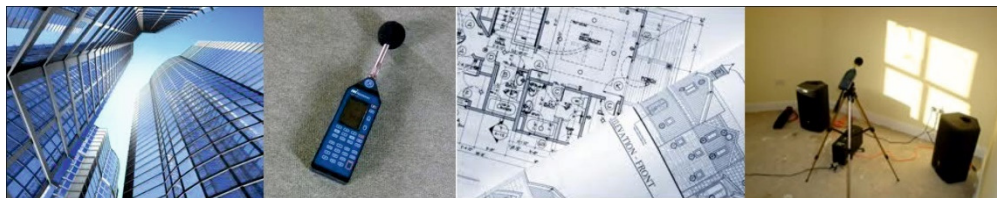


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156 WEST END LANE WEST HAMPSTEAD LONDON NW6 1SD

ASSESSMENT OF INTERNAL PARTITIONS
TO DISCHARGE CONDITIONS 36 & 37 OF
PLANNING PERMISSION 2019/4140 (14/07/21)
v.3

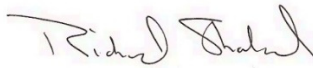

Client:

ASTIR LIVING LTD
85 Great Portland Street
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London
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10th December 2021
Ref: M4758

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Project Reference	M4758
Issue No.	3
Reviewed	Richard Sharland MA MSc CEng MIOA
Signature	
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Date	10th December 2021

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1. SUMMARY

- 1.1 An acoustic assessment of separating constructions has been undertaken at a proposed mixed residential and commercial development at 156 West End Lane, West Hampstead, London, NW6 1SD.
- 1.2 The objective of the exercise is to demonstrate that the sound insulation between apartments, and between apartments and commercial units, will meet the minimum requirements of Planning Conditions 36 and 37.
- 1.3 Condition 36 calls for separating partitions between apartments to exceed the Building Regulation standards by 5 dB. This equates to an airborne sound insulation of at least 50 dB $D_{nT,w} + C_{tr}$, and an impact sound pressure level not exceeding 57 dB $L'_{nT,w}$.
- 1.4 The proposed constructions are listed in Section 3 of this report, and predictions indicate airborne sound insulation between 55 – 71 dB $D_{nT,w} + C_{tr}$, and impact sound pressure levels of between 49 – 54 dB $L'_{nT,w}$. It is therefore concluded that the requirements of Condition 36 will be met.
- 1.5 Condition 37 requires the separating partitions between apartments and commercial areas to exceed the Building Regulation standard by 10 dB. This equates to an airborne sound insulation of at least 55 dB $D_{nT,w} + C_{tr}$.
- 1.6 Section 4 describes the proposed wall and floor constructions, and the predictions lie in the range 68 – 85 dB $D_{nT,w} + C_{tr}$.
- 1.7 The Condition also calls for demonstration that the structures would be sufficient to limit noise ingress to BS8233 compliant levels within apartments. Calculations based on a 90 dB(A) noise level in the commercial units indicate residual levels of 27 dB(A) through separating walls, and 29 dB(A) dB(A) through separating walls. These levels would meet the BS8233 target of 30 dB(A) for good sleeping conditions.
- 1.8 It is therefore confirmed that the proposals will meet the requirements of Condition 37.

2. INTRODUCTION

- 2.1 An acoustic assessment of the proposed architectural details has been undertaken at 156 West End Lane, West Hampstead, London, on behalf of Astir Living Ltd.
- 2.2 The site is situated east of West End Lane and south of Lymington Road, and is north of the Thameslink, Overground and Jubilee Railways serving West Hampstead.
- 2.3 It is proposed to develop some 180 residential units within two buildings. It is also proposed to have commercial units within the ground and 1st floor levels of the West Building.
- 2.4 Planning permission was granted for the following:

"Variation of Conditions 2 (approved plans), 9 (wheelchair units), 33 (obscure glazing), 44 (cycling spaces) and 46 (unit numbers) of planning permission 2015/6455/P dated 23rd June 2017 for: Comprehensive redevelopment following demolition of all existing buildings to provide self-contained residential dwellings (Class C3), flexible non-residential use (Class A1-A3, D1, D2), employment floorspace (Class B1) and community meeting space (Class D1) in buildings ranging from 3 to 7 storeys. New vehicular access from West End Lane and provision of accessible car parking spaces. Provision of new public open space and widening of Potteries Path and associated cycle parking and landscaping".

- 2.5 The building contains both residential and commercial uses, and the Planning Consent has confirmed the requirement to control noise transmission between adjacent areas:

36. Sound insulation

Prior to the commencement of works on site, other than demolition, site clearance and preparation, piling and below ground works, details shall be submitted to and approved in writing by the Local Planning Authority, demonstrating an enhanced 6 sound insulation value $D_{nT,w}$ and $L'_{nT,w}$ of at least 5dB above the Building Regulations value, for the floor/ceiling/wall structures separating different types of rooms/ uses in adjoining dwellings. The details approved shall be implemented prior to occupation of the development and thereafter be permanently retained.

Reason: To safeguard the amenities of occupiers of the proposed use in accordance with the requirements of policies A1 (Managing the impact of development) and A4 (Noise and vibration) of the London Borough of Camden Local Plan 2017.

37. Commercial and residential sound insulation

Prior to the commencement of works on site, other than demolition, site clearance and preparation, piling and below ground works, details shall be submitted to and approved in writing by the Local Planning Authority, of the sound insulation of the floor, ceilings and walls separating the commercial and residential elements of the development. Details shall demonstrate that the sound insulation value $D_{nT,w}$ and $L'_{nT,w}$ is enhanced by at least 10dB above the Building Regulations value and, where necessary, additional mitigation measures are implemented to contain commercial noise within the commercial premises and to achieve the criteria of BS8233:2014 within any noise sensitive premises. Approved details shall be implemented prior to occupation of the development and permanently retained thereafter.

Reason: To safeguard the amenities of occupiers of the proposed use in accordance with the requirements of policies A1 (Managing the impact of development) and A4 (Noise and vibration) of the London Borough of Camden Local Plan 2017.

2.6 This report will describe the means by which these two conditions will be satisfied.

3. CONDITION 36, RESIDENTIAL SEPARATION

- 3.1 Approved Document E of The Building Regulations: *Resistance to the passage of sound* sets out the following requirements for new dwellings:

Requirements of Document E 2003	Party Walls - Airborne Insulation $D_{nT,w} + C_{tr}$	Party Floors - Airborne Insulation $D_{nT,w} + C_{tr}$	Party Floors - Impact Insulation $L'_{nT,w}$
New Builds	Min 45 dB	Min 45 dB	Max 62 dB
Conversions	Min 43 dB	Min 43 dB	Max 64 dB

- 3.2 It is noted that airborne sound insulation is measured as a difference in sound levels across a partition. Therefore, a larger difference represents a better level of insulation, and the Regulations state the requirements as a minimum acceptable difference. In contrast, impact sound insulation is measured as an absolute level in the receiving room, due to the standard tapping hammer on the floor above. In this situation, a lower noise level represents a better level of insulation and the Regulations therefore specify a maximum allowable level.

- 3.3 Condition 36 calls for a 5 dB betterment of the Building Regulations for the separating walls and floors to residential accommodation, and the performance target is therefore as follows:

Requirements of Document E 2003	Party Walls - Airborne Insulation $D_{nT,w} + C_{tr}$	Party Floors - Airborne Insulation $D_{nT,w} + C_{tr}$	Party Floors - Impact Insulation $L'_{nT,w}$
156 West End Lane	Min 50 dB	Min 50 dB	Max 57 dB

- 3.4 The following paragraphs will review the proposed wall and floor constructions to be used in these situations. In order to demonstrate compliance, reference will be made to the Marshall Day INSUL predictive software, which is very commonly used to predict the sound insulation performance of partition constructions.

- 3.5 The proposed party wall constructions are as follows:

Reference	Location	Construction	INSUL Prediction ¹ $D_{nT,w} + C_{tr}$	Figure
IWS-09	Residential to Staircase	12.5mm Universal board on 200mm RC Wall, Dryliner system, 35mm void with 25mm insulation in the gap, 15mm Universal board	55 dB	1
IWS-10	Residential to Lift Shaft	200mm RC Wall, 10mm clear void, 50mm stud with 50mm insulation in the studs, 2 x 15mm GTEC dB board	71 dB	2
IWS-13	Residential to Residential	2 x 15mm GTEC dB boards either side of a twin wall studwork construction. 240mm fully filled void	63 dB	3
IWS-15	Residential to Corridor	15mm GTEC dB + 15mm dB Universal board either side of a twin wall studwork construction. 240mm fully filled void	63 dB	5
IWS-16	Residential to Riser	2 x 15mm GTEC dB boards either side of a twin wall studwork construction. 200mm fully filled void. 60mm Stud, 19mm GTEC Firecore Board	59 dB	6

3.6 The proposed party floor constructions are as follows:

Reference	Location	Construction	INSUL Prediction ² $D_{nT,w} + C_{tr}$	Figure
FT-07	Residential to Residential	6mm acoustic Matt, 225mm RC Slab, Nom. 150mm void, 15mm GTEC dB board to ceiling	61 dB	7
FT-12	Residential to Residential	Nom. 40mm screed over 6mm Isolating Layer, 225mm RC slab, Nom. 150mm void, 15mm GTEC dB board to ceiling	62 dB	8

¹ Predictions allows a 3 dB tolerance for the INSUL prediction

² Predictions allows a 3 dB tolerance for the INSUL prediction

3.7 In respect of impact sound insulation, the predicted performance of the proposed party floor constructions is as follows:

Reference	Location	Construction	INSUL Prediction ³ $L'_{nT,w}$	Figure
FT07	Residential to Residential	6mm acoustic Matt, 225mm RC Slab, Nom. 150mm void, 15mm GTEC dB board to ceiling	54 dB	9
FT12	Residential to Residential	Nom. 40mm screed over 6mm Isolating Layer, 225mm RC slab, Nom. 150mm void, 15mm GTEC dB board to ceiling	49 dB	10

3.8 In respect of flanking noise around the ends of party walls and floors, it is noted that all residential units will feature an internal wall lining of 2 x 15mm GTEC Universal board. This will be sufficient to limit the transmission of flanking noise.

3.9 A comparison with of the predicted values against the project specific targets given in Para. 3.3 confirms compliance throughout.

³ Predictions allows a 3 dB tolerance for the INSUL prediction

4. CONDITION 37, COMMERCIAL SEPARATION

- 4.1 Condition 37 calls for a 10 dB betterment of the Building Regulations for the separating walls and floors between residential accommodation and commercial areas. With reference to Para. 3.1, the performance target for these areas is therefore as follows:

Requirements of Document E 2003	Party Walls - Airborne Insulation $D_{nT,w} + C_{tr}$	Party Floors - Airborne Insulation $D_{nT,w} + C_{tr}$	Party Floors - Impact Insulation $L'_{nT,w}$
156 West End Lane	Min 55 dB	Min 55 dB	N/A ⁴

- 4.2 The proposed party wall construction is as follows:

Reference	Location	Construction	INSUL Prediction ⁵ $D_{nT,w} + C_{tr}$	Figure
IWS-14	Residential to Commercial	15mm GTEC dB Board onto 70mm insulated metal stud. 80mm clear void (fully filled), 140mm medium density block (or 200mm RC wall), 50mm independent insulated studs, 2 x 15mm GTEC dB boards	85 dB	4

- 4.3 The proposed party floor construction is as follows:

Reference	Location	Construction	INSUL Prediction ⁶ $D_{nT,w} + C_{tr}$	Figure
FT-05	Residential to Commercial	22mm cement particle board over 35mm Cradle & Batten supports, Nom. 150mm thermal insulation, 225mm RC Slab	68 dB	11

- 4.4 In respect of flanking noise around the ends of party walls and floors, it is noted that all residential units will feature an internal wall lining of 2 x 15mm GTEC Universal board. This will be sufficient to limit the transmission of flanking noise.

- 4.5 A comparison with of the predicted values against the project specific targets given in Para. 4.1 confirms compliance throughout.

- 4.6 Condition 37 also states that it will be necessary to demonstrate that the internal residential noise targets of BS8233:2014 are achieved. This Standard, 'Guidance on sound insulation and

⁴ It is noted that there are no commercial areas directly over residential accommodation. Therefore, there is no impact sound insulation requirement.

⁵ Predictions allows a 3 dB tolerance for the INSUL prediction

⁶ Predictions allows a 3 dB tolerance for the INSUL prediction

noise reduction in buildings', advises that a level of 30 dB(A) $L_{Aeq,t}$ would represent a good standard for sleeping conditions within a residential property.

- 4.7 For the purposes of this assessment, a worst-case scenario of noise levels not exceeding 90dB(A) within any commercial property has been used.
- 4.8 Appendix 1 provides details of a calculation through the proposed walls and floor structures, into adjacent residential units.
- 4.9 The result of these calculations is a residual noise level of 27 dB(A) horizontally, and 29 dB(A) vertically.
- 4.10 On that basis, it would be confirmed that the proposed structures are adequate.

FIGURE 1 – IWS-09

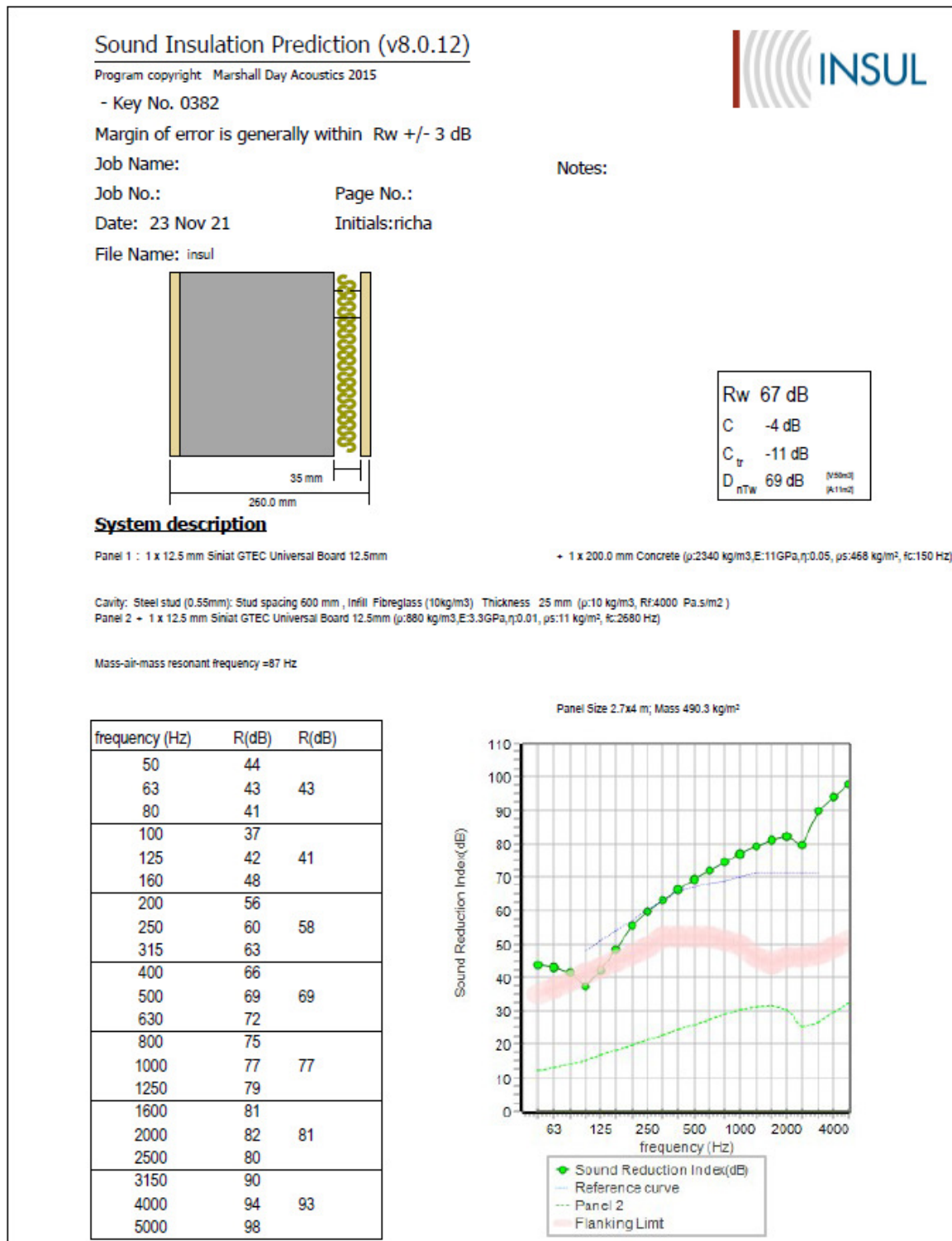


FIGURE 2 – IWS-10

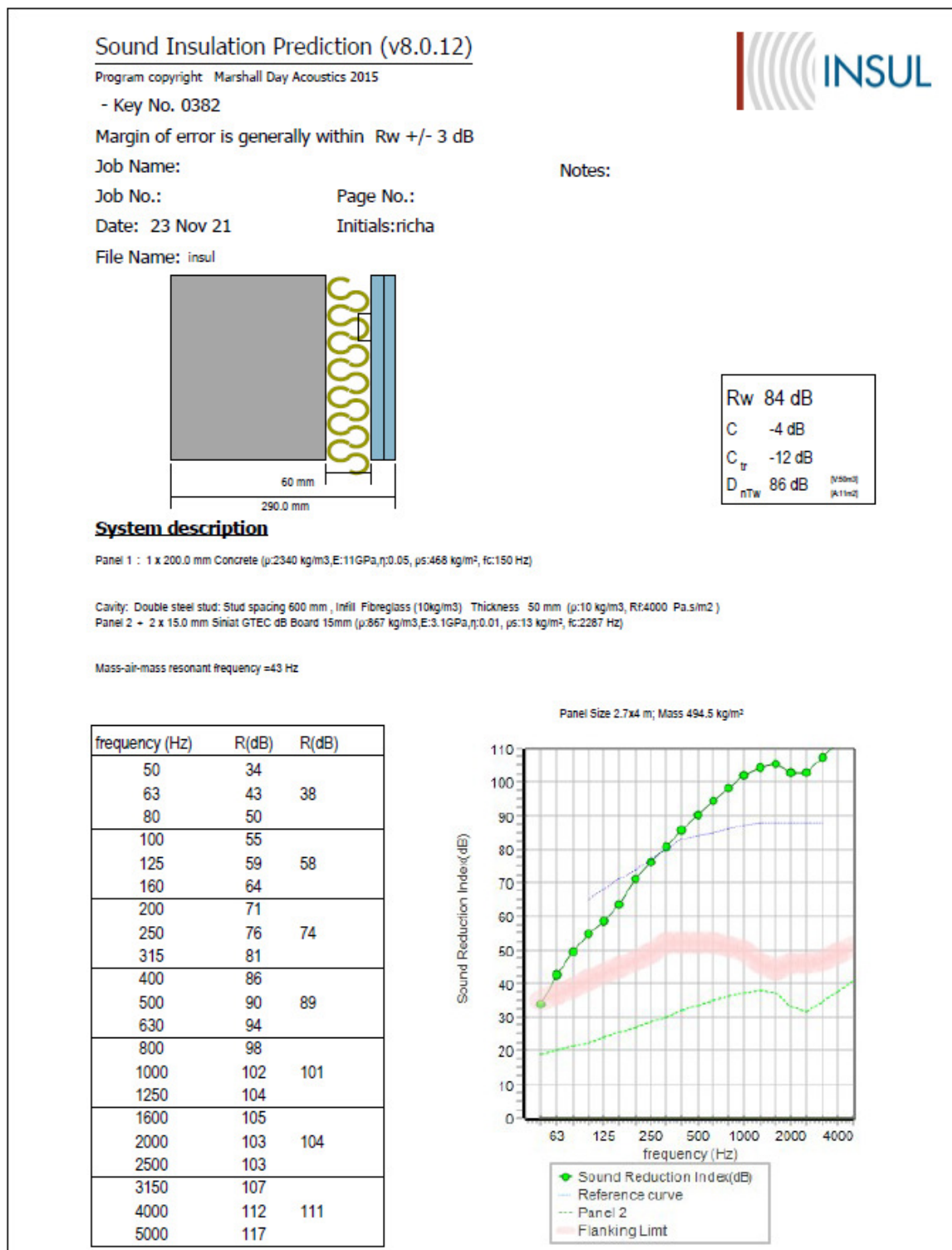


FIGURE 3 – IWS-13

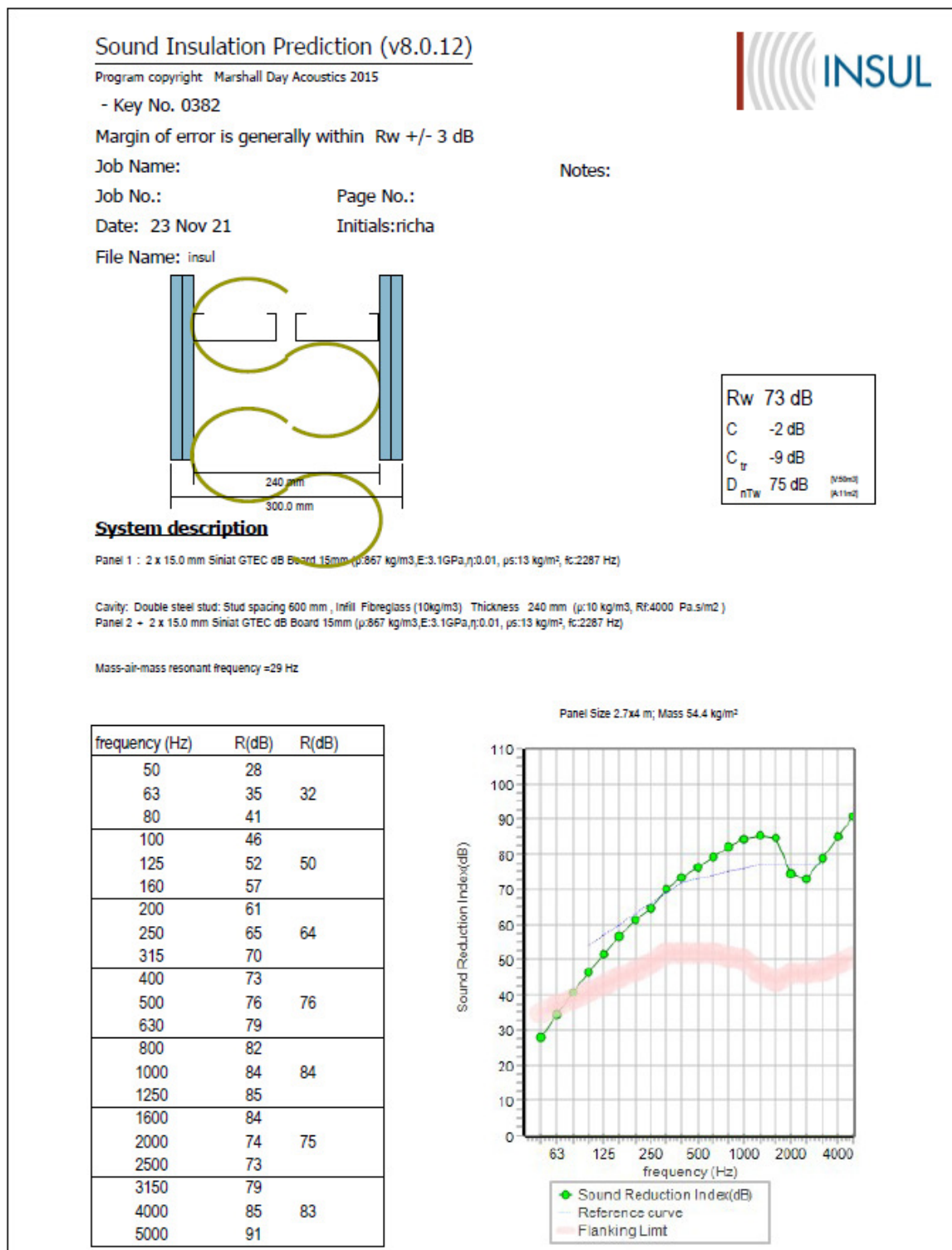


FIGURE 4 – IWS-14

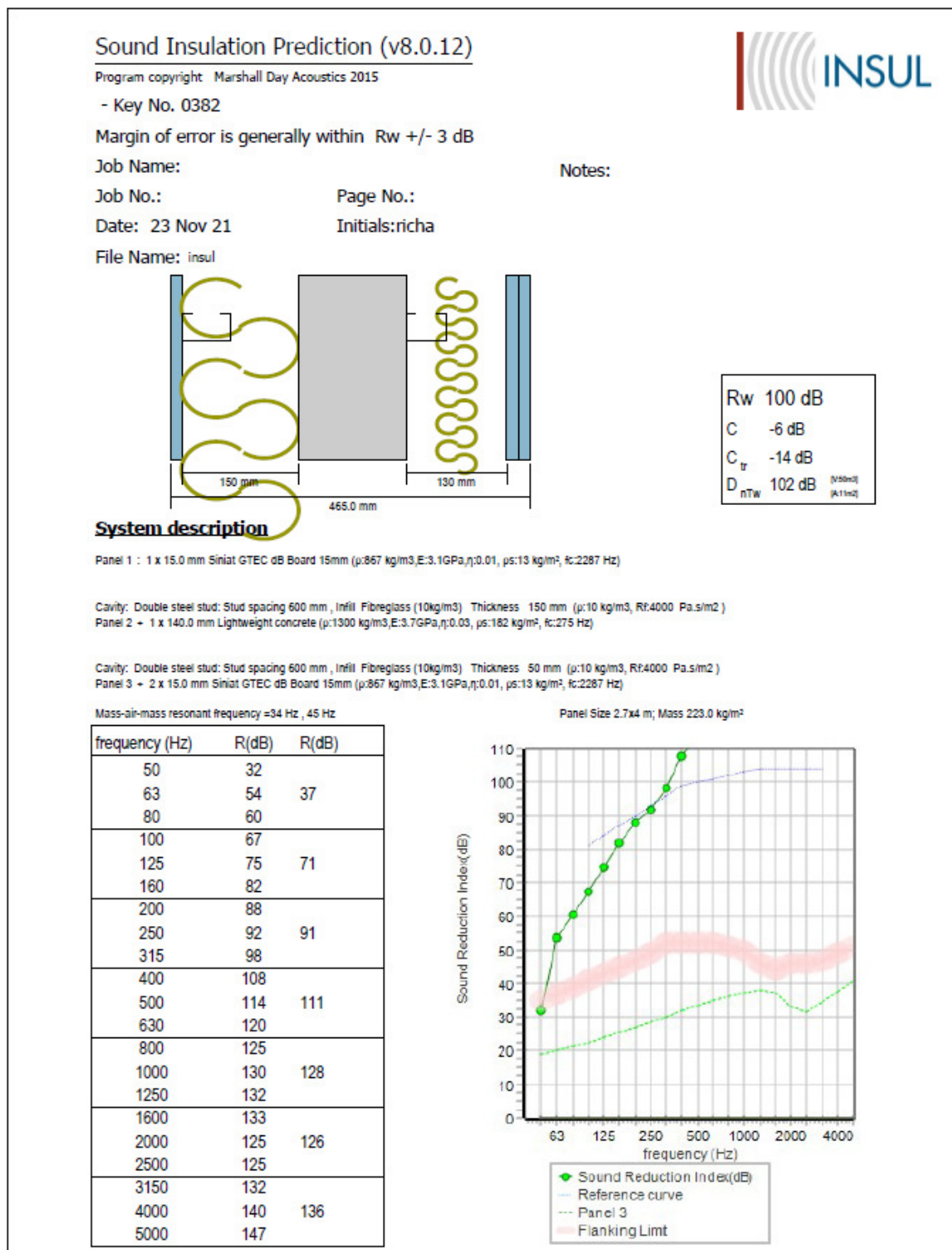


FIGURE 5 – IWS-15

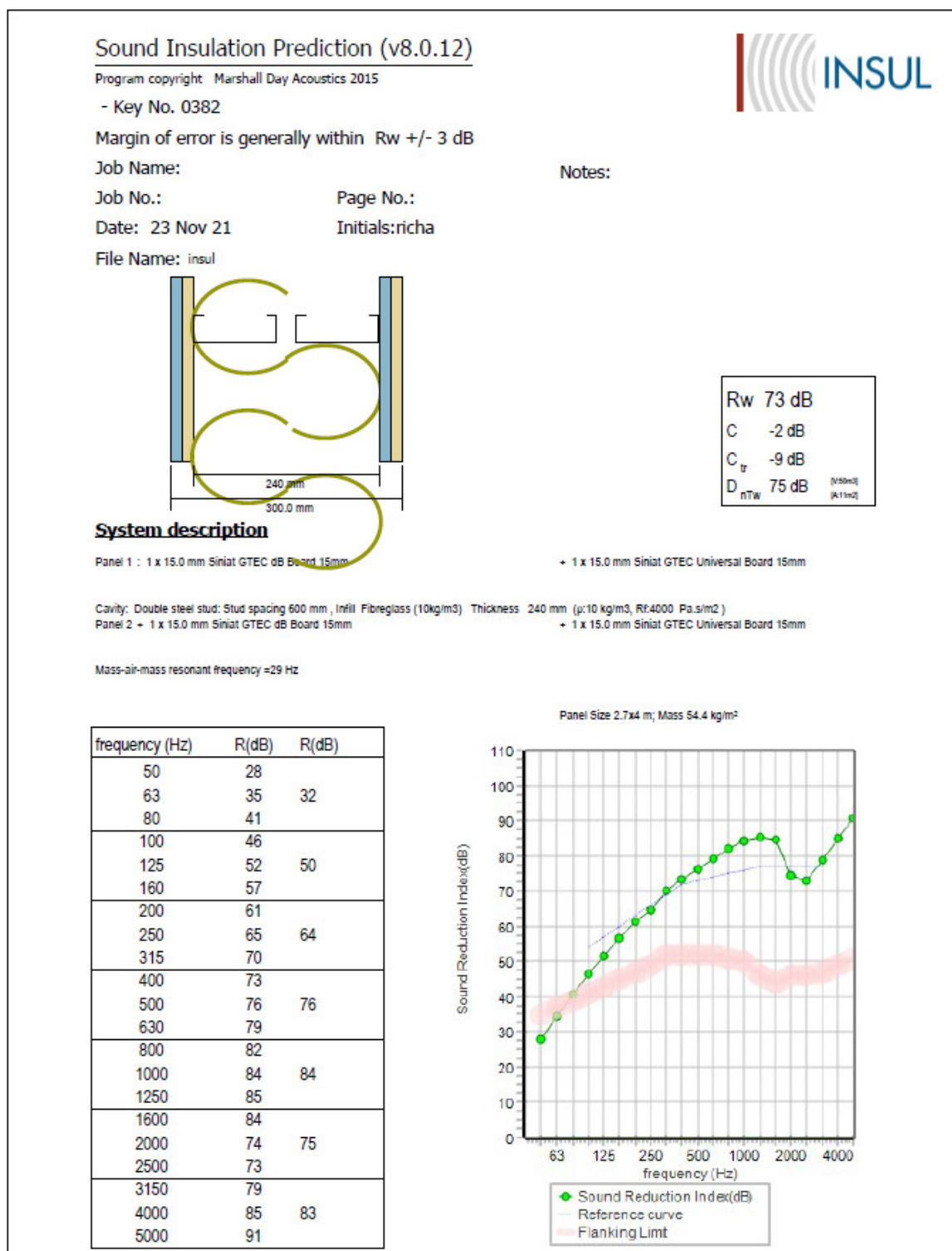


FIGURE 6 – IWS-16

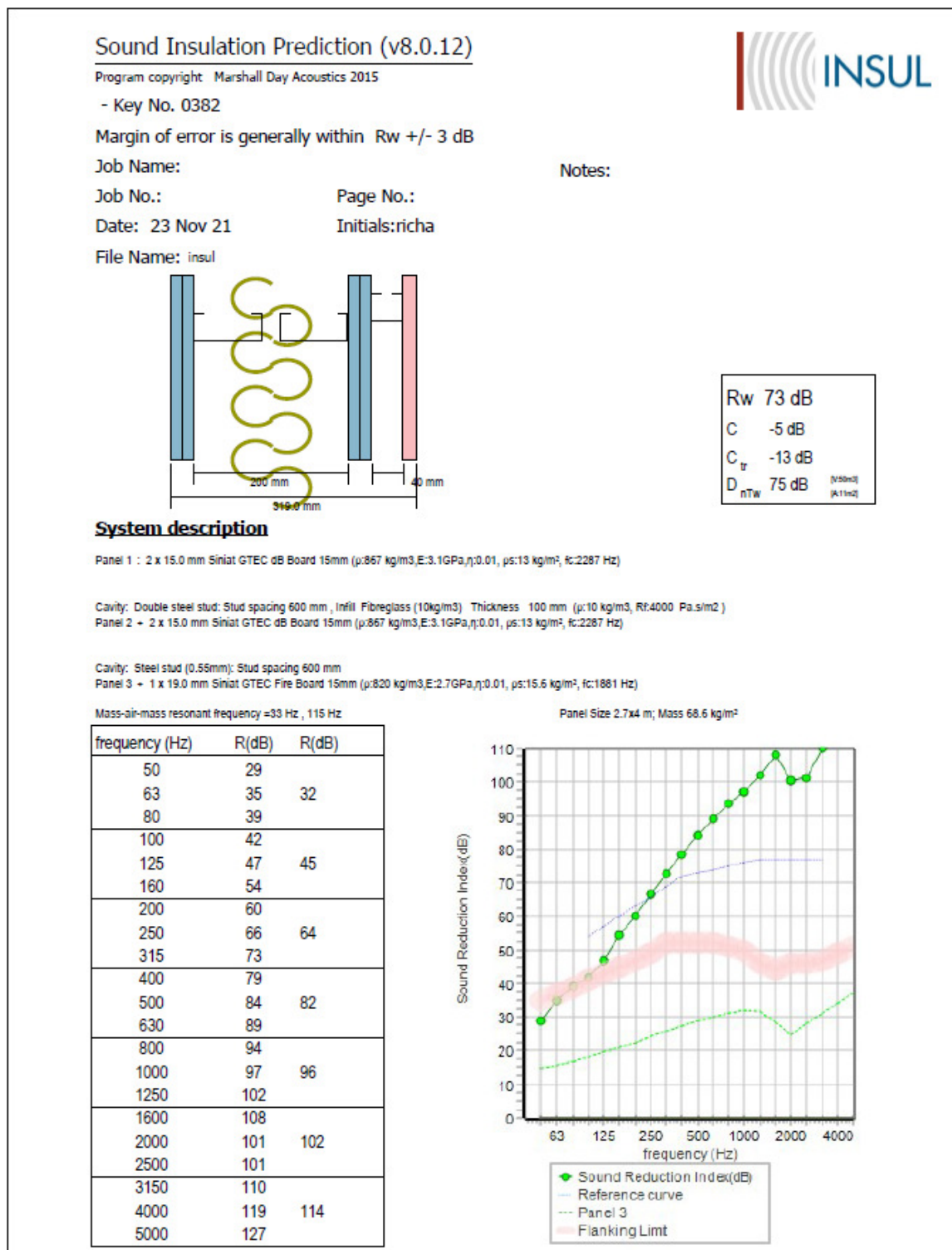


FIGURE 7 – FT-07 (Airborne)

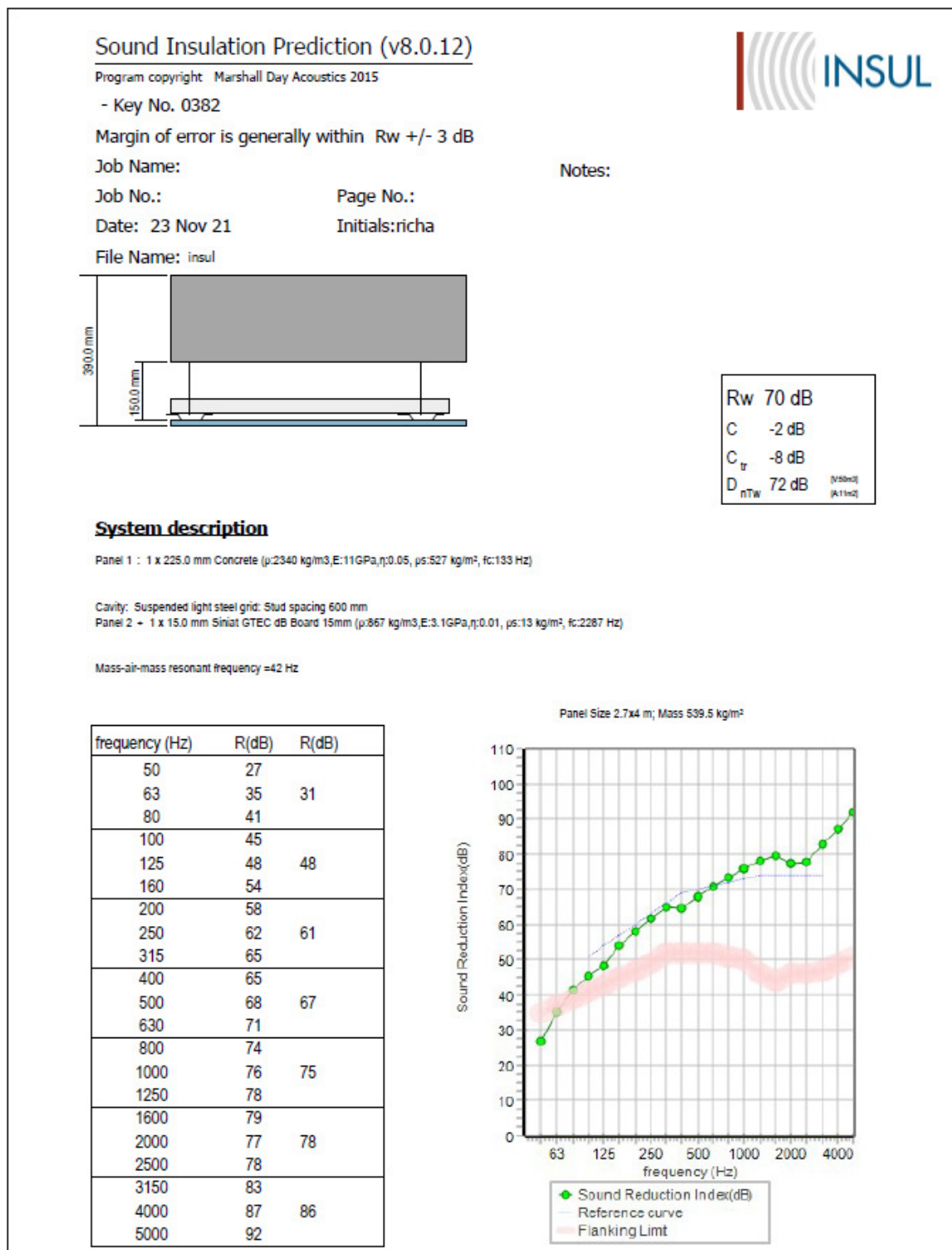


FIGURE 8 – FT-12 (Airborne)

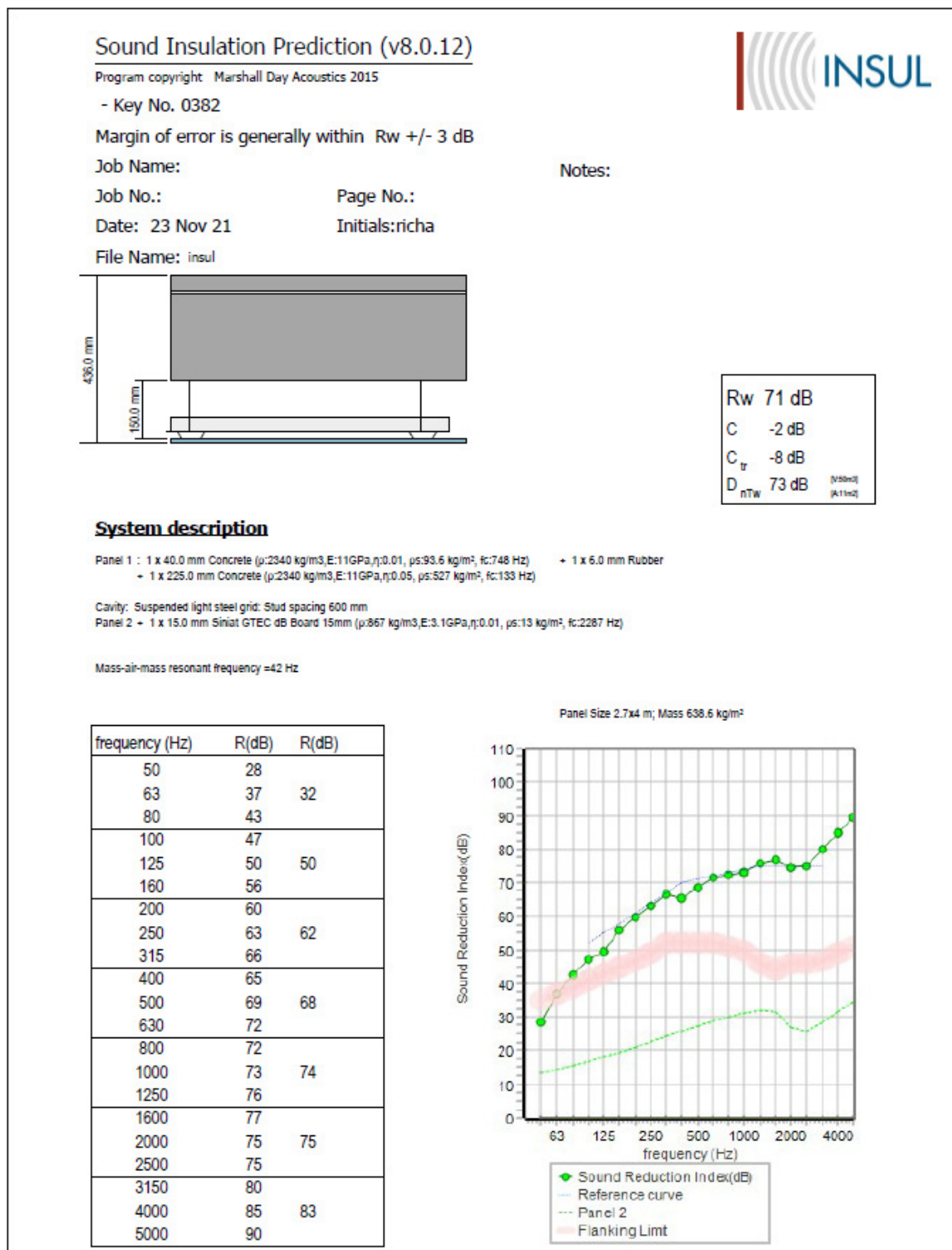


FIGURE 9 – FT-07 (Impact)

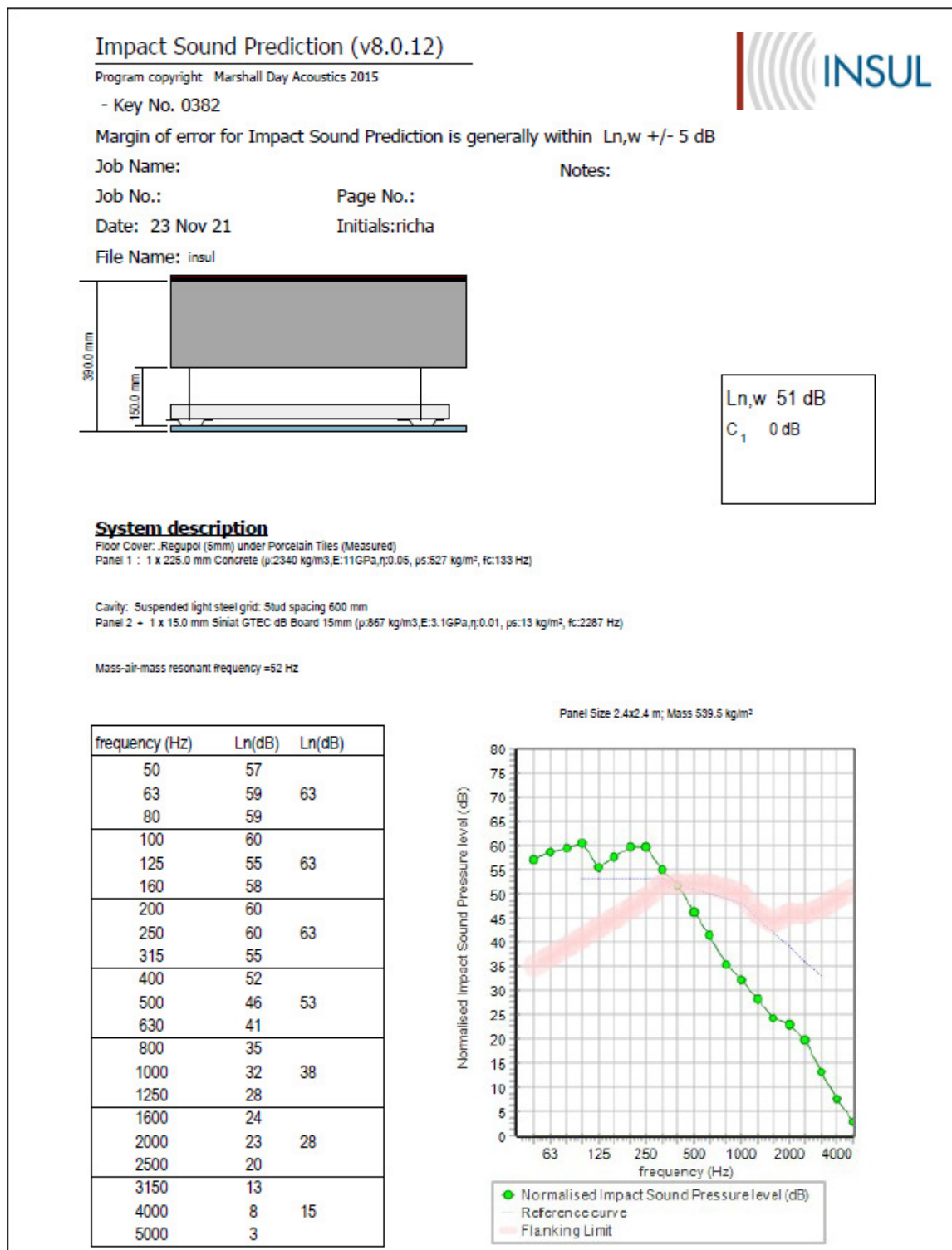


FIGURE 10 – FT-12 (Impact)

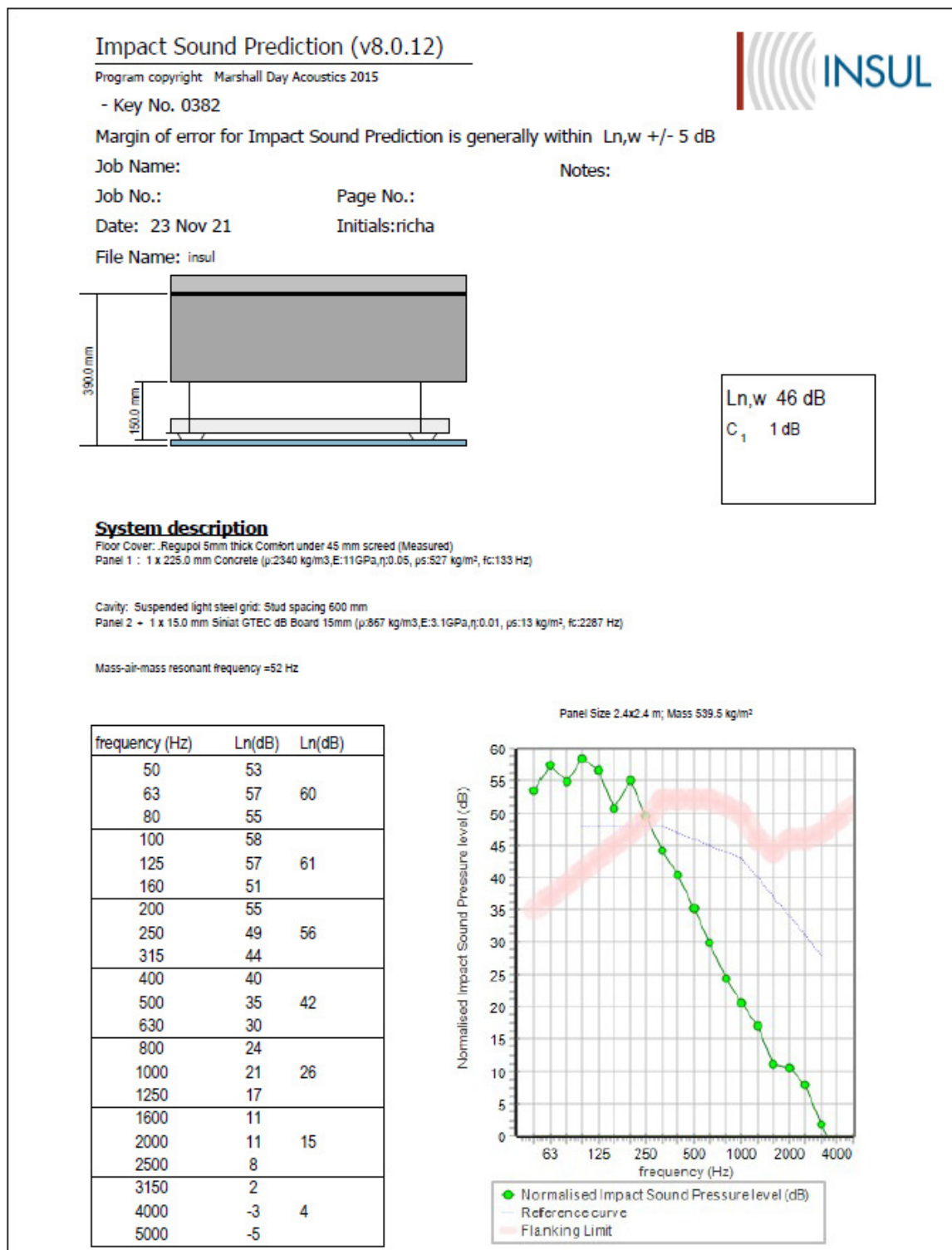
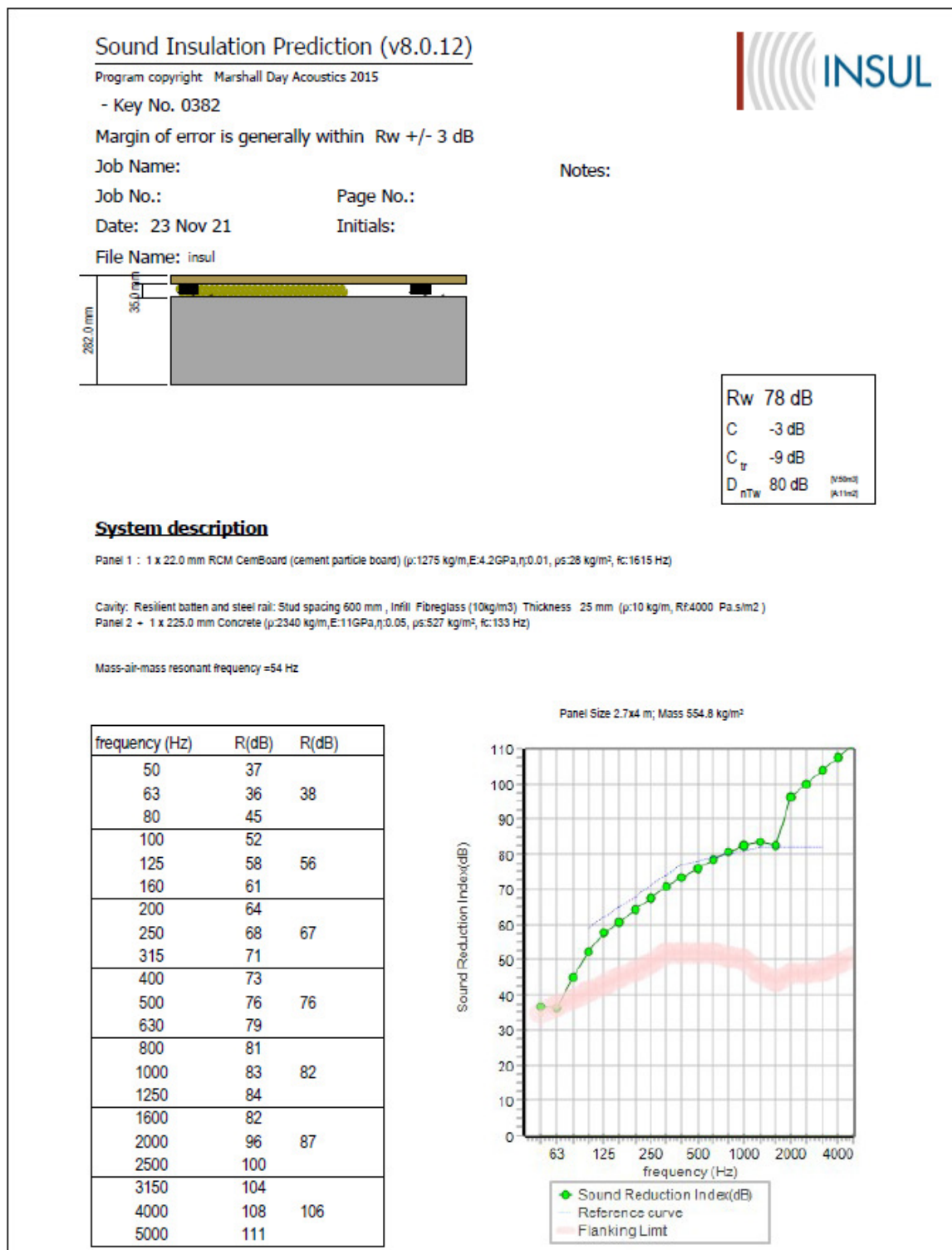


FIGURE 11 – FT-05 (Airborne)

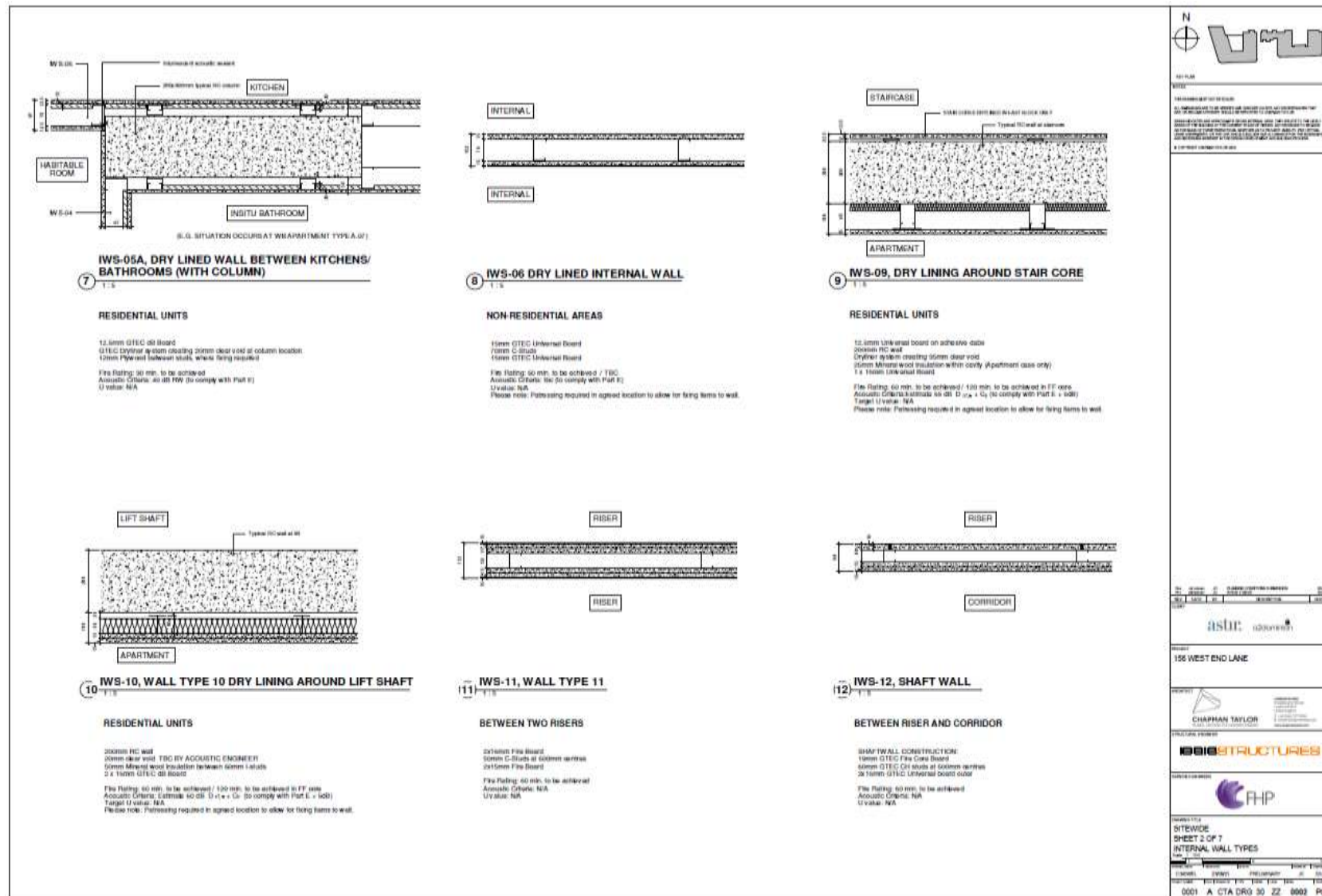


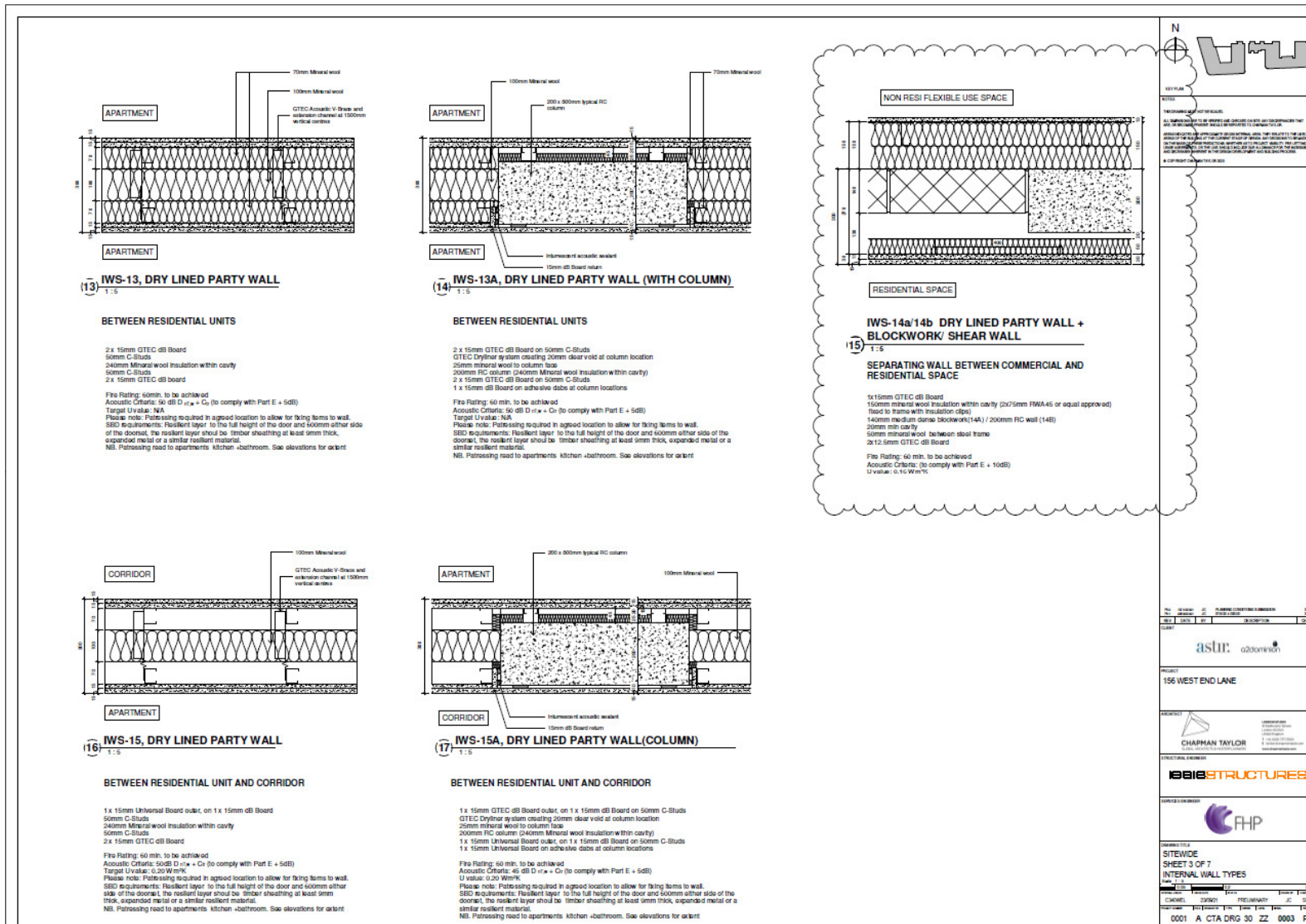
APPENDIX 1 – CALCULATION OF COMMERCIAL NOISE TRANSMISSION

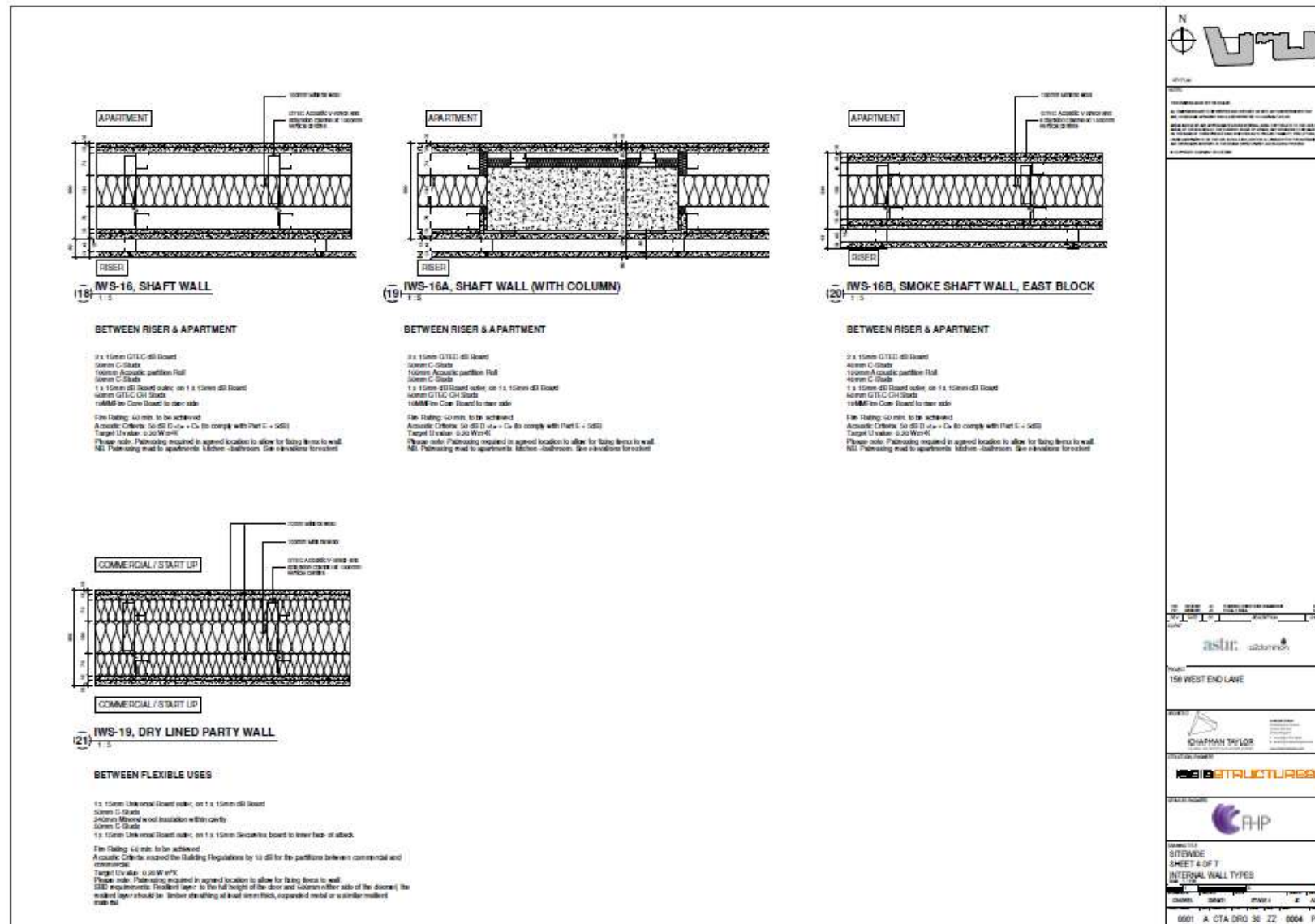
Frequency	Hz	63	125	250	500	1K	2K	4K	8K	dB(A)
Assumed Max Level in Commercial space, LAeq, t	dB	86	88	86	85	85	83	80	70	90
SRI Separating Wall IWS-14	dB	-34	-65	-65	-65	-70	-70	-70	-70	
Area Correction, 10m2	dB	10	10	10	10	10	10	10	10	
Absorption Correction in habitable room	dB	-10	-10	-10	-10	-10	-10	-10	-10	
Net SPL in Habitable Room	dB	52	23	21	20	15	13	10	0	27
Frequency	Hz	63	125	250	500	1K	2K	4K	8K	dB(A)
Assumed Max Level in Commercial space, LAeq, t	dB	86	88	86	85	85	83	80	70	90
SRI Separating Floor FT-05	dB	-35	-53	-64	-65	-70	-70	-70	-70	
Area Correction, 15m2	dB	12	12	12	12	12	12	12	12	
Absorption Correction in habitable room	dB	-10	-10	-10	-10	-10	-10	-10	-10	
Net SPL in Habitable Room	dB	53	37	24	22	17	15	12	2	29

** SRI figures for the two constructions have been capped from the INSUL predictions to reflect likely limits of flanking noise*

APPENDIX 2 – WALL TYPE DRAWINGS







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