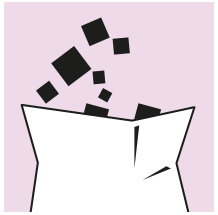
Rinse in cold water before washing.



Clean area using vacuum equipment.



Ventilate working area if possible.



Waste should be disposed of according to local regulations.

Wear goggles when working overhead.

Environment

Made from a renewable and plentiful naturally occurring resource, ROCKWOOL insulation saves fuel costs and energy in use and relies on trapped air for its thermal properties.

ROCKWOOL insulation does not contain (and has never contained) gases that have zone depletion potential (ODP) or global warming potential (GWP). ROCKWOOL stone wool insulation is approximately 97% recyclable. For waste ROCKWOOL material that may be generated during installation or at end of life, we are happy to discuss the individual requirements of contractors and users considering returning these materials to our factory for recycling. Our products contain 25-50% recycled content depending on definition.

Contact us

Customer Support Centre

To place an order or for a price enquiry please contact:

Email: customersupportcentre@rockwool.co.uk
Tel: 01656 868 400

Opening Times:

Monday	8am-5pm
Tuesday	8am-5pm
Wednesday	8am-5pm
Thursday	8am-5pm
Friday	8am-4pm

Technical Solutions

For all technical product and application queries please contact:

Email: technical.solutions@rockwool.co.uk
Tel: 01656 868 490

Opening Times:

Monday	9am-5pm
Tuesday	9am-5pm
Wednesday	9am-5pm
Thursday	9am-5pm
Friday	9am-4pm

Notes

Product Application Guide

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info@rockwool.co.uk

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