Jul 2017

WILHAMS INSULATION FAR EAST SDN BHD

HeatPro®

ROCKWOOL® Rainscreen Duo-slab

Thermal insulation for ventilated rainscreen and overcladding applications

ROCKWOOL® Rainscreen Duo-slab is a dual density slab which has been specifically developed for insulation behind rainscreen cladding systems and also for sealed cladding systems such as curtain wall and other overcladding systems.

Advantages

- Contributes to GBI requirements
- Aids MS 1525 compliance
- Excellent thermal and acoustic performance
- Insulation classified as non-combustible
- Designed for use on high rise buildings
- High resistance to wind and rain during construction
- Fewer fixings required for installation compared to standard mineral wool slabs
- Robust front face resists damage and over-driving of fixings

Description

ROCKWOOL® Rainscreen Duo-slab is a dual density slab comprising a robust outer surface (designed to withstand the rigours imposed on site), and a resilient inner face (designed to accommodate the substrate to which it is being applied).

The robust outer face offers improved weather resistance and a more clearly defined cavity width, whilst the resilient inner surface accommodates itself to irregularities in the surface of the substrate, thus maximising thermal performance.

The slabs are tightly butt jointed in order to reduce heat losses through the gaps. This also prevents water transmission through the insulation layer and has been proven for over 25 years in traditional masonry wall constructions.

The slab is designed for use in conditions of severe climatic exposure. Because of its unique dual density construction, the product requires fewer fixings, thus providing a cost-effective solution in overcladding applications.

Dimensions

Standard size of 1000 x 60mm and is available in thicknesses from 50mm up to 150mm. For other thicknesses, please contact Wilhams Insulation Far East Sdn Bhd.

Standards and Approvals

ROCKWOOL® Rainscreen Duo-slab satisfies the requirements of BS EN 13162:2001 ‘Thermal insulation products for buiding - Factory made mineral wool (MW) products - specification’.

Installation

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).

Closely butt joint 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 70mm.

ROCKWOOL® Rainscreen Duo-slabs should be cut and tightly fitted around wall brackets where these occur.

See 'Construction 1' for typical U-values relating to this build-up.

Rainscreen cladding - Timber rail systems

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 25mm ventilated air space behind the cladding boards.

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

See 'Construction 3' for typical U-values relating to this build-up.

Work on site

ROCKWOOL® Rainscreen Duo-slabs 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.

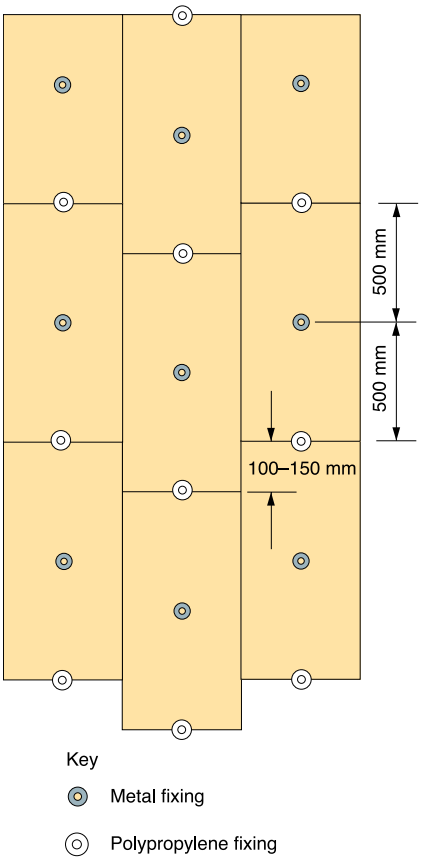


Figure 1 Typical fixing pattern of ROCKWOOL® Rainscreen Duo-slab with 3 fixings per square metre

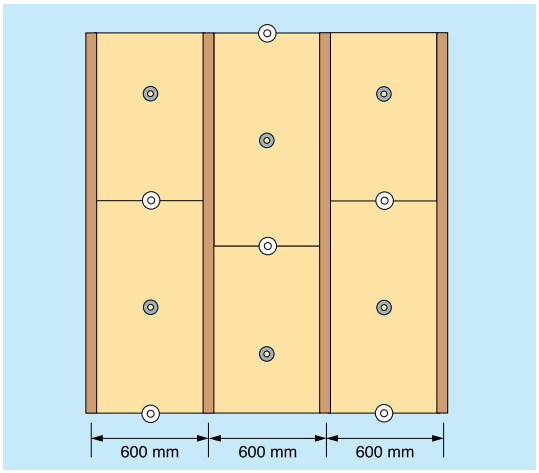


Figure 2 Typical fixing pattern of ROCKWOOL® Rainscreen Duo-slab between treated timber cladding rails

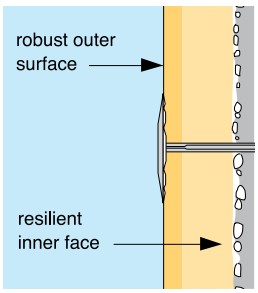


Figure 3 Dual density

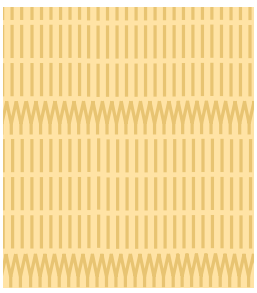


Figure 4 Textured outer face of slab

Performance and Properties

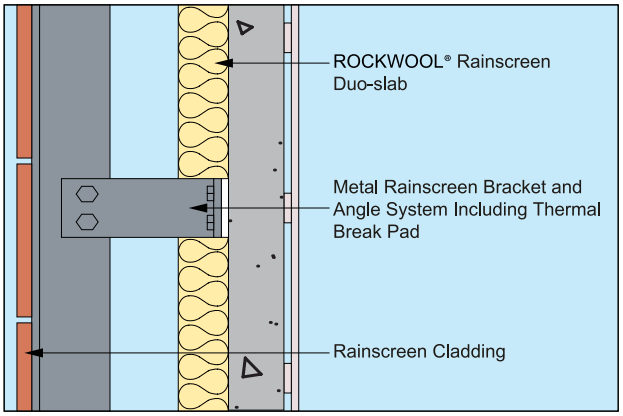
U-values

ROCKWOOL® Rainscreen Duo-slab Ventilated Rainscreens contribute to Green Building Index (GBI) requirements, significantly improving the energy efficiency of the external wall.

This solution also aids compliance to MS 1525 Energy efficiency and use of renewable energy for non-residential buildings - Code of practice. Please contact our technical department regarding insulation thicknesses relating to typical wall constructions or see the table shown below.

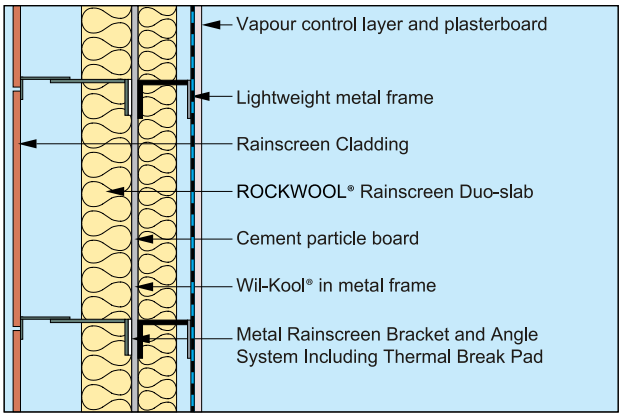
Construction 1: ROCKWOOL® Rainscreen Duo-slab between Metal Bracket System on 150mm Reinforced Concrete or dense block wall. Internal finish of plaster.

ROCKWOOL® Rainscreen Duo-slab Thickness (mm)	U-values (W/m²K)
Uninstalled	3.07
50	0.49
75	0.40
125	0.35
150	0.33
175	0.31
200	0.30
275	0.28
325	0.26



Construction 2: ROCKWOOL® Rainscreen Duo-slab on 150mm deep metal studs at 600mm centres with SoundPro® Wil-Kool® 140mm part-filling frame.

ROCKWOOL® Rainscreen Duo-slab Thickness (mm)	Wil-Kool® Thickness (mm)	U-values (W/m²K)
50	140	0.34
75	140	0.30
100	140	0.27
125	140	0.25
140	140	0.24
150	140	0.23
175	140	0.22
225	140	0.20



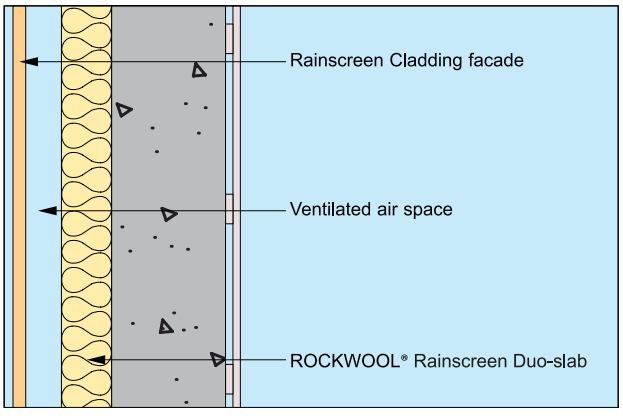
Notes for Constructions 1 & 2:

- Only the rainscreen brackets thermally bridge the thermal insulation layer.
- A thermal bridging allowance of 0.1 W/m²K has been added to the wall U-value to allow for predicted bridging (e.g. a calculated U-value of 0.25 will be increased to 0.35 W/m²K).
- The data was compiled using information from the Building Research Establishment, installing a 5mm thick thermal break pad with brackets in a 600mm x 600mm fixing matrix.

Wilhams recommend all U-value calculations for rainscreen application be verified by the cladding manufacturer utilising 3D thermal modelling software.

Construction 3: ROCKWOOL® Rainscreen Duo-slab between timber rails on 150mm Dense Concrete or dense block wall. Internal finish plaster-Lambda 0.180 W/mk.

ROCKWOOL® Rainscreen Duo-slab Thickness (mm)	U-values (W/m²K)
100	0.35
125	0.29
140	0.26
150	0.25
200	0.19
225	0.17



Fire
Rated A1 when tested to En 13501 - 1 classfication using test data from reaction to fire test.

Wind Resistance
ROCKWOOL® Rainscreen Duo-slab fixed as indicated in Figure 1 (page 2) has successfully undergone wind resistance testing by the Building Research Establishment. Windloading 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 BSCP3: Chapter 5: Part 2: 1972.

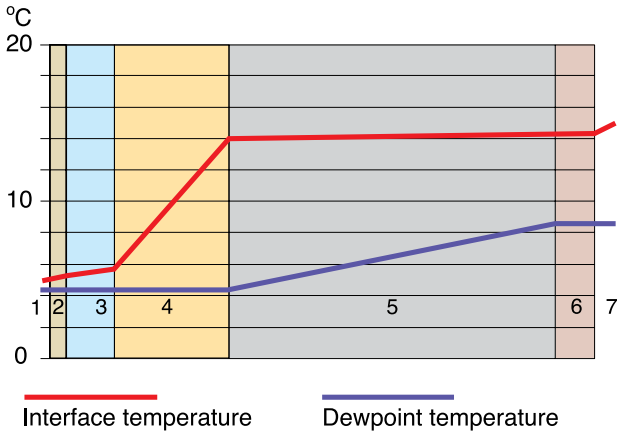
Test report BRE GI2801.

Water Resistance
ROCKWOOL® Rainscreen Duo-slab repels liquid water due to its fibre orientation and the presence of water repellent additives.

Acoustic Performance
The slabs can significantly improve the acoustic performance of the external building structure.

Condensation Control
Vapour resistivity = 5.9 MNs/gm. The slabs, therefore reduce the risk of condensation, allowing natural drying out of the structure. See typical relative humidity/ temperature graph below.

Interface/dewpoint temperatures



Key
1. Outside surface resistance
2. External cladding system
3. Ventilated cavity
4. ROCKWOOL® Rainscreen Duo-slab
5. Protected cast concrete
6. Dense plaster
7. Inside surface resistance

Typical Specification

The rainscreen insulation is to be ROCKWOOL® Rainscreen Duo-slab, ... mm thickness, as supplied by Wilhams Insulation Far East Sdn Bhd, secured to the substrate with metal and polypropylene fixings in accordance with ROCKWOOL® Rainscreen Duo-slab data sheet.

Horizontal joints should be staggered and all joints tightly butted.

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

Health and Safety

The safety of mineral 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 from Wilhams Customer Support (+603-7846 6728) to assist in the preparation of risk assessments.

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