



ROCKWOOL®

FLEXI®

The perfect friction fit for framed constructions

ROCKWOOL FLEXI® is a unique, flexi-edged insulation product, specifically developed using patented technology for a fast and easy, perfect friction fit between timber and metal frame systems.



Certificate No EMS 70301



The following NBS clauses include 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

ROCKWOOL FLEXI®

FLEXI® slabs ensure essential tight fitting for thermal and acoustic integrity between frames in walls, partitions, floors and roofs, without the need for cutting or waste. Made from renewable volcanic rock, they are extremely fire resistant and significantly reduce the carbon footprint of a building.

Advantages

- Outstanding thermal, acoustic and fire properties
- FLEXI® edge offers accurate fit to all widths
- Multi-application; fits all typical metal and timber stud spacing
- Wide range of thicknesses
- No waste
- Easy to handle and install without gaps
- Fire classification A1
- Can be used as a full fill solution in timberframe party walls to achieve zero effective U-value within SAP 2012

Product properties and design

Dimensions

ROCKWOOL FLEXI® suits standard stud and floor joist spacings and is available in the following sized slabs:

Length x width (mm)	*Standard available thicknesses (mm)
1200 x 600	50, 60, 70, 90, 100, 120, 140, 180 & 200
1200 x 400	50, 100 & 140

Packaging

FLEXI® is supplied palletised, compression packed in polyethylene bags, protected by a weatherproof covering allowing it to be stored outside. However the FLEXI® slabs should not be left permanently exposed to the elements.

Installation guidance

ROCKWOOL FLEXI® Slabs are light and easy to cut to any shape with a sharp knife.

- Ensuring a perfect insulation fit is essential to maintain the thermal and acoustic integrity of the wall. Typical softwood timber moisture contents can range between 6-30%, dependant on exposure to the elements.
- As a rule of thumb, timber will expand 1% for every 4% of moisture content.
- If insulation is installed when timber has high moisture content, it can result in a potential 6 mm vertical void on each side, when the timber dries out. ROCKWOOL FLEXI® expands into this void, ensuring thermal and acoustic integrity, whilst rigid insulations may leave a 6 mm gap, or even fall out.
- Where studs or joists are spaced at 400mm centres, 400mm wide ROCKWOOL FLEXI® should be used.
- FLEXI® is also fast and easy to friction fit between floor joists from below, prior to fixing the plasterboard ceiling.
- Once installed ROCKWOOL FLEXI® does not require any maintenance.

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Thermal applications – timber frame walls

The additional thermal benefits offered by using high performance (HP) breather membranes (BM) and vapour control layers (VCL) over standard membranes are also shown in the tables below.

Effective thermal resistance (R-values) comparisons used for external cavities are as follows:

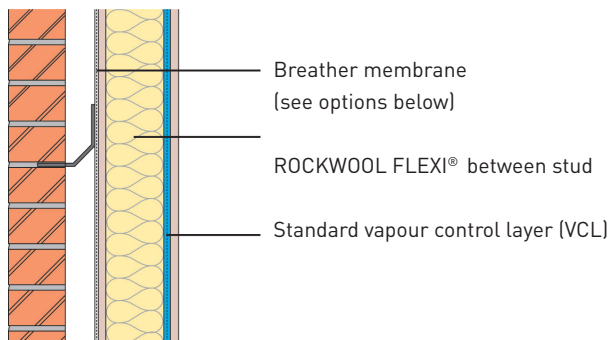
- Standard BM = 0.18m²/K/W: or
- Tyvek Reflex BM = 0.540m²/K/W
- Glidevale TF200 Thermo = 0.77m²/K/W

Effective thermal resistance (R-values) comparisons used for service void cavities are as follows:

- Standard vcl = 0.18m²/K/W: or
- DuPont AirGuard vcl = 0.680m²/K/W
- Glidevale Protect VC Foil = 0.78m²/K/W

Construction 1: Cold frame with no service void

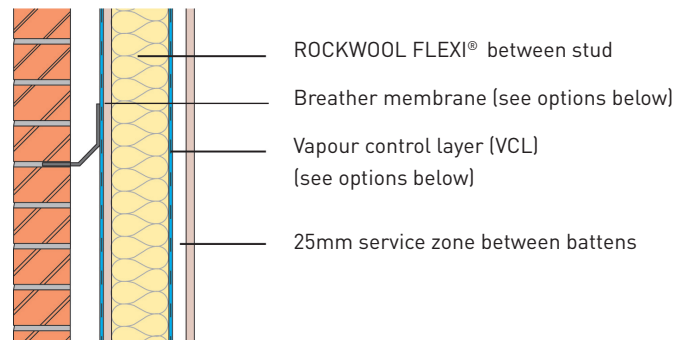
Timber frame cavity wall, standard construction, insulated with FLEXI® between studs.



Timber frame construction 1 No service void			Breather membrane type		
U-value W/m ² K	FLEXI® (mm)	Stud depth	Std	Tyvek Reflex	Protect TF200 Thermo
0.28	140	140	✓		
0.25	140	140		✓	
0.24	140	140			✓
0.23	180	184	✓		
0.21	180	184		✓	
0.20	180	184			✓
0.20	200	220	✓		
0.19	200	220		✓	
0.18	200	220			✓

Construction 2: Cold frame with service void

Timber frame cavity wall with separate 25mm battened service void, FLEXI® between studs:

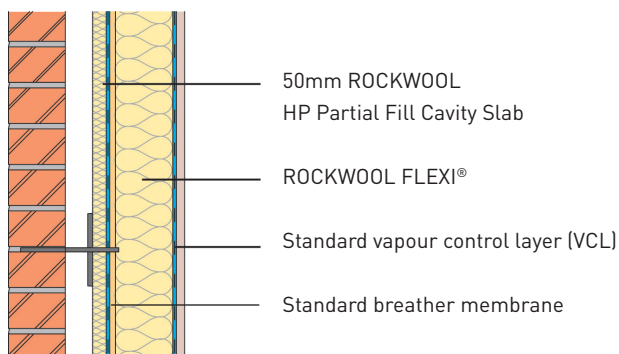


Timber frame construction 2 - with service void			Breather membrane type			Service void VCL options and types		
U-value W/m ² K	FLEXI® (mm)	Stud depth	Std	Tyvek Reflex	Protect TF200 Thermo	Std	Tyvek Air- Guard	Protect VC Foil
0.27	140	140	✓			✓		
0.21	140	140		✓			✓	
0.20	140	140			✓			✓
0.22	180	184	✓			✓		
0.18	180	184		✓			✓	
0.17	180	184			✓			✓
0.19	200	220	✓			✓		
0.17	200	220		✓			✓	
0.16	200	220			✓			✓

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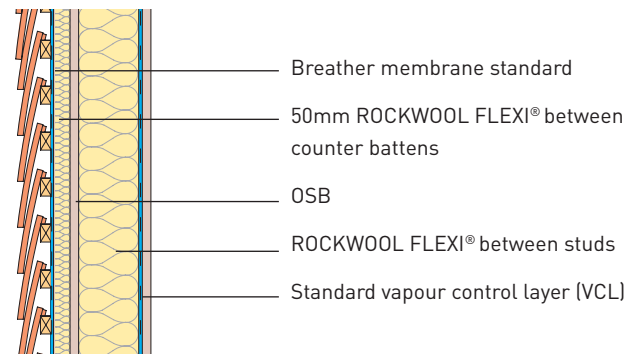
Construction 3: Warm/Hybrid frame (with no service void)

Warm/hybrid timber frame cavity wall with ROCKWOOL FLEXI® insulation between studs and 50mm ROCKWOOL HP Partial Fill, fixed to face of OSB over breather membrane.



Construction 4: Single timber frame with cladding

External cladding or tile hanging, breather membrane, 50mm ROCKWOOL FLEXI® between outer vertical battens, on 9mm OSB. ROCKWOOL FLEXI® between timber studs, standard vapour control layer, 12.5mm plasterboard finish.



**Construction 3 warm/hybrid timber frame
No service void (Standard BM & VCL)**

U-value W/m ² K	RW P/fill over OSB	FLEXI® in frame	Stud depth
0.25	50mm	90mm	89
0.19	50	140	140
0.17	50	180	184
0.15	50	200	220

**Construction 4 : Timber frame with cladding
and 50mm FLEXI® between battens**

U-value w/m ² K	FLEXI® between battens	FLEXI® in frame	Stud depth
0.27	50	100	100
0.22	50	140	140
0.18	50	180	184

Note the U-values shown in table 3 above can be further enhanced upon by the inclusion of a service void see construction 3a table below

Construction 3a: Timber frame warm/hybrid frame construction (with service void)

As construction 3 above, but with additional 25mm battened service void

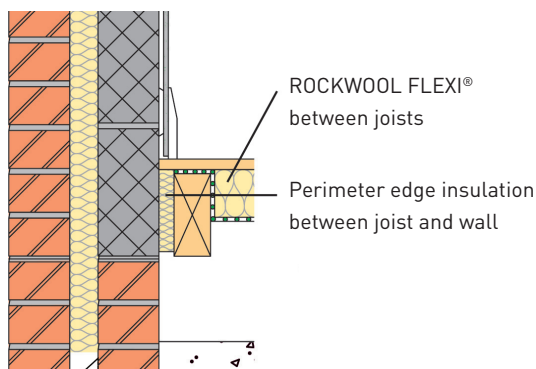
Construction 3a warm/hybrid timber frame - with service void				Service void VCL options and types		
U-value W/m ² K	RW P/ fill over OSB	FLEXI® in frame	Stud depth	Std	Tyvek AirGuard	Protect VC Foil
0.24	50	90	89	✓		
0.22	50	90	140		✓	
0.21	50	90	90			✓
0.19	50	140	140	✓		
0.17	50	140	140		✓	
0.17	50	140	140			✓
0.16	50	180	184	✓		
0.15	50	180	184		✓	
0.15	50	180	184			✓

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Thermal applications – floors

Suspended timber floor

ROCKWOOL FLEXI® is installed between joists, supported by polypropylene netting or breather membrane. The insulation should be fitted as close as is practical to the underside of floor deck to avoid any air gaps:



Product	FLEXI®			
U-value	0.25 W/m ² K thickness (mm)	0.22 W/m ² K thickness (mm)	0.20 W/m ² K thickness (mm)	0.18 W/m ² K thickness (mm)
P/A ratio				
0.4	120	140	150	180
0.5	120	140	160	200
0.6	120	140	180	200
0.8-1.0	140	140	180	200

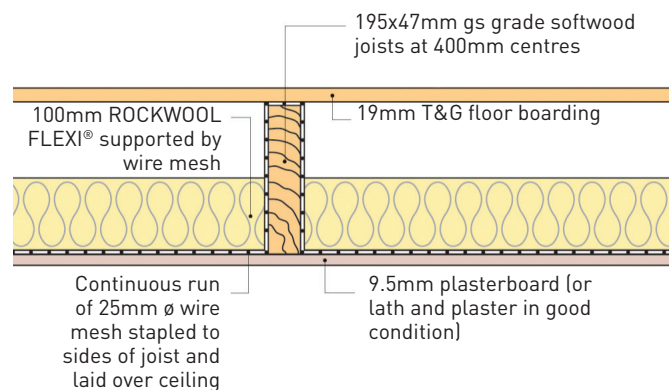
The P/A ratio is determined by dividing the total of the exposed perimeter length of the floor by the area of the floor.

Fire protection: Upgrading existing timber floor to achieve one hour fire resistance

1 hour fire resistant floor based on fire test to BS476: Part 21 using ROCKWOOL FLEXI®.

Remove existing floor boards and install a continuous run of 25mm \varnothing chicken wire mesh across the whole floor. Form the mesh so that it follows the profile of the joists and the top face of the ceiling lining.

100 mm ROCKWOOL FLEXI® to fit tightly between the joists and supported by the mesh. Lay new floor of either (a) 19 mm flooring grade t&g chipboard or (b) square edged boards with a layer of 3mm hardboard above or below the boards.



Acoustic applications – walls

ROCKWOOL FLEXI® works in two distinct ways to reduce noise, either by impeding the transmission of sound through the structure, or by absorbing sound at the surface.

Acoustic and thermal insulation for timber frame party walls to help reduce Party wall bypass

Heat loss via “Separating party cavity walls”

Building Regulations Approved Documents L1A & L2A of England and Wales’ and Section 6 of Scotland’s Building standards have recognised that where party cavity-walls between connected buildings are untreated, considerable heat can escape through them.

Minimising heat loss from party walls.

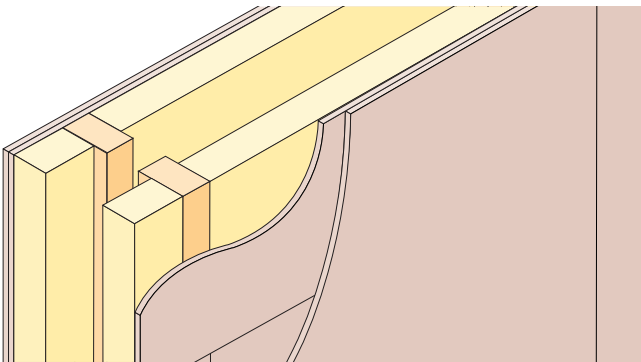
ROCKWOOL has a range of solutions to help eliminate the heat loss from timber frame party walls. Extensive site trials have demonstrated that the U-value for a party wall can potentially be reduced to zero if the cavity of a timber frame party wall is fully filled with ROCKWOOL FLEXI® insulation and effective edge sealing (such as ROCKWOOL PWCB) is applied around the perimeter edges of the party wall cavity (further details about ROCKWOOL PWCB can be found in the ROCKWOOL FirePro CAVITY BARRIER data sheet).

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Robust Details: Separating timber framed walls

Robust Details reference – E-WT-1

- Without sheathing board
- Twin timber frames (for use in conjunction with timber frame dwellings and apartments)



ROCKWOOL SoundPro robust detail guidance specification

The following are required:

- Wall width: a minimum of 240mm between inner faces of wall linings and a 50mm gap between the two frames.
- Wall lining: 2 or more layers of gypsum-based board (total nominal mass per unit area 22kg/m²) both sides.
- ROCKWOOL FLEXI®: a minimum of 60mm in both wall frames.

Thermal Regulations:

Minimising heat loss via party walls

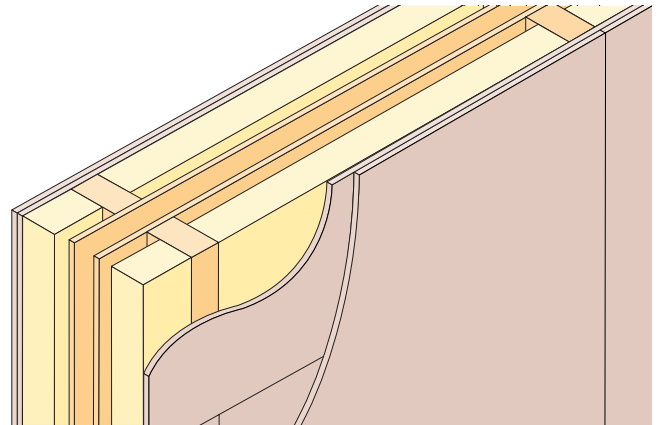
To assist in achieving a zero U-value for thermal applications we would recommend the following:

1. Fully fill the depth of the studs in both wall frames with 90mm ROCKWOOL FLEXI® (this assumes the depth of the stud to be 89mm).
2. Fully fill the cavity space between the wall frames with 60mm FLEXI® batt (this assumes the cavity width to be 60mm).

Robust Details reference – E-WT-2

Separating wall - timber frame

- With sheathing board
- Twin timber frames (for use in conjunction with timber framed dwellings and apartments)



ROCKWOOL SoundPro robust detail guidance specification

The following are required:

- Wall width: a minimum of 240mm between inner faces of wall linings and a 50mm gap between studs.
- Wall lining: 2 or more layers of gypsum-based board (total nominal mass per unit area 22kg/m²) both sides.
- ROCKWOOL FLEXI®: a minimum of 60mm in both wall frames.

Thermal Regulations:

Minimising heat loss via party walls

To assist in achieving a zero U-value for thermal applications we would recommend the following:

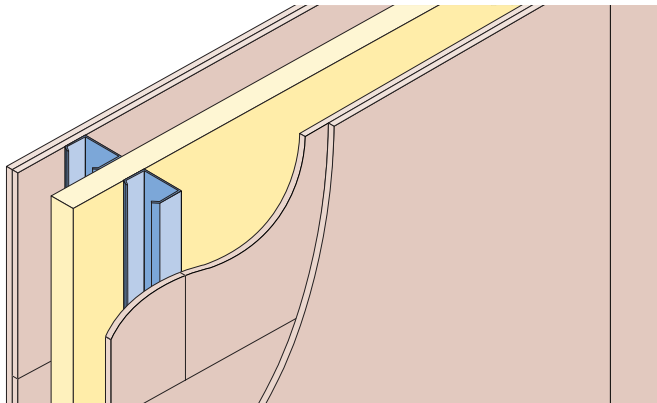
1. Use a minimum thickness of 60mm FLEXI® between studs in each frame.
2. Fully fill the cavity space between the wall panels with *60mm FLEXI® batt (*Note for this construction type, the thickness of insulation used to fully fill the cavity should be 10mm wider than the as built cavity width. eg. use 60mm FLEXI® in 50mm Cavities or 70mm FLEXI® in a 60mm Cavity).

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Robust Details reference – E-WS-1

Separating wall - steel frame

Twin metal frames for use in lightweight steel frame houses and flats/apartments (for use in conjunction with light steel framed dwellings and apartments).



ROCKWOOL SoundPro robust detail guidance specification

The following are required:

- Wall width: a minimum of 200mm between inner faces of wall linings
- Wall lining: 2 or more layers of gypsum-based board (total nominal mass per unit area 22kg/m²) both sides
- ROCKWOOL FLEXI®: a minimum of 50mm fully filling the cavity between frames (this thickness will vary pending as built cavity width).

Please note: The steel frame profiles shown are indicative only. Other profiles are acceptable. This robust detail is only suitable for use in lightweight steel frame houses and flats/apartments.

Acoustic applications – partitions

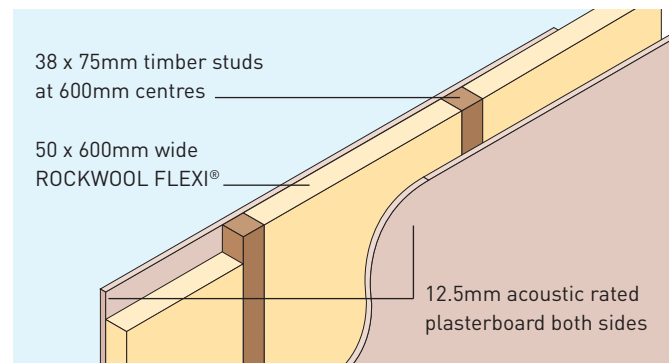
ROCKWOOL FLEXI® will provide both acoustic and fire benefits when used in partitions.

Lightweight domestic timber stud partition: meeting Approved Document E2 (domestic internal partitions)

Solution 1 - Timber frame

The following are required:

- Studs: 38x75 timber studs @ 600mm centres
- Facings: 1 layer 12.5mm acoustic rated plasterboard (11 kg/m²) each side
- Insulation: a minimum of 50mm of ROCKWOOL FLEXI®



Results

Weighted sound reduction (Rw dB)	40
Fire resistance (minutes)	30
Max height (metres)	3
Nominal wall thickness (millimetres)	100

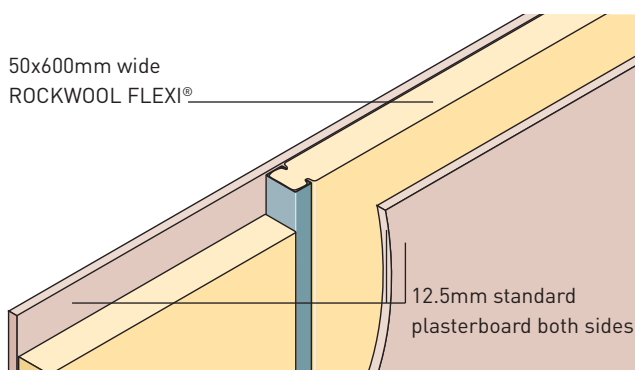
ROCKWOOL FLEXI®

Solution 2 - Metal frame

Lightweight domestic metal stud

The following are required:

- Studs: 50mm metal studs @ 600mm centres
- Facings: 1 layer of 12.5mm standard plasterboard (8kg/m²) each side
- Insulation: a minimum of 50mm of ROCKWOOL FLEXI®



Results

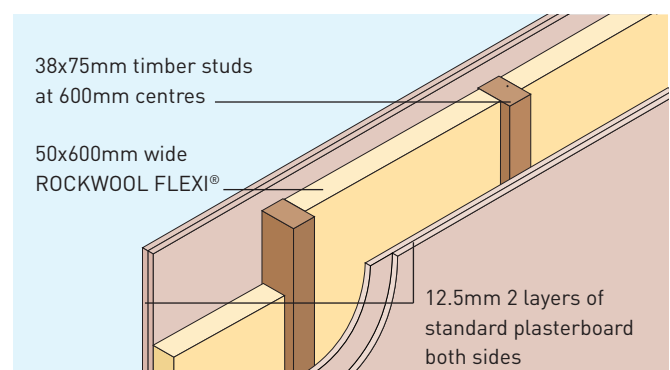
Weighted sound reduction (Rw dB)	41
Fire resistance (minutes)	30
Max height (metres)	2.5
Nominal wall thickness (millimetres)	75

Enhanced performance (timber frame)

Typical office partition adjacent to factory

The following are required:

- Studs: 38x75 timber studs @ 600mm centres
- Facings: 2 layers of 12.5mm standard plasterboard (16kg/m²) each side
- Insulation: a minimum of 50mm of ROCKWOOL FLEXI®



Results

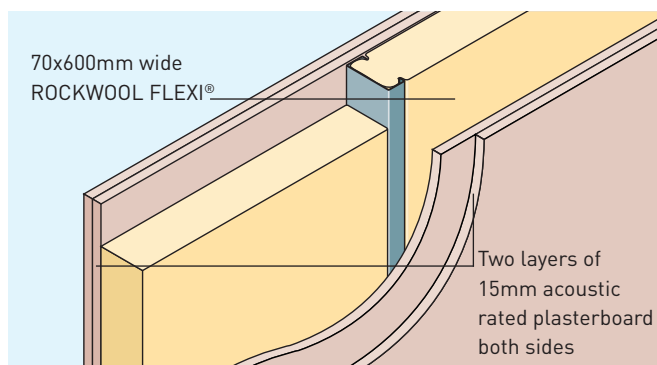
Weighted sound reduction (Rw dB)	46
Fire resistance (minutes)	60
Max height (metres)	3
Nominal wall thickness (millimetres)	125

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Enhanced performance (metal frame): schools, offices and public buildings: NBS Plus Clause K10:115, K10:125

The following are required:

- Studs: 70mm metal studs @ 600mm centres
- Facings: 2 layers of 15.0mm acoustic rated plasterboard (26kg/m²) each side
- Insulation: a minimum of 70mm of ROCKWOOL FLEXI®



Results

Weighted sound reduction (Rw dB)	57
Fire resistance (minutes)	90
Max height (metres)	4.6
Nominal wall thickness (millimetres)	130

Alternative ROCKWOOL systems for Approved Document E compliance

New build separating timber floor

The following ROCKWOOL solutions have the potential to meet the requirements set out in Part E Section 3 and provide a minimum fire resistance of 60 minutes.

Airborne: Rw 54 dB (Rw 66 - 12 Ctr)

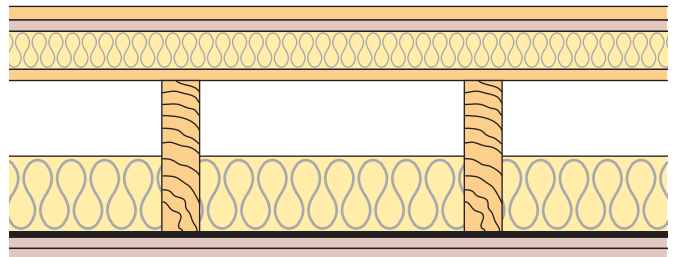
Impact: Lnw 54 dB

Test Report ref. L03 272 & 273

ROCKWOOL floor type

The following are required:

- 18mm of tongue and groove flooring grade chipboard
- 15mm acoustic rated plasterboard with a minimum mass 12.5 kg/m² mass per unit area
- 50mm of ROCKWOOL Rockfloor resilient layer
- 15mm of OSB on 200 × 50mm timber joists @ 400mm centres
- 100mm of ROCKWOOL FLEXI® between joists
- Resilient bars fixed at right angles to joists @ 400mm centres
- Ceiling finish: 2 layers of 15mm acoustic rated plasterboard (26 kg/m²)
- Pre-completion site testing required on site



For details of this acoustic solution with downlights, refer to SoundPro brochure, Section E1 (New build), page 3, solution 6.

ROCKWOOL FLEXI®

Internal floors

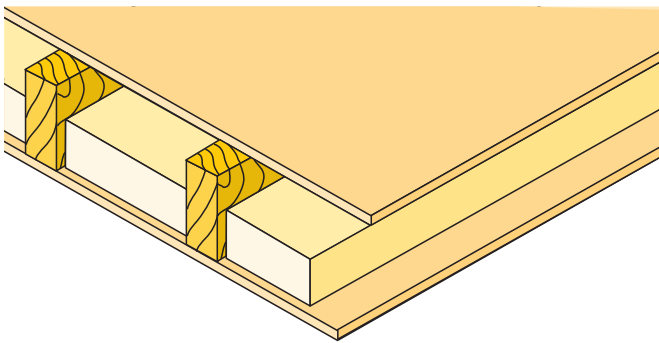
ROCKWOOL system for compliance with ADE Section 5 – internal floors, within the same dwellings

Timber joist internal floor (domestic internal floor)

To meet part E2: Rw 40 dB Test Report ref. L03 264 & 265

The following are required:

- 18mm of tongue and groove flooring grade chipboard with a mass per unit area of 12.4 kg/m²
- Timber joists @ 400mm centres
- 100mm of ROCKWOOL FLEXI® between joists
- A single layer of standard 12.5mm plasterboard ceiling with a mass per unit area of 8kg/m²



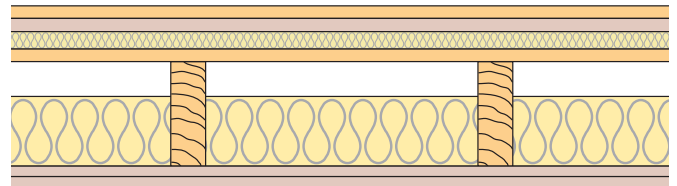
Acoustic applications – separating floors (material change of use) ADE Section 4

ADE Construction guidance specifications for material change of use separating timber floor treatment 2: Platform floor with absorbent material: NBS Plus Clause K11:215, 225, 235 & 245

The following are required:

- A minimum of 2 layers of board material to provide minimum a total mass of 25kg/m², spot bonded together with joints staggered (eg 18mm of tongue and groove flooring grade chipboard and 19mm of plasterboard plank)
- 25mm (min) ROCKWOOL Rockfloor resilient layer laid on
- The floating layer to be loose laid over the Rockfloor
- Existing floor deck on existing timber floor joists
- 100mm of ROCKWOOL FLEXI®

- Existing ceiling should be upgraded to 20kg/m². If the existing ceiling is of lath & plaster it should be retained, providing it satisfies Part B – Fire Safety. (if in doubt then , underdraw the ceiling with an additional layer of 12.5mm fire rated plasterboard and screw into the joists)
- Pre-completion site testing

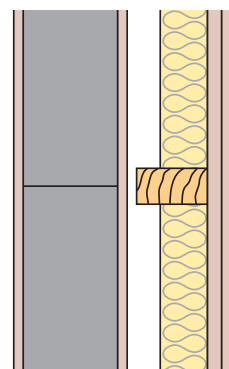


Acoustic applications – separating walls (material change of use) ADE Section 4

ADE construction guidance specifications for wall treatment 1: existing solid masonry wall with independent panel(s);

The following are required:

- A minimum of 100mm of existing solid masonry wall, plastered on both faces
- Independent timber or steel studs. A minimum 10mm gap to be maintained between the frame and the existing wall
- 50mm of ROCKWOOL FLEXI® between studs
- 2 layers of plasterboard at a minimum of 20kg/m² (approximately equal to 2x15 mm layers)
- Avoid flanking transmission: seal perimeter edges of new plasterboard with tape or ROCKWOOL Acoustic Sealant
- If the existing masonry wall is not plastered or is less than 100mm thick then independent panels should be applied to both sides
- Pre-completion site testing



ROCKWOOL FLEXI®

Standards and quality approvals

Fire classification

ROCKWOOL FLEXI® achieves a reaction to fire classification of A1, as defined in EN13501-1.

Product performance

Thermal Performance

ROCKWOOL FLEXI® has a thermal conductivity of 0.038W/mK and 0.035W/mK at 140 mm thickness and above.

Ordering

ROCKWOOL FLEXI®: Please quote thickness, width and area required.

ROCKWOOL Rockfloor: Please quote thickness and area required.

ROCKWOOL HP Partial Fill Slabs: Please quote thickness and area required.

ROCKWOOL properties

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**

Health and 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).

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.

Interested?

For further details visit our website at www.rockwool.co.uk or phone ROCKWOOL Technical Solutions on 0871 222 1780.

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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 data sheet.

The above applications do not necessarily represent an exhaustive list of applications for ROCKWOOL FLEXI®. ROCKWOOL Limited does

not accept responsibility for the consequences of using ROCKWOOL FLEXI® in applications different from those described within this data sheet. Expert advice should be sought where such different applications are contemplated, or where the extent of any listed application is in doubt.