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.
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.

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

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 =0.18m²K/W; or
b. Tyvek Reflex BM = 0.540m²K/W
c. Protect TF200 Thermo = 0.77m²K/W

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

a. Standard VCL =0.18m²K/W; or
b. DuPont AirGuard VCL = 0.680m²K/W
c. Protect VC Foil = 0.78m²K/W
Construction 1:
Cold frame with no service void
Timber frame cavity wall, standard construction, insulated with FLEXI® between studs.

<table>
<thead>
<tr>
<th>U-value W/m²K</th>
<th>FLEXI (mm)</th>
<th>Stud depth (mm)</th>
<th>Standard</th>
<th>Tyvek Reflex</th>
<th>Protect TF200 Thermo</th>
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</thead>
<tbody>
<tr>
<td>0.28</td>
<td>140</td>
<td>140</td>
<td>✓</td>
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</tr>
<tr>
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<td>✓</td>
</tr>
<tr>
<td>0.24</td>
<td>140</td>
<td>184</td>
<td></td>
<td></td>
<td>✓</td>
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<tr>
<td>0.23</td>
<td>180</td>
<td>184</td>
<td></td>
<td></td>
<td>✓</td>
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<td>0.20</td>
<td>180</td>
<td>184</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>U-value W/m²K</th>
<th>FLEXI (mm)</th>
<th>Stud depth (mm)</th>
<th>Standard</th>
<th>Tyvek Reflex</th>
<th>Protect TF200 Thermo</th>
<th>Standard</th>
<th>Dupont Airguard</th>
<th>Protect VC Foil Ultra</th>
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<tbody>
<tr>
<td>0.27</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.21</td>
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<td>140</td>
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<tr>
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<td>140</td>
<td>140</td>
<td></td>
<td></td>
<td>✓</td>
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<td></td>
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<tr>
<td>0.22</td>
<td>180</td>
<td>184</td>
<td></td>
<td></td>
<td>✓</td>
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<td></td>
<td></td>
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<tr>
<td>0.18</td>
<td>180</td>
<td>184</td>
<td></td>
<td></td>
<td>✓</td>
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<td></td>
<td></td>
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<tr>
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<td>184</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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: Timber frame warm/hybrid frame construction (with service void)
As construction 3 above, but with additional 25mm battened service void with FLEXI® between studs:

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.

<table>
<thead>
<tr>
<th>U-value W/m²K</th>
<th>RW Partial Fill over OSB (mm)</th>
<th>FLEXI® in frame (mm)</th>
<th>Stud depth (mm)</th>
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<tbody>
<tr>
<td>0.25</td>
<td>50</td>
<td>90</td>
<td>89</td>
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<tr>
<td>0.19</td>
<td>50</td>
<td>140</td>
<td>140</td>
</tr>
<tr>
<td>0.17</td>
<td>50</td>
<td>180</td>
<td>184</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>U-value W/m²K</th>
<th>HP Partial fill over OSB (mm)</th>
<th>FLEXI® (mm)</th>
<th>Stud depth (mm)</th>
</tr>
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<tbody>
<tr>
<td>0.24</td>
<td>50</td>
<td>90</td>
<td>89</td>
</tr>
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<td>0.22</td>
<td>50</td>
<td>90</td>
<td>89</td>
</tr>
<tr>
<td>0.21</td>
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<td>90</td>
<td>89</td>
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<tr>
<td>0.19</td>
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<tr>
<td>0.17</td>
<td>50</td>
<td>140</td>
<td>140</td>
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<tr>
<td>0.17</td>
<td>50</td>
<td>140</td>
<td>140</td>
</tr>
<tr>
<td>0.16</td>
<td>50</td>
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</tr>
<tr>
<td>0.15</td>
<td>50</td>
<td>180</td>
<td>184</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Service void - VCL options and types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
</tr>
<tr>
<td>0.24</td>
</tr>
<tr>
<td>0.22</td>
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<tr>
<td>0.21</td>
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<tr>
<td>0.19</td>
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<tr>
<td>0.16</td>
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<tr>
<td>0.15</td>
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<td>0.15</td>
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</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>U-value W/m²K</th>
<th>P/A ratio</th>
<th>Thickness (mm)</th>
<th>Thickness (mm)</th>
<th>Thickness (mm)</th>
<th>Thickness (mm)</th>
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<tbody>
<tr>
<td></td>
<td>0.4</td>
<td>120</td>
<td>140</td>
<td>150</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
<td>120</td>
<td>140</td>
<td>160</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>0.6</td>
<td>120</td>
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<td>200</td>
</tr>
<tr>
<td></td>
<td>0.8 - 1.0</td>
<td>140</td>
<td>140</td>
<td>180</td>
<td>200</td>
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</tbody>
</table>
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

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

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

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 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: 38×75 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


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: \( R_w 54 \text{ dB} \) (\( R_w 66 - 12 \text{ Ctr} \))
Impact: \( L_{nw} 54 \text{ dB} \)
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
- 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 (e.g., 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®:
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

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.

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).