QUIETWAVE®

ACOUSTIC BARRIER

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GROUND FLOOR, 6A NELSON STREET, ANNANDALE NSW 2038

Acoustica Projects

KEY BENEFITS

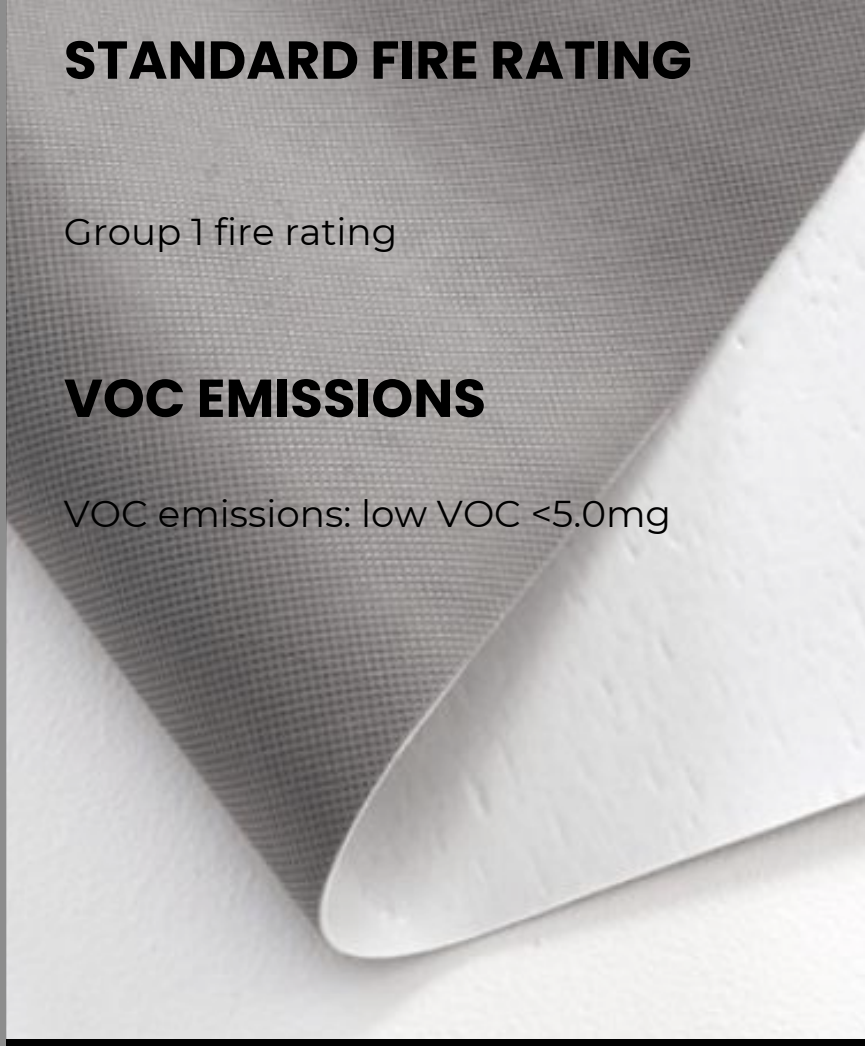
- Exceeds the Building Code of Australia (BCA) minimum requirements
- Can achieve the highest AAAC acoustic rating of 6 stars
- Thinnest and lightest possible wall system for the highest acoustic rating
- Most economical 6-star rating wall system available
- Effective for low frequencies to counter everyday noise from home audio and theatre systems
- Easily penetrated without compromising performance, a finished QuietWave® wall is solid and has similar resonance to masonry
- At just 1.2 mm thick, QuietWave® provides a saving of 50% in the width of the wall against a comparable 6-star wall system and can be easily installed by just one person.

STANDARD FIRE RATING

Group 1 fire rating

VOC EMISSIONS

VOC emissions: low VOC <5.0mg



DESCRIPTION

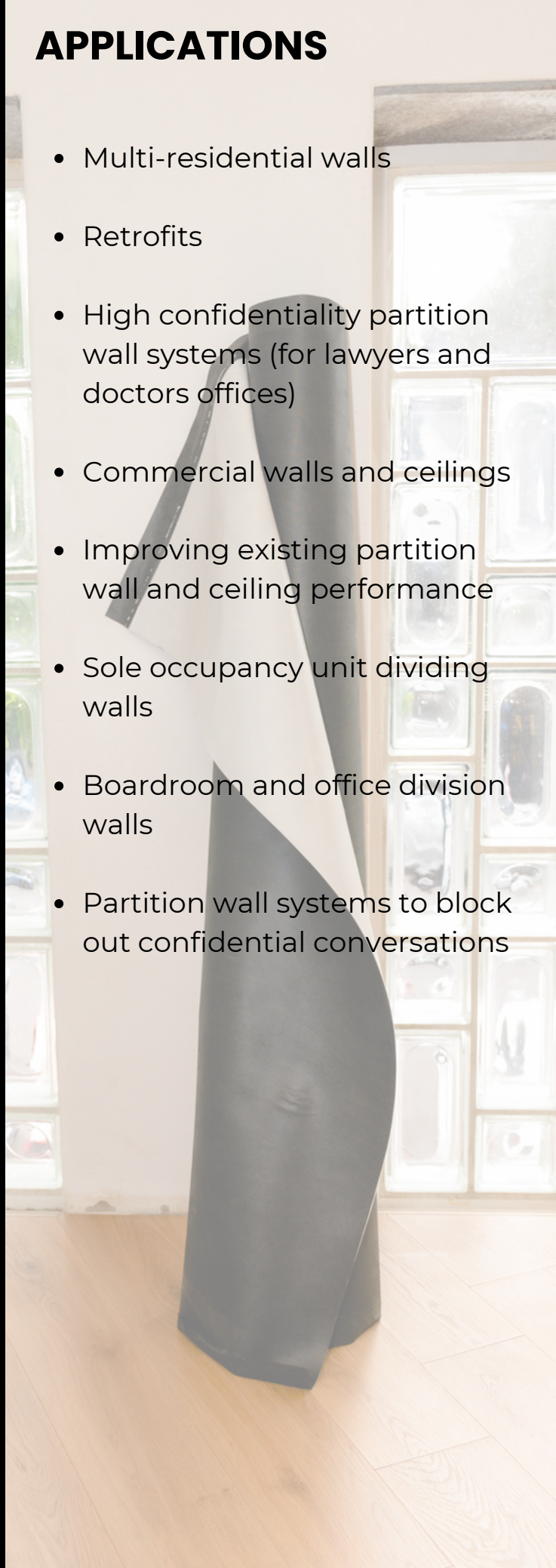
QuietWave® assists in noise control and dampens sound vibration, which decreases the amount of sound transmission between the affected areas.

QuietWave® acoustic plasterboard barrier is the most economic acoustic wall system available. The thinnest and lightest way to achieve the highest acoustic performance, QuietWave® is a class above minimum NCC requirements.

FEATURES

- QuietWave® technology is incorporated into Acoustica Projects' range of acoustic products for walls, partitions, floors, ceilings and pipe lagging
- Consists of a flexible visco-elastic membrane and patented constrained layer membrane, combined with vibration damping material
- Group 1 fire rating
- Low VOC - less than a recognised threshold of 0.5mg for Green Star
- Maximum acoustic rating, thin and light profile
- Save costs and increase space
- Specifically designed for plasterboard walls - controls low frequencies and upper-mid frequencies which typically occur in plasterboard walls
- Standard roll size — 1.3m x 5.4m
- QuietWave® thickness — 1.2mm

APPLICATIONS



- Multi-residential walls
- Retrofits
- High confidentiality partition wall systems (for lawyers and doctors offices)
- Commercial walls and ceilings
- Improving existing partition wall and ceiling performance
- Sole occupancy unit dividing walls
- Boardroom and office division walls
- Partition wall systems to block out confidential conversations

SCORE AND TEST RESULTS

Acoustic Performance Index –
The cost of the wall compared to acoustic performance, wall thickness and floor space cost.

When Acoustica Projects' concept of Acoustic Performance Index is applied to the QuietWave® wall system, the score is extremely high.

The QuietWave® wall system is only 148mm wide and has an acoustic performance that can ONLY be matched by the best wall system at 280-300mm wide.

System 1:

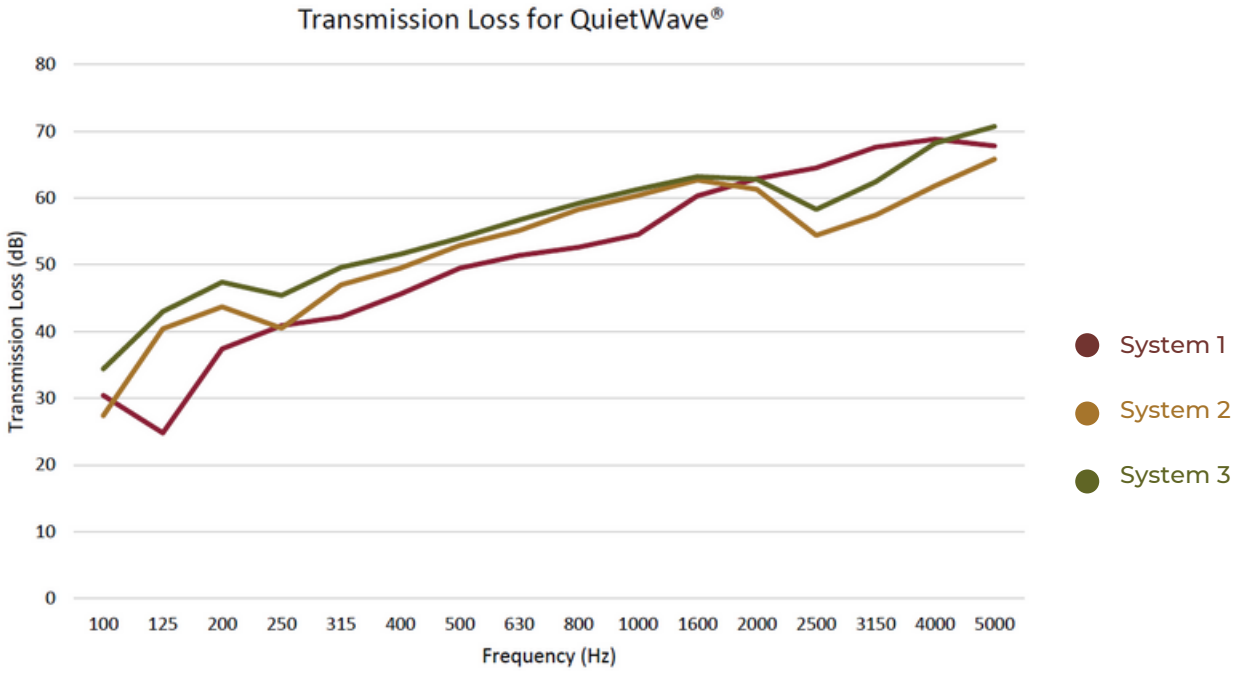
QuietWave® sandwiched with 6.5mm plasterboard on both sides of a stud wall + 14kg/m3 insulation. Rw + Ctr = 41dB

System 2:

QuietWave® sandwiched with 13mm standard plasterboard on both sides of a stud wall + 14kg/m3 insulation. Rw + Ctr = 46dB

System 3:

QuietWave® sandwiched with 13mm Fyrchek plasterboard on both sides of a stud wall + 14kg/m3 insulation. Rw + Ctr = 51dB



Frequency (Hz)	System 1	System 2	System 3
100	30.4	27.4	34.4
125	24.8	40.4	43.0
200	37.4	43.7	47.4
250	40.9	40.5	45.4
315	42.2	47.0	49.6
400	45.6	49.5	51.6
500	49.5	52.9	54.0
630	51.4	55.1	56.7
800	52.6	58.3	59.2
1000	54.5	60.4	61.3
1600	60.3	62.7	63.2
2000	62.9	61.3	62.8
2500	64.5	54.4	58.3
3150	67.6	57.4	62.4
4000	68.8	61.8	68.2
5000	67.8	65.8	70.7

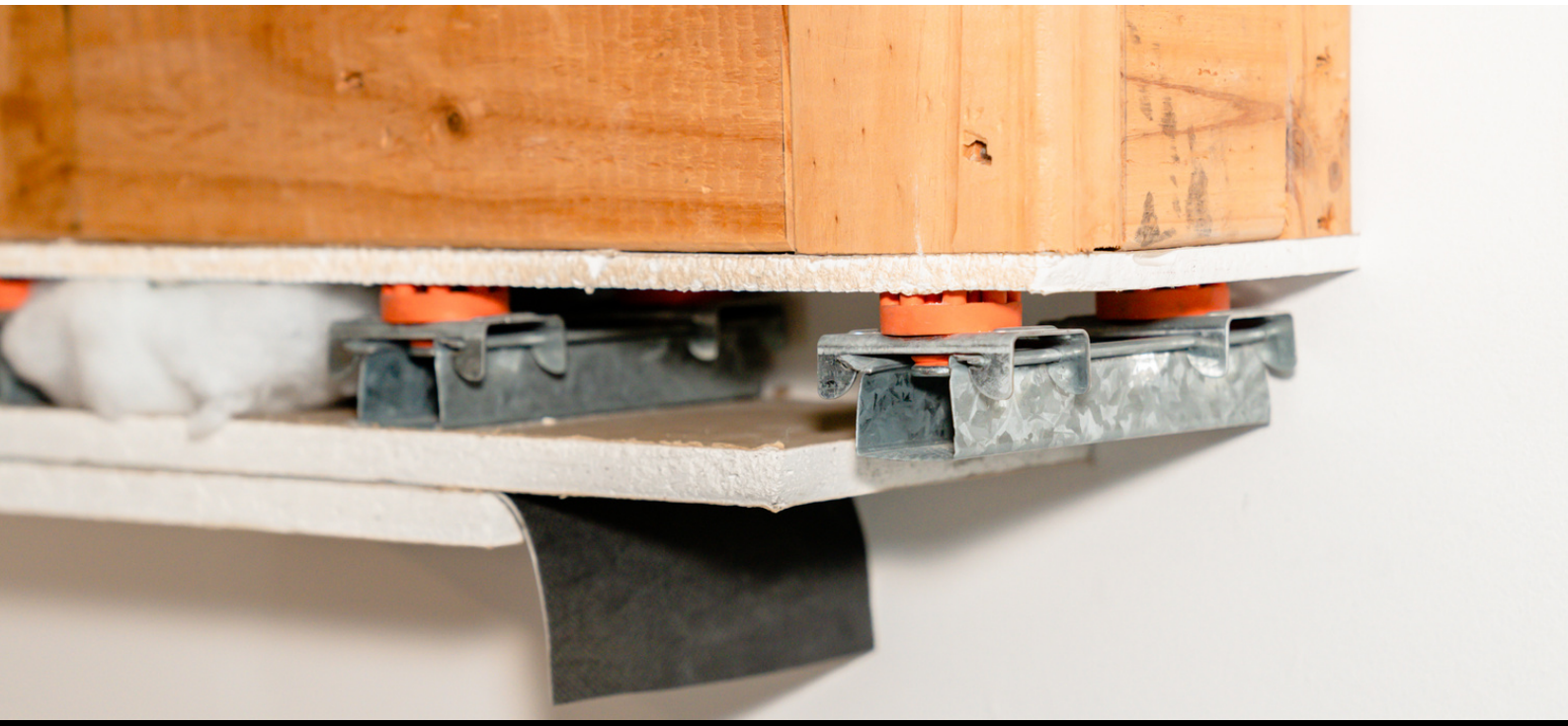
The Echosorb range of plasterboards is designed to provide superior acoustic performance and fire protection in a single product. Tests show that when sandwiched between two layers of 13mm Fire-check plasterboard the sound transmission loss achieved is equivalent to 5 layers of the same plasterboard.

Test	Description	Rw
Wilkinson Murray	Doc. PD 200813 QuietWave® sandwiched between 2 x 13mm plasterboard	38 (Ctr - 2)
Sebastian Giglio	Doc. 204335/D01a 2 x 13mm plasterboard panels	33 (Ctr - 2)
PKA Acoustic Consulting	Doc. 204 202 R01 148mm staggered stud wall with QuietWave® sandwiched between 2 x 13mm plasterboard on both sides of the stud	63 (Ctr - 7)

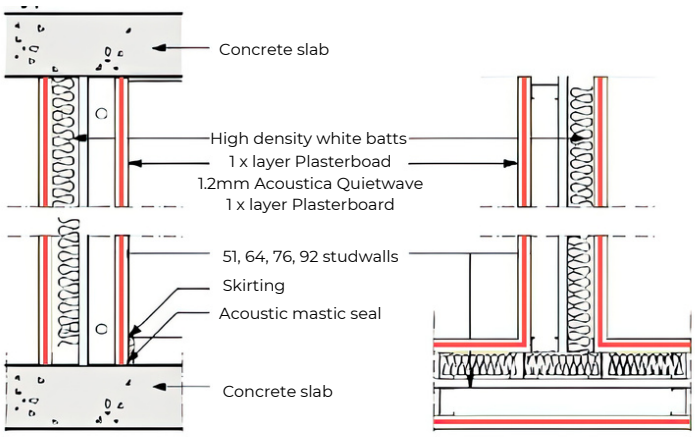
The development of QuietWave® noise barrier has been achieved with a matching acoustic performance of R1,cw 27 for the 2.5kg/m2 (Wilkinson & Murray test results above).

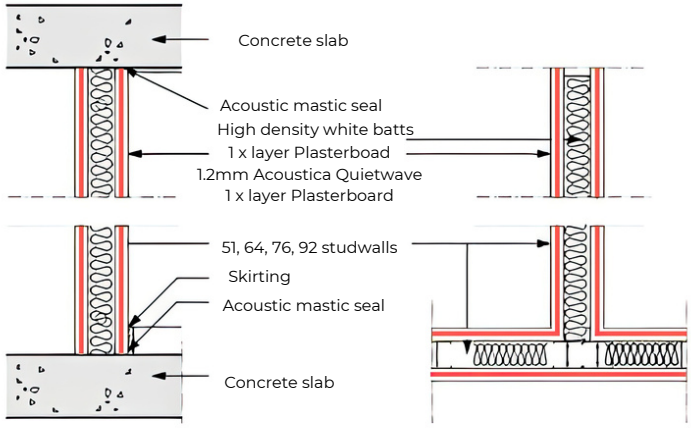
QuietWave® has been certified by the CSIRO Division of Materials Science and Engineering as Group 1 Fire Rated.

Our tests show that when QuietWave® is sandwiched between two layers of 13mm Fyrchek plasterboard, the Sound Transmission Loss (STL) achieves is equivalent to 5 layers of the same plasterboard.



CONSTRUCTION AND INSTALLATION





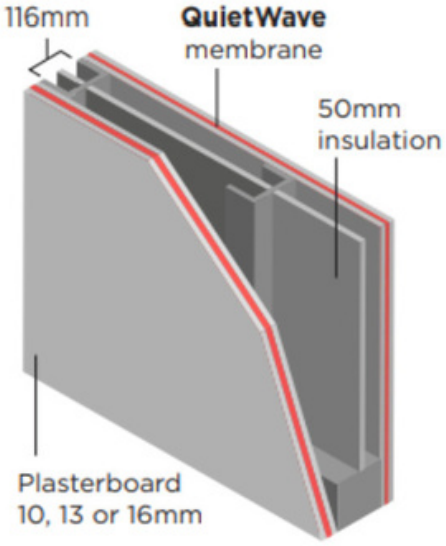
Stud mm + Plasterboard mm	Wall mm	Acoustic opinion Rw+Ctr
51-10 SD	165	52 db
51-13 SD	177	55 db
51-13 FC	177	57 db
51-16 FC	189	59 db
51-10 SC	165	56 db
51-13 SC	177	59 db
64-10 SD	191	53 db
64-13 SD	203	56 db
64-13 FC	203	59 db
64-16 FC	215	61 db
64-10 SC	191	57 db
64-13 SC	203	61 db
76-10 SD	215	54 db
76-13 SD	227	57 db
76-13 FC	227	60 db
76-16 FC	239	62 db
76-10 SC	215	58 db
76-13 SC	227	62 db
92-10 SD	247	55 db
92-13 SD	259	58 db
92-13 FC	259	60 db
92-16 FC	271	63 db
92-10 SC	247	60 db
92-13 SC	259	63 db

Stud mm + Plasterboard mm	Wall mm	Acoustic opinion Rw+Ctr
51-10 SD	94	45 db
51-13 SD	106	48 db
51-13 FC	106	51 db
51-16 FC	118	53 db
51-10 SC	94	49 db
51-13 SC	106	53 db
64-10 SD	107	47 db
64-13 SD	119	50 db
64-13 FC	119	53 db
64-16 FC	131	55 db
64-10 SC	107	51 db
64-13 SC	119	55 db
76-10 SD	119	48 db
76-13 SD	131	51 db
76-13 FC	131	54 db
76-16 FC	143	56 db
76-10 SC	119	52 db
76-13 SC	131	56 db
92-10 SD	135	49 db
92-13 SD	147	53 db
92-13 FC	147	55 db
92-16 FC	159	57 db
92-10 SC	135	54 db
92-13 SC	147	58 db

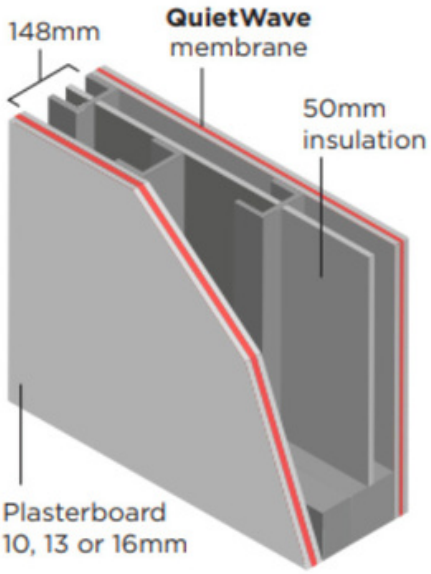
Legend:
SD: Standard plaster board
FC: Fyrcheck plaster board
SC: Soundcheck plaster board

Fire Rated > 50 Rw+Ctr walls /120/120
>50 Rw+Ctr walls

Single Stud Construction - 64mm Cavity	Rw	Ctr	Rw+Ctr
1.4 x 13 mm std plasterboard + QuietWave™ = 40 kg/m^2	59	-7	52
2.4 x 13 mm Fyrchek + QuietWave™ = 48 kg/m^2	60	-6	54
3.4 x 16 mm Fyrchek + QuietWave™ = 56 kg/m^2	62	-6	56



Staggered Stud Construction - 90mm cavity	Rw	Ctr	Rw+Ctr
1.4 x 13 mm std plasterboard + QuietWave™ = 40 kg/m^2	61	-7	55
2.4 x 13 mm Fyrchek + QuietWave™ = 48 kg/m^2	63	-6	57
3.4 x 16 mm Fyrchek + QuietWave™ = 56 kg/m^2	54	-6	58



Single Stud Construction - 64mm cavity	Rw	Ctr	Rw+Ctr
1.4 x 13 mm std plasterboard + QuietWave™ = 40 kg/m^2	64	-7	57
2.4 x 13 mm Fyrchek + QuietWave™ = 48 kg/m^2	66	-6	60
3.4 x 16 mm Fyrchek + QuietWave™ = 56 kg/m^2	67	-6	61