

FLEXI

The perfect friction fit for framed constructions



FLEXI

ROCKWOOL FLEXI® is a unique, flexible edged insulation product, specifically developed using patented technology for a fast and easy, perfect friction fit.

The flexible edge ensures a perfect fit is maintained between the product and its supporting framework for easy installation and optimum effectiveness. Suitable for a wide range of applications including framed external walls, rafters, floors and partitions.





Advantages

- Outstanding thermal, acoustic and fire properties
- FLEXI Edge® ensures tight friction fit
- Will not slump, even if studs shrink
- Range of thicknesses and widths to suit multiple applications
- Non-combustible - Euroclass A1

Description

ROCKWOOL FLEXI® is a multi-use, thermal, acoustic and fire insulation product with a unique flexible edge along one side. The patented flexible edge ensures a perfect fit is maintained between the product and its supporting framework for easy installation and optimum effectiveness. FLEXI® is suitable for use between frames in walls, partitions, floors and roofs, without the need for cutting or waste. Made from renewable volcanic rock, it is extremely fire resistant and significantly reduces the carbon footprint of a building.

Applications

ROCKWOOL FLEXI® is suitable for use in a wide range of applications, including acoustic and fire insulation for partitions, separating walls and floors, as well as thermal insulation for suspended floors, walls, and roofs.

Performance

Thermal

ROCKWOOL FLEXI is available in a range of thicknesses and widths, with a thermal conductivity of 0.038 W/mK, and 0.035 W/mK at 140mm thicknesses and above.

Fire classification

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

Thermal applications – timber frame walls

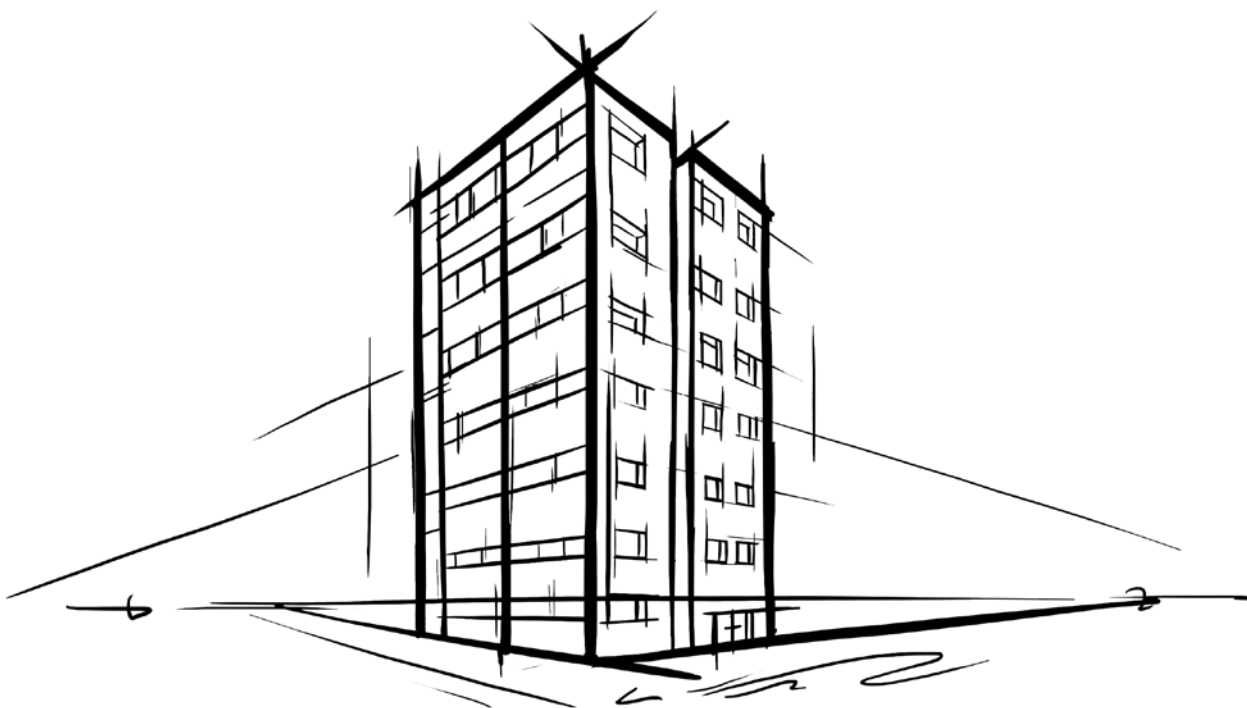
The additional thermal benefits offered by using high performance (HP) breather membranes (BM) and vapour control layers (VCL) over standard membranes are shown below.

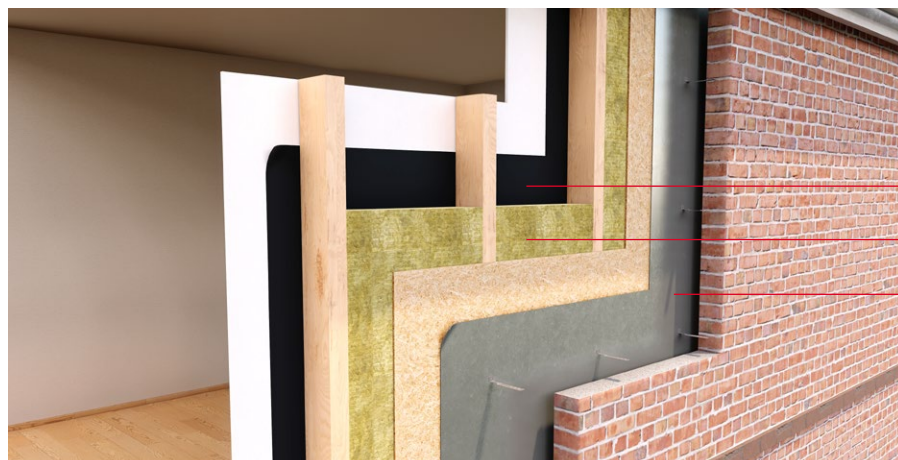
Effective thermal resistance (R-values) comparisons used for external cavities are as follows:

- a. Standard BM = $0.18\text{m}^2\text{K/W}$: or
- b. Tyvek Reflex BM = $0.540\text{m}^2\text{K/W}$
- c. Protect TF200 Thermo = $0.77\text{m}^2\text{K/W}$

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

- a. Standard VCL = $0.18\text{m}^2\text{K/W}$: or
- b. DuPont AirGuard VCL = $0.680\text{m}^2\text{K/W}$
- c. Protect VC Foil = $0.78\text{m}^2\text{K/W}$





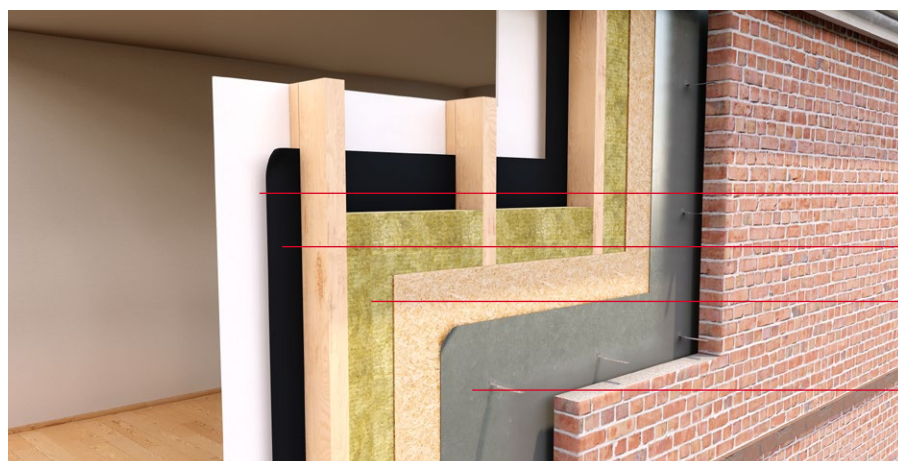
Construction 1:
Cold frame with no service void
Timber frame cavity wall, standard construction, insulated with FLEXI® between studs.

Vapour control layer

ROCKWOOL FLEXI®

Breather membrane

Timber frame construction 1 - with service void			Breather membrane type		
U-value W/m²K	FLEXI (mm)	Stud depth (mm)	Standard	Tyvek Reflex	Protect TF200 Thermo
0.28	140	140	✓		
0.25	140	140		✓	
0.24	140	184			✓
0.23	180	184	✓		
0.21	180	184		✓	
0.20	180	184			✓



Construction 2:
Cold frame with service void
Timber frame cavity wall with separate 25mm battened service void, insulated with FLEXI® between studs:

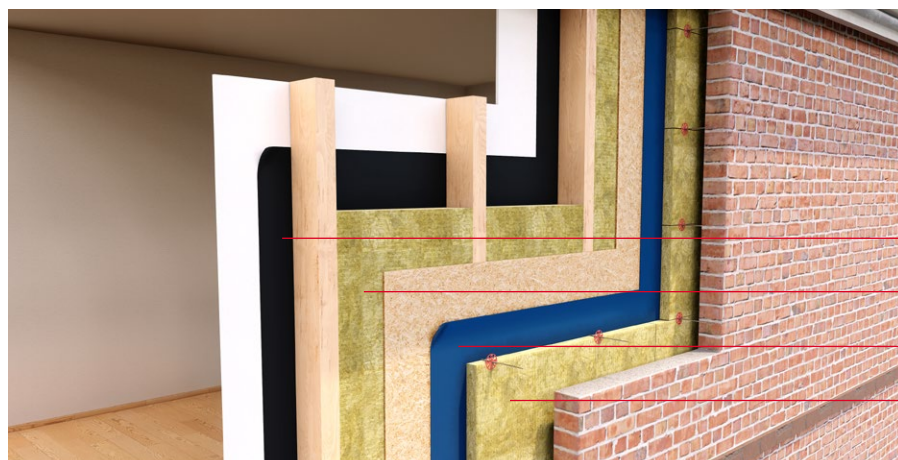
25mm service void

Vapour control layer

ROCKWOOL FLEXI®

Breather membrane

Timber frame construction 2 - with service void			Breather membrane type			Service void VCL options and types		
U-value W/m²K	FLEXI (mm)	Stud depth (mm)	Standard	Tyvek Reflex	Protect TF200 Thermo	Standard	Dupont Airguard	Protect VC Foil Ultra
0.27	140	140	✓			✓		
0.21	140	140		✓			✓	
0.20	140	140			✓			✓
0.22	180	184	✓			✓		
0.18	180	184		✓			✓	
0.17	180	184			✓			✓



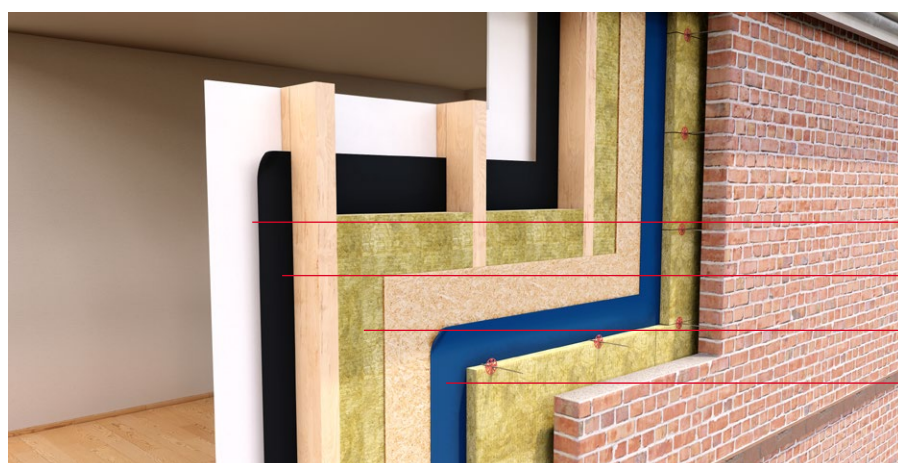
Construction 3:
Warm/Hybrid frame (with no service void)

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.

Vapour control layer
ROCKWOOL FLEXI®
Breather membrane
ROCKWOOL HP Partial Fill

Construction 3 warm/hybrid timber frame - No service void (Standard BM & VCL)			
U-value W/m²K	RW Partial Fill over OSB (mm)	FLEXI® in frame (mm)	Stud depth (mm)
0.25	50	90	89
0.19	50	140	140
0.17	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 4 table below.



Construction 4:
Timber frame warm/hybrid frame construction (with service void)

As construction 3 above, but with additional 25mm battened service void. with FLEXI® between studs:

25mm service void
Vapour control layer
ROCKWOOL FLEXI®
Breather membrane

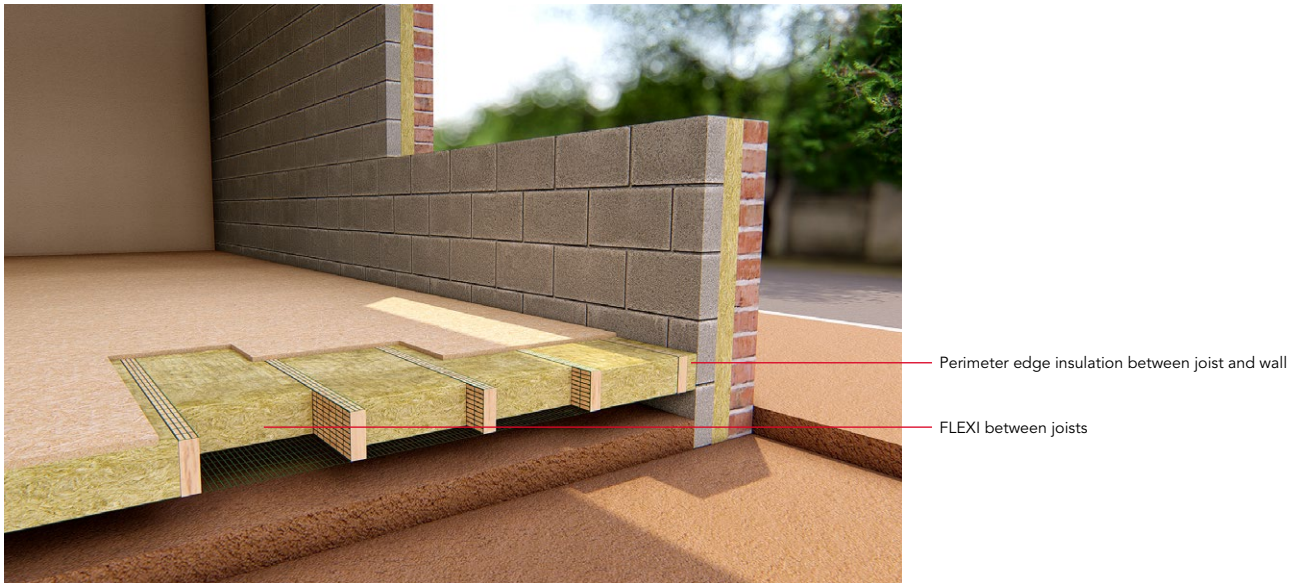
Construction 4 warm/hybrid timber frame - with service void				Service void - VCL options and types		
U-value W/m²K	HP Partial fill over OSB (mm)	FLEXI (mm)	Stud depth (mm)	Standard	Tyvek AirGuard	Protect VC Foil Ultra
0.24	50	90	89	✓		
0.22	50	90	89		✓	
0.21	50	90	89			✓
0.19	50	140	140	✓		
0.17	50	140	140		✓	
0.17	50	140	140			✓
0.16	50	180	184	✓		
0.15	50	180	184		✓	
0.15	50	180	184			✓

Thermal applications – floors

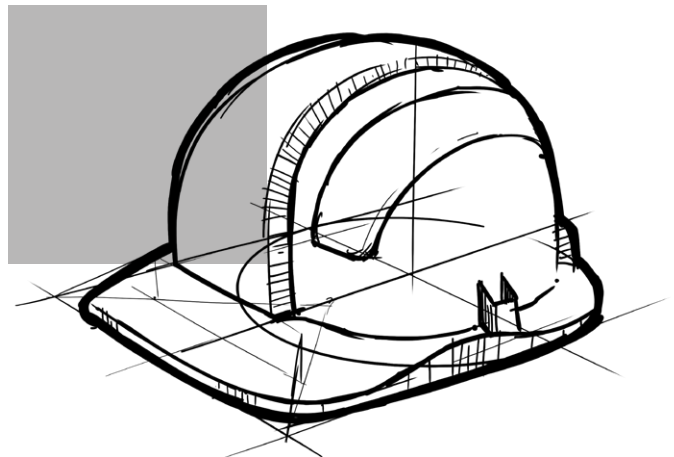
Suspended timber floor

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

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



U-value W/m²K	FLEXI			
	0.25	0.22	0.20	0.18
P/A ratio	Thickness (mm)	Thickness (mm)	Thickness (mm)	Thickness (mm)
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

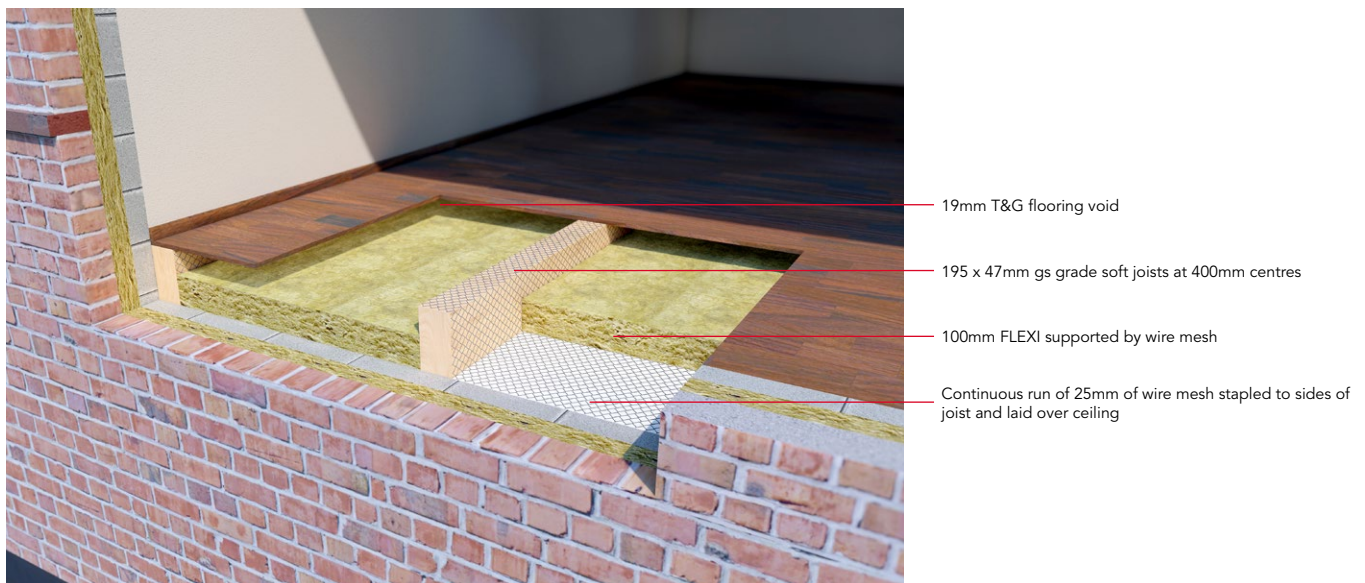


Fire protection: Upgrading existing timber floor to achieve one hour fire resistance

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 ø 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.

100mm ROCKWOOL FLEXI® is to fit tightly between the joists and supported by the mesh. Lay new floor of either 19mm flooring grade t&g chipboard or 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).

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)

Twin timber frame with 50mm gap between

FLEXI between the studs

2 layers of gypsum based board

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)

Twin timber frame with sheathing, 50mm gap between

FLEXI between the studs

2 layers of gypsum based board

The following are required:

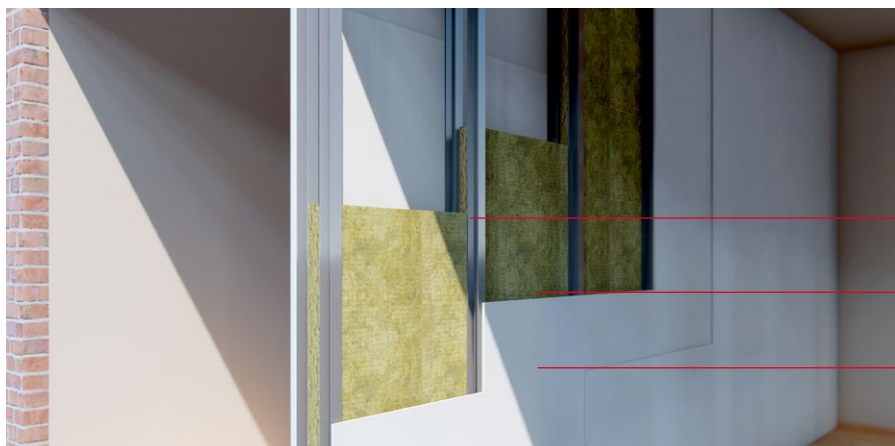
- Wall width: a minimum of 240mm between inner faces of wall linings and a 50mm gap between studs.
- Wall lining: 2 or more layers of gypsum-based board (total nominal mass per unit area 22kg/m²) both sides.
- ROCKWOOL FLEXI®: a minimum of 60mm in both wall frames.

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.

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).

Lightweight steel stud frame

FLEXI between the studs

2 layers of plasterboard

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).

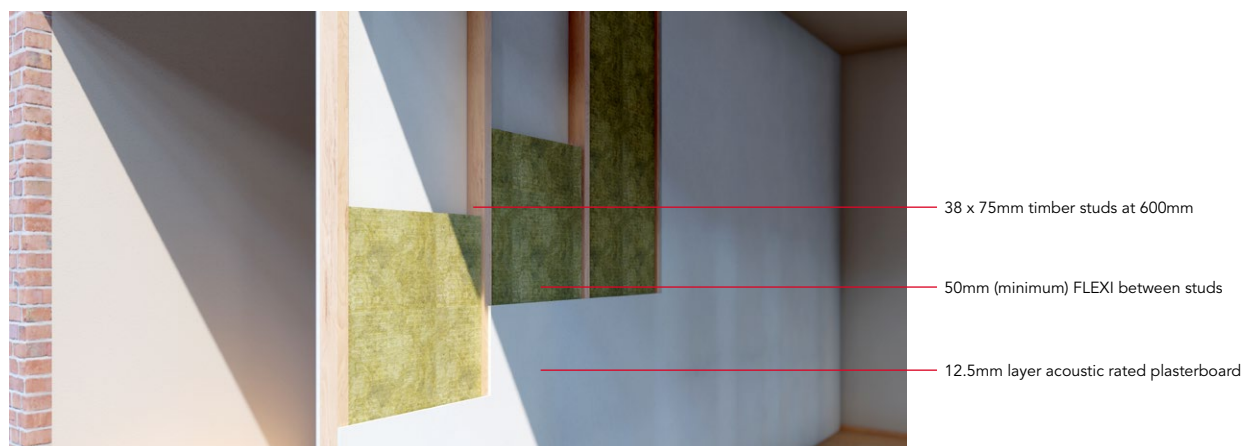
Please note: The steel frame profiles shown are indicative only. Other profiles are acceptable. This robust detail is only suitable for use in lightweight steel frame houses and flats/apartments.

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



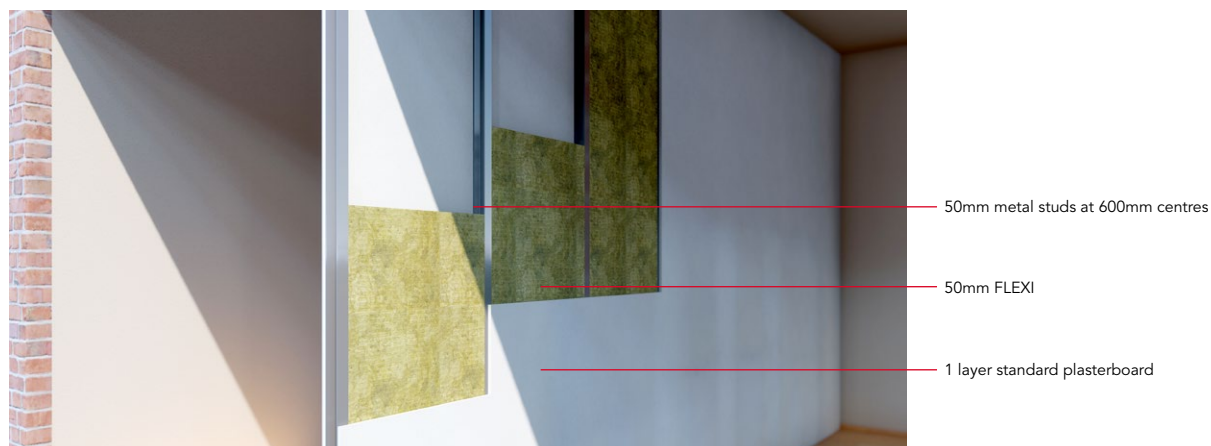
The following are required:

- Studs: 38×75 timber studs at 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 (mm)	100

Solution 2 - Metal frame - Lightweight domestic metal stud



The following are required:

- Studs: 50mm metal studs at 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 (mm)	75

Enhanced performance (timber frame) - Typical office partition adjacent to factory



The following are required:

- Studs: 38x75 timber studs at 600mm centres
- Facings: 2 layers of 12.5 mm 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 (mm)	125

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



The following are required:

- Studs: 70mm metal studs at 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)	50
Fire resistance (minutes)	94
Max height (metres)	4.6
Nominal wall thickness (mm)	130

Alternative ROCKWOOL systems for Approved Document E compliance

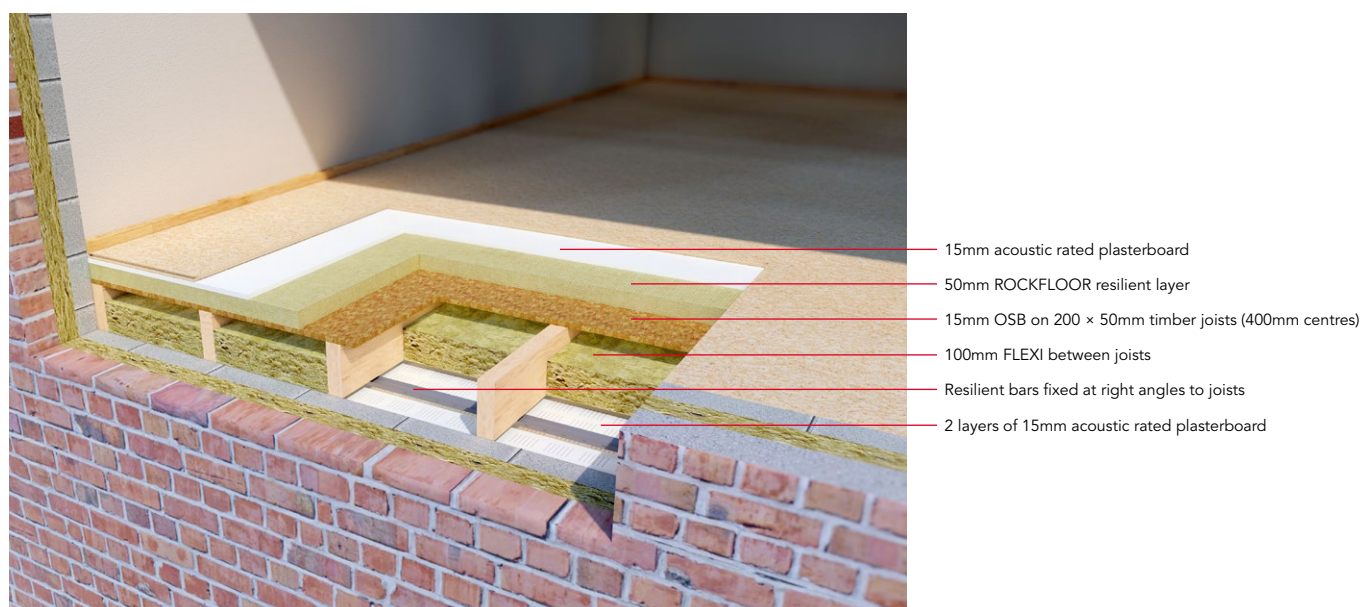
New build separating timber floor

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



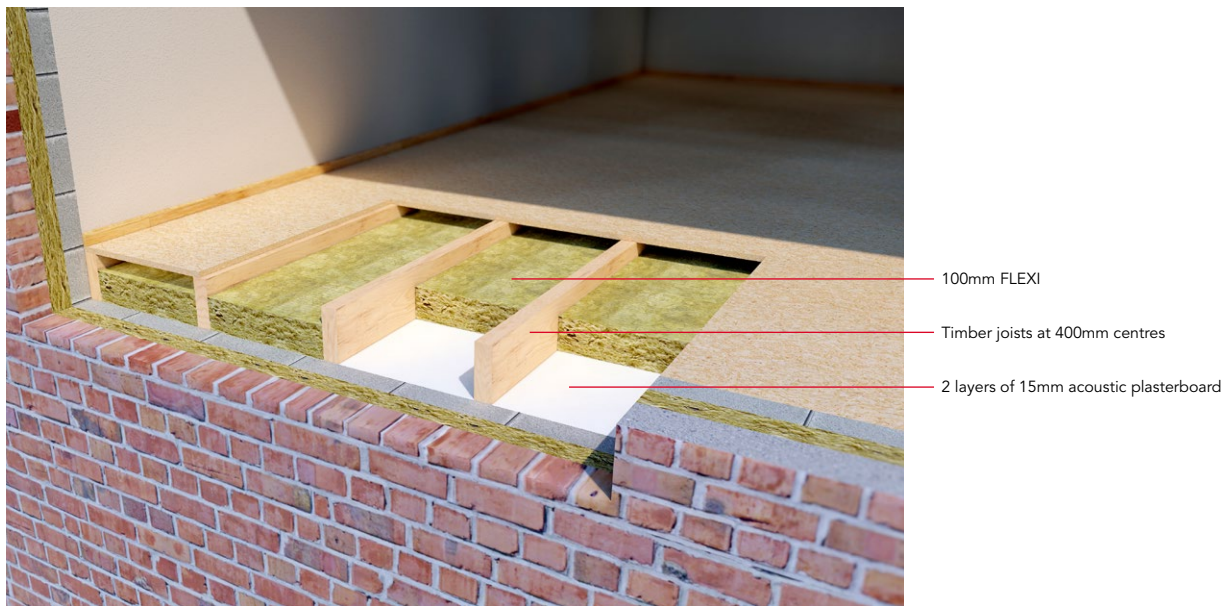
The following are required:

- 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 at 400mm centres
- 100mm of ROCKWOOL FLEXI® between joists
- Resilient bars fixed at right angles to joists at 400mm centres
- Ceiling finish: 2 layers of 15mm acoustic rated plasterboard (26 kg/m²)
- Pre-completion site testing required on site

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. I03 264 & 265



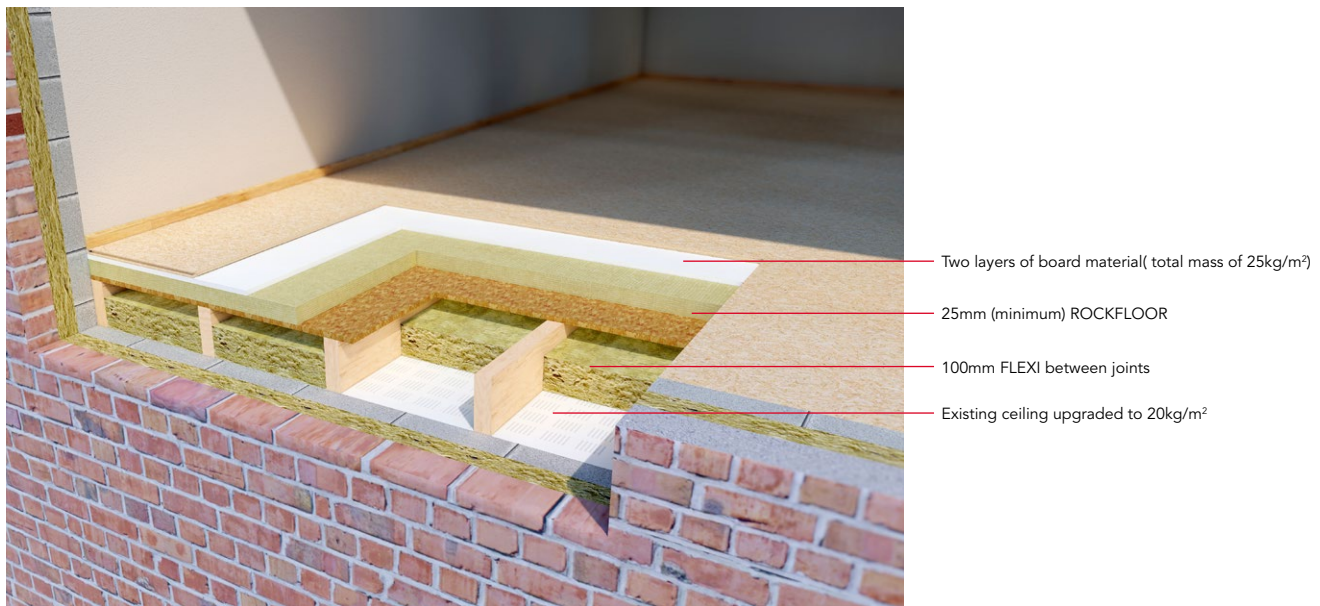
The following are required:

- 18mm of tongue and groove flooring grade chipboard with a mass per unit area of 12.4 kg/m²
- Timber joists at 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

Separating floors

ADE Section 4 (material change of use)

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



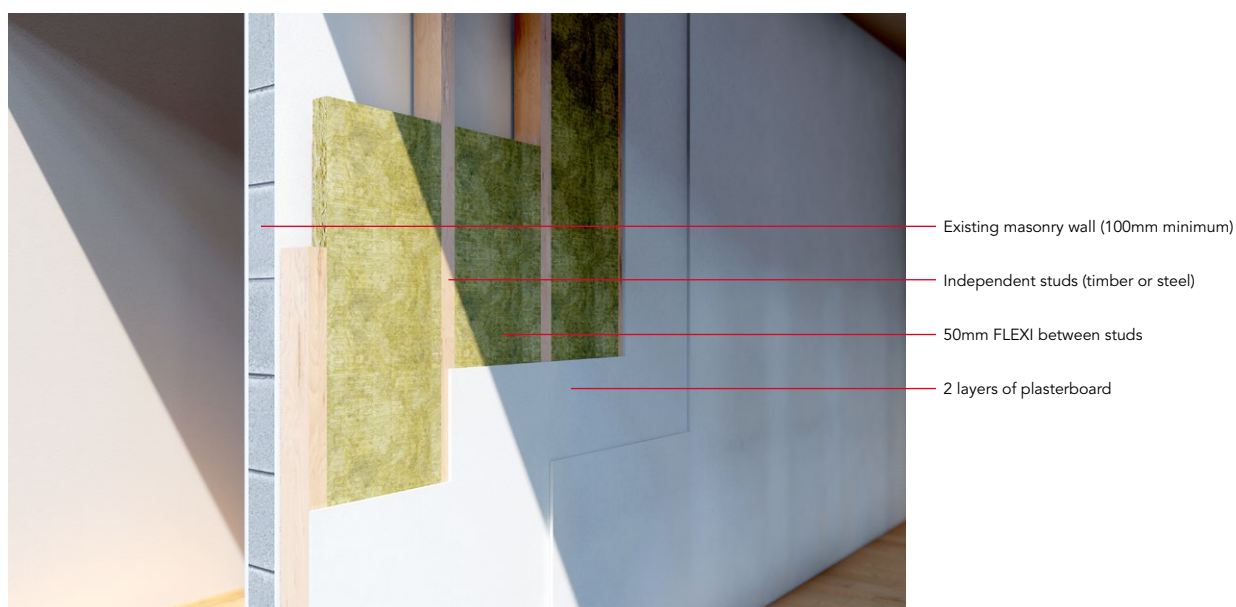
The following are required:

- 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
- 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

ADE Section 4 (material change of use)

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 2×15 mm layers)
- Avoid flanking transmission: seal perimeter edges of new plasterboard with tape or ROCKWOOL Intumescent 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

Specification clauses

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.

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

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).

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 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.

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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 world.

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

Trademarks

The following are registered trademarks of the ROCKWOOL Group:

ROCKWOOL®

ROCKCLOSE®

RAINSSCREEN DUO SLAB®

HARDROCK®

ROCKFLOOR®

FLEXI®

BEAMCLAD®

FIREPRO®

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