

TOPDECK ACOUSTIC CERTIFICATE

FLOOR IMPACT INSULATION MEASUREMENT
Conducted by Koikas Acoustics P/L

2.2 mm TDF POLYETHYLENE FOAM UNDERLAY

Koikas Acoustics was engaged by Topdeck International to carry out floor impact insulation measurements on 12.3 mm Prime Laminated floating floorboards, which consist of 2.2mm TDF polyethylene foam underlay

The measurements were carried out on top of a base floor system which consisted of:

- 200 mm thick concrete slab
- Approximately 100~150 mm thick suspended ceiling cavity
- 13 mm thick plasterboard ceiling

The Green Acoustic Underlay (2.2 mm TDF polyethylene foam underlay) in conjunction with 12.3mm Prime Laminated Floorboards have met both the BCA 2019 criterion ($L'nTw \leq 62$) and the AAAC Star rating of 5 for impact noise insulation.

Measured Floor Impact Insulation

Floor System	Measured L_n, Tw	NCC/BCA Requirement	AAAC Star Rating
Base Floor	61	62	
12.3 mm timber floorboards*	44	62	5 Star

Acoustic rating will vary depending on the testing environment/conditions including, materials/structures of the existing ceiling/floor system, room volume, internal layout and workmanship. Even with the same testing environmental, acoustic ratings can vary from room to room and so building to building as no two buildings are identical.

FIELD MEASUREMENTS OF IMPACT SOUND INSULATION OF FLOORS (TEST 02)



Date of Test : Wednesday, 17 July 2019
 Project No. : 3618
 Testing Company : Koikas Acoustics
 Checked by : Nick Koikas
 Place of Test : Residential units in Hurstville
 Client : Topdeck Flooring Pty Ltd
 Client Address : -

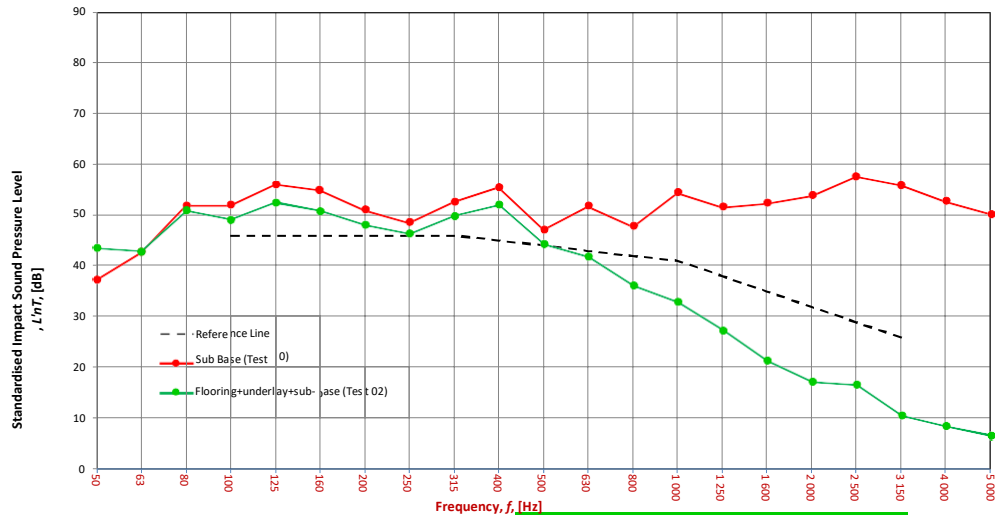
	Name	Thickness (mm)	Density (SI)
Description of Floor System	12.3 mm Prime Laminated Floor	12.3	--
	Green Acoustic Underlay (2.2 mm TDF polyethylene foam underlay)	2.2	--
	200 mm reinforced concrete slab	200	--
	100~150 mm suspended ceiling cavity + 13 mm plasterboard ceiling	100~150 + 13	--

Room Dimensions	Width :	3.2	m
	Length :	3.5	m
	Area :	11.2	m ²
Sample Dimensions	Width :	1	m
	Length :	1	m
	Area :	1	m ²

Receiver Rm	Location	Width	Length	Area	Height	Volume
	lower floor level bedroom	3.2	3.5	11.2	2.7	30.24

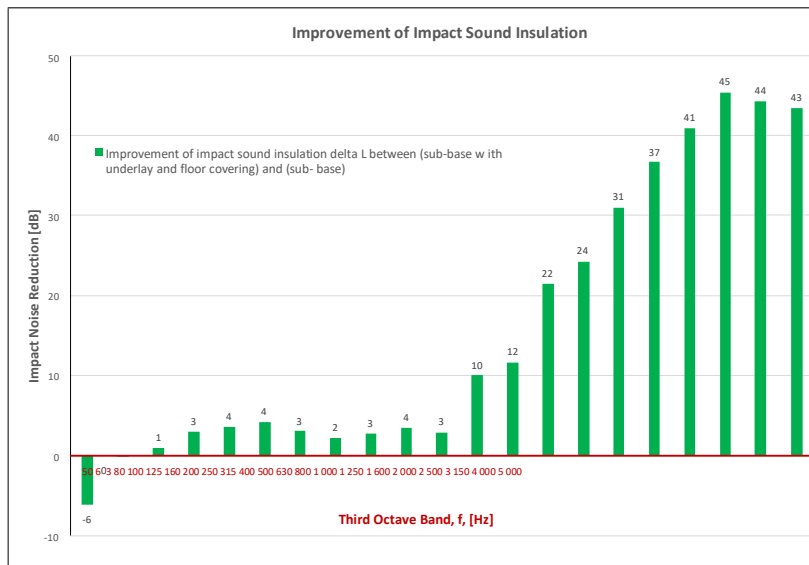
Room Surfaces		
Walls	Floor	Ceiling
Plasterboard	Carpet	Plasterboard

Frequency f Hz	L _{nT} (one-third octave) dB		
	Sub Base	Sub Base Floor	Hybrid Vinyl Flooring
50	37.2	39.4	43.4
63	42.5	36.7	42.7
80	51.7	48.5	50.7
100	51.8	48.7	48.9
125	55.9	49.2	52.3
160	54.9	49.2	50.7
200	51.0	47.2	47.9
250	48.4	44.5	46.2
315	52.5	49.6	49.7
400	55.4	48.3	51.8
500	47.0	43.9	44.1
630	51.7	44.8	41.7
800	47.6	42.5	36.0
1000	54.3	41.0	32.8
1250	51.5	34.7	27.2
1600	52.2	30.4	21.2
2000	53.8	27.8	17.1
2500	57.5	29.2	16.5
3150	55.9	24.0	10.4
4000	52.7	18.2	8.3
5000	50.0	16.8	6.5



Sub Base (Test 00)	
L _{nT,w}	61
CI	-11
CI(50-2500)	-11
CI(63-2000)	-11
AAAC	-12
FIC	★
2 Star AAAC Guideline	
44	ASTM E1007-14

Floor covering + underlay + Sub Base (Test 02)	
L _{nT,w}	44
CI	0
CI(50-2500)	1
CI(63-2000)	1
AAAC	1
FIC	★
5 Star	
66	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

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):

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	Not really Inaudible