CI/SfB | | | Rm1 Km1 | (M2) |
November 2008 (replaces July 2008 issue)

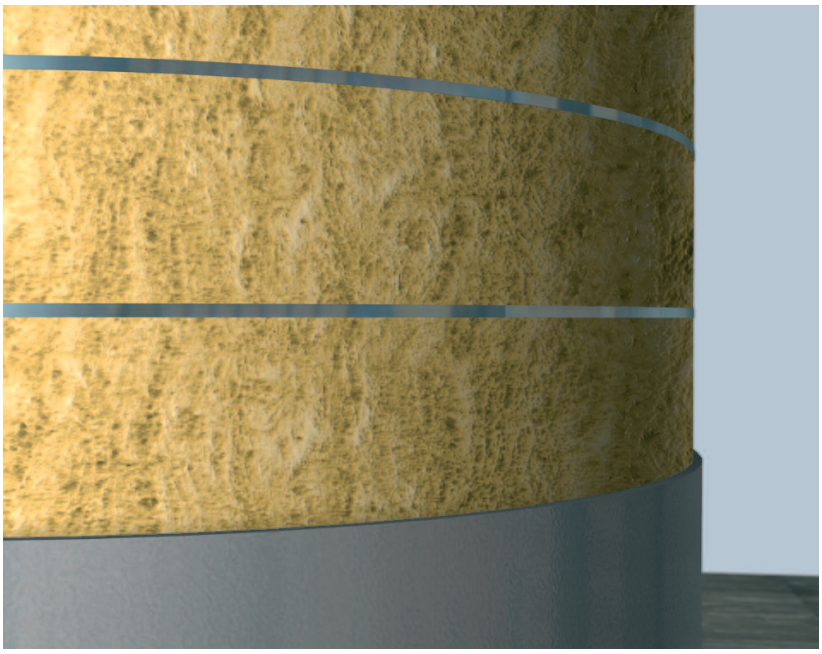
Application type	Thermal, acoustic
Construction type	Various

Rigid, Semi-rigid and Flexible Slabs

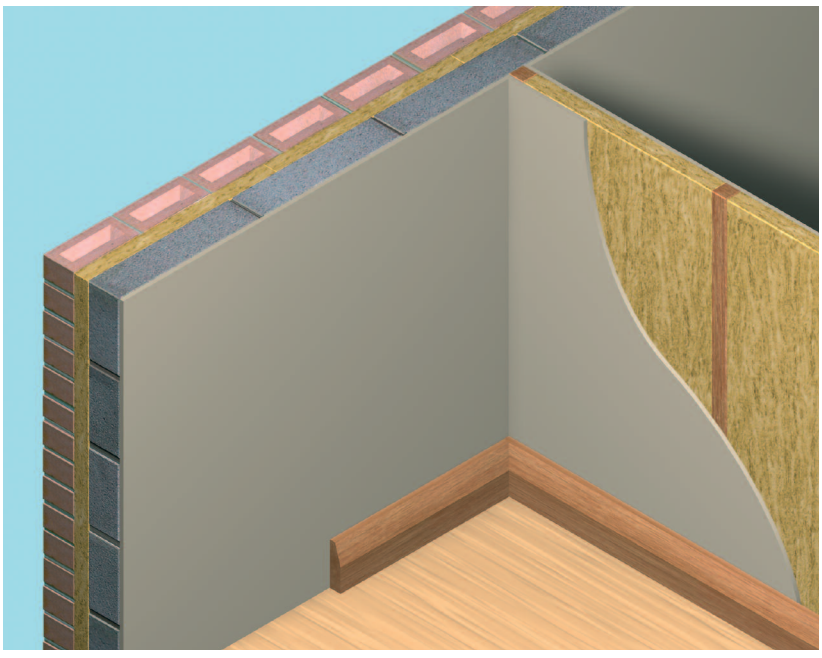
Versatile thermal acoustic insulation slabs

Rockwool Rigid, Semi-rigid and Flexible Slabs are high quality resin bonded Rockwool Slabs that can be used for thermal, acoustic and fire insulation. They are manufactured in a variety of thicknesses and densities to suit most requirements. They are suitable for many applications including thermal insulation for floors, walls, roofs and boiler rooms.

Ventilation plant in all types of buildings, offshore platforms and ships, acoustic ceilings and partition panels.



Large storage vessel insulated with Rockwool Rigid Slabs and overclad with metal



Thermal and acoustic insulation using Rockwool Slabs in floors and partitions

Advantages

- Excellent thermal, acoustic and fire insulation
- Water repellent
- Resists high temperatures
- Easy to handle and install
- Cost effective
- No maintenance
- Black or white tissue and aluminium foil facings available

Certificate No EMS 70301 Certificate No FM 02262 0086-CPD-461281

The following NBS Plus clauses include Rigid, Semi-rigid and Flexible slabs: H31:234, 254, H43:234, H51:110, K11:60, 795, K12:110, 150, 250, 255, P10:140, 145, 170, 180, 181, 210, 217, 230, 240, 250

Description, performance and properties

Standards

Rockwool Slabs conform to BS EN 13162: 2001. Thermal insulation products for buildings – factory made mineral wool (MW) products – specification, and satisfy the requirements of BS 5422 'Method for specifying thermal insulating materials for pipes, tanks, vessels ductwork and equipment....'

Description

Dimensions

Standard sizes: See table below

Thicknesses: 25*, 30, 40, 50, 60, 75 and 100 mm

Types and densities

	kg/m³	Size (mm)	Thickness
RWA45	45	1200 × 600+	30,40,50,60,75,100
RW3	60	1200 × 600+	25,30,40,50,60,75,100
RW4	80	1000 × 600	50,75,100
RW5	100	1000 × 600	25,30,40,50,60,75,100
RW6	140	1000 × 600	30,50,75,100

Other sizes and thicknesses are available to special order

*25mm is a non-standard thickness for RW6

+All 'faced' RWA45 and RW3 thicknesses will be 1000 x 600mm in size

Finishes

Non-woven mineral black or white tissue, aluminium foil are available.

Environment

No CFCs, HFCs or HCFCs are used in the manufacture of Rockwool materials.

Performance and properties

Resistance to compression

	Stress req'd to produce 10% compression (kN/m²)	Stress req'd to reach elastic limit ∂e (kN/m²)	Displacement at 5 kN/m² stress (%)
RWA45	3.0	3.5	16.5
RW3	6.7	6.1	7.0
RW4	12.9	9.2	5.5
RW5	16.4	11.3	4.6
RW6	28.2	26.1	4.2

Tested in accordance with BS EN 826: 1996

NB Elastic limit occurs between 6 and 12% deformation.

Fire

Rockwool RW slabs are certified by Lloyd's Register of Shipping as non-combustible materials for use on:

- fixed offshore installations
- MED classed ships – DTLR MCA approval

Rockwool RW slabs are rated non-combustible in accordance with ISO 1182 and IMO A. 799.

Water resistance

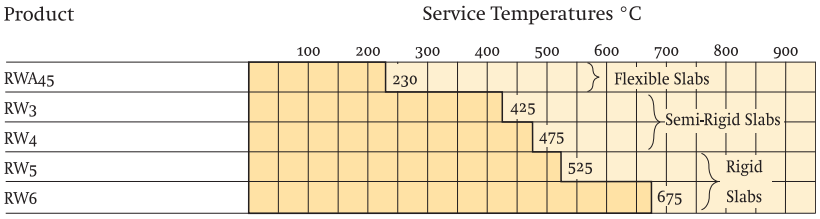
Rockwool RW slabs are highly water repellent. Where it is necessary to maintain water repellency subsequent to heating at elevated temperatures, the use of WRG grade slabs is recommended.

Maximum service temperatures

The maximum recommended service temperature of unfaced Slabs depends on the composition of the product and is given in the chart below.

For faced products, the facing temperature should not exceed 80°C – the melting temperature of the adhesive.

Rockwool Slabs are bonded with a phenolic resin which is resistant to temperatures up to 230°C. They may be used at much higher temperatures, but some resin will be lost close to the hot surface.



Bending radius

Curved surfaces can be insulated with Rockwool Slabs. The table below gives the minimum bending radius for several Rockwool Slabs. Bending to smaller radii can deform the product and increase the installation time.

Minimum bending radius for Rockwool slabs
(These typical figures depend on the installation method)

Product	Slab thickness (mm)						
	30	40	50	60	75	80	100
RWA45	425	500	700	900	1200	1300	1800
RW3	425	500	700	1000	1350	1500	1900
RW5	550	700	1000	1500	2250	2500	2500
RW6	1500	1900	2600	3000	3300	3400	3500

All radii given in millimetres.

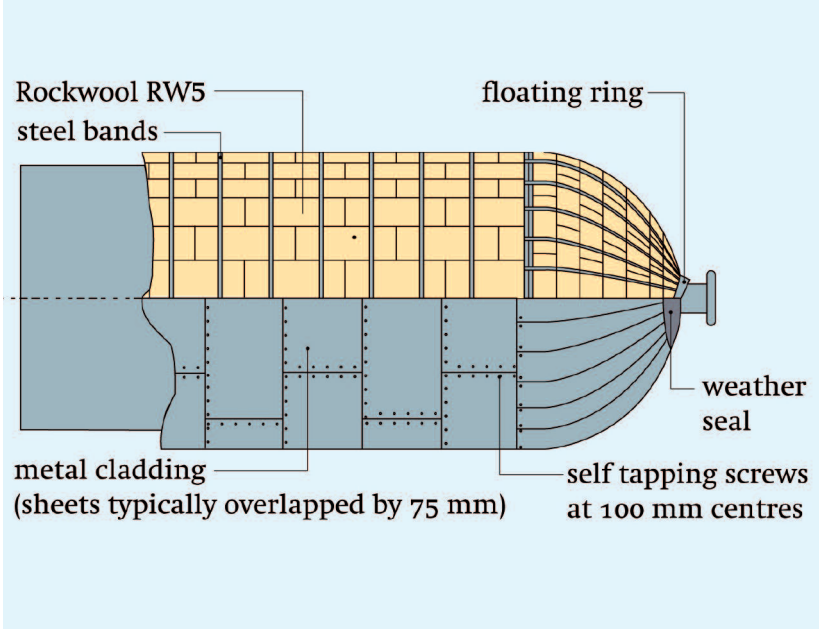


Figure 1 RW5 Slab insulation on a large vessel

Performance and properties

Acoustics

Rockwool stone wool works in two distinct ways to reduce noise, either by impeding the transmission of sound through an element of the structure or by absorption of sound at the surface.

Noise absorption is expressed as a factor between 0 and 1.0. The more sound that a surface absorbs, the higher its absorption coefficient.

The structure of the fibres in Rockwool Slabs make them ideal for use as a sound absorber, with characteristically high coefficients over a wide frequency range (see Table below).

Tissue faced slabs

Slab size: 1000mm × 600mm

Rockwool manufacture a wide range of tissue faced, line produced slabs, ranging from 45 kg/m^3 to 140 kg/m^3. See current price list for full range.

The tissues are bonded to the face of the slabs with binder which provides a superior acoustic and fire performance to fabricated, adhesive applied, tissue faced products.

70 gramme black and 100 gramme white tissue options are available from Rockwool.

Thermal conductivity (industrial applications)

Mean Temperature	λ Values (W/mK)				
°C	RWA45	RW3	RW4	RW5	RW6
50	0.040	0.039	0.038	0.037	0.037
100	0.050	0.047	0.045	0.044	0.044
150	0.063	0.058	0.055	0.054	0.051
200		0.070	0.066	0.064	0.060
250			0.079	0.075	0.070
300				0.088	0.081
350				0.104	0.093
400				0.122	0.106

Tested in accordance with BS 874: 1973. Cold face temperature 40°C.

Absorption coefficients for selected Rockwool slabs

Material	Thickness (mm)	Mounting	Frequency (Hz)					
			125	250	500	1K	2K	4K
Slab RW3	50	Direct	0.11	0.60	0.96	0.94	0.92	0.82
Slab RW3	75	Direct	0.34	0.95	1.00	0.82	0.87	0.86
Slab RW5	30	Direct	0.10	0.40	0.80	0.90	0.90	0.90
Slab RW5	30	300 mm gap	0.40	0.75	0.90	0.80	0.90	0.85
Slab RW5	75	Direct	0.40	0.75	0.90	0.80	0.90	0.85
Slab RW6	50	Direct	0.20	0.75	0.90	0.85	0.90	0.85
Slab RW6	50	300 mm gap	0.65	0.55	0.75	0.85	0.75	0.85

The absorption coefficients shown above are typical figures that can be achieved by unfaced Rockwool products. They have been obtained from a comprehensive range of measurements made over a number of years. Note Differences in coefficients of less than 0.15 are not significant.

Applications and typical details

Rockwool Slabs are suitable for a wide range of thermal, acoustic and fire insulation requirements both within buildings and for industry, as detailed on this page.

1 Industrial uses

Thermal and acoustic for boilers, ducts and vessels, particularly in the chemical, petrochemical and power generating industries.

Generally, for furnaces, ovens, calorifiers, hot-water boilers, storage tanks, drying equipment and air conditioning plant.

2 Fire protection

Floors
RW5 Soffit Slabs have been assessed by LPC as a suitable product for upgrading the fire resistance of dense concrete slabs
(for up to 2 hrs).

RWA45 Slabs can also be used to firestop small voids, in particular the gap under pitched tiled roofs in dwellings (Contact Technical Hotline on 0871 222 1780 for details).

3 Acoustic control

The Slabs are particularly suitable for acoustic infills in partitions and ceilings, providing a high level of control of both airborne and structure-borne sound (see figure 4).

They are also suitable for acoustic absorption in the linings of buildings, RW3 being particularly good in sound studios.

Rigid Slabs can be used in industrial applications such as acoustic splitters and acoustic damping of ducts.

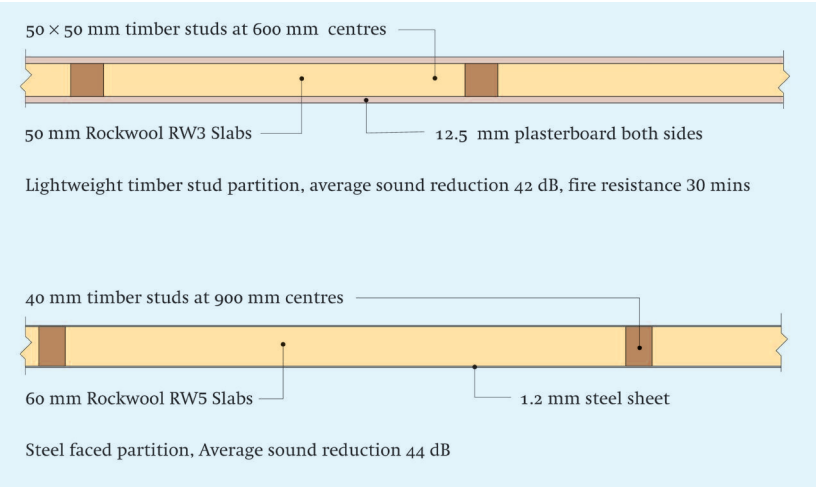


Figure 4

Typical specification clauses – domestic and commercial applications

1 RW3 slabs as acoustic infill to stud partition
The acoustic infill is to be Rockwool RW3 Semi-rigid Slabs ..... mm* thick (insert thickness to correspond with depth of studs), installed to a tight fit between the timber studs and cut to close fit above and below noggings as necessary. Chasing of the acoustic infill or services will not be permitted without the prior consent of the Supervising Officer.

* Insert required thickness

Work on site

Handling and storage
Rockwool Rigid, Semi-rigid and Flexible Slabs are light and easy to cut to any shape with a sharp knife. They are shrink wrapped in polyethylene and supplied on pallets that are shrouded with a waterproof hood suitable for outside storage.

Maintenance

Once installed the Rockwool Slabs need no maintenance.

Health and safety

Current HSE 'CHIP' Regulations and EU directive 97/69/EC confirm the safety of Rockwool mineral wool; Rockwool fibres are not classified as a possible human carcinogen.

The maximum exposure limit for mineral wool is 5mg/m^3, 8 hour time-weighted average.

A Material Safety Data Sheet is available from Rockwool Customer Support (0871 222 1780) to assist in the preparation of risk assessments, as required by the Control of Substances Hazardous to Health Regulations (COSHH).

Environment

Relying on entrapped air for its thermal properties, Rockwool insulation does not contain (and has never contained) gases that have Ozone Depleting Potential (ODP) or Global Warming Potential (GWP). Rockwool therefore complies with the relatively modest threshold of GWP<5 included in documents such as the Code for Sustainable Homes.

Rockwool Ltd. is increasingly involved in recycling waste Rockwool material that may be generated during installation or at end of life disposal. We are happy to discuss the individual requirements of contractors and users considering returning Rockwool materials to our factory for recycling.

ZERO GWP
GLOBAL WARMING POTENTIAL

ZERO ODP
OZONE DEPLETING POTENTIAL

Technical Helpline

Technical advice relating to the Rigid, Semi-rigid and Flexible slab range is available from Rockwool Customer Support on 0871 222 1780.

ROCKWOOL

Rockwool Limited
Pencoed. Bridgend. CF35 6NY

26/28 Hammersmith Grove
Hammersmith
London W6 7HA

info@rockwool.co.uk
www.rockwool.co.uk

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