

TEST REPORT

Lucideon Reference: N25480 (QT-77051/1/JB)/Ref. 1

Project Title: Testing of Rockwool Ltd's Rainscreen Duo Slab Insulation System, Fixed using 50 mm Metal Washers in Accordance with BRE Digest 346-7:1989

Client: Rockwool Ltd
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For the Attention of: Ms Lisa Stephens

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Report Date: 30 June, 2025

Purchase Order No.: GB2012740/676400/122149



Miss Joanne Booth
**Testing Team
Reviewer**



Mr Justin Fryer
**Testing Team
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1 INTRODUCTION

Lucideon Limited were contracted by Rockwool Ltd to conduct fatigue wind load testing, in accordance with BRE Digest 346:1989 The Assessment of Wind Loads Part 7: Wind Speeds for Serviceability and Fatigue Assessments, on their Rainscreen Insulation System.

Testing was completed between 3 and 6 June 2025 within the Structures Laboratory, Queens Road, Penkhull, Stoke-on-Trent, ST4 7LQ.

2 SAMPLE CONSTRUCTION

Rockwool Ltd supplied Lucideon with the following:

- Rainscreen Duo Slab 600 mm x 1200 mm x 125 mm (W x L x D).
- Rockwool Frame Slab 032 600 mm x 1200 mm x 100 mm (W x L x D).
- EJOT JT3-D6H-5.5/6.3 x 147 mm Self-Drilling Screws.
- EJOT 50 mm Metal Washers (no specification supplied by the client).
- EJOT 50 mm Plastic Washers (no specification supplied by the client).
- Proctor Group Ltd Self-Adhesive Wraptite 1500 mm x 10000 mm (1.5 m wide x 10 m long).

Lucideon constructed a 3200 mm x 2600 mm Light Gauge Steel (LGS) frame consisting of:

- Header and Base Track – 3200 mm x 70 mm x 104 mm x 1.2 mm (L x H x W x T).
- Studs – 2600 mm x 70 mm x 102 mm x 1.2 mm (L x H x W x T).
- Screws – 4.2 x 19 mm Self-Drilling Wafer Head Screws.

The LGS frame was clad with 1200 mm x 2400 mm x 12 mm cement bonded particle board, using 4.2 mm x 32 mm self-drilling countersunk fasteners, at 100 mm centres down each stud and around the peripheral edge of the board.

Proctor Group Ltd Self-Adhesive Wraptite was installed onto the wall.

Rainscreen Duo 120 mm Slab Panels were installed per Rockwool Ltd's Installation Guidance, which can be found in Appendix A using EJOT JT3-D6H-5.5/6.3 x 147 mm Self-Drilling Screws, with EJOT 50 mm Metal Washers in the centre of each insulation panel and 50 mm plastic washers covering joints between panels.

NyRock® 100 mm Frame Slab 032 Panels were installed between the LGS studs per Rockwool's Installation Guidance, which can be seen in Appendix B.

3 TEST METHOD

The sample was placed and sealed into Lucideon's dynamic wind loading test apparatus.

The sample was then subjected to a number of proportional sequential loading cycles, in accordance with Table 1 of BRE Digest 346 Part 7.

Table 1 Fatigue test representing typical UK service loads in 50-year exposure period

| | Number of cycles | Percentage of design pressure |
|----------------|------------------|-------------------------------|
| | 1 | 90 |
| | 960 | 40 |
| Apply sequence | 60 | 60 |
| five times | 240 | 50 |
| | 5 | 80 |
| | 14 | 70 |
| Finish with | 1 | 100 |

Figure 1 – Table 1 from BRE Digest 346 Part 7

The sequence of cycles was repeated five times, to represent the exposure over 50 years, followed by a single gust of 2.4 kPa.

The behaviour of the sample was observed following each sequential loading cycle.

The design pressure given by Rockwool Ltd was 2.4 kPa.

4 RESULTS

The sample completed all loading cycles with little evidence of any degradation of the sample.

Seven of the washers, four metal and three plastic, were embedded into the Rainscreen Duo Slabs following testing.

This result should give Rockwool Ltd's Rainscreen Duo Insulation System a 50-year design life, with regards to wind loading.

Photographs of the sample following testing, can be seen in the Plates Section of this Report.

NOTE: The results given in this report apply only to the samples that have been tested.

END OF REPORT

PLATES



Plate 1 – Sample Sealed Into CWCT Chamber



Plate 2 – Sample Following Testing



Plate 3 – Plastic Washer Embedded Following Testing



Plate 4 – Metal Washer Embedded Following Testing

Health & safety

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.



Clean area using vacuum equipment.



Waste should be disposed of according to local regulations.



Rinse in cold water before washing.



Ventilate working area if possible.



Wear goggles when working overhead.

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RainScreen Duo Slab®

Non-combustible insulation for ventilated façades

RainScreen Duo Slab is a stone wool insulation product specifically developed for use within ventilated cladding systems, as well as sealed systems such as curtain walling.

Manufactured using Dual Density technology, the outer surface of each slab features a distinctly higher density than the underside. This provides a firm and robust surface for the application of fixings, while the resilient underside can accommodate unevenness in the substrate.

Once installed, the higher density outer surface works in combination with a factory-applied water repelling agent to give improved resistance to rain ingress during construction.

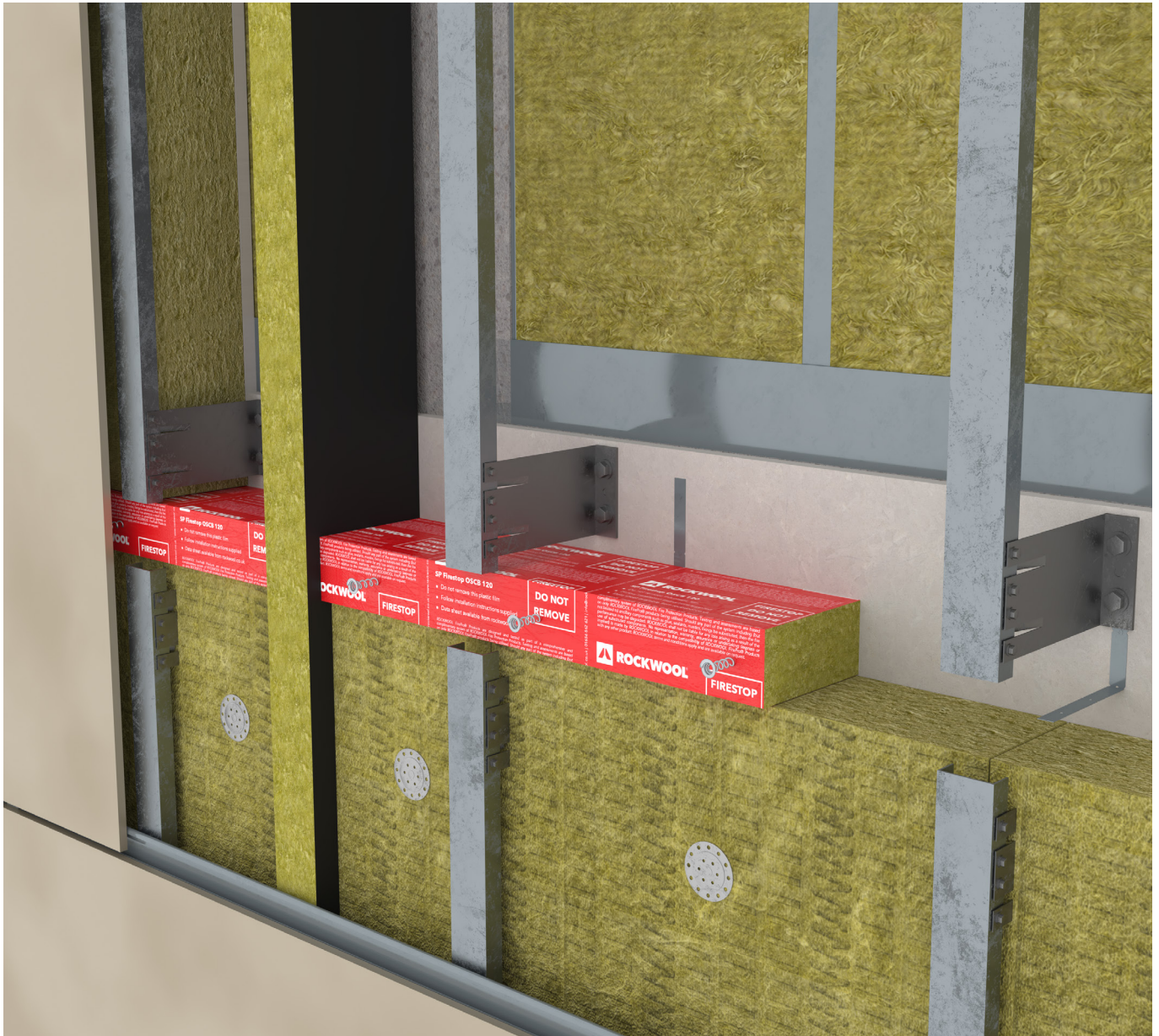
The product can be easily fitted around brackets and other awkward details, and when tightly butted, adjacent slabs effectively 'knit' together to provide a continuous insulating layer, reducing heat losses that would otherwise be caused by gaps.

- BBA approved
- Non-combustible Euroclass A1
- Independently tested acoustic benefits
- Water repellent yet breathable
- Stone wool is dimensionally stable and has been proven to provide the same performance for more than 65 years after installation.*
- Can be recycled and reprocessed, reducing landfill costs, with zero ODP and GWP.

*Testing conducted at the Danish Technological Institute in 2023, using ROCKWOOL products taken from an external wall system.



RainScreen Duo Slab



APPLICATIONS

RainScreen Duo Slab is suitable for use on the following construction types:

- Steel frame, timber frame or masonry walls in conjunction with a cladding system;
- Steel frame or timber frame with a masonry outer leaf

RainScreen Duo Slab

PERFORMANCE

Thermal performance

Thermal conductivity = 0.034 W/mK (<90mm) / 0.035 W/mK (≥90mm)

Acoustic performance

As demonstrated by independent in-situ laboratory testing, RainScreen Duo Slab helps to reduce the transfer of airborne noise - with results for typical systems as high as R_w 62 dB. For more information please see the Rainscreen Acoustic Reference Guide, available on our website.

Fire performance

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.

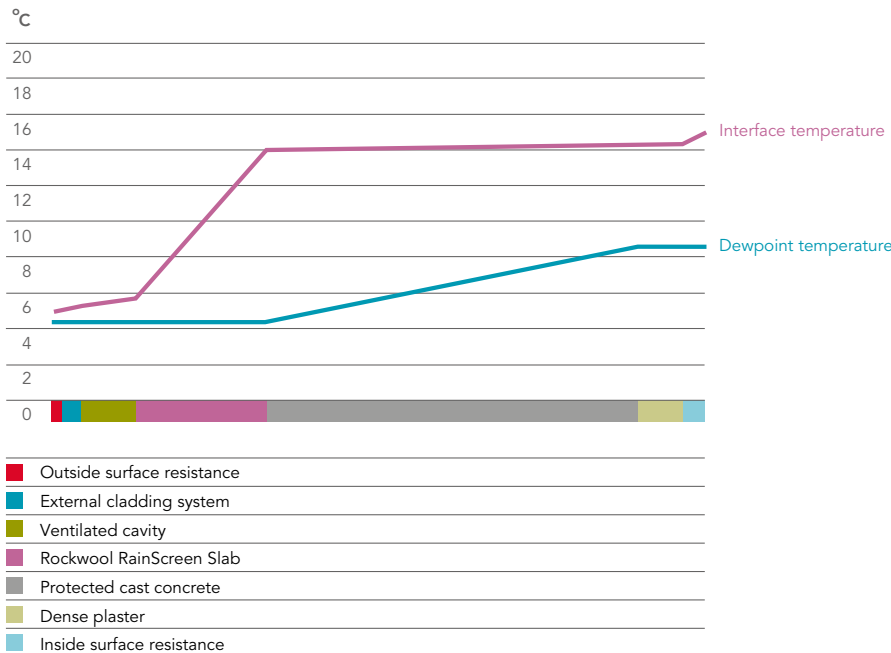
Wind loading fatigue tests were used to simulate the performance of the slabs when fully exposed and subjected to fluctuating wind loads during the construction stages of buildings. The tests simulated and exceeded the maximum UK basic wind speed of 56 m/s as defined by BS CP3: Chapter 5: Part 2: 1972.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

Condensation control

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



RainScreen Duo Slab

U-values

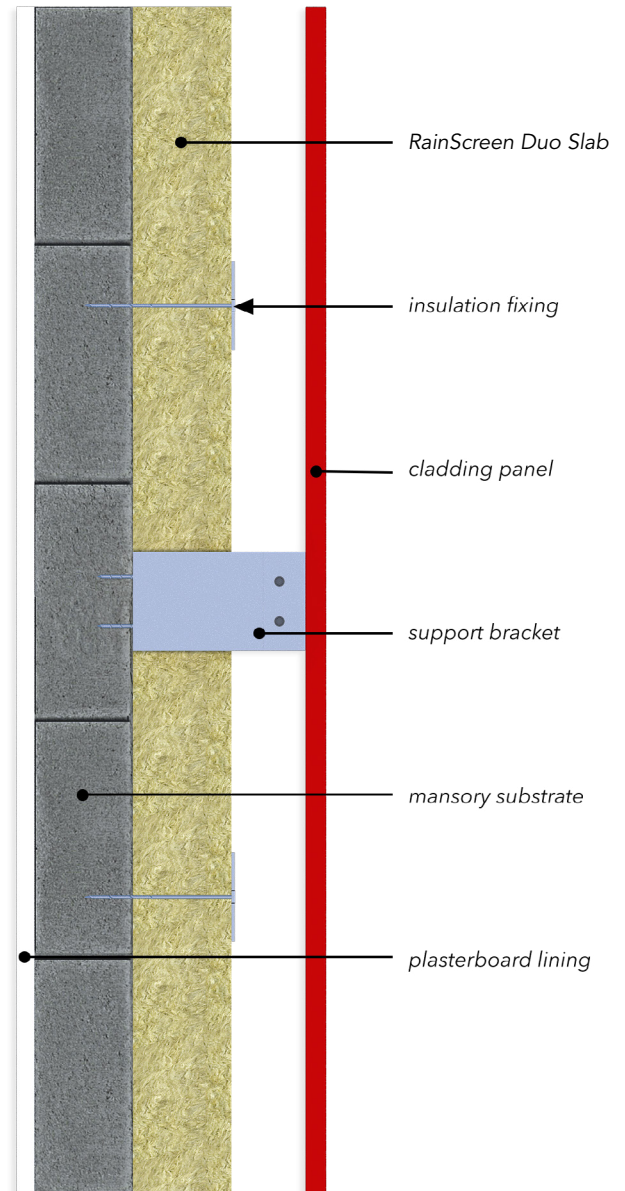
1. Cladding system in conjunction with concrete/masonry

RainScreen Duo Slab between metal bracket system on 200mm reinforced concrete.

| RainScreen Duo Slab (mm) | U-Value (W/m ² K) |
|--------------------------|------------------------------|
| 125 | 0.28 |
| 150 | 0.24 |
| 175 | 0.21 |
| 210 | 0.18 |
| 250 | 0.16 |

Notes

- Tables based on pointless scenarios where only the rainscreen brackets bridge the thermal insulation layer.
- 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 system modelled included 8mm Rockpanel Rockclad and Plastestrip Thermaframe stainless steel brackets.



RainScreen Duo Slab

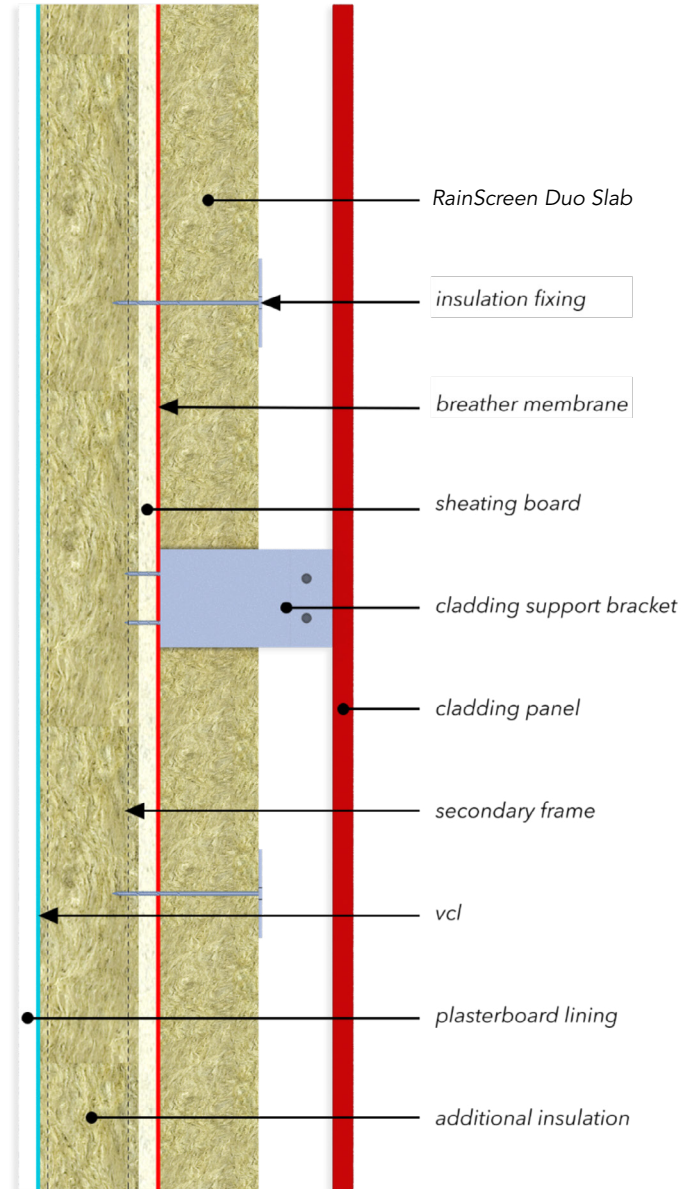
2. Cladding system in conjunction with steel frame filled with ROCKWOOL Steel Frame Slab

RainScreen Duo Slab on 150mm deep metal studs at 600mm centres with 140mm ROCKWOOL Steel Frame Slab installed within the frame.

| RainScreen Duo Slab (mm) | Steel Frame Slab (mm) | U-Value (W/m ² K) |
|--------------------------|-----------------------|------------------------------|
| 75 | 140 | 0.25 |
| 100 | 140 | 0.22 |
| 125 | 140 | 0.20 |
| 150 | 140 | 0.18 |
| 180 | 140 | 0.17 |
| 225 | 140 | 0.15 |

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



RainScreen Duo Slab

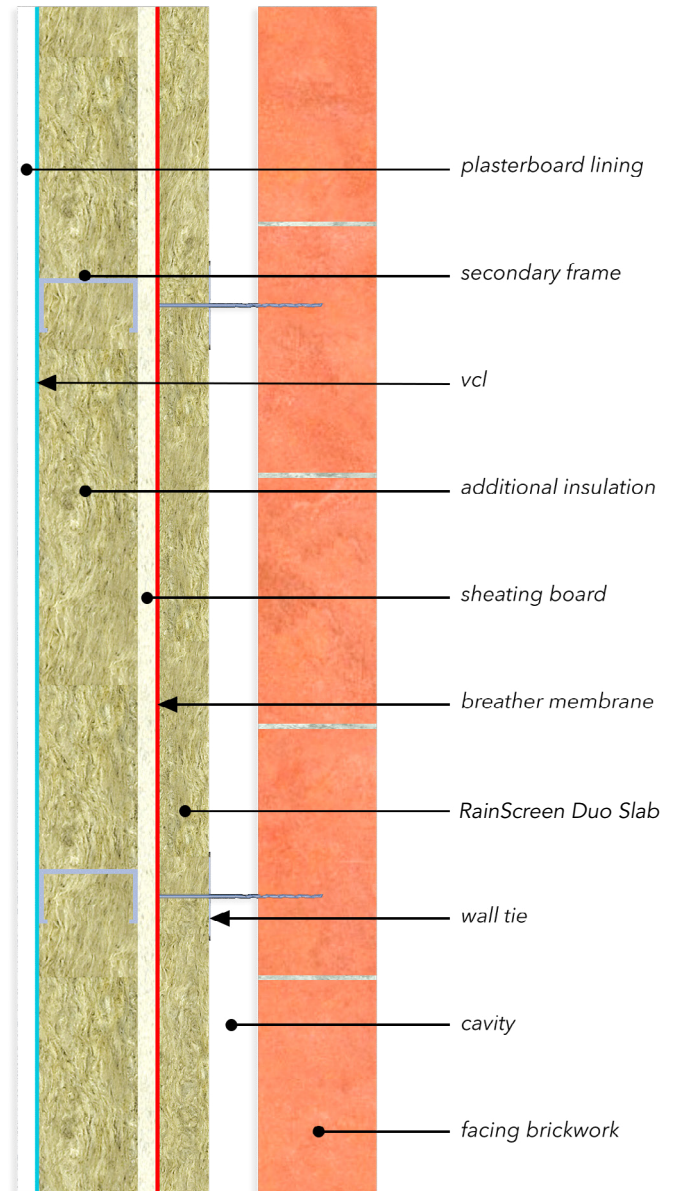
3. Masonry outer in conjunction with steel frame filled with ROCKWOOL Steel Frame Slab

RainScreen Duo Slab on 100mm steel frame filled with ROCKWOOL Steel Frame Slab.

| RainScreen Duo Slab (mm) | Steel Frame Slab (mm) | U-Value (W/m²K) |
|--------------------------|-----------------------|-----------------|
| 50 | 100 | 0.27 |
| 75 | 100 | 0.22 |
| 100 | 100 | 0.19 |
| 125 | 100 | 0.17 |
| 150 | 100 | 0.15 |
| 210 | 100 | 0.12 |

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



Typical specification

The rainscreen insulation is to be RainScreen Duo Slab mm thickness, as manufactured by ROCKWOOL Limited, Pencoed, Bridgend CF35 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.

RainScreen Duo Slab

PRODUCT INFORMATION

| Length (mm) | Width (mm) | Standard thicknesses (mm) |
|--------------|------------|---|
| 1200 (Plain) | 600 | Available in a range of sizes between 50mm and 230mm. Please see current price list for availability. |
| 1000 (Faced) | 600 | |

STANDARDS AND APPROVALS

| Certificate |
|---|
| RainScreen Duo Slab has been examined by the 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”. |

INSTALLATION

Work on site

RainScreen Duo Slab is supplied in shrink-wrapped polythene packs. Pallets are fitted with a waterproof hood that is suitable for outside storage.

The product can be easily cut and shaped using a sharp knife.

Fixings

A suggested fixing pattern is provided based on the results of wind resistance testing carried out at the BRE.

The adequacy of this or any other fixing pattern should be verified on a per-project basis through assessment by a suitably qualified individual.

The following non-exhaustive list of companies can supply fixings suitable for use with RainScreen Duo Slab: Ejot, Fischer, ITW Construction Products, Hilti.

Exposure

It is recommended that the sequence of construction is programmed in such way that insulation is left exposed for as little time as possible.

While ROCKWOOL insulation is impregnated with a water repelling agent, and is resistant to wind and rain, it is not designed to offer indefinite protection to a substructure. Depending on the nature of the substrate, a protective membrane may be required. Such design issues will require assessment by a suitably qualified individual.

Subjecting RainScreen Duo Slab to any level of exposure is contingent on a visual inspection of the insulation prior to the installation of the cladding. In the unlikely event that any slabs have become physically damaged or otherwise contaminated, they should be replaced.

Once the weatherproof layer is installed, the resulting ventilated cavity will ensure that any wetted slabs will naturally dry out, regaining all of their original performance and properties.

RainScreen Duo Slab

For use on steel frame, timber frame, or masonry walls in conjunction with cladding

- The product should be applied with the printed patterned side (where appropriate) facing outwards.
- 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.
- 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 Figure 1).
- The product should be cut and tightly fitted around cladding support elements.
- For a typical installation, a breathable membrane is placed between the sheathing board and the product. A VCL is placed between the plasterboard and the frame.

Cavity barriers:

ROCKWOOL recommends the use of FirePro® SP FireStop EN vertically and SP FireStop OSCB horizontally.

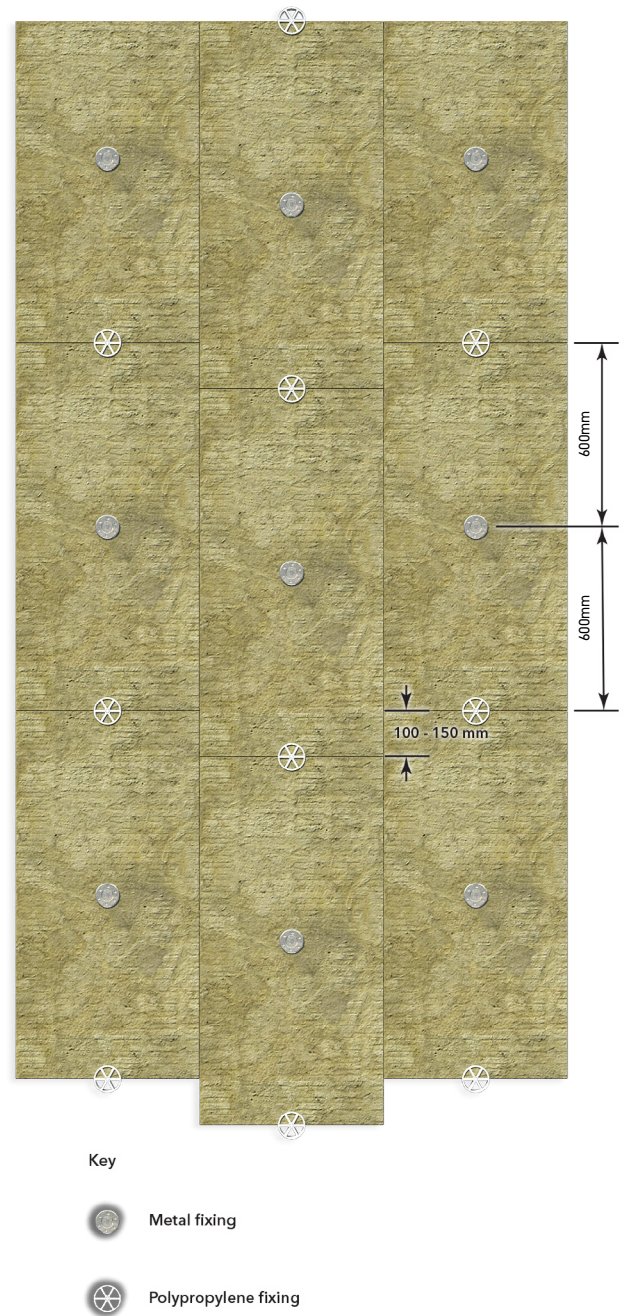
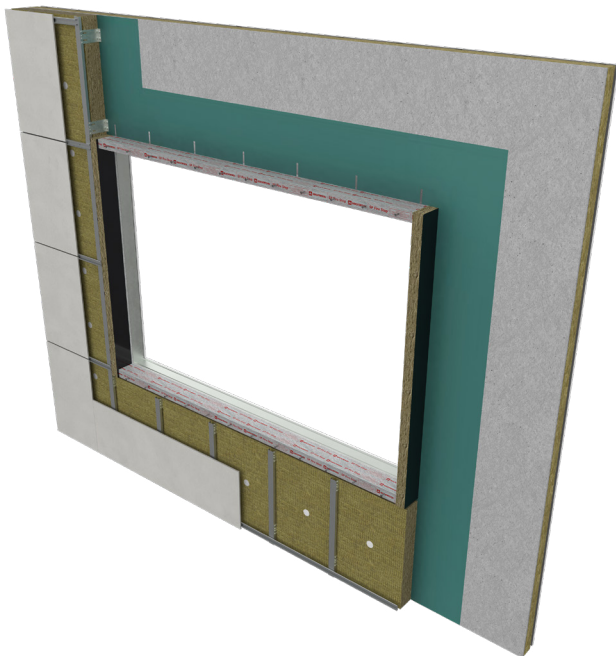


Figure 1
Typical fixing pattern with 3 fixings per square metre

RainScreen Duo Slab

For use on steel frame, timber frame, or masonry walls in conjunction with cladding

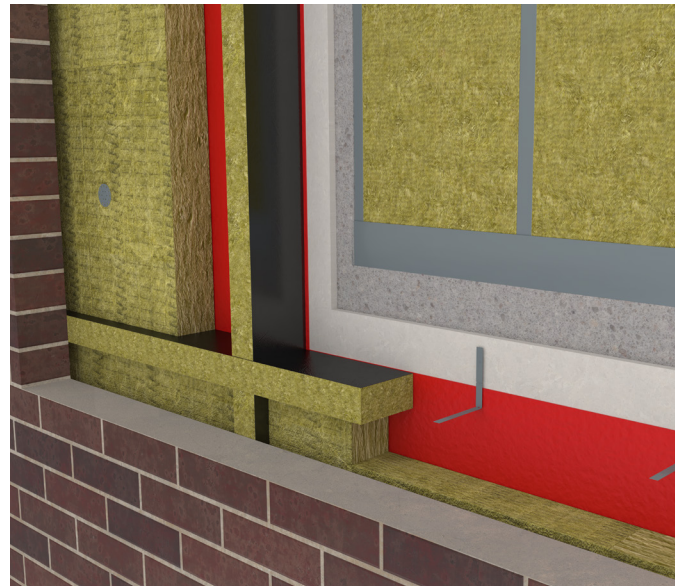
- The product should be applied with the printed patterned side (where appropriate) facing outwards.
- The slabs should be close-butted at all vertical and horizontal joints, and at corners. The horizontal joints of the slabs should be staggered, in accordance with good practice.
- Slabs should be carefully cut to fit around any protrusions into the cavity.
- A VCL is placed between the plasterboard and the frame. A breathable membrane is placed between the sheathing board and the product.
- The insulation should be installed to coincide with the frame, with retaining discs used in conjunction with the wall ties at no more than 600 mm horizontally and 450 mm vertically.
- After each section of the leading leaf is built, excess mortar should be removed from the cavity face and mortar droppings cleaned from exposed edges of the installed board, before installation of the next run of boards. Use of a cavity board or a cavity batten will protect the installed board edges and

Cavity barriers:

ROCKWOOL recommends the use of FirePro® SP FireStop EN both horizontally and vertically.

Masonry restraint systems:

RainScreen Duo Slab is compatible with masonry restraint systems. With such systems we recommend that insulation fixings are installed as per Figure 1. For information on available systems, please contact providers such as ACS Stainless or Ancon.



SPECIFICATION CLAUSES

ROCKWOOL RainScreen Duo Slab are associated with the following NBS clauses:

| |
|-----|
| H11 |
| 110 |
| H11 |
| 780 |
| H92 |
| 776 |
| P10 |
| 217 |

RainScreen Duo Slab

BUILDING SAFETY AND PRODUCT USE

LEGAL NOTICES

General safety requirements – Building Safety Act 2022

ROCKWOOL Limited is committed to supporting specifiers, resellers and users of ROCKWOOL products for the full life cycle of the product to comply with the obligations and responsibilities set out in the Building Safety Act 2022. With regard to the general safety requirements of the Act, ROCKWOOL Limited cannot control or foresee every situation where its products might be used. We therefore strongly advise that specifiers, resellers and users contact us where use of ROCKWOOL products is contemplated in applications different from those explicitly described in the latest, relevant ROCKWOOL product datasheets; especially in applications that can be reasonably foreseen as critical to safety.

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ROCKWOOL® - our trademark

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To apply, write to:
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To apply, write to:
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RainScreen Duo Slab

ROCKWOOL stone wool - safe to install and live alongside

There are no hazardous classifications associated with stone wool insulation manufactured by ROCKWOOL-UK according to EU REACH and UK REACH regulations on health and the environment.

ROCKWOOL safe use instruction sheets and material safety data sheets (where applicable) can be downloaded [here](#).



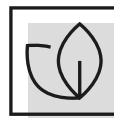
Sustainability

ROCKWOOL products are used to enrich modern living, creating safer, healthier and more climate-resilient communities.

We transform abundant, natural volcanic rock into stone wool insulation products that are used to reduce energy demand, lower fuel bills and help address society's climate change challenges.

ROCKWOOL stone wool insulation is recyclable and can be transformed into new ROCKWOOL products. Please contact us for details of how we can work together to recycle waste ROCKWOOL stone wool material that may be generated during on-site installation.

Our annual sustainability reports, which set out progress against our sustainability goals, and further details of the positive impacts of using our products can be found on our website.



Environment

ROCKWOOL takes a fact-based, auditable approach to documenting our progress in maximising our products' positive impact and minimising the effect our operations have on the environment, backed by third-party references and methodologies. Further details can be found online in our annual sustainability report.

Our high-tech production process uses filters, pre-heaters, after-burners and other cleaning and collection systems that help to reduce the effects of our manufacturing operations on the environment.

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





NyRock® Frame Slab 032

Tools required

- Insulation saw
- Tape measure

Installing ROCKWOOL NyRock Frame Slab 032

1. Pre-install Preparation

- When installing into a wall frame, check that the centres are at 600mm then select an appropriate product width and thickness.

2. Installation Preparation

- Assemble tools such as an insulation saw, tape measure and PPE (personal protective equipment) such as gloves, mask if working in an unventilated area, and eye protection when working overhead. Cover all exposed skin. Refer to the EURIMA health and safety guidelines for further guidance when working with mineral wool.
- Carry out a pre-work safety check, identifying any potential hazards such as ease of access, work heights, trip hazards, and electrical safety. Check the construction ensuring it is structurally sound and free from defects such as corrosion, splitting, cracking and look for signs of leaks and moisture which can cause rot and mould.
- Clean and prepare the area for installation. Clear space to hold the insulation. When installing overhead wear protective eyewear. If installing at height, it is recommended this is done from a suitable structure such as scaffolding, rather than a step ladder, so that both hands can be used to safely fit the insulation. Ventilate the area if possible, and ensure it is well lit.

3. Measuring and cutting

- Using a tape measure, measure the internal aperture of the frame.
- Note that frame centre measurements include the thickness of the timbers / steel making up the structure, and that they may not always be consistent, so it is best to measure the internal aperture accurately to ensure the best possible fit, particularly when installing into older structures.
- Use an insulation saw, or knife with a serrated blade, for cutting the insulation to size. Do not over cut the insulation. Allow an extra 10mm on both dimensions (width and length) of the insulation, over and above the aperture dimensions.

4. Installation

- The density and dimensional stability of ROCKWOOL stone wool allows a tight friction fit. It will not require pinning or fixings unless specifically stated otherwise.
- To install, simply push the insulation into one side of the structure and let the insulation go so it tightly fits into the other side of the structure and holds in place.
- Ensure there are no visible gaps, as this will negatively affect the installed performance.
- Consider the dimensional tolerances of the wall before designing the width of the cavity. An extra 5mm above the nominal slab thickness will normally be sufficient.

Health & safety

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.



Clean area using vacuum equipment.



Waste should be disposed of according to local regulations.



Rinse in cold water before washing.



Ventilate working area if possible.



Wear goggles when working overhead.

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