Technical Guidebook
Domestic Section 5:
Noise
SUMMARY GUIDE

This document provides a quick and easy reference guide of typical constructions using ROCKWOOL insulation products that will assist the end user in meeting the performance levels required by Section 5 of the Scottish Building Regulations.

For further information on our wider product range, please visit www.rockwool.co.uk

Every building, which is divided into more than one area of different occupation, must be designed and constructed in such a way to limit the transmission of source noise from normal domestic type activities, between such areas, to a level that will not threaten the health of, or cause inconvenience to the building occupants.*

Introduction

Application of Section 5 - Domestic

The diagram below summarises the areas of a building to which Section 5 applies, ensuring that dwellings achieve reasonable levels of sound insulation from adjoining buildings or differently occupied parts of the same building.

Noise Separation (Section 5.1)

The $D_{nT,w}$ and $L_{nT,w}$ figures in the table below include flanking transmission. As such, when looking at laboratory-tested $R_w$ figures, these should aim to improve on the targets by at least 5 dB to help ensure compliance.

<table>
<thead>
<tr>
<th>Design Performance</th>
<th>New build and conversions (not including traditional buildings)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum airborne sound insulation</td>
<td>$56\text{ dB }D_{nT,w}$</td>
</tr>
<tr>
<td>Minimum impact sound transmission</td>
<td>$56\text{ dB }L_{nT,w}$</td>
</tr>
</tbody>
</table>

Noise reduction between rooms (Section 5.2)

<table>
<thead>
<tr>
<th>Design Performance</th>
<th>Minimum airborne insulation level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal walls</td>
<td>$40\text{ dB }R_w$</td>
</tr>
<tr>
<td>Intermediate floors</td>
<td>$43\text{ dB }R_w$</td>
</tr>
</tbody>
</table>

Compliance

The Scottish Government has given several construction types which, if constructed correctly, should achieve the performance levels given in the table above. This guide outlines ROCKWOOL products and solutions that will comply with this guidance.

Please note that this document is a summary focussing on insulation requirements. Full guidance can be found in Section 5: Noise of the Technical Handbooks.
Junctions with ceiling and roof

- The junction between the separating wall and the roof should be filled with ROCKWOOL Flexi®
- Minimum 140mm wide solid dense block to underside of roof
- Minimum 200mm ROCKWOOL Roll above ceiling
- Fire line maintained by filling void above underlay using ROCKWOOL RWA45

2. Dense block cavity wall

**Specification**

- 75mm Cavity (min.)
- Render
- Dense block
- Plasterboard on dabs

- Gypsum board (min. 12 kg/m², e.g. 15mm acoustic plasterboard) on plaster dabs to each side
- Sand cement render (min. 13mm) with scratch finish to each side
- Dense blocks, min. 1850 kg/m³ and min. 100mm thick
- Min. 75mm clear cavity

External wall junction

- The cavity should be stopped with ROCKWOOL PWCB to minimise sound transmission along the cavity, unless the cavity is fully filled with ROCKWOOL Cavity®
- ROCKWOOL PWCB acts as an effective edge seal against the party wall bypass effect and also achieves a 60-minute fire rating

**Example construction**

- The junction between the separating wall and the roof should be filled with ROCKWOOL Flexi®
- Cavity masonry separating wall is continuous to underside of roof
- Minimum 200mm ROCKWOOL Roll above ceiling
- Fire line maintained by filling void above underlay using ROCKWOOL RWA45
3. Timber frame twin-stud wall

**Specification (non-sheathed)**

- 89mm timber stud
- 65mm cavity
- 60mm ROCKWOOL Flexi®
- Plasterboard (staggered joints)
- Gypsum board lining, two layers, total 22 kg/m² (e.g. 2 x 12.5mm acoustic plasterboard) to each side
- Minimum 240mm between inner face of linings
- Each stud filled with 60mm ROCKWOOL Flexi®

**Specification (sheathed)**

- 50mm cavity
- Sheathing board
- 89mm timber stud
- 60mm ROCKWOOL Flexi®
- Plasterboard (staggered joints)
- Gypsum board lining, two layers, total 22 kg/m² (e.g. 2 x 12.5mm acoustic plasterboard) to each side
- Minimum 250mm between inner face of linings
- Minimum 50mm between sheathing
- Each stud filled with 60mm ROCKWOOL Flexi®

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**External wall junction**

- ROCKWOOL PWCB
- ROCKWOOL TCB
- Outer leaf
- Flanking wall
- Separating wall
- The cavity should be stopped with ROCKWOOL PWCB to minimise sound transmission along the cavity. This product also achieves a 60 minute fire rating
- ROCKWOOL TCB can be inserted to maintain the acoustic and fire performance as shown

**Junctions with ceiling and roof**

- ROCKWOOL RWA45
- ROCKWOOL Flexi®
- 100mm ROCKWOOL Roll
- The junction between the separating wall and the roof should be filled with ROCKWOOL Flexi®
- Fire line maintained by filling void above underlay using ROCKWOOL RWA45
- Minimum 100mm ROCKWOOL Roll above ceiling
- Ceiling: 12.5mm standard plasterboard (2 x 12.5mm if room in roof)
- Wall lining above ceiling to be 2 x 12.5mm standard plasterboard
- Seal all perimeter joints with ROCKWOOL Acoustic Intumescent Sealant
4. Metal frame twin-stud wall

**Specification**

- 70mm steel frame
- 60mm cavity
- 50mm ROCKWOOL RWA45

**Plasterboard (staggered joints)**

- Gypsum board lining, two layers, total 22 kg/m² (e.g. 2 x 12.5mm acoustic plasterboard to each side)
- Minimum 200mm between inner faces of wall linings
- Minimum 70mm studs with minimum 60mm cavity between each set of studs
- Minimum 50mm ROCKWOOL RWA45 between each set of studs

**External wall junction**

- ROCKWOOL HP Partial Fill
- ROCKWOOL PWCB

**Junctions with ceiling and roof**

- ROCKWOOL RWA45
- ROCKWOOL Flexi®
- 100mm ROCKWOOL Roll

- The junction between the separating wall and the roof should be filled with ROCKWOOL Flexi®
- Separating wall construction is continuous to underside of roof
- Minimum 200mm ROCKWOOL Roll above ceiling
- Fire line maintained by filling void above underlay using ROCKWOOL RWA45

**Separating Floors**

1. **B: In-situ concrete with floating floor treatment**

**Specification**

- Tongue & groove chipboard
- ROCKWOOL Rockfloor®
- Min. 100mm ceiling void
- Metal frame suspended ceiling

**Gypsum based board min. 10kg/m²**

- 18mm T&G chipboard
- 25mm ROCKWOOL Rockfloor® more than meets the minimum standards required of a floating floor treatment as dictated by 2015 Scottish Building Standards
- Minimum 225mm in-site concrete core, minimum 2600 kg/m³
- Metal frame suspended ceiling with gypsum based board, minimum 10 kg/m² (e.g. 12.5mm acoustic plasterboard)
3. A: Timber frame floor with solid joists

**Specification**

- Tongue & groove chipboard
- Acoustic plasterboard
- ROCKWOOL Rockfloor®
- ROCKWOOL Flexi®
- 15mm Oriented Strand Board
- 2 x 15mm Acoustic Plasterboard

- 18mm T&G chipboard
- Acoustic plasterboard, minimum 13.5 kg/m²
- 50mm ROCKWOOL Rockfloor®
- 15mm OSB
- 200 x 50mm timber joists at maximum 400mm centres
- Minimum 100mm ROCKWOOL Flexi® between joists
- Resilient bars fixed at right-angles to joists, at 400mm centres
- Two layers of acoustic plasterboard, total area weight 26 kg/m² minimum

**Timber frame floor with engineered I-joists**

**Specification**

- Tongue & groove chipboard
- Acoustic plasterboard
- ROCKWOOL Rockfloor®
- 15mm Oriented Strand Board
- 2 x 15mm Acoustic Plasterboard

- 18mm T&G chipboard
- Acoustic plasterboard, minimum 13.5 kg/m²
- 50mm ROCKWOOL Rockfloor®
- 15mm OSB
- 200 x 50mm timber I-joists at maximum 400mm centres
- Minimum 100mm ROCKWOOL Flexi® between joists
- Resilient bars fixed at right-angles to joists, at 400mm centres
- Two layers of acoustic plasterboard, total area weight 26 kg/m² minimum

**External wall junction with concrete floor**

- Masonry outer leaf
- ROCKWOOL SP Firestop
- ROCKWOOL Rockfloor®
- 15mm Oriented Strand Board
- 2 x 15mm Acoustic Plasterboard
- Metal frame suspended ceiling
- Mastic seal or mastic adhesive
- Resilient strip where chipboard meets wall

- Masonry outer leaf minimum 100mm thick
- External wall cavity minimum 50mm
- ROCKWOOL SP Firestop in cavity satisfies acoustic regulations and acts as a 60 minute fire stop
- Alternatively, ROCKWOOL FIREPRO® SoftSeal for high levels of movement
- Resilient strip where chipboard meets wall

2. B: Precast concrete slab with floating floor treatment

**Specification**

- Tongue & groove chipboard
- ROCKWOOL Rockfloor®
- Sand:cement screed
- Min. 150mm ceiling void
- Metal frame suspended ceiling
- Gypsum based board minimum 10kg/m²

- 18mm T&G chipboard
- 25mm ROCKWOOL Rockfloor® more than meets the minimum standards required of a floating floor treatment as dictated by 2015 Scottish Building Standards
- Minimum 50mm screed or structural topping
- Minimum 200mm pre-cast concrete floor slab, minimum 365 kg/m²
- Metal frame suspended ceiling, minimum 150mm ceiling void, with gypsum based board minimum 10 kg/m² (e.g. 12.5mm acoustic plasterboard)

**External wall junction with concrete floor**

- Masonry outer leaf
- ROCKWOOL SP Firestop
- ROCKWOOL Rockfloor®
- 15mm Oriented Strand Board
- 2 x 15mm Acoustic Plasterboard
- Metal frame suspended ceiling
- Mastic seal or mastic adhesive
- Resilient strip where chipboard meets wall

- Masonry outer leaf minimum 100mm thick
- External wall cavity minimum 50mm
- ROCKWOOL SP Firestop in cavity satisfies acoustic regulations and acts as a 60 minute fire stop
- Alternatively, ROCKWOOL FIREPRO® SoftSeal for high levels of movement
- Resilient strip where chipboard meets wall
Internal Walls - Minimum Rw 40 dB

1. A: Timber frame
   Specification

   - Achieves $R_w 40$ dB
   - Timber stud frame 75mm x 44mm
   - Both sides lined with one layer of 12.5mm standard plasterboard (min. 8.4 kg/m² per board)
   - 50mm ROCKWOOL Flexi® between studs
   - Test report number AIRO L/1944/A/5 (RTP03)

   Masonry outer leaf minimum 100mm thick
   External wall cavity minimum 50mm
   ROCKWOOL TCB in cavity satisfies acoustic regulations and acts as a 30 minute fire stop (or 60 minute if cavity greater than 89mm)
   Resilient strip where chipboard and resilient plasterboard meet wall
   ROCKWOOL Roll
   12.5mm standard plasterboard

B: Timber frame
   Specification

   - Achieves $R_w 40$ dB
   - Timber stud frame 63mm x 38mm
   - Both sides lined with one layer of 12.5mm acoustic plasterboard (min. 10.2 kg/m² per board)
   - 50mm ROCKWOOL Flexi® between studs
   - Test report number RTP-AC01A

   Two plasterboard layers (staggered)
   ROCKWOOL Roll
   ROCKWOOL Firestop
   Pipe Collar
   12.5mm acoustic plasterboard

2. A: Metal frame
   Specification

   - Achieves $R_w 40$ dB
   - 50mm lightweight metal studs at 600mm centres
   - Both sides lined with one layer of 12.5mm standard plasterboard (min. 8.4 kg/m² per board)
   - 50mm ROCKWOOL Flexi® between studs
   - Test report number L03 185

   Service fully wrapped with ROCKWOOL Roll
   SVP boxed in with two layers of plasterboard, total 16 kg/m² (e.g. 2 x standard plasterboard)
   Penetrating services should be fire protected to satisfy fire regulations - please contact ROCKWOOL Technical for advice on selecting an appropriate product

   ROCKWOOL Roll
   12.5mm standard plasterboard
Intermediate Floors - Minimum Rw 43 dB

1. A: Timber floor - solid joist

Specification

- 18mm T&G boarding
- 100mm ROCKWOOL Flexi®
- 2 x 12.5mm standard plasterboard

- Achieves Rw 44 dB
- 18mm T&G boarding
- Timber joists 200mm x 50mm at 450mm centres
- 100mm ROCKWOOL Flexi® between joists
- Two layers of 12.5mm standard plasterboard (min. 8.4 kg/m² per board)
- Test report number RTC-14

B: Timber floor - solid joist

Specification

- 18mm T&G boarding
- 100mm ROCKWOOL Flexi®
- 2 x 12.5mm standard plasterboard
- Resilient bars

- Achieves Rw 45 dB
- 18mm T&G floor boards
- Timber joists 200mm x 50mm at 400mm centres
- 100mm ROCKWOOL Flexi® between joists
- Resilient bars at 400mm centres
- One layer of 12.5mm standard plasterboard (min. 8.4 kg/m²)
- Test report number L03-258

2. Timber floor - ‘I’-joist

Specification

- Timber boarding
- 100mm ROCKWOOL Flexi®
- 12.5mm acoustic plasterboard
- Resilient bars

- Timber boarding (min. 11 kg/m²)
- Timber I-joists 240mm at 400mm centres
- 100mm ROCKWOOL Flexi® between joists
- Resilient bars at 400mm centres
- One layer of 12.5mm acoustic plasterboard (min. 10 kg/m²)

3. Metal floor – ‘C’-joist

Specification

- Timber boarding
- 100mm ROCKWOOL Flexi®
- 2 x 12.5mm acoustic plasterboard

- Timber boarding (min. 15 kg/m²)
- Metal joists at max. 400mm centres
- 100mm ROCKWOOL Flexi®
- Two layers of acoustic plasterboard (min. 10 kg/m² per board)
3. A: Metal floor – ‘C’-joist

**Specification**

- Timber boarding
- 100mm ROCKWOOL Flexi®
- 12.5mm acoustic plasterboard
- Resilient bars

- Timber boarding (min. 15 kg/m²)
- Metal joists at max. 400mm centres
- 100mm ROCKWOOL Flexi®
- Resilient bars at 400mm centres
- One layer of acoustic plasterboard (min. 10 kg/m²)