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IMPACT SOUND INSULATION FIELD TEST REPORT

MB729-01F03

6 July 2015

Eco Timber Group Pty Ltd

MB729-01F03 Impact Field Test (r2).docx

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Document Details

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Document Control

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29.06.2015	Draft	0		AL		
03.07.2015	Review		1	AL		NP
06.07.2015	Update details		2	NP		NP

Contents

1 Test 1 (Impact)

IMPACT NOISE INSULATION - FIELD TEST REPORT SUMMARY				
Report Reference:	MB729-01F03 Impact Field Test (r2).docx			
Date of Test:	29th June 2015			
Form of Construction:	15mm T&G UrbanOak Engineered Timber Flooring, directly adhered using Eco Step 583.6 adhesive with a 6mm notch trowel, to a 180mm thick concrete slab. One (1) layer of 13mm standard plasterboard suspended from the soffit. 50mm thick insulation installed within the ceiling cavity.			
Source Room:	Apartment No:	2.05	Occupancy Type:	Kitchen / Living
Receiver Room:	Apartment No:	1.05	Occupancy Type:	Kitchen / Living
Measured Weighted Standardised Sound Pressure Level	$L'_{nT,w}$ (C_I)		50 (-3) dB	
Measured Weighted Standardised Sound Pressure Level plus Spectrum Adaptation Term	$L'_{nT,w}$ + C_I		47 dB	
Impact Sound Insulation Requirement of Building Code of Australia	$L'_{nT,w}$+ C_I		No more than 62	
Comply with NCC/BCA Impact Sound Insulation Requirement			Yes	

Measurements conducted in general accordance with International Standard ISO 140-7 "Field Measurements of Impact Sound Insulation of Floors", impact noise ratings determined in accordance with Australian/International Standard AS/ISO 717-2 "Impact Sound Insulation. Measurements and procedures documented in this report have been carried out in accordance with the Renzo Tonin & Associates Quality Assurance System. This quality system is based on AS/NZS ISO 9001:1994

Testing Engineer	Checked By
Andrew Lloyd	Nicholas Peters

Standardized Impact Sound Pressure Level according to ISO 140-7

Field measurements of impact sound insulation of floors

Client: Spec Property Pty Ltd Date of test: 29/06/2015

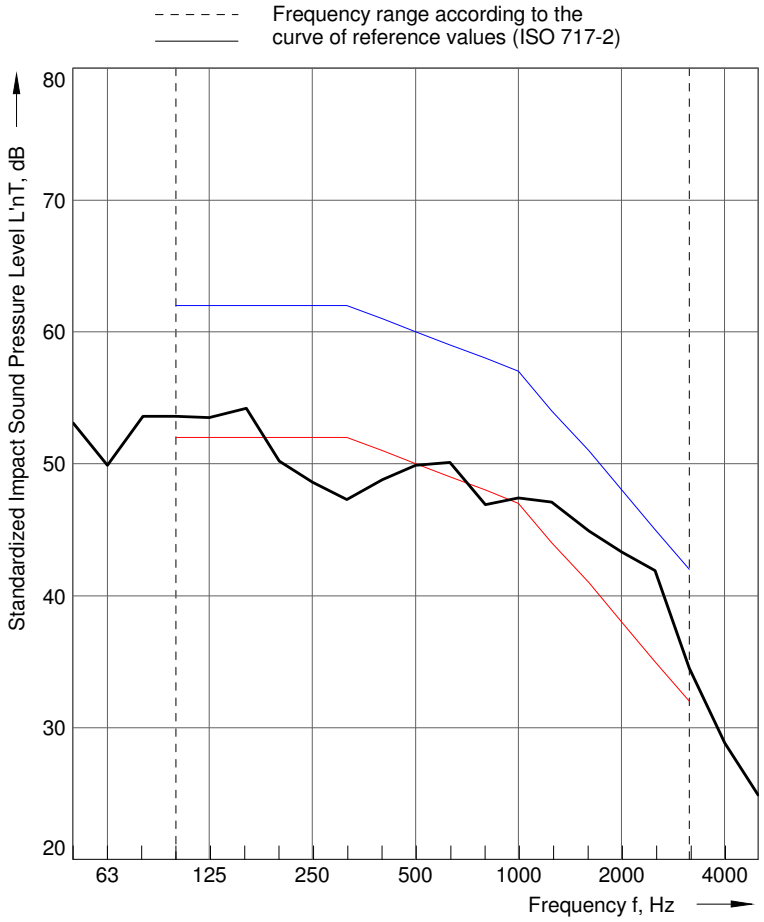
Description and identification of the building construction and test arrangement:

15mm T&G UrbanOak Engineered Timber Flooring, directly adhered using Eco Step 583.6 adhesive with a 6mm notch trowel, to a 180mm thick concrete slab. One (1) layer of 13mm standard plasterboard suspended from the soffit. 50mm thick insulation installed within the ceiling cavity.

Receiving room volume V: 47.10 m³

Frequency f Hz	L'nT 1/3 Octave dB
50	53.1 B
63	49.9
80	53.6
100	53.6
125	53.5
160	54.2
200	50.2
250	48.6
315	47.3
400	48.8
500	49.9
630	50.1
800	46.9
1000	47.4
1250	47.1
1600	44.9
2000	43.3
2500	41.9
3150	34.5
4000	28.8
5000	24.9

B: L'nT =< value shown



Rating according to ISO 717-2

$L'_{nT,w}(C_i)$ = 50 (-3) dB $C_{i,50\text{-}2500}$ = -2 dB

Evaluation based on field measurement results obtained in one-third-octave bands by an engineering method

No. of test report: MB168-01F08 Name of test institute: Renzo Tonin & Associates (VIC)

Date: 29/06/2015 Signature: Andrew Lloyd

APPENDIX A Impact Test Methodology

A.1 Introduction

There is no procedure specified in the NCC or in Australian Standards for the testing of floor and ceiling systems. In the absence of such provisions the testing procedure adopted is derived from the following Standards:

- International Standard ISO 140-7 "Field measurements of impact sound insulation of floors";
- International Standard ISO 717-2 "Impact sound insulation".

A.2 Criteria

The transmission of structure-borne noise through the nominated floor has been assessed against Part F5 of the Building Code of Australia.

A.3 Test Procedure

Tests were conducted according to the following procedure:

- A tapping machine was placed in four different positions randomly distributed on the floor sample in accordance with ISO Standards indicated above;
- While this tapping machine was operating, noise levels were recorded in four positions in the receiving room for each of the two tapping machine positions using a Bruel & Kjaer 2250 sound level meter. The measured noise level was filtered simultaneously in all one-third octave frequency bands in real time. These values were recorded and subsequently statistically analysed to determine the average sound pressure levels for each room and to indicate the precision of the measurements;
- The reverberation time of the receiving room was measured in accordance with ISO 354.

A.4 Instrumentation and Analysis

The sound level meter has been calibrated to Australian Standards by a certified NATA laboratory. Further to this, a calibration was conducted prior to and subsequent to the measurements using a Bruel & Kjaer Type 4231 Acoustic calibrator. The sound level meter conforms to a Type 1 instrument as defined in AS1259 - 1990 "Sound Level Meters".

The impact isolation of the specimen was then calculated using the following relationship:

- $L'n = Li + 10 \log (A/Ao)$
- $L'nT = Li - 10 \log (T/To)$

Where:

- Li = Impact Sound Pressure Level receiver room dB
- A = Measured equivalent absorption area of the receiving room metric Sabines (m^2)
- Ao= Reference equivalent absorption area ($10m^2$) metric Sabines (m^2)
- T = Measured reverberation time of the receiving room (sec)
- To = Reference reverberation time (0.5 sec)

The Weighted Normalised Impact Sound Pressure Level L'n,w the Weighted Standardised Impact Sound Pressure Level L'nT,w and the adaptation term CI were determined in accordance with ISO 717-2.

A.5 Precision

Measurements were conducted in accordance with procedures outlined on the summary page of this report.