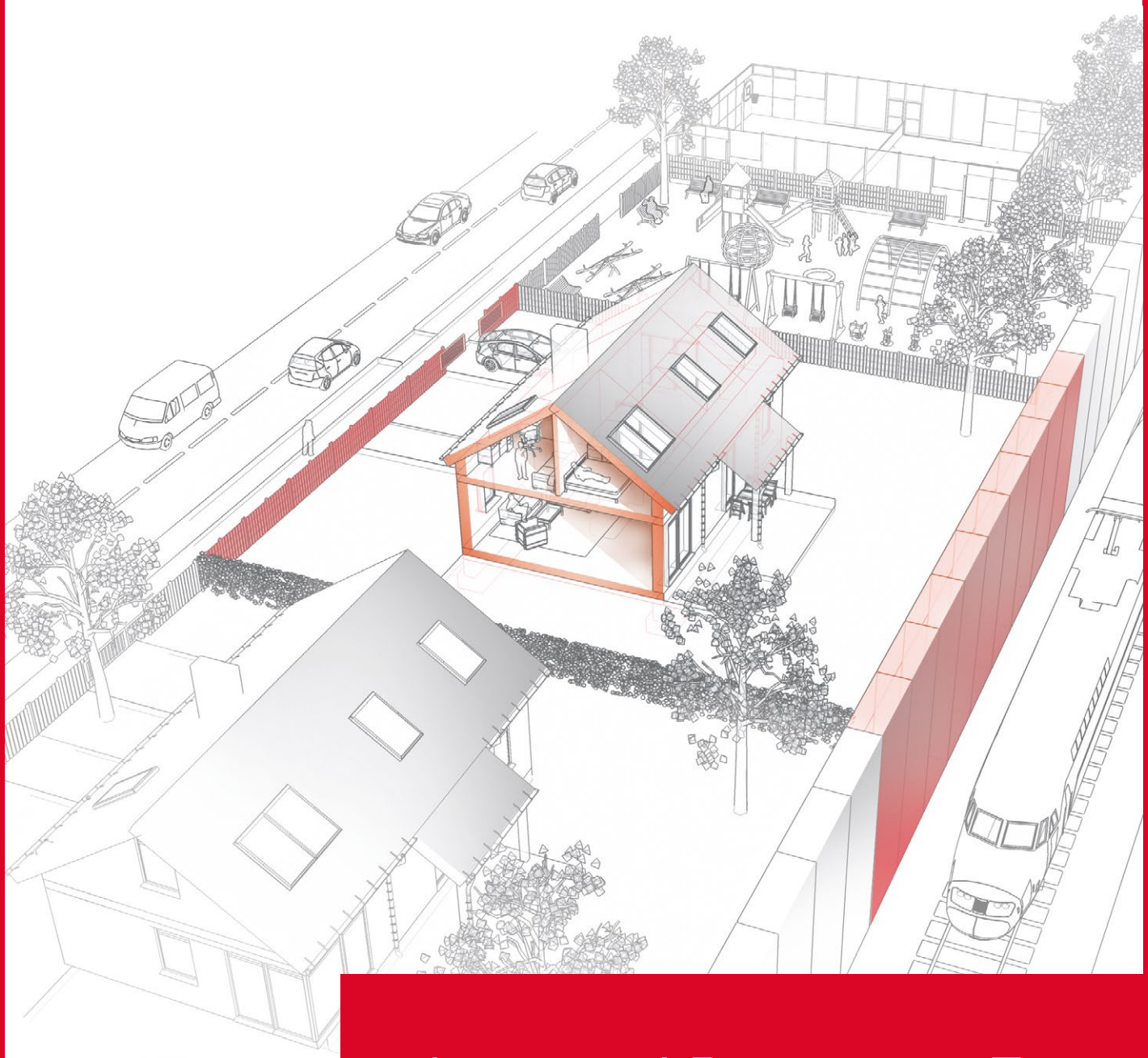
NOVEMBER 2016



Approved Document E (England & Wales)/ G (Northern Ireland)

ROCKWOOL®

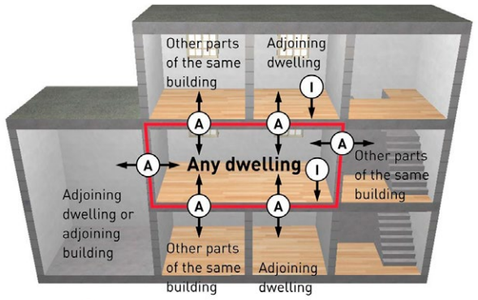
SUMMARY GUIDE

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 Part E/G of the Building Regulations for England, Wales and Northern Ireland.

Overview of requirements

Protection against sound from other parts of the building and adjoining buildings

The diagram below summarises the areas of a building to which the regulations apply, ensuring that dwelling houses, flats and 'rooms for residential purposes'1 achieve reasonable levels of sound insulation from adjoining buildings or differently occupied parts of the same building.



A = Airborne sound insulation
I = Impact sound insulation

The minimum required performance standards are outlined in the table below. The terms $D_{nT,w}$ and $L'_{nT,w}$ relate to site measurements and so include flanking transmission; additionally the corrective term C_{tr} penalises poor performance at lower frequencies. As a rule of thumb, if looking solely at laboratory-tested R_w and $L_{n,w}$ figures, these should offer an improvement over the figures below at least 15 dB to help ensure compliance with onsite testing.

Performance Standards				
Separating construction	**Airborne sound insulation $D_{nT,w} + C_{tr}$ dB**		**Impact sound insulation $L'_{nT,w}$ dB**	
	New build	**Change of use**	**New build**	**Change of use**
Walls	45 (43*)	45	-	-
Floors & stairs	45	43	62	64

* Lower limit applies only to 'rooms for residential purposes'

[1] "A room, or a suite of rooms, which is not a dwelling-house or a flat and which is used by one or more persons to live and sleep and includes a room in a hostel, a hotel, a boarding house, a hall of residence or a residential home, but does not include a room in a hospital, or other similar establishments, used for patient accommodation."

Protection against sound within a dwelling-house

Internal walls between a bedroom (or a room containing a water closet) and other rooms, as well as internal floors, should be designed and constructed to provide a reasonable resistance to sound.

The minimum required performance standards are given in terms of laboratory values - pre-completion site testing is not required.

Performance Standards	
Element	**Airborne sound insulation, R_w dB**
Walls	40 (min.)
Floors	40 (min.)

Note that this requirement does not apply to:

a. Internal walls that contain a door
b. Internal walls that separate an en-suite from the associated bedroom
c. Existing walls and floors in a material change of use

Compliance

The regulations outline several construction types which, if constructed correctly, should achieve the required performance standards. In addition, solutions offered by Robust Details can eliminate the requirement for post-completion onsite acoustic testing.

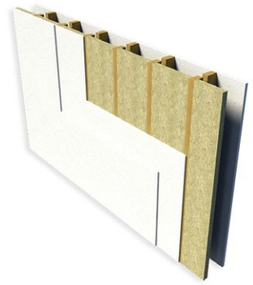
This guide summarises ROCKWOOL products and solutions that will comply with this guidance.

Please note that this document is a summary that focuses on insulation requirements, and is designed to be read in conjunction with Approved Document E (England & Wales) / G (Northern Ireland).

New Build Separating Walls

1. Guidance from Part E / G

i) Framed walls with absorbent material



Specification

- Independent timber frames
- Minimum 200mm between inside lining faces
- ROCKWOOL FLEXI® 50mm in one frame
- Each lining to be two or more layers of plasterboard, each sheet of minimum 10 kg/m² (e.g. 2 x 12.5 acoustic plasterboard or 2 x 15mm standard)
- Plywood sheathing may be used as necessary for structural reasons
- Pre-completion site testing required

ii) E-WT-2: Timber frame cavity wall with sheathing

Specification

- Independent timber frames
- Minimum 240mm between inside lining faces Minimum 50mm gap between frames
- ROCKWOOL FLEXI® 60mm in both frames
- Each lining to be two layers of gypsum-based board, total nominal mass per unit area 22 kg/m² (e.g. 2 x 15 acoustic plasterboard)
- Minimum 9mm sheathing board

Pre-completion site testing required

2. Robust Details

i) E-WT-1: Timber frame cavity wall without sheathing

Specification

- Independent timber frames
- Minimum 240mm between inside lining faces Minimum 50mm gap between frames
- ROCKWOOL FLEXI® 60mm in both frames
- Each lining to be two layers of gypsum-based board, total nominal mass per unit area 22 kg/m² (e.g. 2 x 15 acoustic plasterboard)

iii) E-WS-1: Twin metal frames

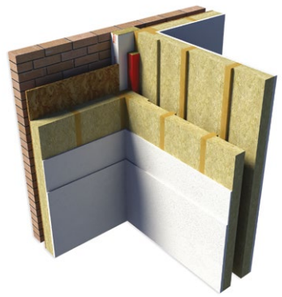
Specification

- Independent steel frames
- Minimum 200mm between inside lining faces Minimum 50mm gap between frames
- ROCKWOOL Flexi 50mm in between frames
- Each lining to be two layers of gypsum-based board, total nominal mass per unit area 22 kg/m2 (e.g. 2 x 15 acoustic plasterboard)

New Build Separating Floors

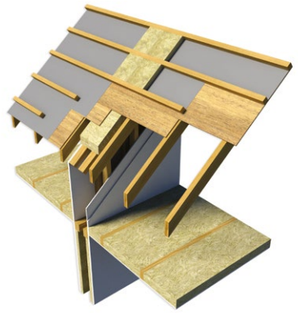
Typical junction details

i) External wall



- The external cavity should be stopped with ROCKWOOL Party Wall Cavity Barrier (PWCB) to minimise sound transmission along the cavity, unless the cavity is fully filled with ROCKWOOL Cavity.
- The gap between the two frames should be filled with ROCKWOOL TCB.
- ROCKWOOL PWCB also achieves a 60-minute fire rating.

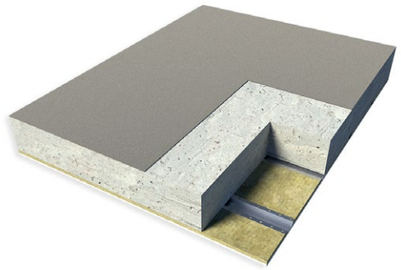
ii) Ceiling and roof



- The wall should continue to the underside of roof
- 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

1. Guidance from Part E / G

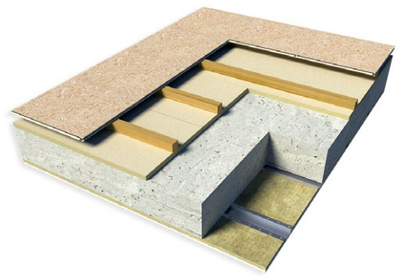
i) Soft floor covering on concrete slab/hollow planks/solid planks with ceiling



Specification

- Soft floor covering to be either:
  - a resilient material, or material with a resilient base, with an overall uncompressed thickness of at least 4.5mm
  - one with a tested weighted reduction in impact sound pressure level (ΔL_w) of at least 17 dB
- Total floor area weight min. 365 kg/m^2
- Ceiling to be type A, B or C (type C shown above).

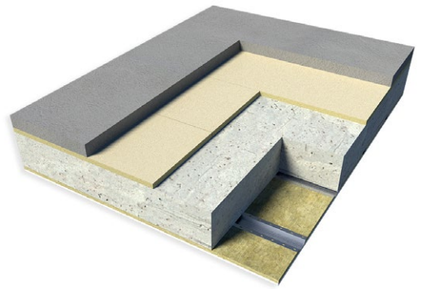
ii-a) Raft floating floor on concrete slab/hollow planks/solid planks with ceiling



Specification

- T&G timber boarding min. 12 kg/m^2, fixed to 45x45mm battens laid loose on resilient layer
- Resilient layer of ROCKWOOL RWA45 25mm
- Floor area weight min. 365 kg/m^2
- Ceiling to be type A, B or C (type C shown above).

ii-b) Screed floating floor on concrete slab/hollow planks/solid planks with ceiling



Specification

- Sand cement screed 65mm, or proprietary screed min. area weight 80 kg/m^2
- Resilient layer of ROCKWOOL ROCKFLOOR® 25mm
- Floor area weight min. 365 kg/m^2 (including screed)
- One of ceiling types A, B or C (type C shown above).

iii) Platform floor on timber frame with independent ceiling

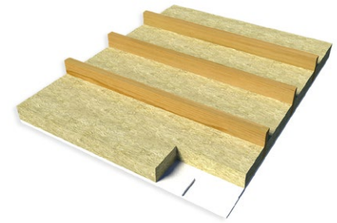
Specification

- Two layers of board material, bonded/fixed together, minimum total area weight 25 kg/m^2, e.g.:
  - 18mm T&G chipboard on 19mm plank plasterboard
  - Two layers of 12mm cement particle board
- Resilient layer of ROCKWOOL ROCKFLOOR® 25mm
- Min. 20 kg/m^2 deck on timber floor joists
- ROCKWOOL FLEXI® 100mm between independent ceiling joists
- Ceiling type A only, with independent joists min. 100mm below underside of floor

Ceiling Types

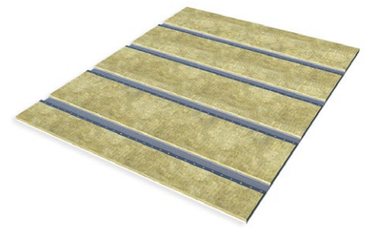
The ceiling types below are suitable for use where indicated.

A: Independent Joists



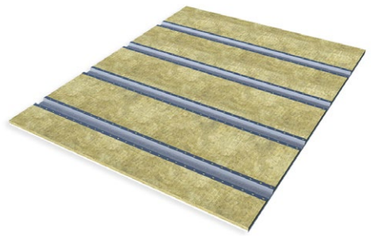
- ROCKWOOL Flexi 100mm between joists
- Two layers of plasterboard, staggered joints, min. 20 kg/m^2 (e.g. 2 x 12.5mm acoustic plasterboard)

B: Plasterboard on resilient bars



- Resilient bars (fixed to perpendicular timber battens if using with concrete floor)
- ROCKWOOL FLEXI® to fill void
- One layer of plasterboard, min. 10 kg/m^2 (e.g. 12.5mm acoustic plasterboard)

C: Plasterboard on resilient channels



- Resilient channels
- ROCKWOOL FLEXI® to fill void
- One layer of plasterboard, min. 10 kg/m2 (e.g. 12.5mm acoustic plasterboard

2. ROCKWOOL Tested Solution

i) Timber platform floor

Specification

- 18mm T&G chipboard
- Plasterboard 13 kg/m^2, e.g. 15mm acoustic
- ROCKWOOL ROCKFLOOR® 30mm
- 15mm OSB
- ROCKWOOL FLEXI® 100mm between 195 x 45mm timber joists at 450mm centres
- Resilient bars at 400mm centres
- Two layers of 15mm acoustic plasterboard, min. area weight 26 kg/m^2
- Pre-completion site testing required.

Performance

- R_w ($C;C_{tr}$) = 66 (-5;-12) dB, ref. L03-272
- $L_{n,w}$ = 58 dB, ref. L03-273
- Ceiling down lights - if spaced at max. 1 per 1.8m^2, and used with Tenmat FF 109 down light covers:
  - R_w ($C;C_{tr}$) = 65 (-5;-12) dB, ref. L03-274
  - $L_{n,w}$ = 54 dB, ref. L03-275

3. Robust Details

i) E-FT-1: Timber I-joists with floating floor

Specification

- 18mm T&G chipboard
- Gypsum board 13.5 kg/m^2 nominal e.g. 19mm plank
- ROCKWOOL RWA45 25mm between FFT1-compliant battens, e.g. JCW80T
- 15mm OSB
- ROCKWOOL FLEXI® 100mm between min. 235mm I-joists
- Two layers of 15mm acoustic plasterboard mounted on min. 16mm resilient bars

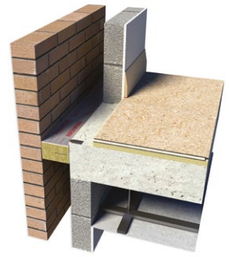
ii) E-FT-3: Metal web joists with floating floor

Specification

- 18mm T&G chipboard
- Gypsum board 13.5 kg/m^2 nominal e.g. 19mm plank
- ROCKWOOL RWA45 25mm between FFT1-compliant battens, e.g. JCW80T
- 18mm OSB
- ROCKWOOL FLEXI® 100mm between min. 253mm metal web joists, e.g. Wolf Easi-Joist, MiTek Posi-Joist, ITW(see the Robust Details handbook for a full list of up-to-date acceptable types)
- Two layers of 15mm acoustic plasterboard mounted on min. 16mm resilient bars

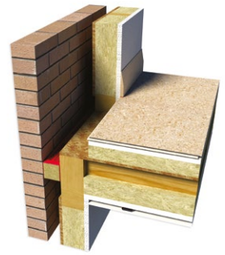
Typical junction details

i) External wall with concrete floor



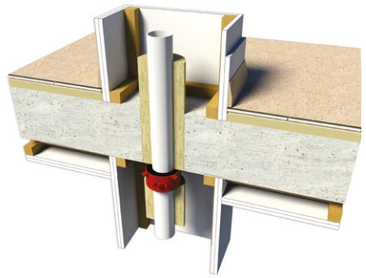
- The external cavity should be stopped with ROCKWOOL SP 60 Firestop to minimise sound transmission along the cavity.

ii) External wall with timber floor



- The external cavity should be stopped with ROCKWOOL TCB to minimise sound transmission along the cavity.

iii) Penetration through floor

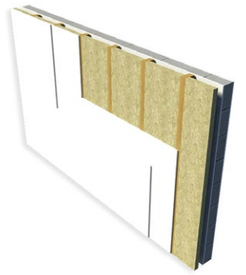


- Services that penetrate a habitable room should be enclosed for their full height
- Enclosure should be made from two layers of 12.5mm standard plasterboard
- Wrap pipe with ROCKWOOL Roll or alternatively line the enclosure with ROCKWOOL RWA45 25mm.
- Penetrations should be fire protected to satisfy fire regulations.
- Please contact ROCKWOOL Technical Solutions for advice.

‘Change of Use’ Separating Walls

1. Guidance from Part E / G

Independent panel to existing masonry wall



Specification

- Existing masonry: if at least 100mm and plastered both sides, apply one side only. Otherwise apply both sides.
- Two layers of board min. 20 kg/m^2, e.g. 2 x 12.5mm acoustic plasterboard
- Supporting timber or metal framework set min. 10mm away from face of existing masonry
- ROCKWOOL FLEXI® 50mm within frame

2. ROCKWOOL Tested Solution

Steel frame wall

Specification

- Min. 26 kg/m^2 each side, e.g. 2 x 15mm acoustic plasterboard
- Resilient bars to one side only
- ROCKWOOL FLEXI® 60mm within 70mm metal C-studs
- Pre-completion site testing required.

Performance

- R_w ($C;C_{tr}$) = 63 (-2;-7) dB, ref. BTC10187A

‘Change of Use’ Separating Floors

Guidance from Part E / G

i) Independent ceiling to existing timber floor

Specification

- Existing ceiling upgraded to 20 kg/m^2
- ROCKWOOL FLEXI® 100mm between new independent ceiling joists
- Two layers of plasterboard, staggered joints, min 20 kg/m^2 e.g. 2 x 15mm standard plasterboard
- Pre-completion side testing required

ii) Platform floor with absorbent material

Specification

- Floating layer to be two layers of board min. 25 kg/m^2, bonded/fixed together with staggered joints - e.g. 18mm chipboard on 19mm plank
- Resilient layer of ROCKWOOL RW4 25mm (perimeter composite battens may be required for extra support)
- ROCKWOOL FLEXI® 100mm between existing joists
- Existing ceiling upgraded to 20 kg/m^2

Internal Walls

ROCKWOOL Tested Solutions

i) Timber frame, 75mm studs

Specification

- Both sides lined with one layer of 12.5mm standard plasterboard (min. 8.4 kg/m^2 per board)
- ROCKWOOL FLEXI® 50mm between 75x44mm studs
- Achieves Rw 40 dB
- Test ref. AIRO L/1944/A/5 (RTP03)

ii) Timber frame, 63mm studs

Specification

- Both sides lined with one layer of 12.5mm acoustic plasterboard (min. 10.2 kg/m^2 per board)
- ROCKWOOL FLEXI® 50mm between 63x38mm studs
- Achieves Rw 40 dB
- Test ref. RTP-AC01A

iii) Lightweight metal studs

Specification

- Both sides lined with one layer of 12.5mm standard plasterboard (min. 8.4 kg/m^2 per board)
- ROCKWOOL FLEXI® 50mm between 50mm metal studs at 600mm centres
- Achieves Rw 40 dB
- Test ref. L03-185

Internal Floors

ROCKWOOL Tested Solution

Timber joists

Specification

- 18mm T&G chipboard
- ROCKWOOL FLEXI® 100mm between timber joists at 400mm centres
- Standard 12.5mm plasterboard, 8.4 kg/m^2
- Test ref. L03-264

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