Section G

Ceilings | 10/2025

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CEILINGS

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INTRODUCTION

CONVENTIONAL CEILINGS

Description

Knauf conventional ceilings comprise single or multiple-layer plasterboard linings attached to the underside of floor or roof structure above.

Design Options

Knauf offers a wide range of plasterboard ceiling systems for application under floors or roofs.

Ceilings under Timber Floors

Acoustic ratings are provided for ceilings under timber framed floors with min 240 mm joists, 19 mm particleboard and the following floor covering options:

- Timber flooring (min 8.5 kg/m^2) with or without acoustic underlay
- Carpet with foam underlay
- Ceramic Floor Tiles on nom 6 mm Cement Sheet (total mass min 15 kg/m^2).

Non-fire rated ceiling systems are available with acoustic ratings up to R_w 57 or $R_w + C_{tr}$ 51 and L_{nw} values as low as 38 (on carpeted floors).

Fire Rated Ceilings

Fire rated ceiling systems are available with Fire Resistance Levels up to 120/120/120, Resistance to Incipient Spread of Fire (RISF) up to 120min, and acoustic ratings up to R_w 65 and $R_w + C_{tr}$ 57, with L_{nw} values as low as 36 (on carpeted floors).

Ceilings under Concrete Floors

Acoustic ratings for ceilings under concrete floors are provided for 150 mm and 200 mm slab thicknesses and the following floor coverings:

- Timber flooring (min 8.5 kg/m^2) with or without acoustic underlay.
- Carpet + underlay.
- Tiled floor with or without acoustic underlay.
- Acoustic performances of up to R_w 68 and $R_w + C_{tr}$ 62 can be achieved, with L_{nw} values as low as 29 (on carpeted floors).

Ceilings under Roofs

Acoustic ratings for ceilings under roofs are provided for:

- Tiled pitched roofs with sarking
- Metal pitched roofs with roofing blanket insulation
- Metal Flat Roofs with roofing blanket insulation and min 190 mm rafters.

Attachment Options

Ceiling attachment options vary depending on the structure above and include:

- Direct fixed
- Furred
- Furred with acoustic mounts
- Suspended
- Suspended with acoustic mounts.

Design Considerations

- Knauf ceiling systems are not designed to support the weight of construction or maintenance personnel, additional plant or storage of goods.
- Fire rated ceiling can be curved to a minimum radius of 6000 mm.
- Ceiling can be constructed to a pitch of up to 70 degrees from the Horizontal.
- Ceiling systems can incorporate the following approved features: Access Panels, Bulkheads, Light & Luminaire fittings, Plumbing Pipe penetrations, Power Cable penetrations, Loaded penetrations, Control Joints, Protection to Steel and Timber Beams, Changes in ceiling slope direction and a variety of Perimeter Details.
- The use of false ceilings may eliminate the need for penetrations in fire rated ceilings. Refer Knauf for acoustic rating of fire rated ceiling systems with false ceilings.
- Suspension grids must be installed in accordance with Rondo and Knauf specifications.

NOTES:

- Each suspension point must be capable of supporting the greater of 0.50 kN (50 kg) downwards, or the vertical actions determined in accordance with AS/NZS 2785 with an additional allowance of 50% of vertical actions.
- Extra suspension components must be provided to support light fittings, bulkheads and other fixtures.

- Plasterboard spans and total loads directly supported on ceiling linings must not exceed the values indicated in Table G1. Any additional loads must be independently supported from a roof or ceiling structure.
- Spans of Rondo 129 (28 mm) furring channels must not exceed the values indicated in Table G2.
- Spacings of acoustic ceiling mounts must not exceed the values indicated in Table G3.
- Refer to Rondo for maximum spans and spacing of Rondo XPRESS® Drywall Grid System.

INTRODUCTION

TABLE G1: MAXIMUM LOADS AND SPANS FOR INTERNAL CEILINGS

PLASTERBOARD TYPE	SPAN (mm)	MAXIMUM TOTAL LOAD* FOR GIVEN WIND CLASS (kg/m²)			
		N1	N2	N3	N4
10 mm SHEETROCK ONE 13 mm SHEETROCK ONE	600 (max)	2.6†	2.6†	2.0	2.0
	450	2.6†			
13 mm WetStop 13 mm ImpactStop 13 mm & 16 mm FireStop 13 mm & 16 mm MultiStop ONE	600 (max)	2.0			
	450	2.6†			
10 mm SHEETROCK ONE 10 mm SHEETROCK PLUS	450 (max)	2.0			

* Total Load includes weight of insulation and any fixtures directly supported on ceiling linings.
† 1/3 Fixing method or full screw fixing must be used for non-fire rated ceilings if directly supported load exceeds 2.0 kg/m² (maximum load 2.6 kg/m²).

NOTE:

Loads in excess of the above must be supported independently from a roof or ceiling structure.

TABLE G2: MAXIMUM SPANS OF CONTINUOUS RONDO 129 FURRING CHANNELS

CEILING LINING	WIND CLASS N2		WIND CLASS N3	
	@ 450 mm	@ 600 mm	@ 450 mm	@ 600 mm
1x10 mm (7.2 kg/m² max)	1713	1580	1547	1428
1x13 mm (9.2 kg/m² max)	1670	1540	1519	1401
1x16 mm (13 kg/m² max)	1630	1503	1494	1378
2x13 mm (18.4 kg/m² max)	1552	1432	1440	1328
2x16 mm (26 kg/m² max)	1498	1381	1400	1292

Source: Rondo Building Services

TABLE G3: MAXIMUM SPANS AND SPACINGS OF CONTINUOUS FURRING CHANNELS WITH ACOUSTIC MOUNTS*

PLASTERBOARD LININGS	JOISTS @ 450 mm		JOISTS @ 600 mm	
	FURRING CHANNEL SPAN mm	FURRING CHANNEL SPACING mm	FURRING CHANNEL SPAN mm	FURRING CHANNEL SPACING mm
1x13 mm ImpactStop or FireStop	1350 (R, B, W)	600	1200 (R, B, W)	600
1x16 mm FireStop	1350 (R, B, W)	600	1200 (R, B, W)	600
2x13 mm ImpactStop or FireStop	1350 (W)	600	1200 (B, W)	600
1x13 mm + 1x16 mm FireStop	1350 (W)	600	1200 (B, W)	600
2x16 mm FireStop	1350 (W)	600	1200 (W)	600
	900 (R, B, W)	600	600 (R, B, W)	600
3x16 mm FireStop	900 (W)	600	1200 (W)	450
4x16 mm FireStop	900 (W)	450	600 (W)	600
	450 (R, B, W)	450	600 (R, B, W)	450

* Based on maximum allowable loads with acoustic mounts
Legend:
R Rondo STWC Sound Isolation Mount (max load 16 kg/mount)
B Embelton Acoustic Mount – 'Blue' dot rubber element (max load 17 kg/mount with 5 mm static deflection)
W Embelton Acoustic Mount – 'White' dot rubber element (max load 25 kg/mount with 5 mm static deflection)

INTRODUCTION

Materials

The following materials and components are utilised in Knauf conventional ceiling systems listed in this manual:

Ceiling Linings

- 10 mm SHEETROCK ONE
- 10 mm SHEETROCK PLUS
- 13 mm SHEETROCK ONE
- 13 mm ImpactStop
- 13 mm / 16 mm FireStop .

Furring Channels and Fixing Clips

Figure G1: **Rondo 129 Furring Channel**

Figure G2: **Rondo 237 Fixing Clip**

Figure G3: **Rondo STWC Sound Isolation Mount**

Figure G4: **Embelton Ceiling Isolation Hanger LB Bracket (Blue Dot Rubber Element)**

Figure G5: **Embelton Ceiling Isolation Hanger HB Bracket (White Dot Rubber Element)**

Suspended Ceiling Systems

- Rondo XPRESS® Drywall Grid System
- Rondo DONN® Exposed Grid System
- Rondo KEY-LOCK® Concealed Suspended Ceiling System.

Main Tee **Cross Tee**

Figure G6: **Rondo XPRESS® Drywall Grid Sections**

Insulation

- KI 50G11 - 50 mm glasswool insulation 11 kg/m^3 density
- KI 50G14 - 50 mm glasswool insulation 14 kg/m^3 density
- KI 90G11 - 90 mm glasswool insulation 11 kg/m^3 density
- KI 90G14 - 90 mm glasswool insulation 14 kg/m^3 density
- KI 90G R2.5 - Knauf Insulation R2.5 Ceiling Batts
- KI 145G R3.0 - Knauf Insulation R3.0 Ceiling Batts
- Pliable building membrane to NCC requirements (for roof/ceiling systems)
- Foil-faced 60 mm (R1.4) nom roof insulation blanket (for roof/ceiling systems).

Installation

Direct Fixed Systems

Where fixing direct to timber or steel framing, framework spacing must not exceed plasterboard span values indicated in Table G1 or 600 mm for fire resistant boards.

NOTE:

Furred systems are recommended to minimise the risk of ceiling damage due to structural, thermal and seasoning movements.

INTRODUCTION

Furred and Suspended Systems

- Ensure that furring channels or suspended grid are installed to a true and level plane.
- Plasterboard supporting members must be spaced at max 600 mm ctrs.
- Furring channels should be taken to and provided within 100 mm of ceiling perimeter (min 15 mm end clearance is required at walls).
- Allow for an expansion gap at the rate of 3 mm per 1 metre run in abutting furring channels and Top Cross Rails in fire rated systems.
- Rondo KEY-LOCK concealed suspended ceiling system must be instanced in accordance with Rondo specifications.
- Rondo XPRESS® Drywall Grid System and DONN Exposed Grid System must be installed in accordance with Rondo specifications.

Penetrations

Penetrations in a fire rated system must be treated strictly in accordance with relevant test reports and approved installation details in order to maintain the system's Fire Resistance Level.

Where components by others are specified in Knauf fire rated penetration details (ie dampers, GPOs, fire collars, etc), such components must be installed in accordance with the manufacturer's specifications. It is the responsibility of the component manufacturer to ensure that the fire rating performance of the system is not affected.

Movement and Control Joints

- Control joints in internal ceilings should be spaced at 12 m max intervals in both directions. Control joints in external ceilings should be spaced at 6 m max intervals in both directions.
- Control joints must be provided over movement joints in the substrate or structural elements and at every change of lining or substrate material.
- Refer to Knauf online CAD Finder for control joint details in fire rated ceilings.
- Control joints in non-fire rated ceilings can be formed by fitting Rondo P35 Control Joint or plastic expansion beads.
- In multi-layer non-fire rated systems control joints can be provided in the face layer only.

Plasterboard Fixing

Fire Rated Ceilings

- Plasterboard linings in fire rated plasterboard ceilings must be installed using screw fixing only. Adhesives are not permitted.
- Apply plasterboard sheets with recessed edges at right angles to framing members.
- In single layer systems, place butt joints on framing or mid-way between the framing members and back-block as shown in the Knauf online CAD Finder.
- Screw fix the first (uppermost) layer sheets at 200 mm max centres in the field of the board and at 150 mm max centres along the board ends and edges. Stagger edge screw fixings in adjacent sheets.
- Screw fix additional plasterboard layers in the same manner as the first layer but with all joints in adjacent layers staggered min 200 mm. If butt joints in additional layers fall between the framing members, screw laminate sheet ends to the previous layer with appropriate Laminating screws at 200 mm max centres (refer to General Information — Materials — Screws).

Non-fire Rated Ceilings

- Apply plasterboard sheets with recessed edges at right angles to framing members.
- Single layer non-fire rated plasterboard ceiling systems can be fixed using combination of Adhesive and Mechanical Fasteners as outlined in Knauf Installation Manual or Mechanical Fasteners Only.
- Multi-layer non-fire rated plasterboard ceiling systems must be fixed using Mechanical Fasteners Only method.
- In single layer systems, butt joints must be between the framing members and back-blocked as described in Knauf Installation Manual. All recessed joints in an area containing three or more joints must also be back-blocked.

NOTE:

Knauf recommends back-blocking of all ceiling joints.

Jointing and finishing

- Stop and finish face layer plasterboard joints with Knauf jointing system as outlined in Knauf Plasterboard Installation Manual.
- Plasterboard joints in inner layers of multi-layer fire rated and non-fire rated systems are not required to be stopped.

NOTE:

Paper jointing tape must be used in fire rated systems.

To view the full range of installation details, scan QR code below.

INTRODUCTION

SPANNING CEILINGS

Description

Knauf Spanning Ceilings are self-supporting fire rated plasterboard ceilings utilising Rondo C-stud or CH-stud sections as joists.

While construction of C-stud ceilings requires access from above and below, CH-stud ceilings can be constructed from one side only.

Design Options

Knauf Spanning Ceilings are available in Fire Resistance Levels up to 120/120/120 from both directions and up to 120/120/120 from above only.

Materials

The following materials and components are utilised in Knauf Spanning Ceilings:

Ceiling Linings

- 13 mm / 16 mm FireStop
- 25 mm Shaftliner MouldStop

Ceiling Joists

- 150 mm Rondo lipped C-studs 0.75 mm Base Metal Thickness (BMT)
- 64 mm Rondo CH-studs 0.55 mm and 0.90 mm BMT
- 102 mm Rondo CH-studs 0.55 mm and 0.90 mm BMT

Insulation

- KI 50G11 - 50 mm glasswool insulation 11 kg/m^3 density
- KI 90G11 - 90 mm glasswool insulation 11 kg/m^3 density.

Ceiling Spans

Ceiling spans must not exceed the maximum values shown in the corresponding Maximum Spans tables.

Installation

- For screw fixing requirements refer plasterboard installation instructions for fire rated conventional ceilings.
- In spanning C-stud ceilings, stagger joints on opposite sides of the ceiling by 300 mm min.
- Stagger joints in adjacent plasterboard layers by 200 mm min.
- Caulk perimeter gaps with approved fire rated sealant.

Jointing and finishing

- Stop and finish visible plasterboard joints with Knauf jointing system as outlined in Knauf Installation Manual.
- Plasterboard joints in inner layers of multi-layer systems are not required to be stopped.

NOTE:

Paper jointing tape must be used in fire rated systems.

To view the full range of installation details, scan QR code below.

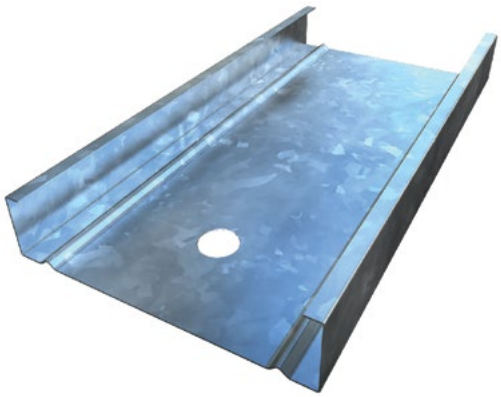


Figure G9: **Rondo 150 mm C-stud**

Figure G10: **Rondo CH–Stud**

INTRODUCTION

ACOUSTIC CEILINGS

Description

Knauf Acoustic Ceilings are available in a range of sound absorption and over partition ratings and include:

- Mineral Fibre Ceiling Tiles
- EchoStop plasterboard
- Stratopanel plasterboard.

This manual provides an outline of Knauf Acoustic Ceilings. For detailed information refer to Ceilings Products and Applications brochure and technical data sheets for various products.

Design Options

Mineral Fibre Ceiling Tiles

Knauf mineral fibre ceiling tiles offer designers and builders a range of options with respect to:

- Surface textures and colours
- Edge and Grid profiles
- Noise Reduction Coefficient (NRC)
- Ceiling Attenuation Class (CAC)
- Light Reflectance (LR)
- Volatile Organic Compound (VOC) emissions
- Mould and bacteria resistance
- Recycled content
- Cost.

Refer Acoustic Ceilings tables for the range of available Mineral Fibre Ceiling Tile products.

ECHOSTOP® Plasterboard Ceilings

EchoStop perforated plasterboard ceilings offer combined benefits of decorative finish and a high level of sound absorption.

EchoStop perforated plasterboard is suitable for full ceiling installation or feature panels on walls or ceilings.

Created for noise absorption treatment, EchoStop is available in a number of stylish designs to suit multiple applications.

Refer to EchoStop tables and datasheets for acoustic performance of various EchoStop panels.

STRATOPANEL® Plasterboard Ceiling

Stratopanel perforated acoustic plasterboard offers combined benefits of a decorative monolithic finish, a high level of sound absorption and Cleaneo® air purifying technology.

Stratopanel is the ideal solution for noise absorption treatment for commercial internal spaces and is available in a number of stylish designs for creative freedom.

Refer to Stratopanel tables and datasheets for acoustic performance of various Stratopanels.

More information available at **www.knauf.com.**

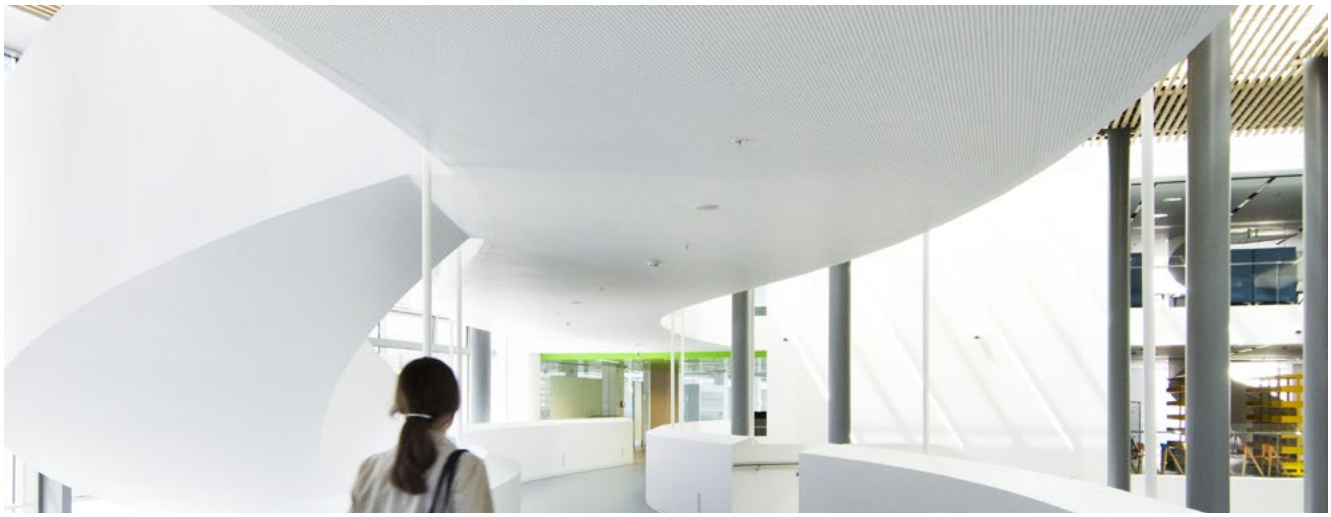


Figure G11: **STRATOPANEL Circular 8/18 R**

INTRODUCTION

Design Considerations

Selection of an appropriate acoustic ceiling solution may involve a large number of considerations such as aesthetics, acoustic performance, VOC emissions, mould and bacteria resistance, cost, etc.

Acoustic Ceilings tables included in this manual provide essential information on performance and features of Knauf acoustic panels. For additional information refer relevant Product Data Sheets at **knauf.com**

Materials

- Knauf Mineral Fibre Tile Ceilings comprise mineral fibre tiles laid into Rondo DONN Exposed Grid system.
- EchoStop panels can be screw fixed to Rondo XPRESS® Drywall Grid System or to Rondo Key-Lock® concealed ceiling system.
- Stratopanel can be screwed fixed (or screw caps) to Rondo Key-Lock concealed ceiling system with the inclusion of PN 605 furring channel.
- Knauf Insulation as specified.

Installation

Refer to the Knauf and Rondo installation specifications on:

- Rondo XPRESS® Drywall Grid System
- Rondo DONN suspension system
- Rondo KEY-LOCK concealed ceiling system
- Rondo DUO® Exposed grid ceiling systems
- EchoStop plasterboard
- Stratopanel plasterboard

To view the full range of installation details, scan QR code below.

OVER PARTITION CEILING SYSTEMS

Over partition performance of ceiling tiles is typically documented as a Ceiling Attenuation Class (CAC) value. More recently, this rating has been replaced by $D_{nc,w}$ – Weighted Suspended Ceiling Normalised Level Difference.

The solutions provided in the Over Partition Ceiling Systems tables are based on an extensive laboratory test program conducted at Acoustic Laboratories Australia Pty Ltd that comprised sixteen (16) configurations in total. Variables tested included:

- Differing heights of extended wall linings above the ceiling level
- Different ceiling types on one and both sides of the dividing wall
- With and without above ceiling treatments
- Effect of ceiling penetrations.

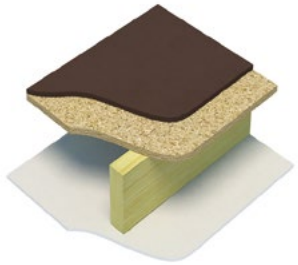
The following key findings were made as a result of the testing program:

- No acoustical benefit whether the wall linings extend 100 mm above the ceiling as opposed to a nominal distance of 20 mm
- Penetrations such as standard light troffers both sides of the dividing wall do not degrade the $D_{nc,w}$ of the ceiling (other types of ceiling penetrations will need to be assessed by a suitably qualified Acoustician).

CEILINGS UNDER TIMBER FLOOR

CT.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: min 19 mm particleboard flooring on 240 mm deep joists @ 450 mm ctrs
Insulation: Refer to table
Ceiling Lining: One or more layers of non-fire resistant pbd
Ceiling Fixing: Direct fixed to ceiling joists

ACOUSTIC RATINGS BASIS: RT&A TE405-20S01(R4)

SYSTEM	CEILING LINING	FIXING	FLOORING TYPE	INSULATION*	R_w (R_w+C_{tr})	$L_{n,w}$
CT.1A	1x10 mm SHEETROCK ONE	Direct Fixed	Timber Flooring (min 8.5 kg/m^2)	Nil	42(35)	77
				KI 90G R2.5 Ceiling Batts	45(38)	76
			Carpet + Foam Underlay†	Nil	41(34)	42
				KI 90G R2.5 Ceiling Batts	44(36)	41
CT.1D	1x13 mm SHEETROCK ONE	Direct Fixed	Timber Flooring (min 8.5 kg/m^2)	Nil	44(37)	75
				KI 90G R2.5 Ceiling Batts	47(40)	74
			Carpet + Foam Underlay†	Nil	43(36)	42
				KI 90G R2.5 Ceiling Batts	46(39)	41
CT.1G	1x10 mm SHEETROCK PLUS	Direct Fixed	Timber Flooring (min 8.5 kg/m^2)	Nil	43(36)	75
				KI 90G R2.5 Ceiling Batts	46(39)	74
			Carpet + Foam Underlay†	Nil	42(35)	44
				KI 90G R2.5 Ceiling Batts	45(38)	43
CT.1H	2x10 mm SHEETROCK PLUS	Direct Fixed	Timber Flooring (min 8.5 kg/m^2)	Nil	46(40)	71
				KI 90G R2.5 Ceiling Batts	49(43)	70
			Carpet + Foam Underlay†	Nil	45(39)	42
				KI 90G R2.5 Ceiling Batts	48(42)	41

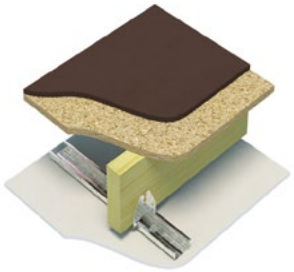
* KI 90G R2.5 - Knauf Insulation R2.5 Ceiling Batts
† Foam underlay: Minimum 3 mm Dunlop DB3 foam underlay or equivalent.

For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**
Blue text indicates systems and products suitable for wet areas.

CEILINGS UNDER TIMBER FLOOR

CT.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Min 19 mm particleboard flooring on 240 mm deep joists @ 450 mm ctrs
Insulation: Refer to table
Ceiling Lining: One or more layers of non-fire resistant pbd
Ceiling Fixing: 28 mm furring channels @ 600 mm ctrs

ACOUSTIC RATINGS BASIS: RT&A TE405-20S01(R4)

SYSTEM	CEILING LINING	FIXING	FLOORING TYPE	INSULATION*	R_w (R_w+C_{tr})	$L_{n,w}$
CT.2A	1x10 mm SHEETROCK ONE	28 mm furring channels @ 600 mm ctrs	Timber Flooring (min 8.5 kg/m^2)	Nil	46(39)	73
				KI 90G R2.5 Ceiling Batts	51(43)	71
			Carpet + Foam Underlay†	Nil	46(39)	41
				KI 90G R2.5 Ceiling Batts	51(43)	39
CT.2D	1x13 mm SHEETROCK ONE	28 mm furring channels @ 600 mm ctrs	Timber Flooring (min 8.5 kg/m^2)	Nil	48(42)	72
				KI 90G R2.5 Ceiling Batts	53(45)	70
			Carpet + Foam Underlay†	Nil	48(41)	41
				KI 90G R2.5 Ceiling Batts	53(45)	39
CT.2G	1x13 mm IMPACTSTOP	28 mm furring channels @ 600 mm ctrs	Timber Flooring (min 8.5 kg/m^2)	Nil	49(43)	71
				KI 90G R2.5 Ceiling Batts	54(47)	69
			Carpet + Foam Underlay†	Nil	49(43)	41
				KI 90G R2.5 Ceiling Batts	54(47)	39
CT.2H	2x13 mm IMPACTSTOP	28 mm furring channels @ 600 mm ctrs	Timber Flooring (min 8.5 kg/m^2)	Nil	52(46)	67
				KI 90G R2.5 Ceiling Batts	57(51)	65
			Carpet + Foam Underlay†	Nil	52(46)	40
				KI 90G R2.5 Ceiling Batts	56(50)	38

* KI 90G R2.5 - Knauf Insulation R2.5 Ceiling Batts
† Foam underlay: Minimum 3 mm Dunlop DB3 foam underlay or equivalent.

CT.3

NON-FIRE RATED

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: min 19 mm particleboard flooring on 240 mm deep joists @ 450 mm ctrs
Insulation: Refer to table
Ceiling Lining: 1x13 mm non-fire resistant pbd
Ceiling Fixing: 28 mm furring channels @ 600 mm ctrs + Rondo STWC Sound Isolation Mounts

ACOUSTIC RATINGS BASIS: RT&A TE405-20S01(R4)

SYSTEM	CEILING LINING	FIXING	FLOORING TYPE	INSULATION*	R_w (R_w+C_{tr})	$L_{n,w}$
CT.3B	1x13 mm IMPACTSTOP	28 mm furring channels @ 600 mm ctrs + Rondo STWC Sound Isolation Mounts	Timber Flooring (min 8.5 kg/m^2)	Nil	49(44)	69
				KI 90G R2.5 Ceiling Batts	55(49)	66

* KI 90G R2.5 - Knauf Insulation R2.5 Ceiling Batts

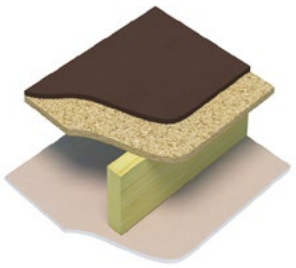
For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**
Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.
Refer to Table G3 in Ceilings – Introduction for maximum spans and spacings of furring channels with acoustic mounts.

CEILINGS UNDER TIMBER FLOOR

CT30.1

FIRE RESISTANCE LEVEL
30/30/30
FROM BELOW
Fire Protective Covering

FRL Basis: FC16109



Direct fixed system shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Min 19 mm particleboard flooring on 240 mm deep joists @ 450 mm ctrs
Insulation: Refer to table
Ceiling Lining: 1x13 mm fire resistant pbd
Ceiling Fixing: Refer to table

ACOUSTIC RATINGS BASIS: RT&A TE405-20S01(R4)

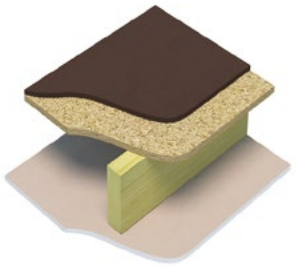
SYSTEM	CEILING LINING	FIXING	FLOORING TYPE	INSULATION*	R_w (R_w+C_{tr})	$L_{n,w}$
CT30.1A	1x13 mm FIRESTOP	Direct Fixed	Timber Flooring (min 8.5 kg/m^2)	KI 90G R2.5	48(42)	73
			Carpet + Foam Underlay†	KI 90G R2.5	47(41)	41
CT30.1B	1x13 mm FIRESTOP	28 mm furring channels @ 600 mm ctrs	Timber Flooring (min 8.5 kg/m^2)	KI 90G R2.5	54(47)	69
			Carpet + Foam Underlay†	KI 90G R2.5	53(46)	39
CT30.1C	1x13 mm FIRESTOP	28 mm furring channels @ 600 mm ctrs + Rondo STWC Sound Isolation Mounts	Timber Flooring (min 8.5 kg/m^2)	KI 145G R3.0	55(48)	67

* KI 90G R2.5 - Knauf Insulation R2.5 Ceiling Batts
KI 145G R3.0 - Knauf Insulation R3.0 Ceiling Batts
† Foam underlay: Minimum 3 mm Dunlop DB3 foam underlay or equivalent.

CT30.2

FIRE RESISTANCE LEVEL
30/30/30
FROM BELOW
Fire Protective Covering

FRL Basis: FC16109



Direct fixed system shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Min 19 mm particleboard flooring on 240 mm deep joists @ 450 mm ctrs
Insulation: Refer to table
Ceiling Lining: 1x16 mm fire resistant pbd
Ceiling Fixing: Refer to table

ACOUSTIC RATINGS BASIS: RT&A TE405-20S01(R4)

SYSTEM	CEILING LINING	FIXING	FLOORING TYPE	INSULATION*	R_w (R_w+C_{tr})	$L_{n,w}$
CT30.2A	1x16 mm FIRESTOP	Direct Fixed	Timber Flooring (min 8.5 kg/m^2)	KI 90G R2.5	49(43)	72
			Carpet + Foam Underlay†	KI 90G R2.5	48(42)	41
CT30.2B	1x16 mm FIRESTOP	28 mm furring channels @ 600 mm ctrs	Timber Flooring (min 8.5 kg/m^2)	KI 90G R2.5	55(48)	68
			Carpet + Foam Underlay†	KI 90G R2.5	54(47)	39
CT30.2C	1x16 mm FIRESTOP	28 mm furring channels @ 600 mm ctrs + Rondo STWC Sound Isolation Mounts	Timber Flooring (min 8.5 kg/m^2)	KI 145G R3.0	56(49)	66

* KI 90G R2.5 - Knauf Insulation R2.5 Ceiling Batts
KI 145G R3.0 - Knauf Insulation R3.0 Ceiling Batts
† Foam underlay: Minimum 3 mm Dunlop DB3 foam underlay or equivalent.

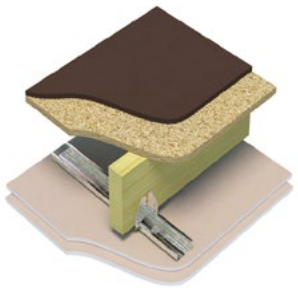
For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**
Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.
Refer to Table G3 in Ceilings – Introduction for maximum spans and spacings of furring channels with acoustic mounts.

CEILINGS UNDER TIMBER FLOOR

CT60.1

FIRE RESISTANCE LEVEL
60/60/60
FROM BELOW
RISF 30min

FRL Basis: FC16109



Furred system shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Min 19 mm particleboard flooring on 240 mm deep joists @ 450 mm ctrs
Insulation: Refer to table
Ceiling Lining: 2x13 mm fire resistant pbd
Ceiling Fixing: Refer to table

ACOUSTIC RATINGS BASIS: RT&A TE405-20S01(R4)

SYSTEM	CEILING LINING	FIXING	FLOORING TYPE	INSULATION*	R_w (R_w+C_{tr})	$L_{n,w}$
CT60.1A	2x13 mm FIRESTOP	28 mm furring channels @ 600 mm ctrs	Timber Flooring (min 8.5 kg/m²) + min 4.5 mm Acoustic Underlay#	KI 90G R2.5	57(51)	54
			Carpet + Foam Underlay†	KI 90G R2.5	56(50)	38
			Min 6 mm Ceramic Floor Tiles + 6 mm Cement Sheet (total mass min 15 kg/m²) + min 4.5 mm Acoustic Underlay#	KI 90G R2.5	58(52)	57
CT60.1B	2x13 mm FIRESTOP	28 mm furring channels @ 600 mm ctrs + Rondo STWC Sound Isolation Mounts	Timber Flooring (min 8.5 kg/m²)	KI 145G R3.0	58(52)	63
			Min 6 mm Ceramic Floor Tiles + 6 mm Cement Sheet (total mass min 15 kg/m²)	KI 145G R3.0	59(53)	62
CT60.1C	2x13 mm FIRESTOP	28 mm furring channels @ 600 mm ctrs + Embelton Acoustic Mounts	Timber Flooring (min 8.5 kg/m²)	KI 90G R2.5	58(52)	61
			Min 6 mm Ceramic Floor Tiles + 6 mm Cement Sheet (total mass min 15 kg/m²)	KI 90G R2.5	59(53)	60

* KI 90G R2.5 - Knauf Insulation R2.5 Ceiling Batts
KI 145G R3.0 - Knauf Insulation R3.0 Ceiling Batts
† Foam underlay: Minimum 3 mm Dunlop DB3 foam underlay or equivalent
# 4.5 mm Acoustic Underlay - Regupol 4515 acoustic underlay or equivalent

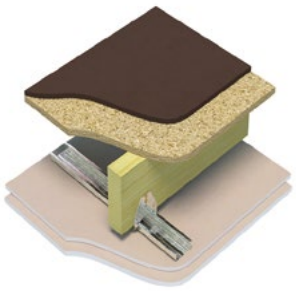
For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**
Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.
Refer to Table G3 in Ceilings – Introduction for maximum spans and spacings of furring channels with acoustic mounts.

CEILINGS UNDER TIMBER FLOOR

CT60.2

FIRE RESISTANCE LEVEL
60/60/60
FROM BELOW
RISF 60min

FRL Basis: FC16109



Furred system shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Min 19 mm particleboard flooring on 240 mm deep joists @ 450 mm ctrs
Insulation: Refer to table
Ceiling Lining: 1x13 mm fire resistant pbd + 1x16 mm fire resistant pbd
Ceiling Fixing: Refer to table

ACOUSTIC RATINGS BASIS: RT&A TE405-20S01(R4)

SYSTEM	CEILING LINING	FIXING	FLOORING TYPE	INSULATION*	R_w (R_w+C_{tr})	$L_{n,w}$
CT60.2A	1x13 mm FIRESTOP + 1x16 mm FIRESTOP	28 mm furring channels @ 600 mm ctrs	Timber Flooring (min 8.5 kg/m²) + min 4.5 mm Acoustic Underlay#	KI 90G R2.5	59(53)	54
			Carpet + Foam Underlay†	KI 90G R2.5	58(52)	38
			Min 6 mm Ceramic Floor Tiles + 6 mm Cement Sheet (total mass min 15 kg/m²) + min 4.5 mm Acoustic Underlay#	KI 90G R2.5	60(54)	57
CT60.2B	1x13 mm FIRESTOP + 1x16 mm FIRESTOP	28 mm furring channels @ 600 mm ctrs + Rondo STWC Sound Isolation Mounts	Timber Flooring (min 8.5 kg/m²)	KI 145G R3.0	60(54)	63
			Min 6 mm Ceramic Floor Tiles + 6 mm Cement Sheet (total mass min 15 kg/m²)	KI 145G R3.0	61(55)	62
CT60.2C	1x13 mm FIRESTOP + 1x16 mm FIRESTOP	28 mm furring channels @ 600 mm ctrs + Embelton Acoustic Mounts	Timber Flooring (min 8.5 kg/m²)	KI 90G R2.5	60(54)	61
			Min 6 mm Ceramic Floor Tiles + 6 mm Cement Sheet (total mass min 15 kg/m²)	KI 90G R2.5	61(55)	60

* KI 90G R2.5 - Knauf Insulation R2.5 Ceiling Batts
KI 145G R3.0 - Knauf Insulation R3.0 Ceiling Batts
† Foam underlay: Minimum 3 mm Dunlop DB3 foam underlay or equivalent
# 4.5 mm Acoustic Underlay - Regupol 4515 acoustic underlay or equivalent

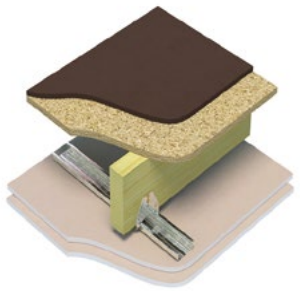
For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**
Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.
Refer to Table G3 in Ceilings – Introduction for maximum spans and spacings of furring channels with acoustic mounts.

CEILINGS UNDER TIMBER FLOOR

CT90.1

FIRE RESISTANCE LEVEL
90/90/90
FROM BELOW
RISF 60min

FRL Basis: FC16109



Furred system shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Min 19 mm particleboard flooring on 240 mm deep joists @ 450 mm ctrs
Insulation: Refer to table
Ceiling Lining: 2x16 mm fire resistant pbd
Ceiling Fixing: Refer to table

ACOUSTIC RATINGS BASIS: RT&A TE405-20S01(R4)

SYSTEM	CEILING LINING	FIXING	FLOORING TYPE	INSULATION*	R_w (R_w+C_{tr})	$L_{n,w}$
CT90.1A	2x16 mm FIRESTOP	28 mm furring channels @ 600 mm ctrs	Timber Flooring (min 8.5 kg/m^2) + min 4.5 mm Acoustic Underlay#	KI 90G R2.5	58(52)	53
			Carpet + Foam Underlay †	KI 90G R2.5	57(51)	38
			Min 6 mm Ceramic Floor Tiles + 6 mm Cement Sheet (total mass min 15 kg/m^2) + min 4.5 mm Acoustic Underlay#	KI 90G R2.5	59(53)	57
CT90.1B	2x16 mm FIRESTOP	28 mm furring channels @ 600 mm ctrs + Rondo STWC Sound Isolation Mounts	Timber Flooring (min 8.5 kg/m^2)	KI 145G R3.0	59(53)	62
			Min 6 mm Ceramic Floor Tiles + 6 mm Cement Sheet (total mass min 15 kg/m^2)	KI 145G R3.0	60(54)	62
CT90.1C	2x16 mm FIRESTOP	28 mm furring channels @ 600 mm ctrs + Embelton Acoustic Mounts	Timber Flooring (min 8.5 kg/m^2)	KI 90G R2.5	59(53)	60
			Min 6 mm Ceramic Floor Tiles + 6 mm Cement Sheet (total mass min 15 kg/m^2)	KI 90G R2.5	60(54)	60

* KI 90G R2.5 - Knauf Insulation R2.5 Ceiling Batts
KI 145G R3.0 - Knauf Insulation R3.0 Ceiling Batts
† Foam underlay: Minimum 3 mm Dunlop DB3 foam underlay or equivalent
# 4.5 mm Acoustic Underlay - Regupol 4515 acoustic underlay or equivalent

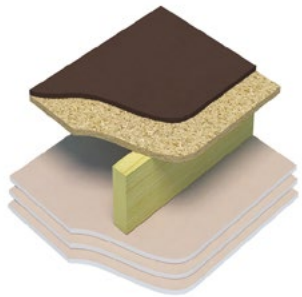
For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**
Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.
Refer to Table G3 in Ceilings – Introduction for maximum spans and spacings of furring channels with acoustic mounts.

CEILINGS UNDER TIMBER FLOOR

CT120.1

FIRE RESISTANCE LEVEL
120/120/120
FROM BELOW
RISF 90min

FRL Basis: FC16109



Direct fixed system shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Min 19 mm particleboard flooring on 240 mm deep joists @ 450 mm ctrs
Insulation: Refer to table
Ceiling Lining: 3x16 mm fire resistant pbd
Ceiling Fixing: Refer to table

ACOUSTIC RATINGS BASIS: RT&A TE405-20S01(R4)

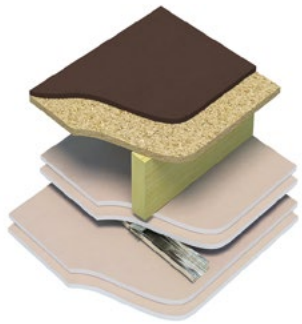
SYSTEM	CEILING LINING	FIXING	FLOORING TYPE	INSULATION*	R_w (R_w+C_{tr})	$L_{n,w}$
CT120.1A	3x16 mm FIRESTOP	Direct Fixed	Timber Flooring (min 8.5 kg/m^2)	KI 90G R2.5	54(48)	67
			Carpet + Foam Underlay†	KI 90G R2.5	53(47)	39
CT120.1B	3x16 mm FIRESTOP	28 mm furring channels @ 600 mm ctrs	Timber Flooring (min 8.5 kg/m^2)	KI 90G R2.5	60(53)	63
			Carpet + Foam Underlay†	KI 90G R2.5	59(52)	37
CT120.1C	3x16 mm FIRESTOP	28 mm furring channels @ 600 mm ctrs + Rondo STWC Sound Isolation Mounts	Timber Flooring (min 8.5 kg/m^2)	KI 145G R3.0	61(54)	61

* KI 90G R2.5 - Knauf Insulation R2.5 Ceiling Batts
KI 145G R3.0 - Knauf Insulation R3.0 Ceiling Batts
† Foam underlay: Minimum 3 mm Dunlop DB3 foam underlay or equivalent

CT120.2

FIRE RESISTANCE LEVEL
120/120/120
FROM BELOW
RISF 120min

FRL Basis: FC16109



Direct fixed system shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Min 19 mm particleboard flooring on 240 mm deep joists @ 450 mm ctrs
Insulation: Refer to table
Ceiling Lining: 2x16 mm fire resistant pbd + 28 mm furring channels + 2x16 mm fire resistant pbd
Ceiling Fixing: Refer to table

ACOUSTIC RATINGS BASIS: RT&A TE405-20S01(R4)

SYSTEM	CEILING LINING	FIXING	FLOORING TYPE	INSULATION*	R_w (R_w+C_{tr})	$L_{n,w}$
CT120.2A	2x16 mm FIRESTOP + 28 mm furring channels + 2x16 mm FIRESTOP	Direct Fixed	Timber Flooring (min 8.5 kg/m^2)	KI 90G R2.5	58(51)	60
			Carpet + Foam Underlay†	KI 90G R2.5	57(50)	40
CT120.2B	2x16 mm FIRESTOP + 28 mm furring channels + 2x16 mm FIRESTOP	28 mm furring channels @ 600 mm ctrs	Timber Flooring (min 8.5 kg/m^2)	-	64(56)	56
			Carpet + Foam Underlay†	KI 90G R2.5	63(55)	36
CT120.2C	2x16 mm FIRESTOP + 28 mm furring channels + 2x16 mm FIRESTOP	28 mm furring channels @ 600 mm ctrs + Rondo STWC Sound Isolation Mounts	Timber Flooring (min 8.5 kg/m^2)	KI 145G R3.0	65(57)	54

* KI 90G R2.5 - Knauf Insulation R2.5 Ceiling Batts
KI 145G R3.0 - Knauf Insulation R3.0 Ceiling Batts
† Foam underlay: Minimum 3 mm Dunlop DB3 foam underlay or equivalent

For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**
Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.
Refer to Table G3 in Ceilings – Introduction for maximum spans and spacings of furring channels with acoustic mounts.

CEILINGS UNDER CONCRETE FLOOR

CC.1

FIRE RESISTANCE LEVEL
(refer to slab FRL)

Bare concrete floor shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Concrete slab (refer to table)
Insulation: Refer to table
Ceiling Lining: 1x13 mm non-fire resistant pbd
Ceiling Fixing: 28 mm furring channels @ 600 mm ctrs + Rondo clip (for ceiling cavity refer to table)

ACOUSTIC RATINGS BASIS: RT&A TE405-20S02(R2)

SYSTEM	CEILING LINING	FLOORING TYPE	CEILING CAVITY	SLAB THICKNESS	150 mm		200 mm	
				INSULATION*	R_w (R_w+C_{tr})	$L_{n,w}$	R_w (R_w+C_{tr})	$L_{n,w}$
CC.1A	1x13 mm SHEETROCK ONE	Timber Flooring (min 8.5 kg/m²) + min 4.5 mm Acoustic Underlay#	100	Nil	58(50)	55	62(53)	52
				KI 50G11	62(55)	52	66(58)	49
		Timber Flooring (min 8.5 kg/m²) + Foam Underlay†	50	Nil	57(48)	61	61(51)	58
				KI 50G11	61(53)	58	65(56)	55
			100	Nil	58(50)	58	62(53)	55
				KI 50G11	62(55)	55	66(58)	52
		Carpet + Foam Underlay†	50	Nil	57(48)	34	61(51)	31
				KI 50G11	61(53)	33	65(56)	30
			100	Nil	58(50)	33	62(53)	30
				KI 50G11	62(55)	32	66(58)	29
		Tiled Floor + min 4.5 mm Acoustic Underlay#	100	Nil	58(50)	56	62(53)	53
				KI 50G11	62(55)	53	66(58)	50
		Tiled Floor + Flexible Adhesive^	50	Nil	57(48)	68	61(51)	65
				KI 50G11	61(53)	65	65(56)	62
			100	Nil	58(50)	65	62(53)	62
				KI 50G11	62(55)	62	66(58)	59

* KI 50G11 - 50 mm glasswool insulation 11 kg/m³ density
# 4.5 mm Acoustic Underlay – Regupol 4515 acoustic underlay or equivalent
† Foam underlay: Min 3 mm Dunlop DB3 foam underlay or equivalent
^ Flexible adhesive: Laticrete 335 Premium flexible adhesive or equivalent

CC.2

FIRE RESISTANCE LEVEL
(refer to slab FRL)

Bare concrete floor shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Concrete slab (refer to table)
Insulation: Refer to table
Ceiling Lining: 1x13 mm non-fire resistant pbd
Ceiling Fixing: 28 mm furring channels @ 600 mm ctrs + Rondo STWC Sound Insulation Mounts (for ceiling cavity refer to table)

ACOUSTIC RATINGS BASIS: RT&A TE405-20S02(R2)

SYSTEM	CEILING LINING	FLOORING TYPE	CEILING CAVITY	SLAB THICKNESS	150 mm		200 mm	
				INSULATION*	R_w (R_w+C_{tr})	$L_{n,w}$	R_w (R_w+C_{tr})	$L_{n,w}$
CC.2A	1x13 mm SHEETROCK ONE	Bare Concrete	100	Nil	58(50)	65	62(53)	62
				KI 50G11	62(55)	62	66(58)	59
		Timber Flooring (min 8.5 kg/m²)	100	Nil	58(50)	61	62(53)	58
				KI 50G11	62(55)	58	66(58)	55
		Tiled Floor	100	Nil	58(50)	65	62(53)	62
				KI 50G11	62(55)	62	66(58)	59

* KI 50G11 - 50 mm glasswool insulation 11 kg/m³ density

For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**
Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.

CEILINGS UNDER CONCRETE FLOOR

CC.3

FIRE RESISTANCE LEVEL
(refer to slab FRL)

Bare concrete floor shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Concrete slab (refer to table)
Insulation: Refer to table
Ceiling Lining: 1x13 mm non-fire resistant pbd
Ceiling Fixing: Suspended (for ceiling cavity refer to table)

ACOUSTIC RATINGS BASIS: RT&A TE405-20F04

SYSTEM	CEILING LINING	FLOORING TYPE	CEILING CAVITY	SLAB THICKNESS	150 mm		200 mm	
				INSULATION*	R_w (R_w+C_{tr})	$L_{n,w}$	R_w (R_w+C_{tr})	$L_{n,w}$
CC.3A	1x13 mm SHEETROCK ONE	Timber Flooring (min 8.5 kg/m²) + min 4.5 mm Acoustic Underlay#	300	Nil	60(54)	51	64(57)	48
				KI 50G11	64(59)	48	68(62)	45
		Timber Flooring (min 8.5 kg/m²) + Foam Underlay†	200	Nil	59(52)	56	63(55)	53
				KI 50G11	63(57)	53	67(60)	50
			300	Nil	60(54)	54	64(57)	51
				KI 50G11	64(59)	51	68(62)	48
		Carpet + Foam Underlay†	200	Nil	59(52)	33	63(55)	30
				KI 50G11	63(57)	32	67(60)	29
			300	Nil	60(54)	32	64(57)	29
				KI 50G11	64(59)	31	68(62)	28
		Tiled Floor + Flexible Adhesive^	200	Nil	59(52)	63	63(55)	60
				KI 50G11	63(57)	60	67(60)	57
			300	Nil	60(54)	61	64(57)	58
				KI 50G11	64(59)	58	68(62)	55

* KI 50G11 - 50 mm glasswool insulation 11 kg/m³ density
# 4.5 mm Acoustic Underlay – Regupol 4515 acoustic underlay or equivalent
† Foam underlay: Min 3 mm Dunlop DB3 foam underlay or equivalent
^ Flexible adhesive: Laticrete 335 Premium flexible adhesive or equivalent

CC.4

FIRE RESISTANCE LEVEL
(refer to slab FRL)

Bare concrete floor shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Concrete slab (refer to table)
Insulation: Refer to table
Ceiling Lining: 1x13 mm non-fire resistant pbd
Ceiling Fixing: Suspended + Rondo STSU Sound Isolation Hangers (for ceiling cavity refer to table)

ACOUSTIC RATINGS BASIS: RT&A TE405-20S02(R2)

SYSTEM	CEILING LINING	FLOORING TYPE	CEILING CAVITY	SLAB THICKNESS	150 mm		200 mm	
				INSULATION*	R_w (R_w+C_{tr})	$L_{n,w}$	R_w (R_w+C_{tr})	$L_{n,w}$
CC.4A	1x13 mm SHEETROCK ONE	Bare Concrete	300	Nil	60(54)	61	64(57)	58
				KI 50G11	64(59)	58	68(62)	55
		Tiled Floor + Flexible adhesive^	300	Nil	60(54)	61	64(57)	58
				KI 50G11	64(59)	58	68(62)	55

* KI 50G11 - 50 mm glasswool insulation 11 kg/m³ density
^ Flexible adhesive: Laticrete 335 Premium flexible adhesive or equivalent

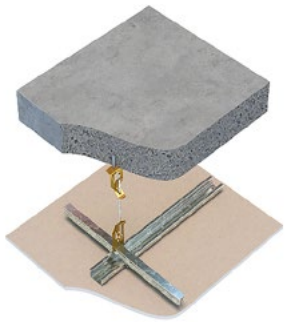
For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**
Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.

CEILINGS UNDER CONCRETE FLOOR

CC30.1

FIRE RESISTANCE LEVEL
30/30/30
FROM BELOW

FRL Basis: FC16109



Bare concrete floor shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Concrete slab (refer to table)
Insulation: Refer to table
Ceiling Lining: 1x13 mm fire resistant pbd
Ceiling Fixing: 28 mm furring channels @ 600 mm ctrs + Rondo clip or Suspended as required (for ceiling cavity refer to table)

ACOUSTIC RATINGS BASIS: RT&A TE405-20S02A

SYSTEM	CEILING LINING	FLOORING TYPE	CEILING CAVITY	SLAB THICKNESS	150 mm Concrete		200 mm Concrete	
				INSULATION*	R_w (R_w+C_{tr})	$L_{n,w}$	R_w (R_w+C_{tr})	$L_{n,w}$
CC30.1A	1x13 mm FIRESTOP	Timber Flooring + Foam Underlay†	50	Nil	57(49)	61	61(52)	58
				KI 50G11	61(54)	58	65(57)	55
			100	Nil	58(51)	58	62(54)	55
				KI 50G11	62(56)	55	66(59)	52
		Timber Flooring + Acoustic Underlay#	50	Nil	57(49)	58	61(52)	55
				KI 50G11	61(54)	55	65(57)	52
			100	Nil	58(51)	55	62(54)	52
				KI 50G11	62(56)	52	66(59)	49
		Carpet Floor + Foam Underlay†	50	Nil	57(49)	34	61(52)	31
				KI 50G11	61(54)	33	65(57)	30
			100	Nil	58(51)	33	62(54)	30
				KI 50G11	62(56)	32	66(59)	29
		Tiled Floor + Flexible adhesive^	50	Nil	57(49)	68	61(52)	65
				KI 50G11	61(54)	65	65(57)	62
			100	Nil	58(51)	65	62(54)	62
				KI 50G11	62(56)	62	66(59)	59
		Tiled Floor + Acoustic Underlay#	50	Nil	57(49)	59	61(52)	56
				KI 50G11	61(54)	56	65(57)	53
			100	Nil	58(51)	56	62(54)	53
				KI 50G11	62(56)	53	66(59)	50
CC30.1B	1x13 mm FIRESTOP	Timber Flooring + Foam Underlay†	200	Nil	59(53)	56	63(56)	53
				KI 50G11	63(58)	53	67(61)	50
			300	Nil	60(55)	54	64(58)	51
				KI 50G11	64(60)	51	68(63)	48
		Timber Flooring + Acoustic Underlay#	200	Nil	59(53)	53	63(56)	50
				KI 50G11	63(58)	50	67(61)	47
			300	Nil	60(55)	51	64(58)	48
				KI 50G11	64(60)	48	68(63)	45
		Carpet Floor + Foam Underlay†	200	Nil	59(53)	33	63(56)	30
				KI 50G11	63(58)	32	67(61)	29
			300	Nil	60(55)	32	64(58)	29
				KI 50G11	64(60)	31	68(63)	28
		Tiled Floor + Flexible adhesive^	200	Nil	59(53)	63	63(56)	60
				KI 50G11	63(58)	60	67(61)	57
			300	Nil	60(55)	61	64(58)	58
				KI 50G11	64(60)	58	68(63)	55
		Tiled Floor + Acoustic Underlay#	200	Nil	59(53)	54	63(56)	51
				KI 50G11	63(58)	51	67(61)	48
			300	Nil	60(55)	52	64(58)	49
				KI 50G11	64(60)	49	68(63)	46

CC30.1A - Ceilings on furring channels and Rondo clip
CC30.1B - Ceilings on suspended ceiling grid
* KI 50G11 - 50 mm glasswool insulation 11 kg/m³ density
† Foam underlay: Minimumm 3 mm Dunlop DB3 foam underlay or equivalent
^ Flexible adhesive: Laticrete 335 Premium flexible adhesive or equivalent
# Acoustic Underlay: Regupol 4515 or equivalent

For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**
Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.

CEILINGS UNDER CONCRETE FLOOR

CC30.2

FIRE RESISTANCE LEVEL
30/30/30
FROM BELOW

FRL Basis: FC16109

Bare concrete floor shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Concrete slab (refer to table)
Insulation: Refer to table
Ceiling Lining: 1x16 mm fire resistant pbd
Ceiling Fixing: 28 mm furring channels @ 600 mm ctrs + Rondo clip or Suspended as required (for ceiling cavity refer to table)

ACOUSTIC RATINGS BASIS: RT&A TE405-20S02A

SYSTEM	CEILING LINING	FLOORING TYPE	CEILING CAVITY	SLAB THICKNESS	150 mm Concrete		200 mm Concrete	
				INSULATION*	R_w (R_w+C_{tr})	$L_{n,w}$	R_w (R_w+C_{tr})	$L_{n,w}$
CC30.2A	1x16 mm FIRESTOP	Timber Flooring + Foam Underlay†	50	Nil	57(50)	61	61(53)	58
				KI 50G11	61(55)	58	65(58)	55
			100	Nil	58(52)	58	62(55)	55
				KI 50G11	62(57)	55	66(60)	52
		Timber Flooring + Acoustic Underlay#	50	Nil	57(50)	58	61(53)	55
				KI 50G11	61(55)	55	65(58)	52
			100	Nil	58(52)	55	62(55)	52
				KI 50G11	62(57)	52	66(60)	49
		Carpet Floor + Foam Underlay†	50	Nil	57(50)	34	61(53)	31
				KI 50G11	61(55)	33	65(58)	30
			100	Nil	58(52)	33	62(55)	30
				KI 50G11	62(57)	32	66(60)	29
		Tiled Floor + Flexible adhesive^	50	Nil	57(50)	68	61(53)	65
				KI 50G11	61(55)	65	65(58)	62
			100	Nil	58(52)	65	62(55)	62
				KI 50G11	62(57)	62	66(60)	59
		Tiled Floor + Acoustic Underlay#	50	Nil	57(50)	59	61(53)	56
				KI 50G11	61(55)	56	65(58)	53
			100	Nil	58(52)	56	62(55)	53
				KI 50G11	62(57)	53	66(60)	50
CC30.2B	1x16 mm FIRESTOP	Timber Flooring + Foam Underlay†	200	Nil	59(54)	56	63(57)	53
				KI 50G11	63(59)	53	67(62)	50
			300	Nil	60(56)	54	64(59)	51
				KI 50G11	64(61)	51	68(64)	48
		Timber Flooring + Acoustic Underlay#	200	Nil	59(54)	53	63(57)	50
				KI 50G11	63(59)	50	67(62)	47
			300	Nil	60(56)	51	64(59)	48
				KI 50G11	64(61)	48	68(64)	45
		Carpet Floor + Foam Underlay†	200	Nil	59(54)	33	63(57)	30
				KI 50G11	63(59)	32	67(62)	29
			300	Nil	60(56)	32	64(59)	29
				KI 50G11	64(61)	31	68(64)	28
		Tiled Floor + Flexible adhesive^	200	Nil	59(54)	63	63(57)	60
				KI 50G11	63(59)	60	67(62)	57
			300	Nil	60(56)	61	64(59)	58
				KI 50G11	64(61)	58	68(64)	55
		Tiled Floor + Acoustic Underlay#	200	Nil	59(54)	54	63(57)	51
				KI 50G11	63(59)	51	67(62)	48
			300	Nil	60(56)	52	64(59)	49
				KI 50G11	64(61)	49	68(64)	46

CC30.2A - Ceilings on furring channels and Rondo clip
CC30.2B - Ceilings on suspended ceiling grid
* KI 50G11 - 50 mm glasswool insulation 11 kg/m^3 density
† Foam underlay: Minimumm 3 mm Dunlop DB3 foam underlay or equivalent
^ Flexible adhesive: Laticrete 335 Premium flexible adhesive or equivalent
# Acoustic Underlay: Regupol 4515 or equivalent

For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**
Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.

CEILINGS UNDER CONCRETE FLOOR

CC60.1

FIRE RESISTANCE LEVEL
60/60/60
FROM BELOW
RISF 30min

FRL Basis: FC16109

Bare concrete floor shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Concrete slab (refer to table)
Insulation: Refer to table
Ceiling Lining: 2x13 mm fire resistant pbd
Ceiling Fixing: 28 mm furring channels @ 600 mm ctrs + Rondo clip or Suspended as required (for ceiling cavity refer to table)

ACOUSTIC RATINGS BASIS: RT&A TE405-20S02A

SYSTEM	CEILING LINING	FLOORING TYPE	CEILING CAVITY	SLAB THICKNESS	150 mm Concrete		200 mm Concrete	
				INSULATION*	R_w (R_w+C_{tr})	$L_{n,w}$	R_w (R_w+C_{tr})	$L_{n,w}$
CC60.1A	2x13 mm FIRESTOP	Timber Flooring + Foam Underlay†	50	Nil	58(50)	60	62(53)	57
				KI 50G11	62(55)	57	66(58)	54
			100	Nil	59(52)	57	63(55)	54
				KI 50G11	63(57)	54	67(60)	51
		Timber Flooring + Acoustic Underlay#	50	Nil	58(50)	57	62(53)	54
				KI 50G11	62(55)	54	66(58)	51
			100	Nil	59(52)	54	63(55)	51
				KI 50G11	63(57)	51	67(60)	48
		Carpet Floor + Foam Underlay†	50	Nil	58(50)	33	62(53)	30
				KI 50G11	62(55)	32	66(58)	29
			100	Nil	59(52)	32	63(55)	29
				KI 50G11	63(57)	31	67(60)	28
		Tiled Floor + Flexible adhesive^	50	Nil	58(50)	67	62(53)	64
				KI 50G11	62(55)	64	66(58)	61
			100	Nil	59(52)	64	63(55)	61
				KI 50G11	63(57)	61	67(60)	58
		Tiled Floor + Acoustic Underlay#	50	Nil	58(50)	58	62(53)	55
				KI 50G11	62(55)	55	66(58)	52
			100	Nil	59(52)	55	63(55)	52
				KI 50G11	63(57)	52	67(60)	49
CC60.1B	2x13 mm FIRESTOP	Timber Flooring + Foam Underlay†	200	Nil	60(54)	55	64(57)	52
				KI 50G11	64(59)	52	68(62)	49
			300	Nil	61(56)	53	65(59)	50
				KI 50G11	65(61)	50	69(64)	47
		Timber Flooring + Acoustic Underlay#	200	Nil	60(54)	52	64(57)	49
				KI 50G11	64(59)	49	68(62)	46
			300	Nil	61(56)	50	65(59)	47
				KI 50G11	65(61)	47	69(64)	44
		Carpet Floor + Foam Underlay†	200	Nil	60(54)	32	64(57)	29
				KI 50G11	64(59)	31	68(62)	28
			300	Nil	61(56)	31	65(59)	28
				KI 50G11	65(61)	30	69(64)	27
		Tiled Floor + Flexible adhesive^	200	Nil	60(54)	62	64(57)	59
				KI 50G11	64(59)	59	68(62)	56
			300	Nil	61(56)	60	65(59)	57
				KI 50G11	65(61)	57	69(64)	54
		Tiled Floor + Acoustic Underlay#	200	Nil	60(54)	53	64(57)	50
				KI 50G11	64(59)	50	68(62)	47
			300	Nil	61(56)	51	65(59)	48
				KI 50G11	65(61)	48	69(64)	45

CC60.1A - Ceilings on furring channels and Rondo clip
CC60.1B - Ceilings on suspended ceiling grid
* KI 50G11 - 50 mm glasswool insulation 11 kg/m³ density
† Foam underlay: Minimumm 3 mm Dunlop DB3 foam underlay or equivalent
^ Flexible adhesive: Laticrete 335 Premium flexible adhesive or equivalent
# Acoustic Underlay: Regupol 4515 or equivalent

For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**
Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.

CEILINGS UNDER CONCRETE FLOOR

CC60.2

FIRE RESISTANCE LEVEL
60/60/60
FROM BELOW
RISF 60min

FRL Basis: FC16109

Bare concrete floor shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Concrete slab (refer to table)
Insulation: Refer to table
Ceiling Lining: 1x13 mm + 1x16 mm fire resistant pbd
Ceiling Fixing: 28 mm furring channels @ 600 mm ctrs + Rondo clip or Suspended as required (for ceiling cavity refer to table)

ACOUSTIC RATINGS BASIS: RT&A TE405-20S02A

SYSTEM	CEILING LINING	FLOORING TYPE	CEILING CAVITY	SLAB THICKNESS	150 mm Concrete		200 mm Concrete	
				INSULATION*	R_w (R_w+C_{tr})	$L_{n,w}$	R_w (R_w+C_{tr})	$L_{n,w}$
CC60.2A	1x13 mm FIRESTOP + 1x16 mm FIRESTOP	Timber Flooring + Foam Underlay†	50	Nil	58(50)	60	62(53)	57
				KI 50G11	62(55)	57	66(58)	54
			100	Nil	59(52)	57	63(55)	54
				KI 50G11	63(57)	54	67(60)	51
		Timber Flooring + Acoustic Underlay#	50	Nil	58(50)	57	62(53)	54
				KI 50G11	62(55)	54	66(58)	51
			100	Nil	59(52)	54	63(55)	51
				KI 50G11	63(57)	51	67(60)	48
		Carpet Floor + Foam Underlay†	50	Nil	58(50)	33	62(53)	30
				KI 50G11	62(55)	32	66(58)	29
			100	Nil	59(52)	32	63(55)	29
				KI 50G11	63(57)	31	67(60)	28
		Tiled Floor + Flexible adhesive^	50	Nil	58(50)	67	62(53)	64
				KI 50G11	62(55)	64	66(58)	61
			100	Nil	59(52)	64	63(55)	61
				KI 50G11	63(57)	61	67(60)	58
		Tiled Floor + Acoustic Underlay#	50	Nil	58(50)	58	62(53)	55
				KI 50G11	62(55)	55	66(58)	52
			100	Nil	59(52)	55	63(55)	52
				KI 50G11	63(57)	52	67(60)	49
CC60.2B	1x13 mm FIRESTOP + 1x16 mm FIRESTOP	Timber Flooring + Foam Underlay†	200	Nil	60(54)	55	64(57)	52
				KI 50G11	64(59)	52	68(62)	49
			300	Nil	61(56)	53	65(59)	50
				KI 50G11	65(61)	50	69(64)	47
		Timber Flooring + Acoustic Underlay#	200	Nil	60(54)	52	64(57)	49
				KI 50G11	64(59)	49	68(62)	46
			300	Nil	61(56)	50	65(59)	47
				KI 50G11	65(61)	47	69(64)	44
		Carpet Floor + Foam Underlay†	200	Nil	60(54)	32	64(57)	29
				KI 50G11	64(59)	31	68(62)	28
			300	Nil	61(56)	31	65(59)	28
				KI 50G11	65(61)	30	69(64)	27
		Tiled Floor + Flexible adhesive^	200	Nil	60(54)	62	64(57)	59
				KI 50G11	64(59)	59	68(62)	56
			300	Nil	61(56)	60	65(59)	57
				KI 50G11	65(61)	57	69(64)	54
		Tiled Floor + Acoustic Underlay#	200	Nil	60(54)	53	64(57)	50
				KI 50G11	64(59)	50	68(62)	47
			300	Nil	61(56)	51	65(59)	48
				KI 50G11	65(61)	48	69(64)	45

CC60.2A - Ceilings on furring channels and Rondo clip
CC60.2B - Ceilings on suspended ceiling grid
* KI 50G11 - 50 mm glasswool insulation 11 kg/m^3 density
† Foam underlay: Minimumm 3 mm Dunlop DB3 foam underlay or equivalent
^ Flexible adhesive: Laticrete 335 Premium flexible adhesive or equivalent
# Acoustic Underlay: Regupol 4515 or equivalent

For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**
Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.

CEILINGS UNDER CONCRETE FLOOR

CC90.1

FIRE RESISTANCE LEVEL
90/90/90
FROM BELOW
RISF 60min

FRL Basis: FC16109

Bare concrete floor shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Concrete slab (refer to table)
Insulation: Refer to table
Ceiling Lining: 2x16 mm fire resistant pbd
Ceiling Fixing: 28 mm furring channels @ 600 mm ctrs + Rondo clip or Suspended as required (for ceiling cavity refer to table)

ACOUSTIC RATINGS BASIS: RT&A TE405-20S02A

SYSTEM	CEILING LINING	FLOORING TYPE	CEILING CAVITY	SLAB THICKNESS / INSULATION*	150 mm Concrete R_w (R_w+C_{tr})	150 mm Concrete $L_{n,w}$	200 mm Concrete R_w (R_w+C_{tr})	200 mm Concrete $L_{n,w}$
CC90.1A	2x16 mm FIRESTOP	Timber Flooring + Foam Underlay†	50	Nil	58(51)	60	62(54)	57
				KI 50G11	62(56)	57	66(59)	54
			100	Nil	59(53)	57	63(56)	54
				KI 50G11	63(58)	54	67(61)	51
		Timber Flooring + Acoustic Underlay#	50	Nil	58(51)	57	62(54)	54
				KI 50G11	62(56)	54	66(59)	51
			100	Nil	59(53)	54	63(56)	51
				KI 50G11	63(58)	51	67(61)	48
		Carpet Floor + Foam Underlay†	50	Nil	58(51)	33	62(54)	30
				KI 50G11	62(56)	32	66(59)	29
			100	Nil	59(53)	32	63(56)	29
				KI 50G11	63(58)	31	67(61)	28
		Tiled Floor + Flexible adhesive^	50	Nil	58(51)	67	62(54)	64
				KI 50G11	62(56)	64	66(59)	61
			100	Nil	59(53)	64	63(56)	61
				KI 50G11	63(58)	61	67(61)	58
		Tiled Floor + Acoustic Underlay#	50	Nil	58(51)	58	62(54)	55
				KI 50G11	62(56)	55	66(59)	52
			100	Nil	59(53)	55	63(56)	52
				KI 50G11	63(58)	52	67(61)	49
CC90.1B	2x16 mm FIRESTOP	Timber Flooring + Foam Underlay†	200	Nil	60(55)	55	64(58)	52
				KI 50G11	64(60)	52	68(63)	49
			300	Nil	61(57)	53	65(60)	50
				KI 50G11	65(62)	50	69(65)	47
		Timber Flooring + Acoustic Underlay#	200	Nil	60(55)	52	64(58)	49
				KI 50G11	64(60)	49	68(63)	46
			300	Nil	61(57)	50	65(60)	47
				KI 50G11	65(62)	47	69(65)	44
		Carpet Floor + Foam Underlay†	200	Nil	60(55)	32	64(58)	29
				KI 50G11	64(60)	31	68(63)	28
			300	Nil	61(57)	31	65(60)	28
				KI 50G11	65(62)	30	69(65)	27
		Tiled Floor + Flexible adhesive^	200	Nil	60(55)	62	64(58)	59
				KI 50G11	64(60)	59	68(63)	56
			300	Nil	61(57)	60	65(60)	57
				KI 50G11	65(62)	57	69(65)	54
		Tiled Floor + Acoustic Underlay#	200	Nil	60(55)	53	64(58)	50
				KI 50G11	64(60)	50	68(63)	47
			300	Nil	61(57)	51	65(60)	48
				KI 50G11	65(62)	48	69(65)	45

CC90.1A - Ceilings on furring channels and Rondo clip
CC90.1B - Ceilings on suspended ceiling grid
* KI 50G11 - 50 mm glasswool insulation 11 kg/m³ density
† Foam underlay: Minimumm 3 mm Dunlop DB3 foam underlay or equivalent
^ Flexible adhesive: Laticrete 335 Premium flexible adhesive or equivalent
# Acoustic Underlay: Regupol 4515 or equivalent

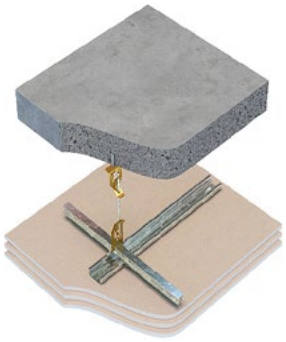
For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**
Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.

CEILINGS UNDER CONCRETE FLOOR

CC120.1

FIRE RESISTANCE LEVEL
120/120/120
FROM BELOW
RISF 90min

FRL Basis: FC16109



Bare concrete floor shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Concrete slab (refer to table)
Insulation: Refer to table
Ceiling Lining: 3x16 mm fiire resistant pbd
Ceiling Fixing: 28 mm furring channels @ 600 mm ctrs + Rondo clip or Suspended as required (for ceiling cavity refer to table)

ACOUSTIC RATINGS BASIS: RT&A TE405-20S02A

SYSTEM	CEILING LINING	FLOORING TYPE	CEILING CAVITY	SLAB THICKNESS / INSULATION*	150 mm Concrete R_w (R_w+C_{tr})	150 mm Concrete $L_{n,w}$	200 mm Concrete R_w (R_w+C_{tr})	200 mm Concrete $L_{n,w}$
CC120.1A	3x16 mm FIRESTOP	Timber Flooring + Foam Underlay†	50	Nil	58(52)	70	62(54)	67
				KI 50G11	62(57)	67	66(59)	64
			100	Nil	59(54)	67	63(56)	64
				KI 50G11	63(59)	64	67(61)	61
		Timber Flooring + Acoustic Underlay#	50	Nil	58(52)	57	62(54)	54
				KI 50G11	62(57)	54	66(59)	51
			100	Nil	59(54)	54	63(56)	51
				KI 50G11	63(59)	51	67(61)	48
		Carpet Floor + Foam Underlay†	50	Nil	58(52)	33	62(54)	30
				KI 50G11	62(57)	32	66(59)	29
			100	Nil	59(54)	32	63(56)	29
				KI 50G11	63(59)	31	67(61)	28
		Tiled Floor + Flexible adhesive^	50	Nil	58(52)	67	62(54)	64
				KI 50G11	62(57)	64	66(59)	61
			100	Nil	59(54)	64	63(56)	61
				KI 50G11	63(59)	61	67(61)	58
		Tiled Floor + Acoustic Underlay#	50	Nil	58(52)	58	62(54)	55
				KI 50G11	62(57)	55	66(59)	52
			100	Nil	59(54)	55	63(56)	52
				KI 50G11	63(59)	52	67(61)	49
CC120.1B	3x16 mm FIRESTOP	Timber Flooring + Foam Underlay†	200	Nil	60(56)	65	64(58)	62
				KI 50G11	64(61)	62	68(63)	59
			300	Nil	61(58)	63	65(60)	60
				KI 50G11	65(63)	60	69(65)	57
		Timber Flooring + Acoustic Underlay#	200	Nil	60(56)	52	64(58)	49
				KI 50G11	64(61)	49	68(63)	46
			300	Nil	61(58)	50	65(60)	47
				KI 50G11	65(63)	47	69(65)	44
		Carpet Floor + Foam Underlay†	200	Nil	60(56)	32	64(58)	29
				KI 50G11	64(61)	31	68(63)	28
			300	Nil	61(58)	31	65(60)	28
				KI 50G11	65(63)	30	69(65)	27
		Tiled Floor + Flexible adhesive^	200	Nil	60(56)	62	64(58)	59
				KI 50G11	64(61)	59	68(63)	56
			300	Nil	61(58)	60	65(60)	57
				KI 50G11	65(63)	57	69(65)	54
		Tiled Floor + Acoustic Underlay#	200	Nil	60(56)	53	64(58)	50
				KI 50G11	64(61)	50	68(63)	47
			300	Nil	61(58)	51	65(60)	48
				KI 50G11	65(63)	48	69(65)	45

CC120.1A - Ceilings on furring channels and Rondo clip
CC120.1B - Ceilings on suspended ceiling grid
* KI 50G11 - 50 mm glasswool insulation 11 kg/m^3 density
† Foam underlay: Minimumm 3 mm Dunlop DB3 foam underlay or equivalent
^ Flexible adhesive: Laticrete 335 Premium flexible adhesive or equivalent
# Acoustic Underlay: Regupol 4515 or equivalent

For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**
Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.

CEILINGS UNDER CONCRETE FLOOR

CC120.2

FIRE RESISTANCE LEVEL
120/120/120
FROM BELOW
RISF 120min

FRL Basis: FC16109

Bare concrete floor shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Concrete slab (refer to table)
Insulation: Refer to table
Ceiling Lining: 2x16 mm fire resistant pbd + 28 mm furring channels + 2x16 mm fire resistant pbd
Ceiling Fixing: 28 mm furring channels @ 600 mm ctrs + Rondo clip or Suspended as required (for ceiling cavity refer to table)

ACOUSTIC RATINGS BASIS: RT&A TE405-20S02A

SYSTEM	CEILING LINING	FLOORING TYPE	CEILING CAVITY	SLAB THICKNESS	150 mm Concrete		200 mm Concrete	
				INSULATION*	R_w (R_w+C_{tr})	$L_{n,w}$	R_w (R_w+C_{tr})	$L_{n,w}$
CC120.2A	2x16 mm FIRESTOP + 28 mm Furring Channel + 2x16 mm FIRESTOP	Timber Flooring + Foam Underlay†	50	Nil	62(53)	60	66(56)	57
				KI 50G11	66(58)	57	70(61)	54
			100	Nil	63(55)	57	67(58)	54
				KI 50G11	67(60)	54	71(63)	51
		Timber Flooring + Acoustic Underlay#	50	Nil	62(53)	57	66(56)	54
				KI 50G11	66(58)	54	70(61)	51
			100	Nil	63(55)	54	67(58)	51
				KI 50G11	67(60)	51	71(63)	48
		Carpet Floor + Foam Underlay†	50	Nil	62(53)	33	66(56)	30
				KI 50G11	66(58)	32	70(61)	29
			100	Nil	63(55)	32	67(58)	29
				KI 50G11	67(60)	31	71(63)	28
		Tiled Floor + Flexible adhesive^	50	Nil	62(53)	67	66(56)	64
				KI 50G11	66(58)	64	70(61)	61
			100	Nil	63(55)	64	67(58)	61
				KI 50G11	67(60)	61	71(63)	58
		Tiled Floor + Acoustic Underlay#	50	Nil	62(53)	58	66(56)	55
				KI 50G11	66(58)	55	70(61)	52
			100	Nil	63(55)	55	67(58)	52
				KI 50G11	67(60)	52	71(63)	49
CC120.2B	2x16 mm FIRESTOP + 28 mm Furring Channel + 2x16 mm FIRESTOP	Timber Flooring + Foam Underlay†	200	Nil	64(57)	55	68(60)	52
				KI 50G11	68(62)	52	72(65)	49
			300	Nil	65(59)	53	69(62)	50
				KI 50G11	69(64)	50	73(67)	47
		Timber Flooring + Acoustic Underlay#	200	Nil	64(57)	52	68(60)	49
				KI 50G11	68(62)	49	72(65)	46
			300	Nil	65(59)	50	69(62)	47
				KI 50G11	69(64)	47	73(67)	44
		Carpet Floor + Foam Underlay†	200	Nil	64(57)	32	68(60)	29
				KI 50G11	68(62)	31	72(65)	28
			300	Nil	65(59)	31	69(62)	28
				KI 50G11	69(64)	30	73(67)	27
		Tiled Floor + Flexible adhesive^	200	Nil	64(57)	62	68(60)	59
				KI 50G11	68(62)	59	72(65)	56
			300	Nil	65(59)	60	69(62)	57
				KI 50G11	69(64)	57	73(67)	54
		Tiled Floor + Acoustic Underlay#	200	Nil	64(57)	53	68(60)	50
				KI 50G11	68(62)	50	72(65)	47
			300	Nil	65(59)	51	69(62)	48
				KI 50G11	69(64)	48	73(67)	45

CC120.2A - Ceilings on furring channels and Rondo clip
CC120.2B - Ceilings on suspended ceiling grid
* KI 50G11 - 50 mm glasswool insulation 11 kg/m³ density
† Foam underlay: Minimumm 3 mm Dunlop DB3 foam underlay or equivalent
^ Flexible adhesive: Laticrete 335 Premium flexible adhesive or equivalent
# Acoustic Underlay: Regupol 4515 or equivalent

For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**
Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.

CEILINGS UNDER ROOF

CR.1

NON-FIRE RATED

Pitched roof shown

SYSTEM DESCRIPTION

Roof Type: Refer to table
Insulation: Refer to table
Ceiling Lining: One or more layers of non-fire resistant pbd (refer to table)
Ceiling Fixing: Direct fixed

ACOUSTIC RATINGS BASIS: RT&A TE405-20S08

SYSTEM	LINING	FIXING	ROOF TYPE	TILED PITCHED ROOF WITH BUILDING MEMBRANE TO NCC REQUIREMENTS	METAL PITCHED ROOF WITH FOIL-FACED 60 mm (R1.4) NOM ROOF INSULATION BLANKET	METAL FLAT ROOF WITH FOIL-FACED 60 mm (R1.4) NOM ROOF INSULATION BLANKET (190 mm RAFTERS)
			INSULATION*	R_w (R_w+C_{tr})		
CR.1A	1x10 mm SHEETROCK ONE	Direct fixed to roof trusses @ 600 mm ctrs	KI 90G R2.5	42(33)	NA	NA
CR.1G	1x13 mm IMPACTSTOP	Direct fixed to roof trusses @ 600 mm ctrs	KI 90G R2.5	48(41)	NA	NA
CR.1H	2x10 mm SHEETROCK ONE	Direct fixed to roof trusses @ 600 mm ctrs	KI 90G R2.5	47(39)	NA	NA
CR.1I	2x13 mm IMPACTSTOP	Direct fixed to roof trusses @ 600 mm ctrs	KI 90G R2.5	54(47)	NA	NA

* KI 90G R2.5 - Knauf Insulation R2.5 Ceiling Batts

CR.2

NON-FIRE RATED

Pitched roof shown

SYSTEM DESCRIPTION

Roof Type: Refer to table
Insulation: Refer to table
Ceiling Lining: One or more layers of non-fire resistant pbd (refer to table)
Ceiling Fixing: 28 mm furring channels @ 600 mm ctrs (nom 30 mm gap)

ACOUSTIC RATINGS BASIS: RT&A TE405-20S08

SYSTEM	LINING	FIXING	ROOF TYPE	TILED PITCHED ROOF WITH BUILDING MEMBRANE TO NCC REQUIREMENTS	METAL PITCHED ROOF WITH FOIL-FACED 60 mm (R1.4) NOM ROOF INSULATION BLANKET	METAL FLAT ROOF WITH FOIL-FACED 60 mm (R1.4) NOM ROOF INSULATION BLANKET (190 mm RAFTERS)
			INSULATION*	R_w (R_w+C_{tr})		
CR.2A	1x10 mm SHEETROCK ONE	28 mm furring channels @ 600 mm ctrs (nom 30 mm gap)	KI 90G R2.5	43(35)	42(33)	40(31)
CR.2G	1x13 mm IMPACTSTOP	28 mm furring channels @ 600 mm ctrs (nom 30 mm gap)	KI 90G R2.5	49(42)	48(40)	46(38)
CR.2H	2x10 mm SHEETROCK ONE	28 mm furring channels @ 600 mm ctrs (nom 30 mm gap)	KI 90G R2.5	48(40)	47(38)	45(35)
CR.2I	2x13 mm IMPACTSTOP	28 mm furring channels @ 600 mm ctrs (nom 30 mm gap)	KI 90G R2.5	55(48)	54(46)	52(44)

* KI 90G R2.5 - Knauf Insulation R2.5 Ceiling Batts

For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**
Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.
Refer to Table G3 in Ceilings – Introduction for maximum spans and spacings of furring channels with acoustic mounts.

CEILINGS UNDER ROOF

CR.3

NON-FIRE RATED

Pitched roof shown

SYSTEM DESCRIPTION

Roof Type: Refer to table
Insulation: Refer to table
Ceiling Lining: One or more layers of non-fire resistant pbd (refer to table)
Ceiling Fixing: 28 mm furring channels @ 600 mm ctrs + Rondo STWC Sound Isolation Mounts (nom 50 mm gap)

ACOUSTIC RATINGS BASIS: RT&A TE405-20S08

SYSTEM	LINING	FIXING	ROOF TYPE	TILED PITCHED ROOF WITH BUILDING MEMBRANE TO NCC REQUIREMENTS	METAL PITCHED ROOF WITH FOIL-FACED 60 mm (R1.4) NOM ROOF INSULATION BLANKET	METAL FLAT ROOF WITH FOIL-FACED 60 mm (R1.4) NOM ROOF INSULATION BLANKET (190 mm RAFTERS)
			INSULATION*	R_w (R_w+C_{tr})		
CR.3A	1x10 mm SHEETROCK ONE	28 mm furring channels @ 600 mm ctrs + Rondo STWC Sound Isolation Mounts (nom 50 mm gap)	KI 90G R2.5	47(37)	46(37)	44(33)
CR.3F	1x13 mm IMPACTSTOP	28 mm furring channels @ 600 mm ctrs + Rondo STWC Sound Isolation Mounts (nom 50 mm gap)	KI 90 G R2.5	54(44)	53(42)	51(40)
CR.3G	2x10 mm SHEETROCK ONE	28 mm furring channels @ 600 mm ctrs + Rondo STWC Sound Isolation Mounts (nom 50 mm gap)	KI 90G R2.5	53(42)	52(40)	50(38)

* KI 90G R2.5 - Knauf Insulation R2.5 Ceiling Batts

CR.4

NON-FIRE RATED

Pitched roof shown

SYSTEM DESCRIPTION

Roof Type: Refer to table
Insulation: Refer to table
Ceiling Lining: One or more layers of non-fire resistant pbd (refer to table)
Ceiling Fixing: Suspended

ACOUSTIC RATINGS BASIS: RT&A TE405-20S08

SYSTEM	LINING	FIXING	ROOF TYPE	TILED PITCHED ROOF WITH BUILDING MEMBRANE TO NCC REQUIREMENTS	METAL PITCHED ROOF WITH FOIL-FACED 60 mm (R1.4) NOM ROOF INSULATION BLANKET	METAL FLAT ROOF WITH FOIL-FACED 60 mm (R1.4) NOM ROOF INSULATION BLANKET (190 mm RAFTERS)
			INSULATION*	R_w (R_w+C_{tr})		
CR.4A	1x10 mm SHEETROCK ONE	Suspended	KI 90G R2.5	NA	47(36)	45(34)
CR.4G	1x13 mm IMPACTSTOP	Suspended	KI 90G R2.5	NA	53(43)	51(41)
CR.4H	2x10 mm SHEETROCK ONE	Suspended	KI 90G R2.5	NA	52(41)	50(39)
CR.4I	2x13 mm IMPACTSTOP	Suspended	KI 90G R2.5	NA	59(49)	57(47)

* KI 90G R2.5 - Knauf Insulation R2.5 Ceiling Batts

For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**
Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.
Refer to Table G3 in Ceilings – Introduction for maximum spans and spacings of furring channels with acoustic mounts.

CEILINGS UNDER ROOF

CR.5

NON-FIRE RATED

Pitched roof shown

SYSTEM DESCRIPTION

Roof Type: Refer to table
Insulation: Refer to table
Ceiling Lining: One or more layers of non-fire resistant pbd (refer to table)
Ceiling Fixing: Suspended + Rondo STSU Sound Isolation Hangers

ACOUSTIC RATINGS BASIS: RT&A TE405-20S08

SYSTEM	LINING	FIXING	ROOF TYPE	TILED PITCHED ROOF WITH BUILDING MEMBRANE TO NCC REQUIREMENTS	METAL PITCHED ROOF WITH FOIL-FACED 60 mm (R1.4) NOM ROOF INSULATION BLANKET	METAL FLAT ROOF WITH FOIL-FACED 60 mm (R1.4) NOM ROOF INSULATION BLANKET (190 mm RAFTERS)
			INSULATION*	R_w (R_w+C_{tr})		
CR.5A	1x10 mm SHEETROCK ONE	Suspended + Rondo Sound Isolation Hangers	KI 90G R2.5	NA	50(38)	48(36)
CR.5F	1x13 mm IMPACTSTOP	Suspended + Rondo Sound Isolation Hangers	KI 90G R2.5	NA	56(45)	54(43)
CR.5G	2x10 mm SHEETROCK ONE	Suspended with Rondo Sound Isolation Hangers	KI 90G R2.5	NA	55(43)	53(41)

* KI 90G R2.5 - Knauf Insulation R2.5 Ceiling Batts

For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**
Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.
Refer to Table G3 in Ceilings – Introduction for maximum spans and spacings of furring channels with acoustic mounts.

CEILINGS UNDER ROOF – FIRE UPGRADE

CR

FIRE RESISTANCE LEVEL
(refer to table)

FRL Basis: FC16109

Pitched roof shown

SYSTEM DESCRIPTION

Roof Type: Any
Ceiling Lining: One or more layers of fire resistant pbd (refer to table)
Ceiling Fixing: Direct fix, furred or suspended ceiling

FIRE RATINGS

SYSTEM	FIRE RESISTANT LEVEL	RISF	LINING
CR30.1A	30/30/30 from below	NA	1x13 mm FIRESTOP
CR30.2A	30/30/30 from below	NA	1x16 mm FIRESTOP
CR60.1A	60/60/60 from below	30min	2x13 mm FIRESTOP
CR60.2A	60/60/60 from below	60min	1x13 mm FIRESTOP + 1x16 mm FIRESTOP
CR90.1A	90/90/90 from below	60min	2x16 mm FIRESTOP
CR120.1A	120/120/120 from below	90min	3x16 mm FIRESTOP
CR120.2A	120/120/120 from below	120min	2x16 mm FIRESTOP + Furring +2x16 mm FIRESTOP

For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**

SPANNING CEILINGS

CS

FIRE RESISTANCE LEVEL
(refer to table)

FRL Basis: FC16109

System CS60.1A shown

SYSTEM DESCRIPTION

Top Lining: One or more layers of fire resistant pbd
Framing: 150 mm C-studs 0.75 mm BMT @ 600 mm ctrs
Bottom Lining: One or more layers of fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&ATE405-20S08, TK778-06S01

SYSTEM	FRL	TOP LINING	BOTTOM LINING	STUD SIZE mm	150	MAX SPANS FOR POINT LOAD AT MIDSPAN† mm	
				BMT mm	0.75		
				INSULATION*	R_w (R_w+C_{tr})	1400N	900N
CS60.1A	60/60/60 from above only	1x16 mm FIRESTOP	1x16 mm FIRESTOP	Nil	39(33)	2000	3000
				KI 90G11	46(42)		
CS90.1A	90/90/90 from above only	2x13 mm FIRESTOP	1x13 mm FIRESTOP	Nil	40(34)	2000	2900
				KI 90G11	49(43)		
CS90.2A	90/90/90 from both sides	2x13 mm FIRESTOP	3x13 mm FIRESTOP	Nil	48(40)	2000	2900
				KI 90G11	53(48)		
CS120.1A	120/120/120 from above only	2x16 mm FIRESTOP	1x16 mm FIRESTOP + 1x10 mm SHEETROCK ONE	Nil	46(37)	1900	2650
				KI 90G11	52(47)		
CS120.2A	120/120/120 from above 60/60/60 from below	2x16 mm FIRESTOP	2x16 mm FIRESTOP	Nil	47(38)	1900	2650
				KI 90G11	52(47)		
CS120.3A	120/120/120 from both sides	2x16 mm FIRESTOP	3x16 mm FIRESTOP	Nil	49(41)	1850	2500
				KI 90G11	54(50)		

* KI 90G11- 90 mm glasswool insulation 11 kg/m^3 density
† Maximum spans are based on non trafficable ceilings in accordance with AS 1170.1 cl 3.5.2
End connections using Rondo SWC3 or 201 web cleats

CH

FIRE RESISTANCE LEVEL
(refer to table)

FRL Basis: FC16109

System CH120.1A shown

SYSTEM DESCRIPTION

Top Lining: One or more layers of fire resistant pbd
Framing: CH-studs @ 600 mm ctrs (refer to table)
Bottom Lining: One or more layers of fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-20S08

SYSTEM	FRL	TOP LINING	BOTTOM LINING	STUD SIZE mm	64		102	
				BMT mm	0.55	0.90	0.55	0.90
				INSULATION*	R_w (R_w+C_{tr})			
CH60.1A	60/60/60 from both sides	1x25 mm SHAFTLINER MOULDSTOP	2x16 mm FIRESTOP	Nil	43(34)	40(31)	45(36)	42(33)
				KI 50G11	50(40)	47(37)	51(42)	48(39)
CH120.1A	120/120/120 from both sides	1x25 mm SHAFTLINER MOULDSTOP	3x16 mm FIRESTOP	Nil	45(36)	42(33)	46(37)	43(34)
				KI 50G11	52(42)	49(39)	52(43)	49(40)
CH120.2A	120/120/120 from both sides	3x16 mm FIRESTOP	1x25 mm SHAFTLINER MOULDSTOP	Nil	45(36)	42(33)	46(37)	43(34)
				KI 50G11	52(42)	49(39)	52(43)	49(40)

* KI 50G11 - 50 mm glasswool insulation 11 kg/m^3 density

MAXIMUM SPANS

STUD SIZE mm	64	64	102	102	64	64	102	102
BMT mm	0.55	0.90	0.55	0.90	0.55	0.90	0.55	0.90
FRAME SPACING	0.00kPa SERVICEABILITY PRESSURE				0.25kPa SERVICEABILITY PRESSURE			
300	2000	2530	2690	3410	2000	2530	2690	3410
600	1760	2200	2360	2960	1480	1850	1980	2500

Maximum spans are based on:
- 600Pa self weight
- Maximum working stress of steel of 80MPa under fire load
- Non trafficable ceilings and no additional loadings from construction or maintenance personnel
- Simply supported, laterally restrained joists

For the full range of Knauf systems refer to **knauf.com/en-AU/knauf-gypsum/services/tools/eselector**
Blue text indicates systems and products suitable for wet areas.

ACOUSTIC CEILINGS – CEILING TILES

SUGGESTED APPLICATIONS

PANEL	Airports	Banks	Boardrooms / Conference	Cinemas / Theatres	Computer Rooms	Factories / Workshops	Foodhalls	Gymnasiums	Hospitals / Medical Centres	Laboratories / Cleanrooms	Libraries	Light Industrial Construction	Lobbies / Receptions	Offices	Open Plan Offices	Restaurants/ Cafes	Retail	Schools	Service Stations	Shopping Centres	Showrooms / Exhibition Areas	Swimming Pools	Washrooms	Fire Rated	Face Texture	Cost
IMPRESSIONS™		✓	✓				✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				M	**$**
OLYMPUS MAX™	✓	✓	✓	✓					✓		✓	✓	✓	✓		✓	✓	✓		✓	✓				F	**$$**
MARS™ CLEAN ROOM™							✓		✓	✓						✓							✓		S	**$$$**

Indicative Installed $ Value Guide per m² (grid, acoustical panel labour)
Costs are calculated from national average ranges for a typical installation under ideal height and job site conditions.
Actual installed costs may vary based on several installation factors.

Economical	$	F - Fine texture
Mid Range	$$	M - Medium texture
Premium	$$$	S - Smooth texture

REFER TO PRODUCT DATA SHEETS FOR COMPLETE TECHNICAL DATA

PANEL	NRC	CAC	LR	VOC EMISSIONS	ANTI-MOULD & MILDEW	RECYCLED CONTENTS	PANEL WEIGHT kg/m²	EDGE	CEILING GRID
IMPRESSIONS™	0.60	35	0.84	Low	○	45%	3.86-4.23	SQ	DX, DXT
OLYMPUS MAX™	0.70	35	0.88	Low	○	61%	4.08-4.18	SQ	DX, DXT
MARS™ CLEAN ROOM™	0.75	35	0.90	Low	○	69%	5.0-5.3	SQ	DX, DXT, CE

○ CLIMAPLUS™ Inherent Performance

Low Emissions (VOC Class)

Classified as low-emitting per standards established by the Collaborative for High-Performance Schools (CHPS), following California Specification 01350 testing methods. Low-emitting is defined as having less than 13.5 ppb/0.017 mg/m³.

Edge Profiles

SQ Square Edge

CLIMAPLUS Superior Performance

Contains a broad-spectrum antimicrobial treatment on the face and back of the panel that provides resistance against the growth of mould/mildew, fungi, yeast, and odour/stain-causing Gram-positive and Gram-negative bacteria.

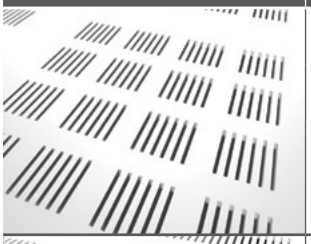
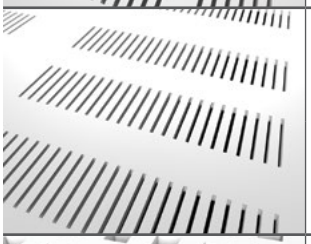
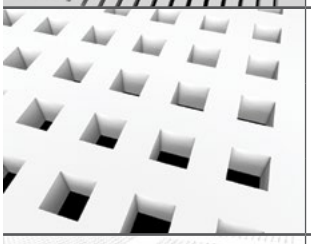
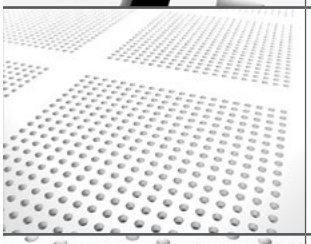
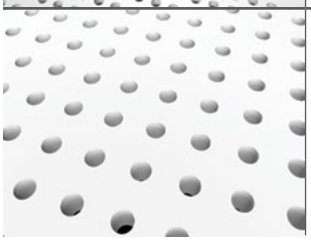
CLIMAPLUS Inherent Performance

Substrate is inherently resistant to the growth of mould, mildew and bacteria.

ACOUSTIC CEILINGS – ECHOSTOP® PERFORATED PLASTERBOARD

EchoStop has been extensively tested in a 'full scale reverberation chamber' to AS ISO 354-2006. The table below outlines the different air gaps and insulation tested, together with the α_w and NRC rating achieved. Copies of the test reports can be supplied upon request.

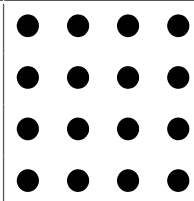
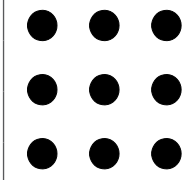
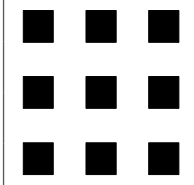
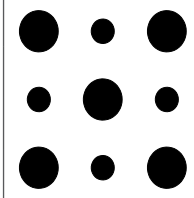
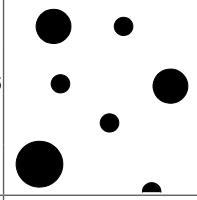
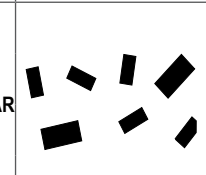
ECHOSTOP PROPERTIES

TABLE 1.	PERFORATION	OVERALL CAVITY DEPTH (mm)	INSULATION*	α_w	CLASS	SAA	NRC	RMIT Test Report
	82 mm Slotted Rectangular (10.9% open area)	50 mm	KI 50G14	0.40(LM)	D	0.67	0.70	12-041/JW
		90 mm	KI 90G14	0.40(LM)	D	0.66	0.65	12-040/JW
		400 mm	KI 90G14	0.45(LM)	D	0.61	0.65	12-046/JW
		700 mm	KI 90G14	0.50(LM)	D	0.62	0.60	12-056/JW
	101.5 mm Slotted Rectangular (11.8% open area)	400 mm	KI 90G14	0.45(LM)	D	0.63	0.65	12-047/JW
		700 mm	KI 90G14	0.50(LM)	D	0.63	0.65	12-054/JW
	12 mm Square Hole (16% open area)	90 mm	KI 90G14	0.60(LM)	C	0.80	0.80	12-038/JW
		400 mm	KI 90G14	0.60(LM)	C	0.74	0.75	12-045/JW
		700 mm	KI 90G14	0.60(LM)	C	0.75	0.75	12-053/JW
	6 mm Round Hole (8.6% open area)	400 mm	KI 90G14	0.45(LM)	D	0.62	0.65	12-043/JW
		700 mm	KI 90G14	0.50(LM)	D	0.64	0.65	12-052/JW
	13.5 mm Round Hole	90 mm	KI 90G14	Refer to EchoStop 12 mm Square Hole for indicative acoustic performance				
		400 mm	KI 90G14					
		700 mm	KI 90G14					

* KI 50G14 - 50 mm glasswool insulation 14 kg/m³ density
* KI 90G14 - 90 mm glasswool insulation 14 kg/m³ density

STRATOPANEL® PRODUCT RANGE

STRATOPANEL® PROPERTIES

PRODUCT NAME	PERFORATION	OPEN AREA	Thickness (w x l) mm	WEIGHT kg/m²	CAVITY DEPTH	INSULATION*	α_w	CLASS	SAA	NRC	CSIRO Acoustic Test Report No
CIRCULAR 8/18 R		15.5%	12.5 (1188x1998)	8.2	200	Nil	0.70	C	0.70	0.70	AC356-01-2
						KI 50G11	0.75(L)	C	0.78	0.80	AC356-02-2
					400	Nil	0.70(L)	C	0.72	0.70	AC356-04-2
						KI 50G11	0.80	B	0.78	0.80	AC356-03-2
CIRCULAR 12/25 R		18.1%	12.5 (1200x2000)	7.9	200	Nil	0.70(L)	C	0.73	0.75	AC359-09-1
						KI 50G11	0.80	B	0.81	0.80	AC359-16-1
					400	Nil	0.70(L)	C	0.73	0.70	AC359-08-1
						KI 50G11	0.80	B	0.81	0.80	AC359-01-1
SQUARE 12/25 Q		23.0%	12.5 (1200x2000)	7.4	200	Nil	0.70(L)	C	0.77	0.75	AC359-11-1
						KI 50G11	0.90(L)	A	0.92	0.90	AC359-14-1
					400	Nil	0.75(L)	C	0.75	0.75	AC359-06-1
						KI 50G11	0.90	A	0.90	0.90	AC359-03-1
ALTERNATING CIRCULAR 12/20/66 R		19.6%	12.5 (1188x1980)	7.7	200	Nil	0.65(LM)	C	0.73	0.75	AC359-12-1
						KI 50G11	0.75(L)	C	0.83	0.85	AC359-13-1
					400	Nil	0.75(L)	C	0.72	0.70	AC359-05-1
						KI 50G11	0.80(L)	B	0.82	0.80	AC359-04-1
RANDOM PLUS 8/15/20 R		9.9%	12.5 (1200x2000)	8.6	200	Nil	0.50(L)	D	0.57	0.60	AC359-10-1
						KI 50G11	0.55(L)	D	0.60	0.60	AC359-15-1
					400	Nil	0.55(L)	D	0.57	0.55	AC359-07-1
						KI 50G11	0.55(L)	D	0.60	0.60	AC359-02-1
RANDOM RECTANGULAR RE		13.6%	12.5 (1199x1999)	8.4	200	Nil	0.50(LM)	D	0.64	0.65	AC359-20-1
						KI 50G11	0.60(L)	C	0.70	0.70	AC359-19-1
					400	Nil	0.55(L)	D	0.65	0.60	AC359-17-1
						KI 50G11	0.65(L)	C	0.70	0.70	AC359-18-1

* KI 50G11 - 50 mm glasswool insulation 11 kg/m^3 density

OVER PARTITION SYSTEMS

OVER PARTITION CEILING SYSTEMS

WALL ACOUSTIC RATING	SYSTEM	ACCEPTABLE CEILING CONFIGURATION TO MAINTAIN WALL ACOUSTIC RATING			
		SIDE A	SIDE B	CONTINUOUS / DISCONTINUOUS CEILING	ABOVE CEILING TREATMENT
$R_w \leq 35$	OP.1	Mineral Fibre Ceiling Tiles Group A or B	Mineral Fibre Ceiling Tiles Group A or B	Continuous or Discontinuous	None
	OP.2	1x10 mm SHEETROCK ONE	1x10 mm SHEETROCK ONE	Continuous or Discontinuous	None
$R_w 40$	OP.3	Mineral Fibre Ceiling Tiles Group A or B	Mineral Fibre Ceiling Tiles Group A or B	Discontinuous	13 mm plasterboard wall lining on one side of stud only continued up to u/s of concrete slab or roof lining
	OP.5	1x13 mm SHEETROCK ONE	Mineral Fibre Ceiling Tiles Group A or B	Discontinuous	KI 50G11 extend min 1200 mm each side of wall
	OP.7	1x13 mm SHEETROCK ONE	1x13 mm SHEETROCK ONE	Continuous or Discontinuous	None
$R_w 45$	OP.8	Mineral Fibre Ceiling Tiles Group A or B	Mineral Fibre Ceiling Tiles Group A or B	Discontinuous	Plasterboard wall lining min. density 8.5 kg/m^2 on one side of stud only continued up to u/s of concrete slab or roof lining + KI 50G11 extend min 1200 mm each side of wall
	OP.9	1x13 mm SHEETROCK ONE	1x13 mm SHEETROCK ONE	Discontinuous	KI 50G11 over entire ceiling both sides of wall
$R_w 50$	OP.10	1x13 mm SHEETROCK ONE	1x13 mm SHEETROCK ONE	Discontinuous	Plasterboard wall lining min. density 10.5 kg/m^2 on both sides of stud to extend full height to u/s of concrete slab or roof lining

* KI 50G11 - 50 mm glasswool insulation 11 kg/m^3 density.

Notes:
- Acoustic ratings based on nom. 700 mm plenum depth
- For continuous ceilings, junction of wall to suspended ceiling to be acoustically sealed
- For continuous or discontinuous ceilings, no acoustical treatment required to shadowline stopping angle at head of wall
- Other acceptable materials (ie. barium loaded vinyl) can be used in lieu of a plasterboard barrier in ceiling space
- Insulation blankets must not be in direct contact with mineral fibre panels and must be supported by the suspension system only
- Insulation batts can be laid directly on mineral fibre panels only to the extent required in the above over partition systems and provided that the batts are the same size as the panels

KNAUF ACOUSTIC CEILING PANELS CLASSIFICATION

CEILING PANEL GROUP	PRODUCT NAME	PANEL THICKNESS	NRC	CAC
GROUP A	IMPRESSIONS	16 mm	0.60	35
	OLYMPUS MAX	19 mm	0.70	35
GROUP B	MARS CLEAN ROOM	19 mm	0.75	35

OVER PARTITION SYSTEMS

TYPICAL LAYOUTS

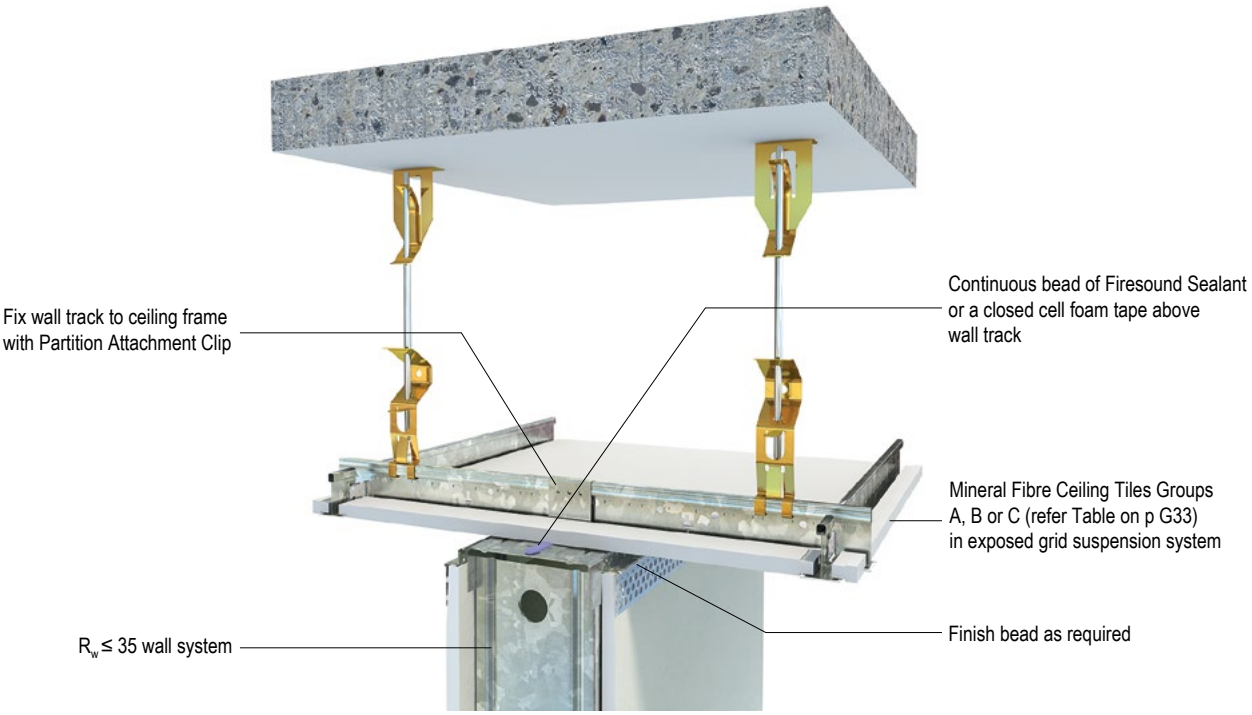


Figure G12: **Ceiling configuration to maintain an $R_W \leq 35$ wall acoustic rating**
(System OP.1 shown)

OVER PARTITION SYSTEMS

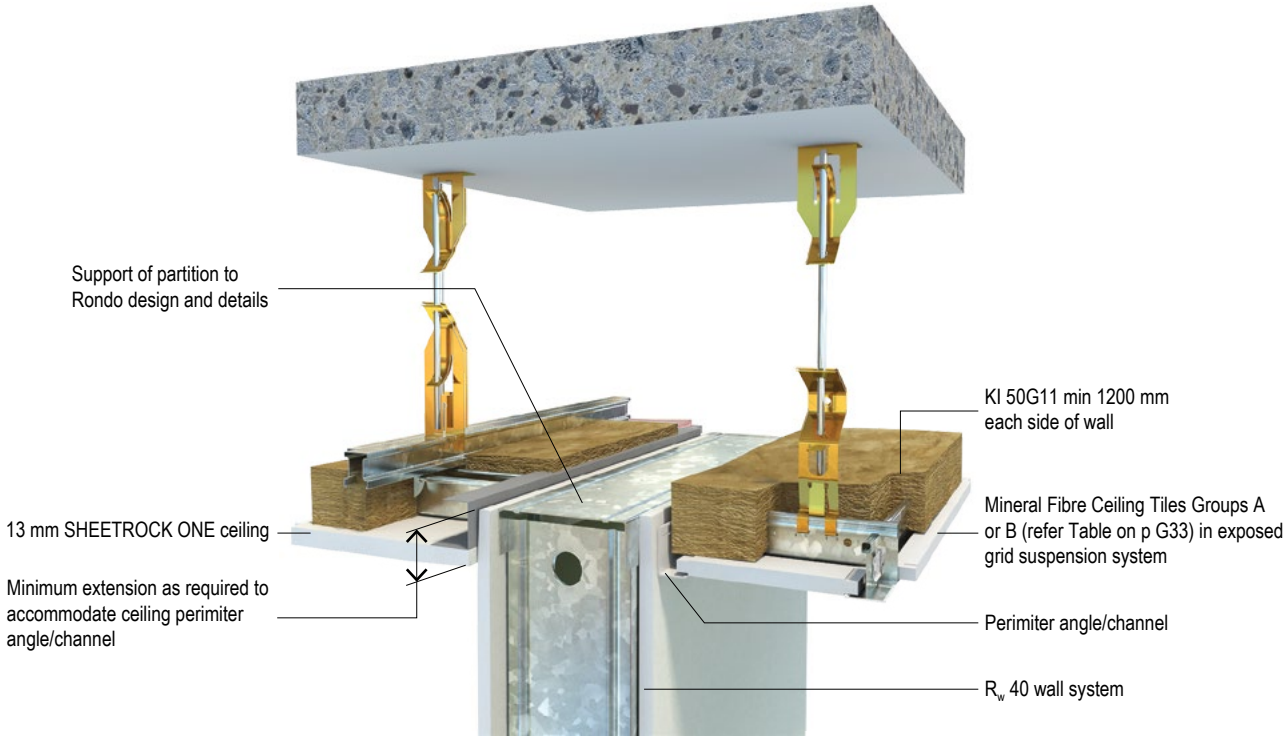


Figure G13: **Ceiling configuration to maintain an R_W 40 wall acoustic rating**
(System OP.5 shown)

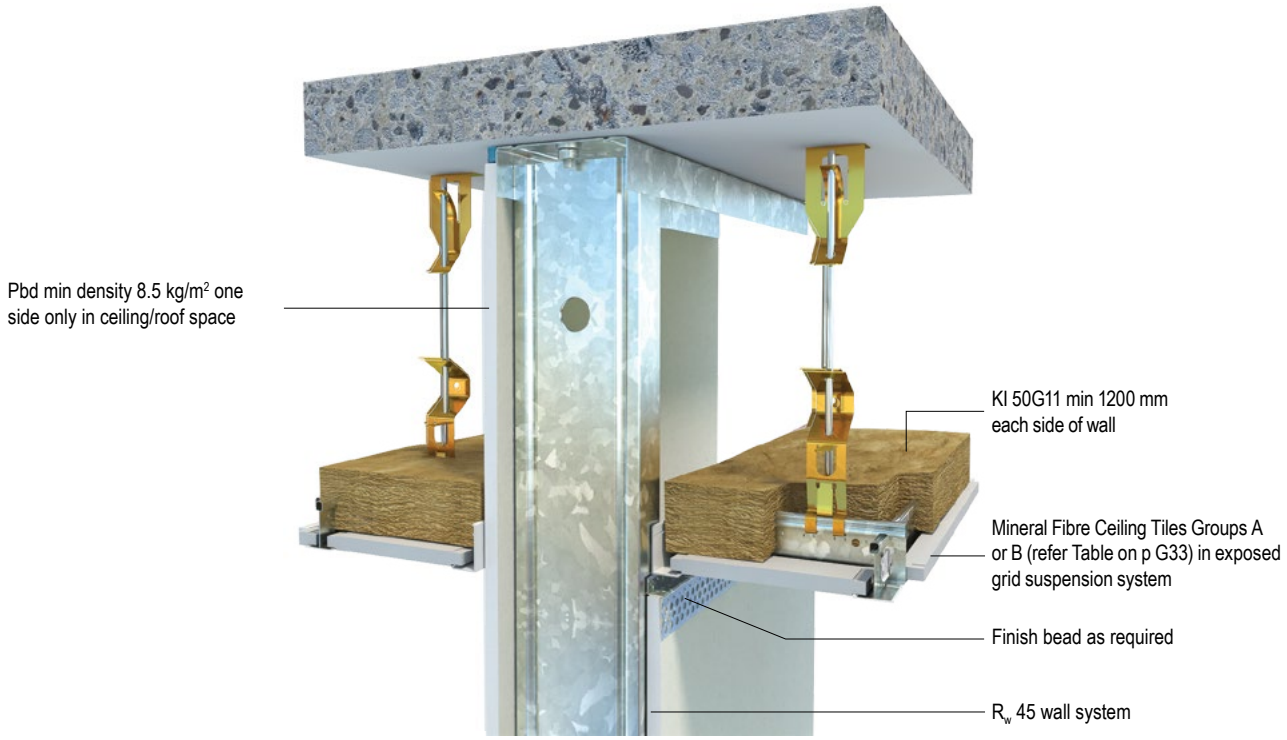


Figure G14: **Ceiling configuration to maintain an R_W 45 wall acoustic rating**
(System OP.8 shown)

OVER PARTITION SYSTEMS

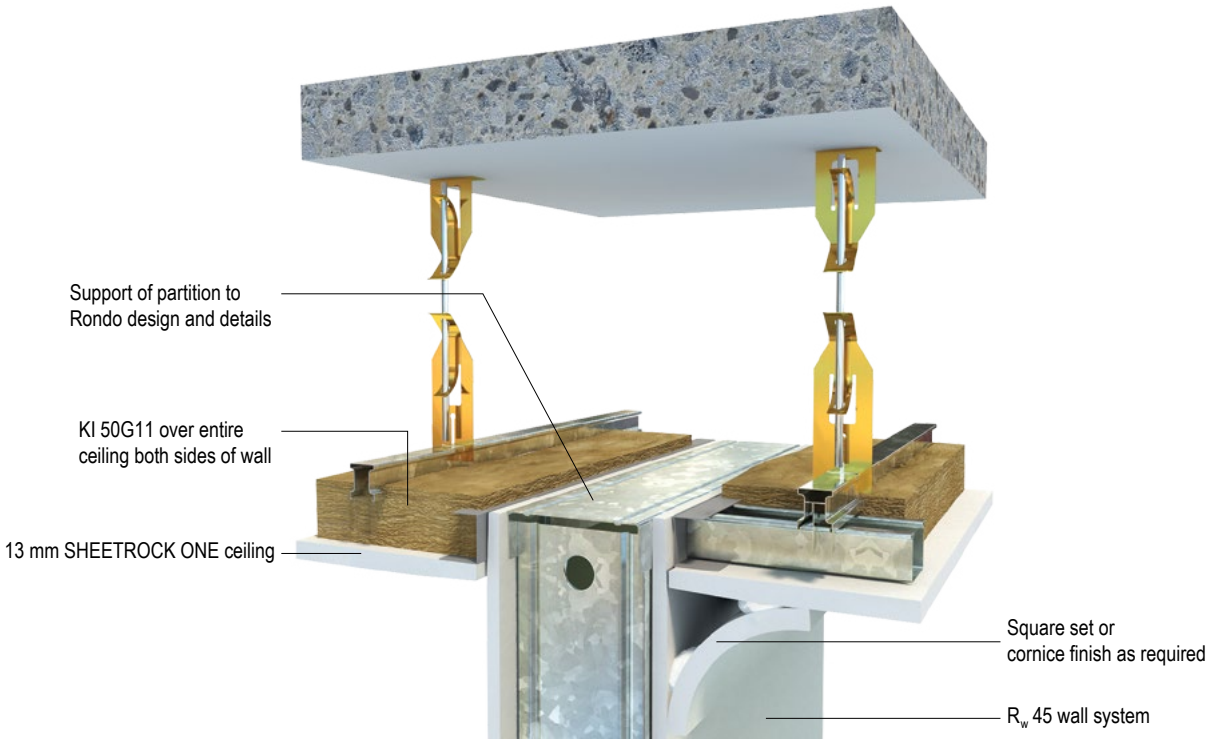


Figure G15: **Ceiling configuration to maintain an R_w 45 wall acoustic rating**
(System OP.9 shown)

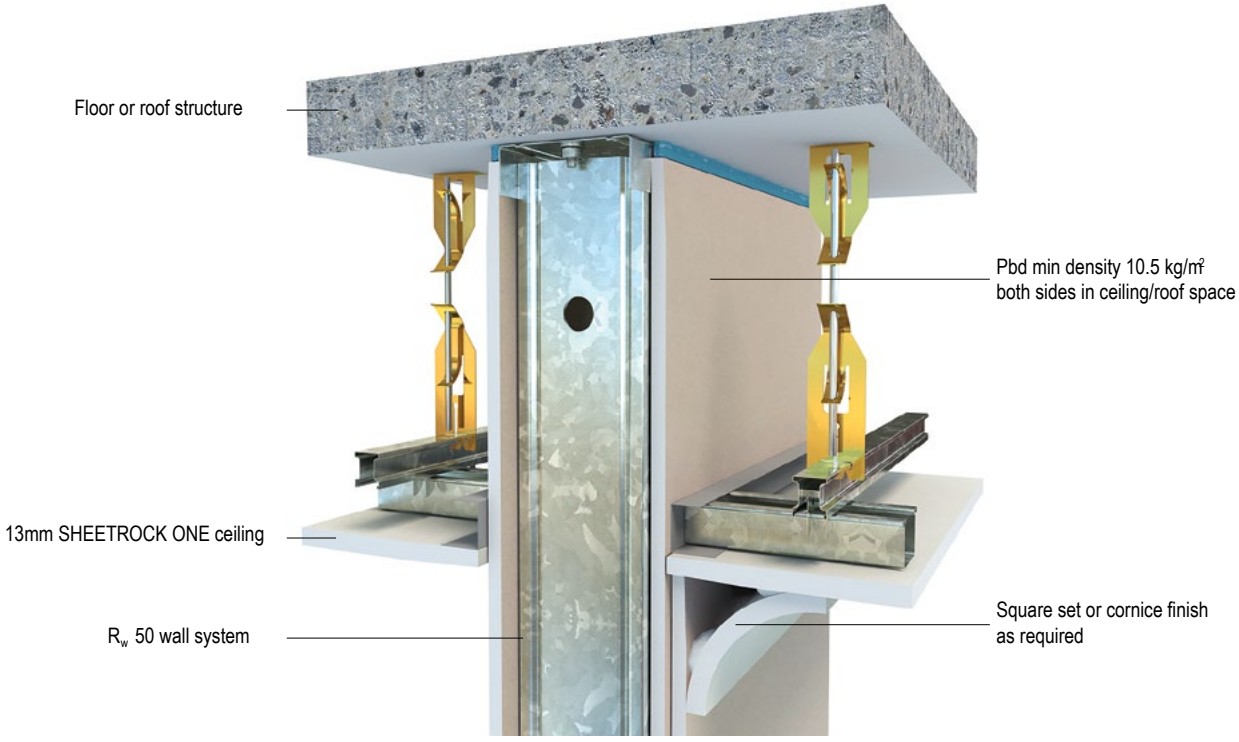


Figure G16: **Ceiling configuration to maintain an R_w 50 wall acoustic rating**
(System OP.10 shown)