

# BORAL PARTIWALL SYSTEMS ACOUSTIC OPINIONS

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Prepared for:

Boral Building Products  
Plasterboard Division



## DOCUMENT CONTROL

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## CONTENTS

1	INTRODUCTION	4
2	TIMBER PARTIWALL® SYSTEMS	5
3	STEEL PARTIWALL® SYSTEMS	13

# 1 INTRODUCTION

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Renzo Tonin & Associates was engaged to review the following Boral PartiWall® wall constructions utilising steel, timber stud framing and various specifications of insulation and have predicted the acoustic performance of each wall system to be incorporated into the Boral Selector Plasterboard Systems catalogue.

The work documented in this report was carried out in accordance with the Renzo Tonin & Associates Quality Assurance System, which is based on Australian Standard / NZS ISO 9001.

## 2 TIMBER PARTIWALL® SYSTEMS

System Reference	Nom Width (mm)	Stud size (mm)	Surface Density of Plasterboard (kg/m <sup>2</sup> )	Rw	Rw + Ctr	Insulation	Laboratory Test Certificate / Acoustic Opinion
<b>25TP1010A</b>							
1x25mm Shaftliner panel	225	70	36.9	36	-	Nil	Opinion
1x10mm Soundstop plasterboard to each side of timber frame				60	47	R2.0 glasswool or 100P14 both sides	Opinion
	225	70	36.9	36	-	Nil	Opinion
				62	50	90G32 or 90P32 both sides	Opinion
	265	70 or 90	36.9	37	-	Nil	Opinion
				59	48	115mm thick R2.5 glasswool ceiling batt one side only	Opinion
	265	70 or 90	36.9	37	-	Nil	Opinion
				63	53	115mm thick R2.5 glasswool ceiling batt both sides	CSIRO TL469a
	285	90	36.9	37	-	Nil	Opinion
				62	50	R2.0 glasswool or 100P14 both sides	Opinion
	295	90	36.9	38	-	Nil	Opinion
				65	55	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
<b>25TP1313W</b>							
1x25mm Shaftliner panel	231	70	39.3	37	-	Nil	Opinion
1x13mm Wet Area plasterboard to each side of timber frame				60	47	R2.0 glasswool or 100P14 both sides	Opinion
	231	70	39.3	37	-	Nil	Opinion
				62	50	90G32 or 90P32 both sides	Opinion
	271	70 or 90	39.3	38	-	Nil	Opinion
				59	48	115mm thick R2.5 glasswool ceiling batt one side only	Opinion
	271	70 or 90	39.3	38	-	Nil	Opinion
				63	53	115mm thick R2.5 glasswool ceiling batt both sides	CSIRO TL429e
	291	90	39.3	38	-	Nil	Opinion
				62	50	R2.0 glasswool or 100P14 both sides	CSIRO 444

System Reference	Nom Width (mm)	Stud size (mm)	Surface Density of Plasterboard (kg/m <sup>2</sup> )	Rw	Rw + Ctr	Insulation	Laboratory Test Certificate / Acoustic Opinion
	301	90	39.3	38		Nil	Opinion
				65	55	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
<b>25TP1313A</b>							
1x25mm Shaftliner panel	231	70	42.9	37	-	Nil	Opinion
1x13mm Enviro Soundstop plasterboard to each side of timber frame				61	49	R2.0 glasswool or 100P14 both sides	Opinion
	231	70	42.9	37	-	Nil	Opinion
				62	50	90G16 or 90P20 both sides	Opinion
	271	70 or 90	42.9	38	-	Nil	Opinion
				62	50	R2.0 glasswool both sides	CSIRO TL429e
	271	70 or 90	42.9	38	-	Nil	Opinion
				62	50	100P14 both sides	CSIRO 444
	271	70 or 90	42.9	38	-	Nil	Opinion
				57	44	85P9 both sides	CSIRO TL429b
	281	90	42.9	38		Nil	Opinion
				65	55	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
<b>25TP1313WFS</b>							
1x25mm Shaftliner panel	231	70	41.5	37	-	Nil	Opinion
1x13mm Wet Area Firestop plasterboard to each side of timber frame				61	49	R2.0 glasswool or 100P14 both sides	Opinion
	231	70	41.5	37	-	Nil	Opinion
				62	50	90G16 or 90P20 both sides	Opinion
	271	70 or 90	41.5	38	-	Nil	Opinion
				61	51	R2.0 glasswool both sides	CSIRO TL429m
	271	70 or 90	41.5	38	-	Nil	Opinion
				61	51	100P14 both sides	Opinion
	281	90	41.5	38	-	Nil	Opinion
				65	55	115mm thick R2.5 glasswool ceiling batt both sides	Opinion

System Reference	Nom Width (mm)	Stud size (mm)	Surface Density of Plasterboard (kg/m <sup>2</sup> )	Rw	Rw + Ctr	Insulation	Laboratory Test Certificate / Acoustic Opinion
<b>25TP2020</b>							
1x25mm Shaftliner panel	245	70	47.7	38	-	Nil	Opinion
2x10mm Standard Core plasterboard to each side of timber frame				64	50	R2.0 glasswool or 100P14 both sides	Opinion
	285	70 or 90	47.7	38	-	Nil	Opinion
				65	51	R1.5 glasswool both sides	CSIRO TL429r
	285	70 or 90	47.7	38	-	Nil	Opinion
				65	51	70P14 both sides	Opinion
	295	90	47.7	38	-	Nil	Opinion
				67	56	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
<b>25TP2020W</b>							
1x25mm Shaftliner panel	245	70	50.1	38	-	Nil	Opinion
2x10mm Wet Area plasterboard to each side of timber frame				64	50	R2.0 glasswool or 100P14 both sides	Opinion
	245	70 or 90	50.1	38	-	Nil	Opinion
				65	51	R1.5 glasswool or 70P14 both sides	Opinion
	245	90	50.1	38	-	Nil	Opinion
				67	56	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
<b>41TP1010</b>							
1x16mm Firestop plasterboard laminated on one side to 1x25mm Shaftliner panel	281	70 or 90	47.1	38	-	Nil	Opinion
1x10mm Standard Core plasterboard to each side of timber frame				63	50	R2.0 glasswool or 100P14 both sides	Opinion
	281	70 or 90	47.1	38	-	Nil	Opinion
				64	52	115mm thick R2.5 glasswool ceiling batt both sides	CSIRO TL482a
	301	90	47.1	38	-	Nil	Opinion
				67	55	115mm thick R2.5 glasswool ceiling batt both sides	Opinion

System Reference	Nom Width (mm)	Stud size (mm)	Surface Density of Plasterboard (kg/m <sup>2</sup> )	Rw	Rw + Ctr	Insulation	Laboratory Test Certificate / Acoustic Opinion
<b>41TP1010W</b>							
1x16mm Firestop plasterboard laminated on one side to 1x25mm Shaftliner panel	281	70 or 90	48.3	38	-	Nil	Opinion
1x10mm Wet Area plasterboard to each side of timber frame				63	50	R2.0 glasswool or 100P14 both sides	Opinion
	281	70 or 90	48.3	38	-	Nil	Opinion
				64	52	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
	301	90	48.3	38	-	Nil	Opinion
				67	55	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
<b>41TP1010A</b>							
1x16mm Firestop plasterboard laminated on one side to 1x25mm Shaftliner panel	241	70	49.9	38	-	Nil	Opinion
1x10mm Soundstop plasterboard to each side of timber frame				60	49	R2.0 glasswool or 100P14 one side only	Opinion
	241	70	49.9	38	-	Nil	Opinion
				63	51	R2.0 glasswool or 100P14 both sides	Opinion
	281	90	49.9	39	-	Nil	Opinion
				61	50	R2.0 glasswool or 100P14 one side only	Opinion
	281	70 or 90	49.9	39	-	Nil	Opinion
				66	54	R2.0 glasswool or 100P14 both sides	Opinion
	281	70 or 90	49.9	39	-	Nil	Opinion
				67	55	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
<b>41TP1313W</b>							
1x16mm Firestop plasterboard laminated on one side to 1x25mm Shaftliner panel	247	70	52.3	38	-	Nil	Opinion
1x13mm Wet Area plasterboard to each side of timber frame				60	49	R2.0 glasswool or 100P14 one side only	Opinion
	247	70	52.3	38	-	Nil	Opinion
				63	51	R2.0 glasswool or 100P14 both sides	Opinion

System Reference	Nom Width (mm)	Stud size (mm)	Surface Density of Plasterboard (kg/m <sup>2</sup> )	Rw	Rw + Ctr	Insulation	Laboratory Test Certificate / Acoustic Opinion
	287	70 or 90	52.3	39	-	Nil	Opinion
				61	50	R2.0 glasswool or 100P14 one side only	Opinion
	287	70 or 90	52.3	39	-	Nil	Opinion
				66	54	R2.0 glasswool or 100P14 both sides	Opinion
	287	70 or 90	52.3	39	-	Nil	Opinion
				67	55	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
<b>41TP1313A</b>							
1x16mm Firestop plasterboard laminated on one side to 1x25mm Shaftliner panel	247	70	55.9	38	-	Nil	Opinion
1x13mm Enviro Soundstop plasterboard to each side of timber frame				62	50	R2.0 glasswool or 100P14 one side only	Opinion
	247	70	55.9	39	-	Nil	Opinion
				64	52	R2.0 glasswool or 100P14 both sides	Opinion
	287	70 or 90	55.9	39	-	Nil	Opinion
				62	51	R2.0 glasswool or 100P14 one side only	Opinion
	287	70 or 90	55.9	39	-	Nil	Opinion
				67	55	R2.0 glasswool or 100P14 both sides	Opinion
<b>41TP1313WF</b>							
1x16mm Firestop plasterboard laminated on one side to 1x25mm Shaftliner panel	247	70	54.5	38	-	Nil	Opinion
1x13mm Wet Area Firestop plasterboard to each side of timber frame				62	50	R2.0 glasswool or 100P14 one side only	Opinion
	247	70	54.5	39	-	Nil	Opinion
				64	52	R2.0 glasswool or 100P14 both sides	Opinion
	287	70 or 90	54.5	39	-	Nil	Opinion
				62	51	R2.0 glasswool or 100P14 one side only	Opinion
	287	70 or 90	54.5	39	-	Nil	Opinion
				67	55	R2.0 glasswool or 100P14 both sides	Opinion

System Reference	Nom Width (mm)	Stud size (mm)	Surface Density of Plasterboard (kg/m <sup>2</sup> )	Rw	Rw + Ctr	Insulation	Laboratory Test Certificate / Acoustic Opinion
<b>50TP1010</b>							
2x25mm Shaftliner panel	250	70	54.6	38	-	Nil	Opinion
1x10mm Standard Core plasterboard to each side of timber frame				61	48	R2.0 glasswool or 100P14 both sides	Opinion
	290	70 or 90	54.6	39	-	Nil	Opinion
				64	51	R2.0 glasswool or 100P14 both sides	Opinion
	300	90	54.6	39	-	Nil	Opinion
				67	55	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
<b>50TP1010W</b>							
2x25mm Shaftliner panel	250	70	55.8	38	-	Nil	Opinion
1x10mm Weta Area plasterboard to each side of timber frame				61	48	R2.0 glasswool or 100P14 both sides	Opinion
	290	70 or 90	55.8	39	-	Nil	Opinion
				64	51	R2.0 glasswool or 100P14 both sides	Opinion
	300	90	55.8	39	-	Nil	Opinion
				67	55	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
<b>50TP1010A</b>							
2x25mm Shaftliner panel	250	70	57.4		-	Nil	Opinion
1x10mm Soundstop plasterboard to each side of timber frame				60	48	R2.0 glasswool or 100P14 one side only	Opinion
	250	70	57.4		-	Nil	Opinion
				63	51	R2.0 glasswool or 100P14 both sides	Opinion
	290	70 or 90	57.4		-	Nil	Opinion
				62	50	R2.0 glasswool or 100P14 one side only	Opinion
	290	70 or 90	57.4		-	Nil	Opinion
				67	55	R2.0 glasswool or 100P14 both sides	Opinion

System Reference	Nom Width (mm)	Stud size (mm)	Surface Density of Plasterboard (kg/m <sup>2</sup> )	Rw	Rw + Ctr	Insulation	Laboratory Test Certificate / Acoustic Opinion
<b>50TP1313W</b>							
2x25mm Shaftliner panel	256	70	59.8		-	Nil	Opinion
1x13mm Wet Area plasterboard to each side of timber frame				60	48	R2.0 glasswool or 100P14 one side only	Opinion
	256	70	59.8		-	Nil	Opinion
				63	51	R2.0 glasswool or 100P14 both sides	Opinion
	296	70 or 90	59.8		-	Nil	Opinion
				62	50	R2.0 glasswool or 100P14 one side only	Opinion
	296	70 or 90	59.8		-	Nil	Opinion
				67	55	R2.0 glasswool or 100P14 both sides	Opinion
<b>50TP1313A</b>							
2x25mm Shaftliner panel	256	70	63.4	40	-	Nil	Opinion
1x13mm Enviro Soundstop plasterboard to each side of timber frame				62	50	R2.0 glasswool or 100P14 one side only	Opinion
	256	70	63.4	40	-	Nil	Opinion
				65	53	R2.0 glasswool or 100P14 both sides	Opinion
	296	70 or 90	63.4	41	-	Nil	Opinion
				63	52	R2.0 glasswool or 100P14 one side only	Opinion
	296	70 or 90	63.4	41	-	Nil	Opinion
				68	56	R2.0 glasswool or 100P14 both sides	Opinion
<b>50TP1313WFS</b>							
2x25mm Shaftliner panel	256	70	62.0	40	-	Nil	Opinion
1x13mm Wet Area Firestop plasterboard to each side of timber frame				62	50	R2.0 glasswool or 100P14 one side only	Opinion
	256	70	62.0	40	-	Nil	Opinion
				65	53	R2.0 glasswool or 100P14 both sides	Opinion
	296	70 or 90	62.0	41	-	Nil	Opinion
				63	52	R2.0 glasswool or 100P14 one side only	Opinion
	296	70 or 90	62.0	41	-	Nil	Opinion
				68	56	R2.0 glasswool or 100P14 both sides	Opinion

System Reference	Nom Width (mm)	Stud size (mm)	Surface Density of Plasterboard (kg/m <sup>2</sup> )	Rw	Rw + Ctr	Insulation	Laboratory Test Certificate / Acoustic Opinion
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**NOTES:**

1. Where a wall system has not been tested in the laboratory for its sound insulation performance, an acoustic opinion has been provided. This acoustic opinion is not a laboratory test result.
2. The acoustic rating of the wall was based on both laboratory test results of similar constructions and calculations using predictive models. The expected tolerance of the opinions is  $\pm 2\text{dB}$  for  $R_w$  and  $\pm 3\text{dB}$   $R_w + C_{tr}$ . This allows for variation in the test method, the difference between laboratories and the accuracy of the estimating techniques. The rating obtained on a building site may differ from laboratory result. The opinion stated above assumes the wall is of good construction with the perimeter of the wall sealed acoustically with mastic and no penetrations through the wall.
3. The  $R_w$  (Weight Sound Reduction Index) is a single number index used to rate the sound isolation of a partition which does not have significant low frequency component. The  $R_w$  is single number descriptor for quantifying the attenuating performance of partitions for typical intrusive noises produced inside residences. The higher the rating, the greater the isolation provided by the partition.
4. Spectrum adaptation factors are commonly used to compensate for the fact that certain kinds of sounds are more readily transmitted through insulating materials than others insulate. The adaptation factor  $C_{tr}$  has now been introduced for most building elements which require an airborne sound insulation rating.
5.  $C$  and  $C_{tr}$  are adaption terms which when applied to the  $R_w$  value result in a single number index which provides a more reliable indicator of the ability of the partition to isolate against certain types of noise. In particular, the  $R_w$  combined with the  $C_{tr}$  value gives a more reliable indicator of the ability of the partition to isolate against noise containing low frequency components and has been chosen in large part, in recognition of the problem of the high bass frequency outputs of modern home theatre systems and music reproduction equipment.
6. The attached opinions are based on tests carried out at RMIT, Melbourne including tests RMIT 1211/00 – 022/KC, RMIT 1211/00 – 023/KC, and CSIRO, Highett including tests TL 402a, b, c, d, e, f, g, h, CSIRO TL429b, c, d, e, f, g, h, I, j, k, kr, l, m, n, o, p, q, r, s, CSIRO TL 469a, b, CSIRO 444.

### 3 STEEL PARTIWALL® SYSTEMS

System Reference	Nom Width (mm)	Stud size (mm)	Surface Density of Plasterboard (kg/m <sup>2</sup> )	Rw	Rw + Ctr	Insulation	Laboratory Test Certificate / Acoustic Opinion
<b>25SP1010A</b>							
1x25mm Shaftliner panel	237	76	36.9	36	-	Nil	Opinion
1x10mm Soundstop plasterboard to each side of steel frame				60	47	R2.0 glasswool or 100P14 both sides	Opinion
	237	76	36.9	36	-	Nil	Opinion
				62	50	90G32 or 90P32 both sides	Opinion
	269	76 or 92	36.9	37	-	Nil	Opinion
				59	48	115mm thick R2.5 glasswool ceiling batt one side only	Opinion
	269	76 or 92	36.9	37	-	Nil	Opinion
				63	53	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
	289	92	36.9	37	-	Nil	Opinion
				62	50	R2.0 glasswool or 100P14 both sides	Opinion
	299	92	36.9	38	-	Nil	Opinion
				65	55	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
<b>25SP1313W</b>							
1x25mm Shaftliner panel	243	76	39.3	37	-	Nil	Opinion
1x13mm Wet Area plasterboard to each side of steel frame				60	47	R2.0 glasswool or 100P14 both sides	Opinion
	243	76	39.3	37	-	Nil	Opinion
				62	50	90G32 or 90P32 both sides	Opinion
	275	76 or 92	39.3	38	-	Nil	Opinion
				59	48	115mm thick R2.5 glasswool ceiling batt one side only	Opinion
	251	76 or 92	39.3	38	-	Nil	Opinion
				63	53	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
	295	92	39.3	38	-	Nil	Opinion
				62	50	R2.0 glasswool or 100P14 both sides	Opinion

System Reference	Nom Width (mm)	Stud size (mm)	Surface Density of Plasterboard (kg/m <sup>2</sup> )	Rw	Rw + Ctr	Insulation	Laboratory Test Certificate / Acoustic Opinion
	305	92	39.3	38		Nil	Opinion
				65	55	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
<b>25SP1313A</b>							
1x25mm Shaftliner panel	243	76	42.9	37	-	Nil	Opinion
1x13mm Enviro Soundstop plasterboard to each side of steel frame				61	49	R2.0 glasswool or 100P14 both sides	Opinion
	243	76	42.9	37	-	Nil	Opinion
				62	50	90G16 or 90P20 both sides	Opinion
	275	76 or 92	42.9	38	-	Nil	Opinion
				62	50	R2.0 glasswool or 100P14 both sides	Opinion
	275	76 or 92	42.9	38	-	Nil	Opinion
				57	44	85P9 both sides	Opinion
	285	92	42.9	38		Nil	Opinion
				65	55	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
<b>25SP1313WFS</b>							
1x25mm Shaftliner panel	243	76	41.5	37	-	Nil	Opinion
1x13mm Wet Area Firestop plasterboard to each side of steel frame				61	49	R2.0 glasswool or 100P14 both sides	Opinion
	243	76	41.5	37	-	Nil	Opinion
				62	50	90G16 or 90P20 both sides	Opinion
	275	76 or 92	41.5	38	-	Nil	Opinion
				62	50	R2.0 glasswool or 100P14 both sides	Opinion
	275	76 or 92	41.5	38	-	Nil	Opinion
				57	44	85P9 both sides	Opinion
	285	92	41.5	38	-	Nil	Opinion
				65	55	115mm thick R2.5 glasswool ceiling batt both sides	Opinion

System Reference	Nom Width (mm)	Stud size (mm)	Surface Density of Plasterboard (kg/m <sup>2</sup> )	Rw	Rw + Ctr	Insulation	Laboratory Test Certificate / Acoustic Opinion
<b>25SP2020</b>							
1x25mm Shaftliner panel	257	76	47.7	38	-	Nil	Opinion
2x10mm Standard Core plasterboard to each side of steel frame				64	50	R2.0 glasswool or 100P14 both sides	Opinion
	289	76 or 92	47.7	38	-	Nil	Opinion
				65	51	R1.5 glasswool or 70P14 both sides	Opinion
	299	92	47.7	38	-	Nil	Opinion
				67	56	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
<b>25SP2020W</b>							
1x25mm Shaftliner panel	257	76	50.1	38	-	Nil	Opinion
2x10mm Wet Area plasterboard to each side of steel frame				64	50	R2.0 glasswool or 100P14 both sides	Opinion
	289	76 or 92	50.1	38	-	Nil	Opinion
				65	51	R1.5 glasswool or 70P14 both sides	Opinion
	299	92	50.1	38	-	Nil	Opinion
				67	56	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
<b>41SP1010</b>							
1x16mm Firestop plasterboard laminated on one side to 1x25mm Shaftliner panel	285	76 or 92	47.1	38	-	Nil	Opinion
1x10mm Standard Core plasterboard to each side of steel frame				63	50	R2.0 glasswool or 100P14 both sides	Opinion
	285	76 or 92	47.1	38	-	Nil	Opinion
				64	52	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
	305	92	47.1	38	-	Nil	Opinion
				67	55	115mm thick R2.5 glasswool ceiling batt both sides	Opinion

System Reference	Nom Width (mm)	Stud size (mm)	Surface Density of Plasterboard (kg/m <sup>2</sup> )	Rw	Rw + Ctr	Insulation	Laboratory Test Certificate / Acoustic Opinion
<b>41SP1010W</b>							
1x16mm Firestop plasterboard laminated on one side to 1x25mm Shaftliner panel	285	76 or 92	48.3	38	-	Nil	Opinion
1x10mm Wet Area plasterboard to each side of steel frame				63	50	R2.0 glasswool or 100P14 both sides	Opinion
	285	76 or 92	48.3	38	-	Nil	Opinion
				64	52	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
	305	92	48.3	38	-	Nil	Opinion
				67	55	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
<b>41SP1010A</b>							
1x16mm Firestop plasterboard laminated on one side to 1x25mm Shaftliner panel	253	76	49.9	38	-	Nil	Opinion
1x10mm Soundstop plasterboard to each side of steel frame				60	49	R2.0 glasswool or 100P14 one side only	Opinion
	253	76	49.9	38	-	Nil	Opinion
				63	51	R2.0 glasswool or 100P14 both sides	Opinion
	285	92	49.9	39	-	Nil	Opinion
				61	50	R2.0 glasswool or 100P14 one side only	Opinion
	285	76 or 92	49.9	39	-	Nil	Opinion
				66	54	R2.0 glasswool or 100P14 both sides	Opinion
	285	76 or 92	49.9	39	-	Nil	Opinion
				67	55	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
<b>41SP1313W</b>							
1x16mm Firestop plasterboard laminated on one side to 1x25mm Shaftliner panel	259	76	52.3	38	-	Nil	Opinion
1x13mm Wet Area plasterboard to each side of steel frame				60	49	R2.0 glasswool or 100P14 one side only	Opinion
	259	76	52.3	38	-	Nil	Opinion
				63	51	R2.0 glasswool or 100P14 both sides	Opinion

System Reference	Nom Width (mm)	Stud size (mm)	Surface Density of Plasterboard (kg/m <sup>2</sup> )	Rw	Rw + Ctr	Insulation	Laboratory Test Certificate / Acoustic Opinion
	291	76 or 92	52.3	39	-	Nil	Opinion
				61	50	R2.0 glasswool or 100P14 one side only	Opinion
	291	76 or 92	52.3	39	-	Nil	Opinion
				66	54	R2.0 glasswool or 100P14 both sides	Opinion
	291	76 or 92	52.3	39	-	Nil	Opinion
				67	55	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
<b>41SP1313A</b>							
1x16mm Firestop plasterboard laminated on one side to 1x25mm Shaftliner panel	259	76	55.9	38	-	Nil	Opinion
1x13mm Enviro Soundstop plasterboard to each side of steel frame				62	50	R2.0 glasswool or 100P14 one side only	Opinion
	259	76	55.9	39	-	Nil	Opinion
				64	52	R2.0 glasswool or 100P14 both sides	Opinion
	291	76 or 92	55.9	39	-	Nil	Opinion
				62	51	R2.0 glasswool or 100P14 one side only	Opinion
	291	76 or 92	55.9	39	-	Nil	Opinion
				67	55	R2.0 glasswool or 100P14 both sides	Opinion
<b>41SP1313WF</b>							
1x16mm Firestop plasterboard laminated on one side to 1x25mm Shaftliner panel	259	76	54.5	38	-	Nil	Opinion
1x13mm Wet Area Firestop plasterboard to each side of steel frame				62	50	R2.0 glasswool or 100P14 one side only	Opinion
	259	76	54.5	39	-	Nil	Opinion
				64	52	R2.0 glasswool or 100P14 both sides	Opinion
	291	76 or 92	54.5	39	-	Nil	Opinion
				62	51	R2.0 glasswool or 100P14 one side only	Opinion
	291	76 or 92	54.5	39	-	Nil	Opinion
				67	55	R2.0 glasswool or 100P14 both sides	Opinion

System Reference	Nom Width (mm)	Stud size (mm)	Surface Density of Plasterboard (kg/m <sup>2</sup> )	Rw	Rw + Ctr	Insulation	Laboratory Test Certificate / Acoustic Opinion
<b>50SP1010</b>							
2x25mm Shaftliner panel	262	76	54.6	38	-	Nil	Opinion
1x10mm Standard Core plasterboard to each side of steel frame				61	48	R2.0 glasswool or 100P14 both sides	Opinion
	294	76 or 92	54.6	39	-	Nil	Opinion
				64	51	R2.0 glasswool or 100P14 both sides	Opinion
	304	92	54.6	39	-	Nil	Opinion
				67	55	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
<b>50SP1010W</b>							
2x25mm Shaftliner panel	262	76	55.8	38	-	Nil	Opinion
1x10mm Weta Area plasterboard to each side of steel frame				61	48	R2.0 glasswool or 100P14 both sides	Opinion
	294	76 or 92	55.8	39	-	Nil	Opinion
				64	51	R2.0 glasswool or 100P14 both sides	Opinion
	304	92	55.8	39	-	Nil	Opinion
				67	55	115mm thick R2.5 glasswool ceiling batt both sides	Opinion
<b>50SP1010A</b>							
2x25mm Shaftliner panel	262	76	57.4		-	Nil	Opinion
1x10mm Soundstop plasterboard to each side of steel frame				60	48	R2.0 glasswool or 100P14 one side only	Opinion
	262	76	57.4		-	Nil	Opinion
				63	51	R2.0 glasswool or 100P14 both sides	Opinion
	294	76 or 92	57.4		-	Nil	Opinion
				62	50	R2.0 glasswool or 100P14 one side only	Opinion
	294	76 or 92	57.4		-	Nil	Opinion
				67	55	R2.0 glasswool or 100P14 both sides	Opinion

System Reference	Nom Width (mm)	Stud size (mm)	Surface Density of Plasterboard (kg/m <sup>2</sup> )	Rw	Rw + Ctr	Insulation	Laboratory Test Certificate / Acoustic Opinion
<b>50SP1313W</b>							
2x25mm Shaftliner panel	268	76	59.8		-	Nil	Opinion
1x13mm Wet Area plasterboard to each side of steel frame				60	48	R2.0 glasswool or 100P14 one side only	Opinion
	268	76	59.8		-	Nil	Opinion
				63	51	R2.0 glasswool or 100P14 both sides	Opinion
	300	70 or 92	59.8		-	Nil	Opinion
				62	50	R2.0 glasswool or 100P14 one side only	Opinion
	300	76 or 92	59.8		-	Nil	Opinion
				67	55	R2.0 glasswool or 100P14 both sides	Opinion
<b>50SP1313A</b>							
2x25mm Shaftliner panel	268	76	63.4	40	-	Nil	Opinion
1x13mm Enviro Soundstop plasterboard to each side of steel frame				62	50	R2.0 glasswool or 100P14 one side only	Opinion
	268	76	63.4	40	-	Nil	Opinion
				65	53	R2.0 glasswool or 100P14 both sides	Opinion
	300	76 or 92	63.4	41	-	Nil	Opinion
				63	52	R2.0 glasswool or 100P14 one side only	Opinion
	300	76 or 92	63.4	41	-	Nil	Opinion
				68	56	R2.0 glasswool or 100P14 both sides	Opinion
<b>50SP1313WFS</b>							
2x25mm Shaftliner panel	268	76	62.0	40	-	Nil	Opinion
1x13mm Wet Area Firestop plasterboard to each side of steel frame				62	50	R2.0 glasswool or 100P14 one side only	Opinion
	268	76	62.0	40	-	Nil	Opinion
				65	53	R2.0 glasswool or 100P14 both sides	Opinion
	300	76 or 92	62.0	41	-	Nil	Opinion
				63	52	R2.0 glasswool or 100P14 one side only	Opinion
	300	76 or 92	62.0	41	-	Nil	Opinion
				68	56	R2.0 glasswool or 100P14 both sides	Opinion

System Reference	Nom Width (mm)	Stud size (mm)	Surface Density of Plasterboard (kg/m <sup>2</sup> )	Rw	Rw + Ctr	Insulation	Laboratory Test Certificate / Acoustic Opinion
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**NOTES:**

1. Where a wall system has not been tested in the laboratory for its sound insulation performance, an acoustic opinion has been provided. This acoustic opinion is not a laboratory test result.
2. The acoustic rating of the wall was based on both laboratory test results of similar constructions and calculations using predictive models. The expected tolerance of the opinions is  $\pm 2\text{dB}$  for  $R_w$  and  $\pm 3\text{dB}$   $R_w + C_{tr}$ . This allows for variation in the test method, the difference between laboratories and the accuracy of the estimating techniques. The rating obtained on a building site may differ from laboratory result. The opinion stated above assumes the wall is of good construction with the perimeter of the wall sealed acoustically with mastic and no penetrations through the wall.
3. The  $R_w$  (Weight Sound Reduction Index) is a single number index used to rate the sound isolation of a partition which does not have significant low frequency component. The  $R_w$  is single number descriptor for quantifying the attenuating performance of partitions for typical intrusive noises produced inside residences. The higher the rating, the greater the isolation provided by the partition.
4. Spectrum adaptation factors are commonly used to compensate for the fact that certain kinds of sounds are more readily transmitted through insulating materials than others insulate. The adaptation factor  $C_{tr}$  has now been introduced for most building elements which require an airborne sound insulation rating.
5.  $C$  and  $C_{tr}$  are adaption terms which when applied to the  $R_w$  value result in a single number index which provides a more reliable indicator of the ability of the partition to isolate against certain types of noise. In particular, the  $R_w$  combined with the  $C_{tr}$  value gives a more reliable indicator of the ability of the partition to isolate against noise containing low frequency components and has been chosen in large part, in recognition of the problem of the high bass frequency outputs of modern home theatre systems and music reproduction equipment.
6. The attached opinions are based on tests carried out at RMIT, Melbourne including tests RMIT 1211/00 – 022/KC, RMIT 1211/00 – 023/KC, and CSIRO, Highett including tests TL 402a, b, c, d, e, f, g, h, CSIRO TL429b, c, d, e, f, g, h, I, j, k, kr, l, m, n, o, p, q, r, s, CSIRO TL 469a, b, CSIRO 444.