

APPENDIX D

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APPENDIX D

FLOOR	UNIT NO.	ROOM	FAÇADE	GLAZING	SEALS
5	1	Master	South	6.38mm Laminated	Q-Lon
		Bed	South		
		Living	West		
		Bed	West		
	2	Master	West	10.38mm Laminated	
		Living	West		
			North		
	3	Living	West	6.38mm Laminated	
		Master	North	10.38mm Laminated	
			Bed	North	
	4	Bed	North	6.38mm Laminated	
		Master	North		
		Living	North		
	East				
	5	Master	East		
		Bed	North		
		Living	East		
	6	Living	East		
South					
Master		East			
Bed		South			

FLOOR	UNIT NO.	ROOM	FAÇADE	GLAZING	SEALS
6	7	Bed	South	6.38mm Laminated	Q-Lon
		Master	South	6.38mm Laminated Glazed Entry Door - Alum. Framed	Q-Lon
			West		
	Living	West	6.38mm Laminated		
	8	Master	West	10.38mm Laminated	
		Living	West		
			North		
	9	Living	West	6.38mm Laminated	
		Master	North	10.38mm Laminated	
			Bed	North	
	10	Bed	North	6.38mm Laminated	
		Master	North		
		Living	North		
	East				
	11	Master	East		
		Bed	North		
			East		
	Living	East			
Living		East			
		South			
12	Master	East			
	Bed	East			
		South			

FLOOR	UNIT NO.	ROOM	FAÇADE	GLAZING	SEALS
7	13	Bed	South	6.38mm Laminated	Q-Lon
		Master	South		
			West		
	Living	West	6.38mm Laminated		
	14	Master	West	10.38mm Laminated	Q-Lon
		Living	West		
	15		Living	West	
		North			
	15	Master	North	10.38mm Laminated	
		16	Bed	North	
	Bed		North		
	Master		North		
	Living		North		
		East			
	17	Master	East		
		Bed	North		
			East		
	Living	East			
18		Living	East		
	Master	South			
		East			
	Bed	South			

FLOOR	UNIT NO.	ROOM	FAÇADE	GLAZING	SEALS
8	19	Bed	South	6.38mm Laminated	Q-Lon
		Master	South		
			West		
	Living	West	6.38mm Laminated		
	20	Master	West	10.38mm Laminated	Q-Lon
		Living	West		
	21		Living	West	
		North			
	21	Master	North	10.38mm Laminated	
		22	Bed	North	
	Bed		North		
	Master		North		
	Living		North		
		East			
	23	Master	East		
		Bed	North		
			East		
	Living	East			
24		Living	East		
	Master	South			
		East			
	Bed	South			

FLOOR	UNIT NO.	ROOM	FAÇADE	GLAZING	SEALS
9	25	Bed	South	6.38mm Laminated	Q-Lon
		Master	South		
			West		
	Living	West	6.38mm Laminated		
	26	Master	West	10.38mm Laminated	Q-Lon
		Living	West		
	27		Living	West	
		North			
	27	Master	North	10.38mm Laminated	
		28	Bed	North	
	Bed		North		
	Master		North		
	Living		North		
		East			
	29	Master	East		
		Bed	North		
East					
Living	East				
	30	Living	East		
Master		South			
		Bed	South		

FLOOR	UNIT NO.	ROOM	FAÇADE	GLAZING	SEALS
10	31	Bed	South	6.38mm Laminated	Q-Lon
		Master	South		
			West		
	Living	West	6.38mm Laminated		
	32	Master	West	10.38mm Laminated	Q-Lon
		Living	West		
	33		Living	West	
		North			
	33	Master	North	10.38mm Laminated	
		34	Bed	North	
	Bed		North		
	Master		North		
	Living		North		
		East			
	35	Master	East		
		Bed	North		
East					
Living	East				
	36	Living	East		
Master		South			
		Bed	South		

FLOOR	UNIT NO.	ROOM	FAÇADE	GLAZING	SEALS	
11	37	Bed	South	6.38mm Laminated	Q-Lon	
		Master	South			6.38mm Laminated Glazed Entry Door - Alum. Framed
			West			
	Living	West	6.38mm Laminated	Q-Lon		
	38	Master	West		10.38mm Laminated	
		Living	West			
	39	Living	West		6.38mm Laminated	
			North			
		Master	North		10.38mm Laminated	
	40	Bed	North		6.38mm Laminated	
		Bed	North			
		Master	North			
		Living	North			
	41	Master	North			6.38mm Laminated
			East			
		Bed	North			
42	Living	East	6.38mm Laminated			
		South				
	Master	East				
	Bed	South				

FLOOR	UNIT NO.	ROOM	FAÇADE	GLAZING	SEALS	
12	43	Bed	South	6.38mm Laminated	Q-Lon	
		Master	South			6.38mm Laminated Glazed Entry Door - Alum. Framed
			West			
	Living	West	6.38mm Laminated	Q-Lon		
	44	Master			West	
		Living	West			
	45	Living	North		10.38mm Laminated	
			North			
		Master	North		6.38mm Laminated	
	46	Bed	North			
		Bed	North			
		Master	North			
	47	Living	North			6.38mm Laminated
			East			
		Master	East			
	48	Living	North			6.38mm Laminated
East						
Master		East				
Bed		South				

FLOOR	UNIT NO.	ROOM	FAÇADE	GLAZING	SEALS
13	49	Master	South	6.38mm Laminated	Q-Lon
		Bed	South		
		Bed	South		
			West		
	Living	West			
		North			
	50	Master	West		
		Living	West		
	North				
	51	Living	West		
			North		
		Master	North		
		Bed	North		
	52	Bed	North		
		Master	North		
		Living	North		
East					
53	Master	East			
	Bed	North			
		East			
Living	East				
54	Living	East			
		South			
	Master	East			
	Bed	South			

FLOOR	UNIT NO.	ROOM	FAÇADE	GLAZING	SEALS
14	55	Master	South	6.38mm Laminated	Q-Lon
		Bed	South		
		Bed	South		
			West		
	Living	West			
		North			
	56	Master	West		
		Living	West		
	North				
	57	Living	West		
			North		
		Master	North		
	58	Bed	North		
		Master	North		
		Living	North		
	East				
59	Master	East			
	Bed	North			
		East			
Living	East				
60	Living	East			
		South			
	Master	East			
Bed	South				

FLOOR	UNIT NO.	ROOM	FAÇADE	GLAZING	SEALS
15	61	Master	South	6.38mm Laminated	Q-Lon
		Bed	South		
		Bed	South		
			West		
	Living	West			
		North			
	62	Master	West		
		Living	West		
	North				
	63	Living	West		
			North		
		Master	North		
		Bed	North		
	64	Bed	North		
		Master	North		
		Living	North		
	East				
	65	Master	East		
Bed		North			
		East			
Living	East				
	66	Living	East		
South					
Master		East			
Bed	South				

FLOOR	UNIT NO.	ROOM	FAÇADE	GLAZING	SEALS
16	67	Master	South	6.38mm Laminated	Q-Lon
		Bed	South		
		Bed	South		
			West		
	Living	West			
		North			
	68	Master	West		
		Living	West		
	North				
	69	Living	West		
			North		
		Master	North		
	70	Bed	North		
		Master	North		
		Living	North		
	East				
	71	Master	East		
		Bed	North		
East					
Living	East				
72	Living	East			
		South			
	Master	East			
Bed	South				

FLOOR	UNIT NO.	ROOM	FAÇADE	GLAZING	SEALS
17	73	Master	South	6.38mm Laminated	Q-Lon
		Bed	South		
		Bed	South		
			West		
	Living	West			
		North			
	74	Master	West		
		Living	West		
			North		
	75	Living	West		
			North		
		Master	North		
		Bed	North		
	76	Bed	North		
		Master	North		
		Living	North		
			East		
	77	Master	East		
Bed		North			
		East			
Living		East			
78	Living	East			
		South			
	Master	East			
	Bed	South			

FLOOR	UNIT NO.	ROOM	FAÇADE	GLAZING	SEALS
18	79	Master	South	6.38mm Laminated	Q-Lon
		Bed	South		
		Bed	South		
			West		
	Living	West			
		North			
	80	Master	West		
		Living	West		
			North		
	81	Living	West		
			North		
		Master	North		
		Bed	North		
	82	Bed	North		
		Master	North		
		Living	North		
			East		
	83	Master	East		
Bed		North			
		East			
Living		East			
84	Living	East			
		South			
	Master	East			
	Bed	South			

APPENDIX E

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APPENDIX E

Impact Sound Prediction (v6.0)

Program copyright Marshall Day Acoustics 2005

Margin of error is generally within +/- 3Ln,w

JobName:

Notes:

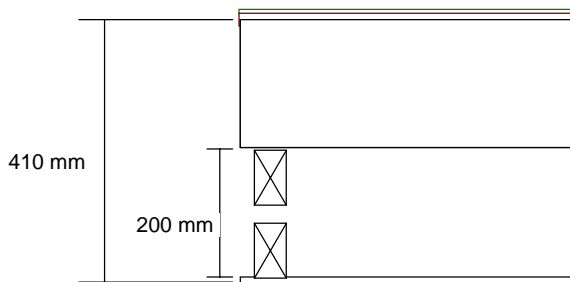
Job No.:

Page No:

Date: 19 Jun 09

Initials:

File name:1769 Floor Lnw.ins



Floor Cover: Ceramic Tiles on Regupol (10mm)
1 x 200.0 mm Concrete

Ln,w 57
C1 1

1 x 10.0 mm Gypsum plasterboard

Panel Size 5x5 m

Surf. mass 468.0 kg/m²

Crit. freq 150 Hz

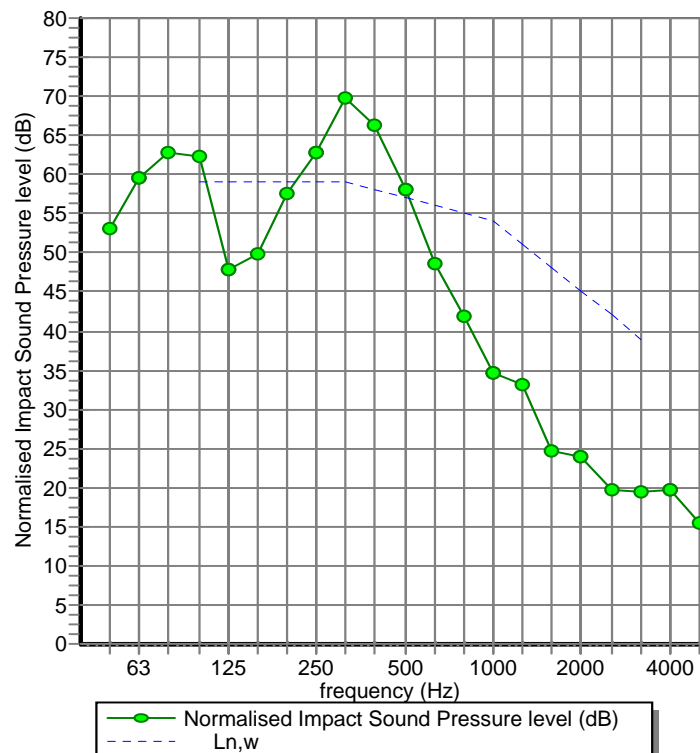
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Surf. mass 6.9 kg/m²

Crit. freq 3797 Hz

damping 0.01

Frequency (Hz)	Ln(dB)	Ln(dB)
50	53	
63	60	57
80	63	
100	62	
125	48	50
160	50	
200	58	
250	63	61
315	70	
400	66	
500	58	53
630	49	
800	42	
1000	35	35
1250	33	
1600	25	
2000	24	22
2500	20	
3150	19	
4000	20	18
5000	15	



Sound Insulation Prediction (v6.0)

Program copyright Marshall Day Acoustics 2005

Margin of error is generally within +/- 3Rw

JobName:

Notes:

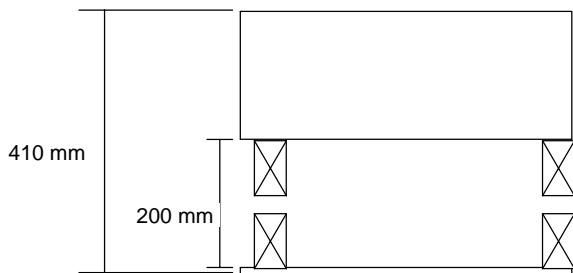
Job No.:

Page No:

Date: 19 Jun 09

Initials:

File name:1769 Floor Rw.ins



1 x 200.0 mm Concrete

1 x 10.0 mm Gypsum plasterboard

Rw 65

C -3

Ctr -8

Panel Size 5x5 m

Surf. mass 468.0 kg/m²

Crit. freq 150 Hz

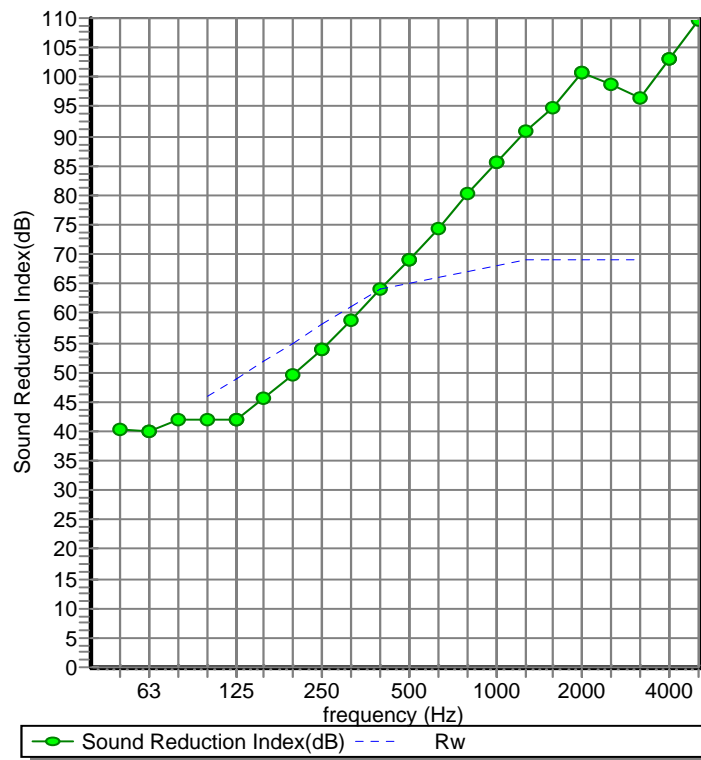
damping 0.01

Surf. mass 6.9 kg/m²

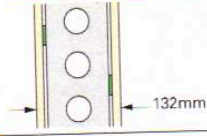
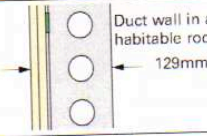
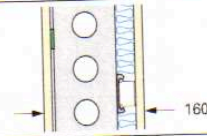
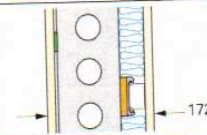
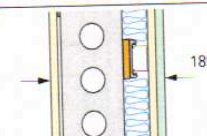
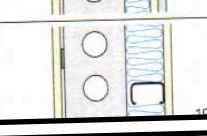
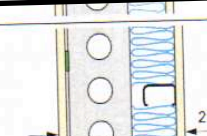
Crit. freq 3797 Hz

damping 0.01

Frequency (Hz)	TL(dB)	TL(dB)
50	40	
63	40	41
80	42	
100	42	
125	42	43
160	46	
200	50	
250	54	53
315	59	
400	64	
500	69	67
630	74	
800	80	
1000	85	84
1250	91	
1600	95	
2000	101	97
2500	99	
3150	96	
4000	103	100
5000	110	



Acoustic Systems - 10.119FL FireLight

R _w + C _{tr}	ACOUSTIC RATING R _w (c, ctr) Boral Test N°	WALL LINING	100mm FIRELIGHT LIGHTWEIGHT CONCRETE	WALL LINING
-	45 (-3, -8) Test 229	• 1 x 13mm Boral Plasterboard daub fixed		• 1 x 13mm Boral Plasterboard daub fixed
40	46 (-1, -6) Test 236	• 1 x 13mm Boral Plasterboard daub fixed • 1 x 13mm Boral Plasterboard grab screw fixed		• Nil
-	51 (-2, -8) Estimated from Test 232	• 1 x 13mm Boral Plasterboard daub fixed		• 1 x 13mm Boral Plasterboard screw fixed • 28mm furring channel at 600mm centres • Standard Clips at 1200mm centres • Tontine TSB3 insulation in cavity
-	53 (-2, -8) Test 232	• 1 x 13mm Boral Plasterboard daub fixed		• 1 x 13mm Boral Plasterboard screw fixed • 28mm furring channel at 600mm centres • Boral Impact Clips at 1200mm centres • Tontine TSB3 insulation in cavity
-	58 (-3, -9) Test 234	• 1 x 13mm Boral Plasterboard daub fixed		• 1 x 13mm Boral Wet Area Plasterboard screw fixed over • 1 x 13mm Boral Plasterboard screw fixed • 28mm furring channel at 600mm centres • Boral Impact Clips at 1200mm centres • Tontine TSB3 insulation in cavity
-	58 (-2, -9) Test 230	• 1 x 13mm Boral Plasterboard daub fixed		• 1 x 13mm Boral Plasterboard screw fixed • 51mm steel studs at 600mm centres • 10mm gap
51	60 (-2, -9) Impact Estimated from Test 230	• 1 x 13mm Boral Plasterboard daub fixed		• 1 x 13mm Boral Plasterboard screw fixed • 64mm steel studs at 600mm centres • 20mm gap • Tontine TSB5 insulation in cavity

Impact = Systems comply with BCA 2005 requirements for Impact Sound Resistance.

Information taken from Boral's Masonry Design Guide



Sound Insulation Prediction (v6.0)

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Margin of error is generally within +/- 3Rw

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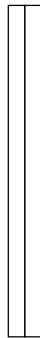
Rw + Ctr SERVICES

Date: 19 Jun 09

Initials:

File name:1769 services.ins

2 x 13.0 mm Gypsum plasterboard



Rw 33

C -1

Ctr -3

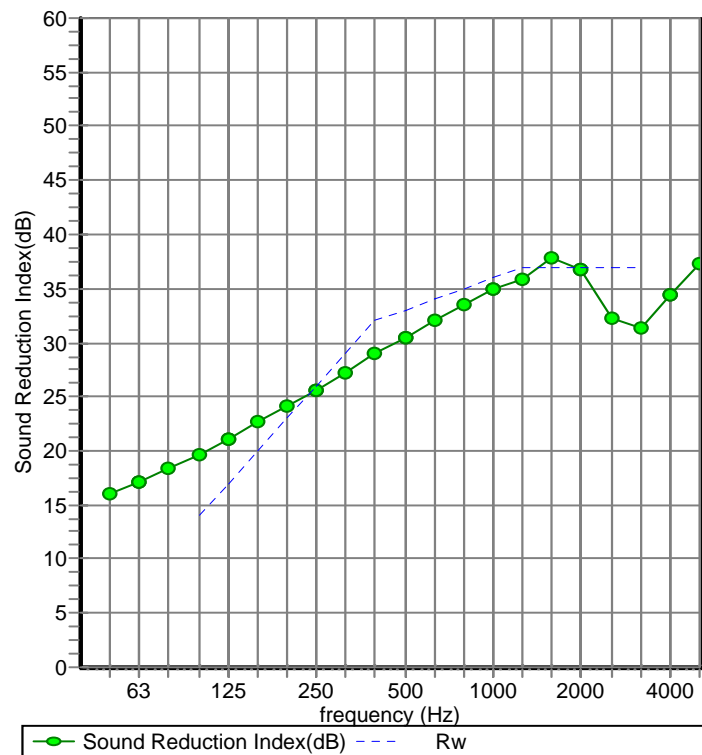
Surf. mass 17.9 kg/m²

Crit. freq 2921 Hz

damping 0.01

Panel Size 2.7x4 m

Frequency (Hz)	TL(dB)	TL(dB)
50	16	
63	17	17
80	18	
100	20	
125	21	21
160	23	
200	24	
250	26	25
315	27	
400	29	
500	30	30
630	32	
800	34	
1000	35	35
1250	36	
1600	38	
2000	37	35
2500	32	
3150	31	
4000	34	34
5000	37	



APPENDIX F

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APPENDIX F

APPENDIX

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**A
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APPENDIX

G

SOUNDLAG 4525C

Acoustic Pipe Wrap



SOUNDLAG 4525C is one of a series of acoustic pipe wrap products manufactured by Pyrotek.

It is the most cost effective acoustic pipe lagging to satisfy the Australian Building Code's Rw45 requirements. SOUNDLAG 4525C reduces noise in hydraulic and waste pipes up to 25dB(A).

SOUNDLAG 4525C consists of a tough reinforced aluminium foil skin applied to a 5kg/m² flexible barrier backed with 25mm thick convoluted, hydrolysis, resistant, combustion modified, acoustic foam.

The combination of these materials provides excellent sound transmission loss results as well as a "four zero" fire rating.

The Australian Building Code requires Rw ratings of 30 and 45 in non-habitable and habitable rooms respectively.

In order to achieve these results SOUNDLAG 4525C must be applied on waste pipes that pass through ceiling penetrations such as air conditioning ducts, vents, down-lights, manholes and exhaust fans. Where there is a restricted ceiling cavity depth it is a must to use SOUNDLAG 4525C to meet the BCA requirements.

SOUNDLAG 4525C is easily cut with a knife or scissors to size, minimising wastage.

FEATURES

- Reduces the noise in hydraulic and waste pipes by up to 25dB(A)
- Broad operating temperature range
- Four zero rating to AS 1530.3
- Chemical resistant (except for the aluminium foil outer)
- Can be cut to size
- High light and heat reflective facing

BENEFITS

- Excellent acoustic performance
- Maximises noise control by providing high sound absorption (reverberation control) and superior transmission loss
- Excellent flame resistance
- Long useful life
- Easy to cut
- Easy to install

APPLICATIONS

- Hydraulic and waste pipes in all locations
- Air-conditioning ducting and shrouds
- Compressor wraps
- Spa motor wraps

- 4** – 4 zero fire rating (AS 1530.3)
- 5** – 5kg/m² flexible noise barrier
- 2** – 25mm decoupling foam
- 5** – As above
- C** – Convoluted foam



STANDARD PRODUCT CODES

STANDARD PRODUCT	Thickness	ROLL SIZES	WEIGHT
SOUNDLAG 4525C	25mm nominal	5m X 1.35m	5kg/m ²

FLAMMABILITY PROPERTIES

MATERIAL	AS 1530.3 1999 (AWTA)			
	Ignitability	Spread of Flame	Heat Evolved	Smoke Developed
SOUNDLAG 4525C	0	0	0	0-1

MISCELLANEOUS PROPERTIES

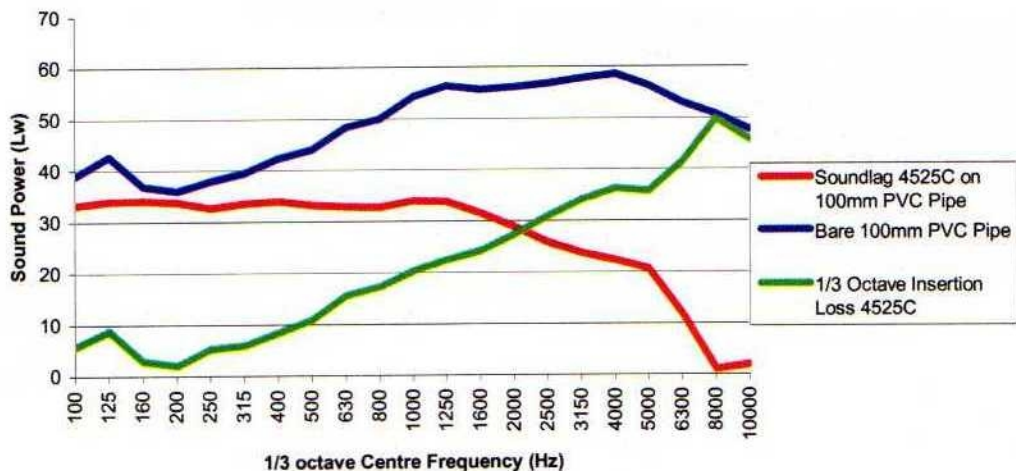
MATERIAL	Maximum Continuous Operation Temperature (°C)	Maximum Intermittent Operation Temperature (°C)
SOUNDLAG 4525C	80	120

ACOUSTIC TEST RESULTS

Noise Level and Insertion Loss for Soundlag 4525C tested on 100mm PVC Pipes at the National Acoustics Laboratory (Report Number ATF750B)

1/3 Octave Centre Frequency (Hz)	Linear			A-Weighted		
	Soundlag 4525C on 100mm PVC Pipe	Bare 100mm PVC Pipe	1/3 Octave Insertion Loss 4525C	A-Weighting Adjustment	Soundlag 4525C on 100mm PVC Pipe	Bare 100mm PVC Pipe
100	33.28	38.84	5.56	-19.1	14.18	19.74
125	34.1	42.63	8.53	-16.1	18	26.53
160	34.16	36.85	2.69	-13.4	20.76	23.45
200	33.91	35.87	1.96	-10.9	23.01	24.97
250	32.68	37.88	5.2	-8.6	24.08	29.28
315	33.6	39.43	5.83	-6.6	27	32.83
400	34.14	42.32	8.18	-4.8	29.34	37.52
500	33.29	44.08	10.79	-3.2	30.09	40.88
630	32.98	48.41	15.43	-1.9	31.08	46.51
800	32.79	49.94	17.15	-0.8	31.99	49.14
1000	34.08	54.31	20.23	0	34.08	54.31
1250	33.91	56.35	22.44	0.6	34.51	56.95
1600	31.6	55.73	24.13	1	32.6	56.73
2000	28.8	56.18	27.38	1.2	30	57.38
2500	25.87	56.8	30.93	1.3	27.17	58.1
3150	23.78	57.87	34.09	1.2	24.98	59.07
4000	22.35	58.62	36.27	1	23.35	59.62
5000	20.7	56.41	35.71	0.5	21.2	56.91
6300	11.74	53.1	41.36	-0.1	11.64	53
8000	1.01	50.83	49.82	-1.1	-0.09	49.73
10000	1.97	47.71	45.74	-2.5	-0.53	45.21

Noise Level and Insertion Loss for Soundlag 4525C tested on 100mm PVC Pipes at National Acoustics Laboratory (Report Number ATF750B)

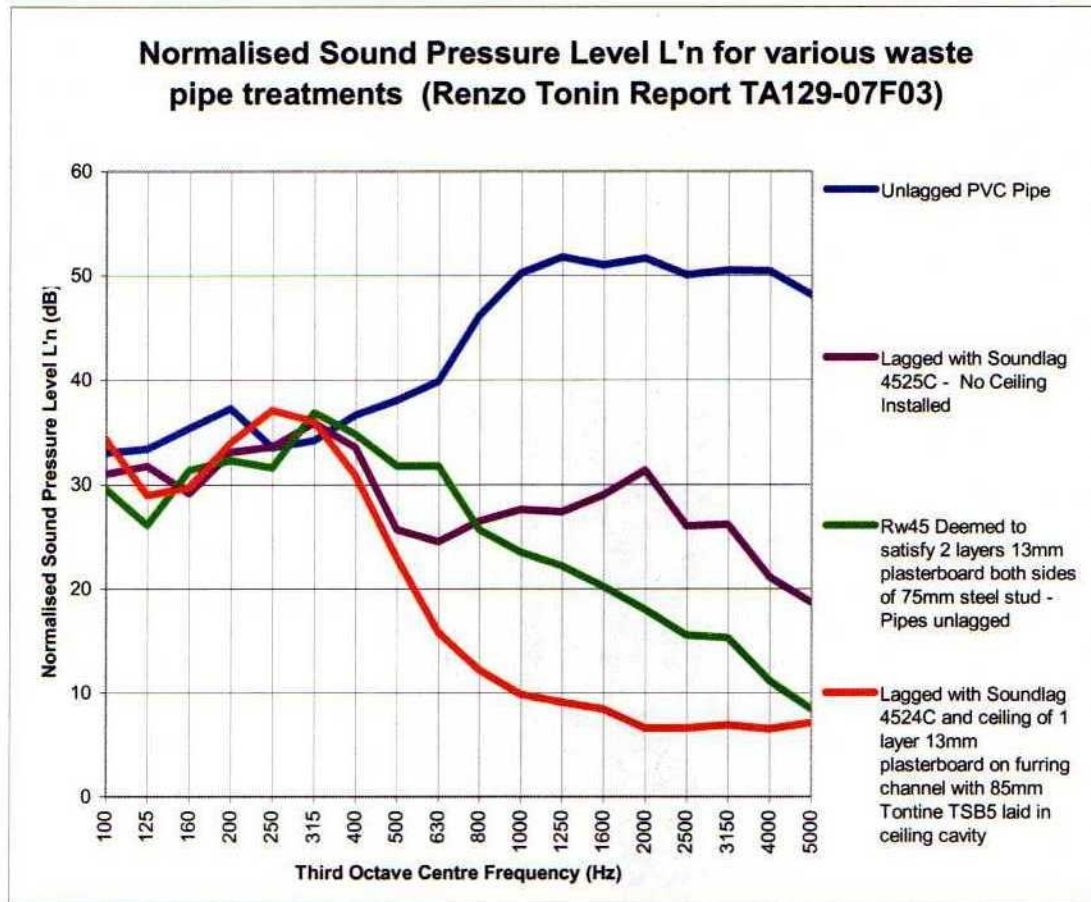


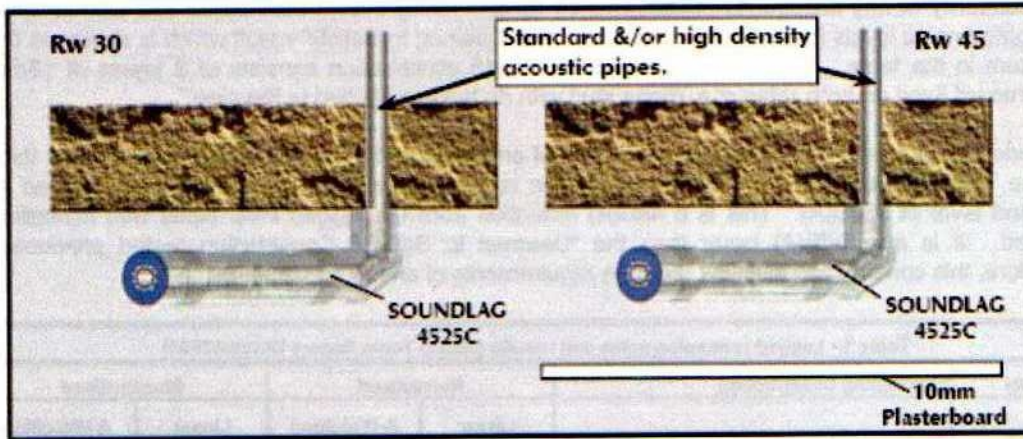
Extract from the Renzo Tonin Report TA129-07F03.

"The suitability of any construction is determined by comparing overall normalised and standardised A-weighted noise levels for that construction with the "Deemed to Satisfy" result which is shown as the third item in the table. The "Deemed to Satisfy" Rw45 construction consists of 2 layers of 13mm plasterboard fixed on both sides of a 75mm stud with no lagging applied to the pipe."

"The addition of a ceiling construction consisting of one layer of 13mm plasterboard with 85mm thick Tontine TSB5 insulation in the ceiling cavity to the lagged waste pipes results in a standardised A-weighted level of 33dB(A). This is a 4dB(A) reduction from the lagged PVC pipes with no ceiling installed. It is also 3dB(A) lower than the "Deemed to Satisfy" Construction tested previously. Therefore, this construction satisfies the BCA requirements of an Rw 45 construction."

Table 1 - Lagged wastepipe noise test results (Renzo Tonin Report TA129-07F03)					
Test Date	Pipe/ceiling construction	Normalised		Standardised	
		Linear Average dB	A-Weighted Average dB (A)	Linear Average dB	A-Weighted Average dB (A)
18/06/2001	Bare PVC Pipes unlagged. No ceiling installed	60	60	58	58
23/08/2001	PVC Pipe lagged with Pyrotek Soundlag 4525C (5kg/m ² , 25mm convoluted foam) lagging material. No ceiling installed.	43	39	41	37
5/04/2001	Rw45 "Deemed to Satisfy" construction - 2 layers of 13mm plasterboard both sides of a 75mm steel stud. Pipes are unlagged. *	43	37	41	36
5/09/2001	PVC pipe lagged with Pyrotek 4525C (5kg/m ² , 25mm convoluted foam) lagging material. Ceiling consists of one (1) layer of 13mm plasterboard mounted on furring channels with 85mm Tontine TSB5 land in the ceiling cavity	42	34	42	33





Pipes correctly lagged with Soundlag 4525C within the right structure achieve in excess of the above results. The diagrams outlined above are systems provided by Peter Knowland Acoustic Consultants (PKA), based on the actual test results (ATF 750B Report) of Soundlag 4525C carried out at the National Acoustic Laboratory (NAL), in Sydney. Field tests were conducted at the Walsh Bay acoustic test facility whereby a bathroom system comprising of a toilet, basin and floor waste was installed on top of the test facility with PVC soil and waste pipes penetrating the concrete slab and passing through the receiving room. Tested in accordance to International Standard ISO 140-1, 1997.

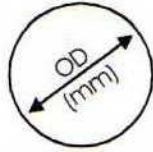


Testing Soundlag at National Acoustic Laboratory

INSTALLATION PROCEDURE

Step 1

Measure the length and diameter of the pipe requiring lagging.



Step 2

To calculate the required width of Soundlag apply the formula below.

$$\text{WIDTH} = \pi \times (\text{OD} + (2 \times T)) + \text{OL}$$

where: OD = outside diameter of the pipe
 $\pi = 3.14$

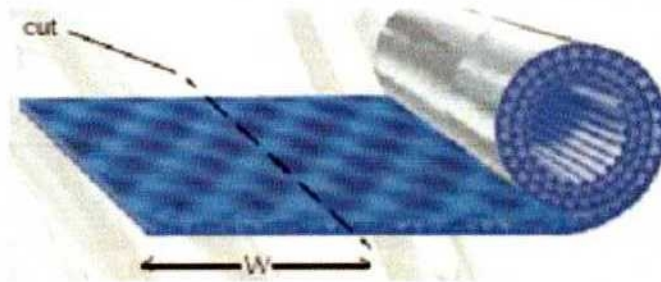
T = thickness of Soundlag (25mm nom.)

OL = Overlap (50mm)

Example

For 100 mm pipe + Soundlag

$$W = 3.14 \times (100 + (2 \times 25)) + 50 = 521\text{mm}$$



Step 3

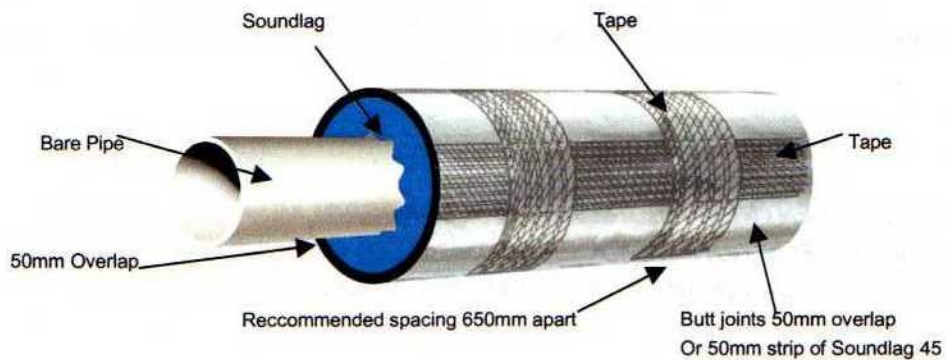
Once the width is calculated Soundlag can easily be cut with a sharp knife or scissors.

Step 4

Wrap Soundlag around the pipe and use high quality aluminium tape.

(complying with AS1530.3 Four Zero Fire Rating) to join the product together.

All joints must be overlapped by 50mm to ensure a good acoustic seal.



WARRANTY: the manufacturer against defective workmanship and materials warrants the goods. Its obligations pursuant to this express warranty being limited to the repair or replacement of the defective goods or materials as its option. Services supplied by the company are expressly warranted to be rendered with due care and skill. To the extent permitted by law, all implied conditions and warranties, other than those implied by the Trade Practices Act are expressly excluded.

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NOTES: Specifications are subject to change without notice.

The data listed in this data sheet are typical or average values based on tests conducted by independent laboratories or by the manufacturer. They are indicative only of the results obtained in such tests and should not be considered as guaranteed maximums or minimums. Materials must be tested under actual service to determine their suitability for a particular purpose.

The conclusions drawn from acoustic test results are as interpreted in writing by qualified independent testing authorities. Even so always seek the opinion of your own acoustic engineer as to the meaning of any data presented by the manufacturer as it is applied to any given project or use.

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