

COMPLIANCE TESTING

All measurements were carried out in accordance with the guidelines and procedures outlined in AS/NZS ISO 140.7:2006. "Field measurements of impact sound insulation of floors" with the rating determined in accordance with AS ISO 717.2-2004. "Rating of sound insulation in buildings and of building elements".

MEASURED RESULTS AND CONCLUSIONS

The results of the impact noise tests for 14mm Engineered Oak flooring are summarized in the table below. The calculated acoustic rating of LnT,w for the sample has been referenced to the acoustic criterion of NCC / BCA and AAAC⁵ star rating. The standard product was installed on a 200-220 mm concrete slab, approximately 100–120 mm deep suspended ceiling cavity and 13 mm plasterboard ceiling.

The result confirms compliance NCC/BCA use Multi-residential requirements.

Product Sample	BCA Criterion	Test Result L'nT,w	AAAC ⁵ Star Rating	FIC ^{4/5}	Compliance with NCC/BCA
14mm Timber & 2 mm Green U'Lay	L'nT,w ≤ 62	42	5	63	Yes
14mm Timber&5mm Regupol 5512 U/Lay	L'nT,w ≤ 62	41	5	65	Yes

Note: National Construction Code / Building Code of Australia (NCC/BCA).

Field Impact Insulation Class (FICC), higher the number the better its impact insulation performance. Minimum rate is 50.

Koikas Acoustics Pty Ltd has undertaken noise impact tests on 18December 2019 at multi-residential units located at Crows Nest Sydney. The results reveal that all the testing samples are compliant with the updated NCC/BCA 2016 impact noise insulation criterion with ceiling / floor systems.

A detailed test report is available on request.

The field test acoustic ratings provided in this report are indicative and for comparative purposes only. Acoustic ratings will vary depending on testing environment/conditions including, materials/structures of existing ceiling/floor system, room volume, internal layout and workmanship. Acoustic ratings can and will vary from building to building and room to room. Please consult with an appropriate building professional or acoustic engineer to confirm if the product selected meets the building and or body corporate acoustic impact sound isolation guidelines.

Disclaimer: Homemirus Pty Ltd trading as Preference Floors has used its reasonable endeavors to ensure the accuracy and reliability of the information contained herein and, to the extent permitted by law, will not be liable for any inaccuracies, omissions or errors in this information nor for any actions taken in reliance on this information. Products must be installed in accordance with relevant installation recommendations and industry best practices.

14mm Engineered Oak installed with 2mm Ultra Green acoustic underlay. Result: LnT,w 42, AAAC 5 Star

FIELD MEASUREMENTS OF IMPACT SOUND INSULATION OF FLOORS (TEST 04)



Date of Test : Wednesday, 18 December 2019
 Project No. : 3369
 Testing Company : Koikas Acoustics
 Checked by : Michael Fan Chiang
 Place of Test : Residential units in Crows Nest NSW
 Client : Preference Floors
 Client Address : -

Description of System	Name	Thickness (mm)	Density (SI)
Preference Floors 14 mm Engineered Oak		14	--
Preference 2 mm IXPE Green Underlay		2	--
Floor 200~220 mm reinforced concrete slab		200~220	2540
System 100~120 mm ceiling cavity + 13 mm plasterboard ceiling		100~120 +13	--

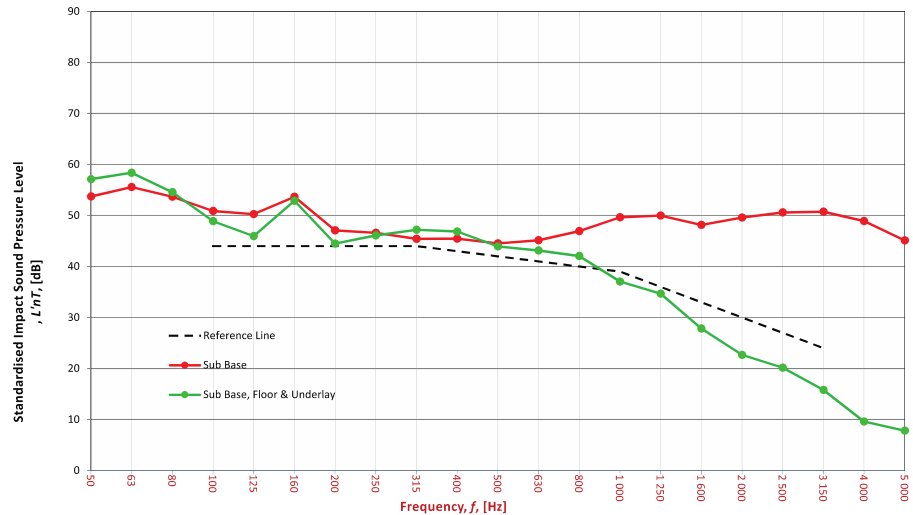
Room Dimensions
 Width : 6 m
 Length : 4 m
 Area : 24 m²

Sample Dimensions
 Width : 1 m
 Length : 1 m
 Area : 1 m²

Receiver Rm	Location	Width	Length	Area	Height	Volume
	Living/Dining	6	4	24	2.7	64.8

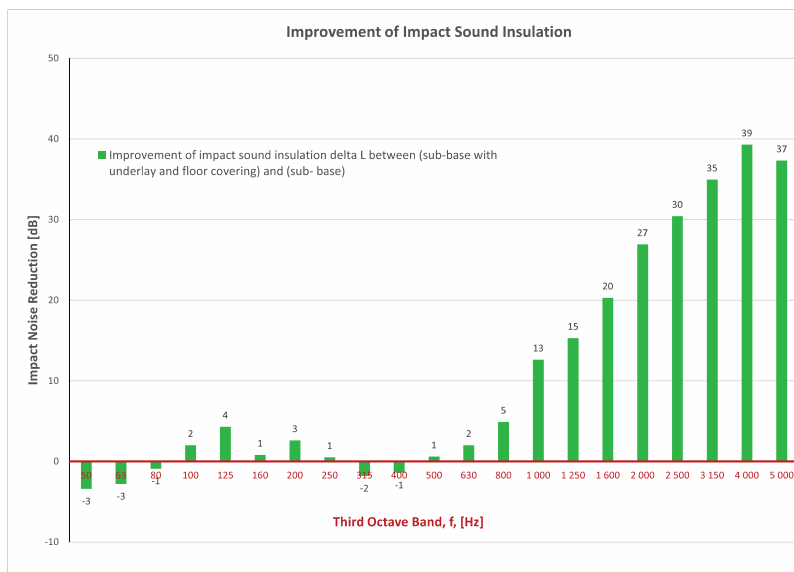
Room Surfaces		
Walls	Floor	Ceiling
Plasterboard	concrete	Plasterboard

Frequency f Hz	L'nT (one-third octave) dB	
	Sub Base	Sub Base Floor Underlay
50	53.7	57.1
63	55.6	58.4
80	53.7	54.6
100	50.9	48.9
125	50.2	45.9
160	53.7	52.9
200	47.1	44.5
250	46.6	46.1
315	45.4	47.2
400	45.4	46.8
500	44.5	43.9
630	45.1	43.1
800	46.9	42.0
1 000	49.6	37.0
1 250	50.0	34.7
1 600	48.1	27.8
2 000	49.6	22.7
2 500	50.6	20.2
3 150	50.7	15.8
4 000	48.9	9.6
5 000	45.1	7.8



Sub Base		
L'nT,w	56	AS ISO 717.2 - 2004
Ci	-10	AS ISO 717.2 - 2004
Ci(50-2500)	-8	AS ISO 717.2 - 2004
Ci(63-2000)	-9	AS ISO 717.2 - 2004
AAAC★	2 Star	AAAC Guideline
FIC	46	ASTM E1007-14

Sub Base, Floor & Underlay		
L'nT,w	42	AS ISO 717.2 - 2004
Ci	0	AS ISO 717.2 - 2004
Ci(50-2500)	6	AS ISO 717.2 - 2004
Ci(63-2000)	5	AS ISO 717.2 - 2004
AAAC★	5 Star	AAAC Guideline
FIC	63	ASTM E1007-14



Definitions of Noise Metrics

FIC:
 Field Impact Insulation Class is a single-number rating of how well a floor system attenuates impact type sounds, such as footsteps. Calculated from third-octave band normalised impact sound pressure level data and referenced to 10 m² as described in ASTM E989. The higher the single-number rating, the better its impact insulation performance.

L'nT,w:
 The Weighted Standardised Impact Sound Pressure Level when measured in situ referenced to a reverberation time (RT60) of 0.5 seconds. Used by the AAAC to determine their respective Star Rating.

Ci:
 Spectrum adaption term is a low frequency correction factor. Typically for massive floors such as concrete, the values are about zero while for timber joist floors Ci is positive because of the low resonant frequencies. Considers frequency range between 100 and 2500 Hz.

Ci(50-2500):
 Same as above, but for the frequency range 50 - 2500 Hz.

Ci(125-2000):
 Same as above, but for the frequency range 125 - 2000 Hz.

AAAC Star R.	2	3	4	5	6
L'nT,w	65	55	50	45	40
FIC	45	55	60	65	70
Comments	Below BCA 62	Clearly Audible	Audible	Barely Inaudible	Normally Inaudible

14mm Engineered Oak installed with 5mm Regupol 5512. Result: LnT,w 41, AAAC 5 Star

FIELD MEASUREMENTS OF IMPACT SOUND INSULATION OF FLOORS (TEST 08)



Date of Test : Wednesday, 18 December 2019
 Project No. : 3369
 Testing Company : Koikas Acoustics
 Checked by : Michael Fan Chiang
 Place of Test : Residential units in Crows Nest NSW
 Client : Preference Floors
 Client Address : -

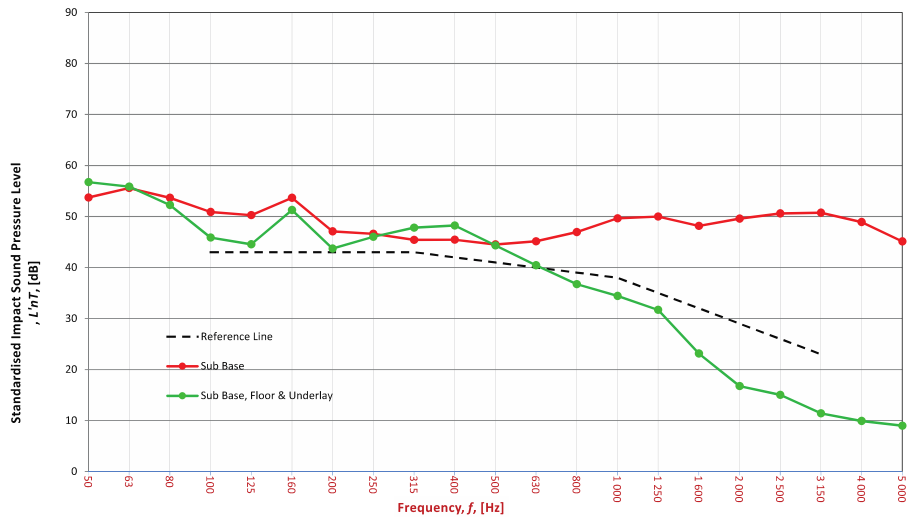
Description of Floor System	Name	Thickness (mm)	Density (S)
Preference Floors 14 mm Engineered Oak		14	--
Regupol® 5512		5	--
200~220 mm reinforced concrete slab		200~220	2540
100~120 mm ceiling cavity + 13 mm plasterboard ceiling		100~120 +13	--

Room Dimensions: Width: 6 m, Length: 4 m, Area: 24 m²

Sample Dimensions: Width: 1 m, Length: 1 m, Area: 1 m²

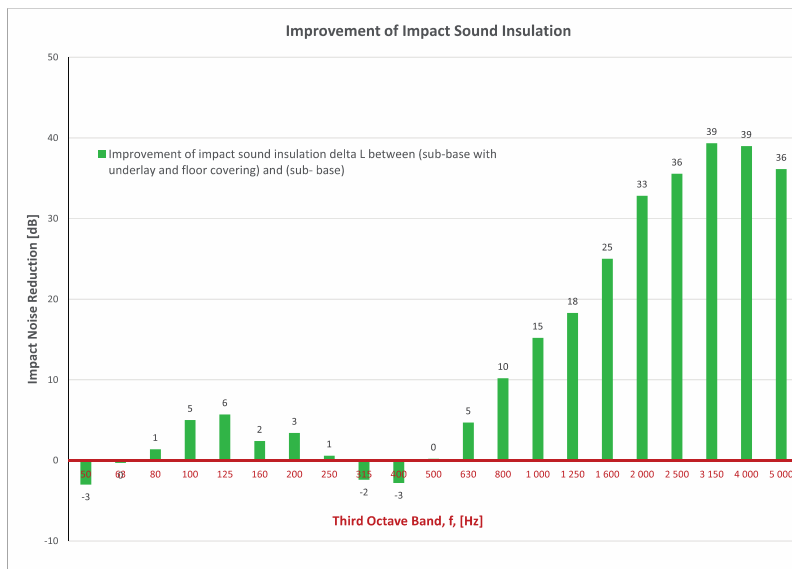
Receiver Rm	Location	Width	Length	Area	Height	Volume	Room Surfaces		
							Walls	Floor	Ceiling
	Living/Dining	6	4	24	2.7	64.8	Plasterboard	concrete	Plasterboard

Frequency f Hz	L'nT (one-third octave) dB		
	Sub Base		Sub Base Floor Underlay
50	53.7		56.7
63	55.6		55.9
80	53.7		52.3
100	50.9		45.9
125	50.2		44.5
160	53.7		51.3
200	47.1		43.7
250	46.6		46.0
315	45.4		47.8
400	45.4		48.2
500	44.5		44.3
630	45.1		40.4
800	46.9		36.7
1 000	49.6		34.4
1 250	50.0		31.7
1 600	48.1		23.1
2 000	49.6		16.7
2 500	50.6		15.0
3 150	50.7		11.4
4 000	48.9		9.9
5 000	45.1		9.0



Sub Base		
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AAAC★	2 Star	AAAC Guideline
FIC	46	ASTM E1007-14

Sub Base, Floor & Underlay		
L'nT,w	41	AS ISO 717.2 - 2004
Ci	0	AS ISO 717.2 - 2004
Ci(50-2500)	6	AS ISO 717.2 - 2004
Ci(63-2000)	4	AS ISO 717.2 - 2004
AAAC★	5 Star	AAAC Guideline
FIC	65	ASTM E1007-14



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L'nT,w: The Weighted Standardised Impact Sound Pressure Level when measured in situ referenced to a reverberation time (RT60) of 0.5 seconds. Used by the AAAC to determine their respective Star Rating.

Ci: Spectrum adaption term is a low frequency correction factor. Typically for massive floors such as concrete, the values are about zero while for timber joist floors Ci is positive because of the low resonant frequencies. Considers frequency range between 100- and 2500 Hz.

Ci(50-2500): Same as above, but for the frequency range 50-2500 Hz.

Ci(125-2000): Same as above, but for the frequency range 125-2000 Hz.

AAAC Star R.	2	3	4	5	6
L'nT,w	65	55	50	45	40
FIC	45	55	60	65	70
Comments	Below BCA 62	Clearly Audible	Audible	Barely Inaudible	Normally Inaudible