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ACOUSTICS PLUS

Proposed Installation of Mechanical Plant

17 Branch Hill, London, NW3 7NA

Environmental Noise Assessment

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Project Address:	17 Branch Hill London NW3 7NA
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Issue/Revision Record

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3	23/05/2018	Revised plant schedule	Andy Dodd

	Signature:	Print:	Title:	Date:
Author:		**Andy Dodd**	**Senior Consultant**	**23/05/2018**
Reviewer:		**Phil Huffer**	**Principal Consultant**	**23/05/2018**

1. INTRODUCTION

1.1 Acoustics Plus Ltd (APL) is an independent firm of multi-disciplinary acoustic engineers. APL is engaged by both private and public sector clients. APL is a registered member of The Association of Noise Consultants (ANC) and the author is a corporate member of The Institute of Acoustics (IOA).

1.2 APL has been instructed by the Applicant's architect, SHH Architects, to consider and advise upon the noise implications of the proposed installation of a climate control system.

1.3 The climate control system will consist of 2No. external condenser units. These units are related to climate control of the newly built residential dwelling.

1.4 It is understood the Local Planning Authority (LPA) require further information on noise levels from the proposed installation in order to fully assess the noise impact upon the surrounding neighbourhood.

1.5 This report provides the response to the LPA, on behalf of the Applicant.

1.6 This report has been prepared by Acoustics Plus Limited (APL) with all reasonable skill, care, and diligence in accordance with generally accepted acoustic consultancy principles and taking account the services and terms agreed between APL and our client. Any information provided by third-parties and referred to herein may not have been checked or verified by APL unless expressly stated otherwise. Certain statements made in the report are predictions based on reasonable assumptions and good industry practice. Such statements involve risk and uncertainty which could cause measured and predicted results to differ materially. APL does therefore not guarantee or warrant any prediction contained in this report.

2. BASELINE SITUATION

2.1 The Application Site (the "site") is situated at17 Branch Hill, London, NW3. The site is situated within a predominantly residential area. The site and its surroundings can be seen in Figures 1 to 5.

2.2 The new house will require the installation of external condensers. These units will be associated with climate control and will be located in an area of the rear garden (see Diagram 1 overleaf).

2.3 The nearest noise sensitive windows to the condenser units are considered to be the rear windows of Nos. 1 & 2 The Chestnuts (see Diagram 2 overleaf).

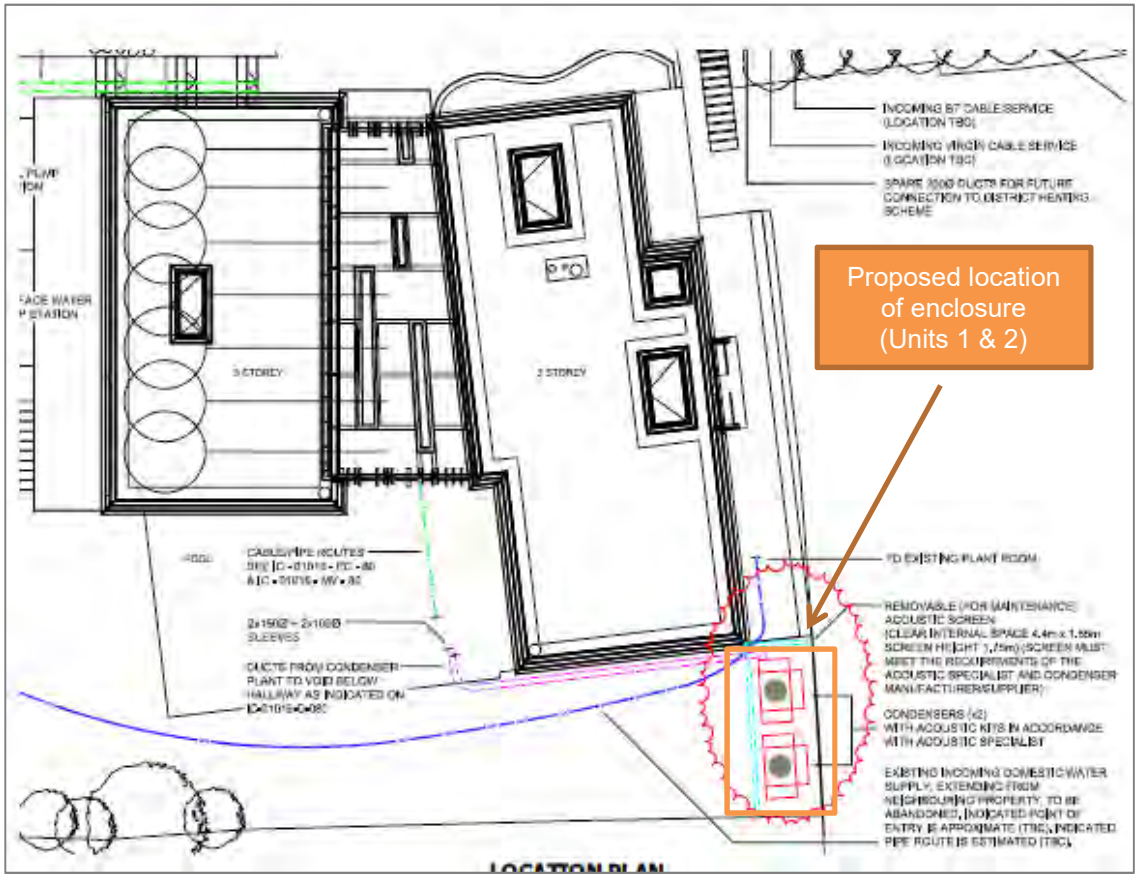


Diagram 1

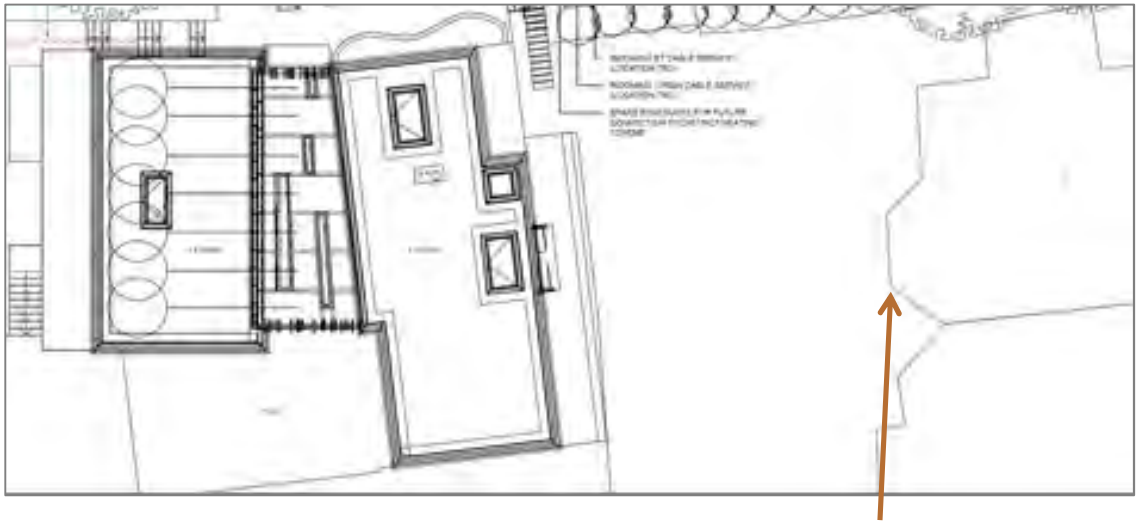


Diagram 2

Nearest affected noise sensitive facades (Nos 1& 2 The Chestnuts (10m away)

3. NOISE OUTLINE

3.1 In order to produce an environmental noise assessment, consideration must be given to the prevailing background noise in the locality of the installation.

3.2 Measurements of background noise were obtained over a 24 hour period at a location deemed representative of background noise levels experienced at the nearest noise sensitive façade. The measurements were obtained at the rear of the building adjacent to the site boundary with Nos. 1 & 2 The Chestnuts.

3.3 The particulars of the measurement exercise are recorded below. The weather conditions were considered appropriate to monitor environmental noise.

Date: 8th & 9th May 2018
Start Time: 11:04 hrs
Location: Rear of 17 Branch Hill.

Weather conditions

Date	Precipitation	Wind	Temperature
05/03/18	0.0mm	6km/h	16 ºC
06/03/18	0.0mm	12km/h	15 ºC

3.4 Minimum background and average noise levels are shown in Table 1 below (L_{Aeq} and L_{A90}). Noise levels were influenced by items of mechanical plant located adjacent to the site.

Time period	Lowest $L_{A90,15min}$	Average $L_{Aeq,T}$
07:00-23:00hrs	34[1]	70[1]
23:00-07:00hrs	32	49

Table 1

[1] Measurement data during the daytime period was coloured by construction activities taking place on site during the period 08:00 to 17.30)

4. DESIGN CRITERIA

4.1 Information regarding the noise levels not to be exceeded by the proposed installation was extracted from the LPA (London Borough of Camden) Local Plan Adopted version June 2017 (Appendix 3 Noise thresholds).

Industrial and Commercial Noise Sources

A relevant standard or guidance document should be referenced when determining values for LOAEL and SOAEL for non-anonymous noise. Where appropriate and within the scope of the document it is expected that British Standard 4142:2014 'Methods for rating and assessing industrial and commercial sound' (BS 4142) will be used. For such cases a 'Rating Level' of 10 dB below background (15dB if tonal components are present) should be considered as the design criterion).

Table C: Noise levels applicable to proposed industrial and commercial developments (including plant and machinery)

Existing noise sensitive receptor	Assessment Location	Design Period	LOAEL (green)	LOAEL to SOAEL (Amber)	SOAL (Red)
Dwellings**	Garden used for main amenity (free field) and outside living or dining or bedroom window (façade)	Day	'Rating level' 10dB* below background	'Rating level' between 9dB below and 5dB above background	'Rating level' greater than 5dB above background
Dwellings**	Outside bedroom window (façade)	Night	'Rating level' 10dB* below background and no events exceeding 57dB L_{Amax}	'Rating level' between 9dB below and 5dB above background or noise events between 57dB and 88dB L_{Amax}	'Rating level' greater than 5dB above background and/or events exceeding 88dB L_{Amax}

*10dB should be increased to 15dB if the noise contains audible tonal elements. (day and night). However, if it can be demonstrated that there is no significant difference in the character of the residual background noise and the specific noise from the proposed development then this reduction may not be required. In addition, a frequency analysis (to include, the use of Noise Rating (NR) curves or other criteria curves) for the assessment of tonal or low frequency noise may be required.

**levels given are for dwellings, however, levels are use specific and different levels will apply dependent on the use of the premises.

The periods in Table C correspond to 0700 hours to 2300 hours for the day and 2300 hours to 0700 hours for the night. The Council will take into account the likely times of occupation for types of development and will be amended according to the times of operation of the establishment under consideration.

4.1 The procedure contained in BS4142 is to quantify the "specific sound level", which is the measured or predicted level of sound from the source in question over a one hour period for the daytime and a 15 minute period for the night-time. Daytime is defined in the standard as 07:00 to 23:00 hours, and night-time as 23:00 to 07:00 hours.

4.2 The specific sound level is converted to a rating level by adding penalties to account for either tonality or impulsivity. The standard sets out objective methods for determining the presence of tones or impulsive elements but notes that it is acceptable to subjectively determine these effects.

4.3 The penalty for tonal elements is between 0dB and 6dB, and the standard notes:

"Subjectively, this can be converted to a penalty of 2 dB for a tone which is just perceptible at the noise receptor, 4 dB where it is clearly perceptible, and 6 dB where it is highly perceptible."

4.4 The penalty for impulsive elements is between 0dB and 9dB, and the standard notes:

"Subjectively, this can be converted to a penalty of 3 dB for impulsivity which is just perceptible at the noise receptor, 6 dB where it is clearly perceptible, and 9 dB where it is highly perceptible."

4.5 With regard to intermittency, the standard notes:

"When the specific sound has identifiable on/off conditions, the specific sound level ought to be representative of the time period of length equal to the reference time interval which contains the greatest total amount of on time. This can necessitate measuring the specific sound over a number of shorter sampling periods that are in combination less than the reference time interval in total, and then calculating the specific sound level for the reference time interval allowing for time when the specific sound is not present. If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied."

4.6 The background sound level should be established in terms of the LA90 noise index. The standard states that the background sound level should be measured over a period of sufficient length to obtain a representative value. This should not normally be less than 15 minute intervals. The standard states that:

"A representative level ought to account for the range of background sound levels and ought not automatically to be assumed to be either the minimum or modal value."

4.7 The assessment outcome results from a comparison of the rating level with the background sound level. The standard states:

a) Typically, the greater this difference, the greater the magnitude of the impact.
b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.
d) The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.
Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact."

4.8 The standard goes on to note that:

"*Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night."*

4.9 In addition to the margin by which the Rating Level of the specific sound source exceeds the Background Sound Level, the 2014 edition places emphasis upon an appreciation of the context, as follows:

"An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessments and arriving at decisions, therefore, it is essential to place the sound in context."

4.10 The background noise levels were assessed using statistical analysis of the measured data, as directed in BS4142. The histogram for the operational hours of the condenser units can be seen in Diagrams 3 and 4.

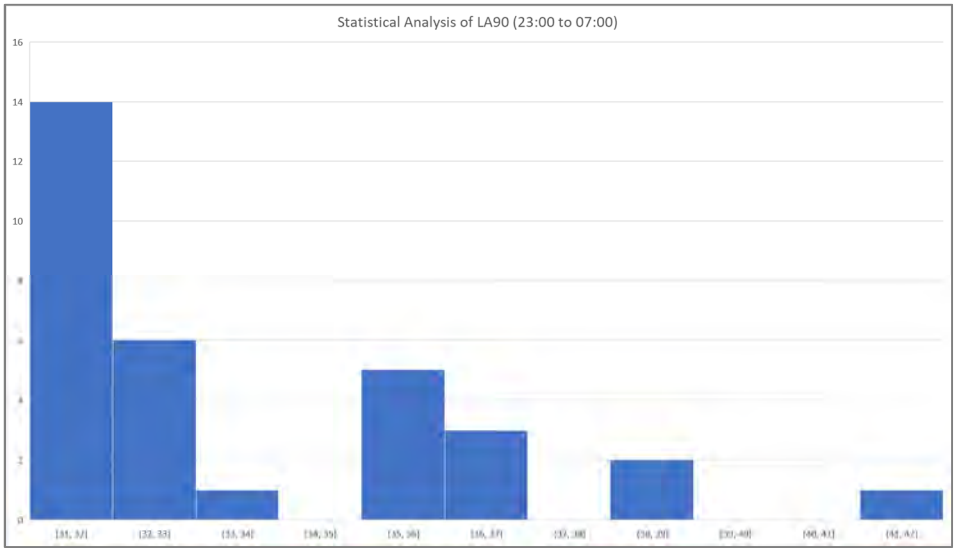


Diagram 3

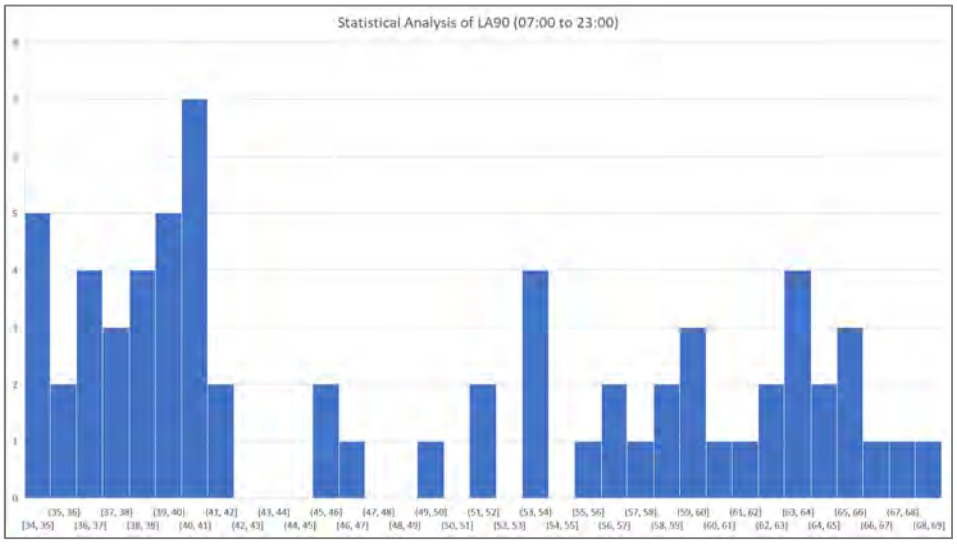


Diagram 4

4.11 The background noise varied significantly throughout the measurement period due to construction works taking place onsite during the day (08:00 to 17.30). However, the measurement data collected during the late evening provides an accurate indication of the noise climate in the area when construction activities are absent and no construction or building works occurred during the night time period.

4.12 In this instance, the most commonly occurring daytime background noise level was 6dB higher than the lowest background noise level. The most commonly occurring night-time background noise level was the same as the lowest background noise level. In the context in which the sound occurs, 34dB $L_{A90,15min}$ is considered as appropriate for daytime levels and 32dB $L_{A90,15min}$ for night-time levels.

4.13 In determining a rating level, corrections to account for tonality and impulsivity must be added to the specific noise level of the unit. The octave band sound levels of the condenser (see Appendix A) may indicate a tonal component, a correction of +2dB was added to account for this. No correction of was added to account for impulsivity as the condenser units are understood to be inverter driven but an acoustic correction of +3dB was added for intermittency.

4.14 The plant noise emission criteria that should not be exceeded is therefore based on Table 1 and is shown in Table 2 below. These levels should not be exceeded at the nearest noise sensitive façade.

Noise emission limit for mechanical plant	
Daytime limit	Night time limit
L_{Aeq} 24dB	L_{Aeq} 22dB

Table 2

4.15 The noise levels of the proposed condenser units were obtained from manufacturers data sheets as follows (see Appendix A). Condenser units 1 and 2 relate to the climate control of the new residential dwelling.

(a) Condenser units 1&2 – Mitsubishi PUHY-P250YKB 59dBA @ 1m (per unit)

5. EQUIPMENT

5.1 All background noise measurements were obtained using the following equipment:

- Norsonic NOR-140 Class 1 Serial No. 1403466
- Rion Calibrator Type NC-74 Class 1 Serial No. 00410215

5.2 The relevant equipment carries full and current traceable calibration. The equipment, where necessary, was calibrated prior to and after the measurements were carried out.

6. CALCULATIONS

6.1 In order to predict the noise impact of the climate control system, consideration has been given to noise egress from the condenser units to the nearest noise sensitive façade. The following noise impacts were considered:

(a) Noise impact from daytime use of climate control system;

(b) Noise impact from night time use of climate control system.

Noise impact (a)

6.2 In considering the propagation of noise from the condensers, consideration was given to their location within an acoustic enclosure and point source propagation to the nearest noise sensitive window. The following formulas were utilised:

$$L_p = L_w + 10log_{10}T - 10log_{10}V + 14$$

Where L_p *is the reverberant sound pressure level in the enclosure*
L_w *is the sound power level of the condenser units*
T is the enclosure reverberation time, s
V is the enclosure volume, m^3

$$L_{p_2} = L_{p_1} - R - 6$$

Where L_{p_2} *is the sound pressure level close to the enclosure on the outside*
L_{p_1} *is the reverberant sound pressure level in the enclosure*
R is the sound reduction index of the acoustic enclosure

6.3 The calculation is based on the Transmission Loss figures provided by Allaway Acoustics and Mitsubishi Electric. These values are shown in Table 3 and were obtained from published datasheets (see Appendix A)

Acoustic enclosure & Acoustic kits	Transmission Loss Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
Acoustic kits (top and side)	3	6	6	9	13	13	9	8
Solid Panel	17	19	26	33	38	42	45	44
Louvre	4	4	5	8	12	16	15	13
Composite performance(R_w)	6	6	7	10	14	18	17	15

Table 3

6.4 A further correction to account for building edge diffraction of -10dB was assumed. This was extracted from the Department of Energy and Climate Change Planning Standard MCS020.

6.5 The planning standard MCS020 states the following (Note 5):

"Note 5: Barriers between the heat pump and the assessment position (STEP 5) A correction should be made for attenuation due to barriers between the air source heat pump and an assessment position. A correction will be necessary if an installer is unable to see an assessment position from the top edge of the air source heat pump. Use the following instructions to determine whether a correction is appropriate:

- *For a solid barrier (e.g. a brick wall or a fence) that completely obscures an installer's vision of an assessment position from the top edge of the air source heat pump attenuation of -10 dB may be assumed.*
- *Where a solid barrier completely obscures an installer's vision of an assessment position from the top or side edges of the air source heat pump, but moving a maximum distance of 25 cm in any direction to the air source heat pump allows an assessment position to be seen, attenuation of -5 dB may be assumed.*
- *If it is possible for an installer to see any part of an assessment position from the top or side edges of the air source heat pump no attenuation may be assumed. "*

6.6 The calculation exercise provided the following results.

Both units operational	Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
Mitsubishi PUHY-P250YKB (standard mode)	75	65	62	57	50	46	42	38	59
2No. Mitsubishi PUHY-P250YKB (standard mode)	78	68	65	60	53	49	45	41	62
Acoustic kits	-3	-6	-6	-9	-13	-13	-9	-8	
L_w	86	73	70	62	51	47	47	44	
Reverberant L_p in enclosure	77	64	61	53	42	38	38	35	57
Composite enclosure performance	6	6	7	10	14	18	17	15	
Level outside of enclosure	65	52	48	37	22	14	15	14	44
Distance attenuation (9m)	-19	-19	-19	-19	-19	-19	-19	-19	
Reflecting plane correction	+3	+3	+3	+3	+3	+3	+3	+3	
On-time correction	-3	-3	-3	-3	-3	-3	-3	-3	
Intermittency	+3	+3	+3	+3	+3	+3	+3	+3	
Tonality	+2	+2	+2	+2	+2	+2	+2	+2	
Impulsivity	0	0	0	0	0	0	0	0	
Building edge diffraction	-10	-10	-10	-10	-10	-10	-10	-10	
Façade level	41	28	24	13	0	0	0	0	**20**

Table 4

6.7 In order to comply with the requirements of the LPA, any noise from the proposed installation of mechanical plant should not exceed a level of 24 dBA (10dB below the statistically considered measured background noise over the operational hours of the plant) at 1m from the nearest noise sensitive façade.

6.8 The calculated noise impact is 20dBA. The calculation exercise (Table 4) demonstrates that the proposed installation meets the LPA criteria by 4dB with the noise impact 14dB lower than the statistically considered background noise level of 34dB L_{A90}.

Noise impact (b)

6.9 In considering the propagation of noise from the condensers, consideration was given to their location within an acoustic enclosure and point source propagation to the nearest noise sensitive window. The following formulas were utilised:

$$L_p = L_w + 10log_{10}T - 10log_{10}V + 14$$

Where L_p *is the reverberant sound pressure level in the enclosure*
L_w *is the sound power level of the condenser units*
T is the enclosure reverberation time, s
V is the enclosure volume, m^3

$$L_{p_2} = L_{p_1} - R - 6$$

Where L_{p_2} *is the sound pressure level close to the enclosure on the outside*
L_{p_1} *is the reverberant sound pressure level in the enclosure*
R is the sound reduction index of the acoustic enclosure

6.10 The calculation is based on the Transmission Loss figures provided by Allaway Acoustics and Mitsubishi Electric. These values are shown in Table 5 and were obtained from published datasheets (see Appendix A)

Acoustic enclosure & Acoustic kits	Transmission Loss Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
Acoustic kits (top and side)	3	6	6	9	13	13	9	8
Solid Panel	17	19	26	33	38	42	45	44
Louvre	4	4	5	8	12	16	15	13
Composite performance(R_w)	6	6	7	10	14	18	17	15

Table 5

6.11 A further correction to account for building edge diffraction of -10dB was assumed. This was extracted from the Department of Energy and Climate Change Planning Standard MCS020.

6.12 The planning standard MCS020 states the following (Note 5):

"Note 5: Barriers between the heat pump and the assessment position (STEP 5) A correction should be made for attenuation due to barriers between the air source heat pump and an assessment position. A correction will be necessary if an installer is unable to see an assessment position from the top edge of the air source heat pump. Use the following instructions to determine whether a correction is appropriate:

- *For a solid barrier (e.g. a brick wall or a fence) that completely obscures an installer's vision of an assessment position from the top edge of the air source heat pump attenuation of -10 dB may be assumed.*
- *Where a solid barrier completely obscures an installer's vision of an assessment position from the top or side edges of the air source heat pump, but moving a maximum distance of 25 cm in any direction to the air source heat pump allows an assessment position to be seen, attenuation of -5 dB may be assumed.*
- *If it is possible for an installer to see any part of an assessment position from the top or side edges of the air source heat pump no attenuation may be assumed. "*

6.13 The calculation exercise provided the following results.

Both units operational	Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
Mitsubishi PUHY-P250YKB (Low noise mode)	62	60	47	46	39	31	29	26	48
2No. Mitsubishi PUHY-P250YKB (standard mode)	65	63	50	49	42	34	32	29	51
Acoustic kits	-3	-6	-6	-9	-13	-13	-9	-8	
L_w	73	68	55	51	40	32	34	32	
Reverberant L_p in enclosure	64	59	46	42	31	23	25	23	46
Composite enclosure performance	6	6	7	10	14	18	17	15	
Level outside of enclosure	52	47	33	25	10	-2	1	1	33
Distance attenuation (9m)	-19	-19	-19	-19	-19	-19	-19	-19	
Reflecting plane correction	+3	+3	+3	+3	+3	+3	+3	+3	
On-time correction	-3	-3	-3	-3	-3	-3	-3	-3	
Intermittency	+3	+3	+3	+3	+3	+3	+3	+3	
Tonality	+2	+2	+2	+2	+2	+2	+2	+2	
Impulsivity	0	0	0	0	0	0	0	0	
Building edge diffraction	-10	-10	-10	-10	-10	-10	-10	-10	
Façade level	28	23	9	1	0	0	0	0	**11**

Table 6

6.14 In order to comply with the requirements of the LPA, any noise from the proposed installation of mechanical plant should not exceed a level of 22 dBA (10dB below the statistically considered measured background noise over the operational hours of the plant) at 1m from the nearest noise sensitive façade.

6.15 The calculated noise impact is 11dBA. The calculation exercise (Table 6) demonstrates that the proposed installation meets the LPA criteria by 11dB with the noise impact 21dB lower than the statistically considered background noise level of 32dB L_{A90}.

7. CONCLUSION

7.1 The foregoing assessment indicates that the proposed installation meets the requirements imposed by the LPA. Additional mitigation measures other than those considered will not be required.

7.2 Lest there be any misunderstanding, the mitigation measures included in this report are as follows:

(a) Acoustic enclosure surrounding 2No. units on ground floor terrace. Sound transmission loss data as published by Allaway Acoustics.

(b) Acoustic Kits (top and side attenuators) are fitted to both units. Sound transmission loss data as published by Mitsubishi Electric.

(c) Both units to operate in low noise mode during the night time period (23:00 to 07:00).

7.3 It is recommended that the condensers are mounted on anti-vibration mounts to minimise the transmission of structure borne sound to other parts of the building.

7.4 In the event that an alternative manufacturer of condenser or acoustic kit is used or an alternative acoustic enclosure is specified, the calculation exercise should be revisited to ensure that compliance with the LPA requirements is maintained.

Figures

17 Branch Hill, London, NW3

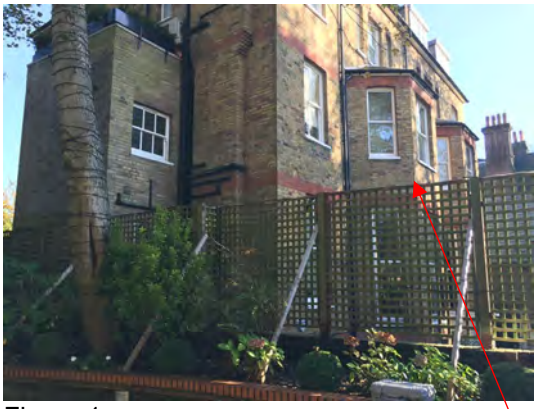


Figure 1

Figure 2

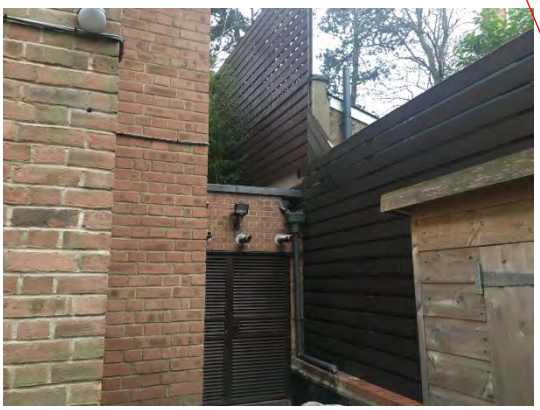


Figure 3

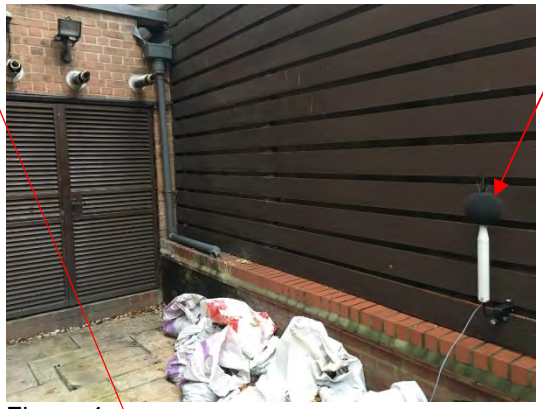


Figure 4

Noise monitoring location

Figure 5

Noise sensitive façade (rear of Nos1 & 2 The Chestnuts)

Appendix A

Background noise measurements at 17 Branch Hill, London, NW3 7NA.

File	Date	Duration	LAeq	LAFmax	LA90
NOR140_FILE_180508_0001.NBF	(2018/05/08 11:04:21.00)	(0:0:9.0)	38	44	36.60
NOR140_FILE_180508_0002.NBF	(2018/05/08 11:05:15.00)	(0:9:44.0)	58	87	40.50
NOR140_FILE_180508_0003.NBF	(2018/05/08 11:15:01.00)	(0:14:58.0)	63	87	39.70
NOR140_FILE_180508_0004.NBF	(2018/05/08 11:30:01.00)	(0:14:58.0)	64	81	41.20
NOR140_FILE_180508_0005.NBF	(2018/05/08 11:45:01.00)	(0:14:58.0)	67	87	58.90
NOR140_FILE_180508_0006.NBF	(2018/05/08 12:00:01.00)	(0:14:58.0)	70	98	55.20
NOR140_FILE_180508_0007.NBF	(2018/05/08 12:15:01.00)	(0:14:58.0)	72	104	57.90
NOR140_FILE_180508_0008.NBF	(2018/05/08 12:30:02.00)	(0:14:57.0)	77	88	64.80
NOR140_FILE_180508_0009.NBF	(2018/05/08 12:45:02.00)	(0:14:57.0)	79	87	68.10
NOR140_FILE_180508_0010.NBF	(2018/05/08 13:00:02.00)	(0:14:57.0)	78	89	67.60
NOR140_FILE_180508_0011.NBF	(2018/05/08 13:15:02.00)	(0:14:57.0)	76	82	62.10
NOR140_FILE_180508_0012.NBF	(2018/05/08 13:30:02.00)	(0:14:57.0)	75	85	65.60
NOR140_FILE_180508_0013.NBF	(2018/05/08 13:45:02.00)	(0:14:57.0)	67	85	60.70
NOR140_FILE_180508_0014.NBF	(2018/05/08 14:00:02.00)	(0:14:57.0)	69	91	63.20
NOR140_FILE_180508_0015.NBF	(2018/05/08 14:15:01.00)	(0:14:58.0)	74	88	66.00
NOR140_FILE_180508_0016.NBF	(2018/05/08 14:30:02.00)	(0:14:57.0)	75	89	65.10
NOR140_FILE_180508_0017.NBF	(2018/05/08 14:45:02.00)	(0:14:57.0)	67	87	53.10
NOR140_FILE_180508_0018.NBF	(2018/05/08 15:00:02.00)	(0:14:57.0)	48	72	45.70
NOR140_FILE_180508_0019.NBF	(2018/05/08 15:15:02.00)	(0:14:57.0)	47	58	45.30
NOR140_FILE_180508_0020.NBF	(2018/05/08 15:30:02.00)	(0:14:57.0)	67	83	53.00
NOR140_FILE_180508_0021.NBF	(2018/05/08 15:45:02.00)	(0:14:57.0)	70	95	62.40
NOR140_FILE_180508_0022.NBF	(2018/05/08 16:00:02.00)	(0:14:57.0)	68	89	63.40
NOR140_FILE_180508_0023.NBF	(2018/05/08 16:15:01.00)	(0:14:58.0)	69	80	65.10
NOR140_FILE_180508_0024.NBF	(2018/05/08 16:30:02.00)	(0:14:57.0)	67	81	64.00
NOR140_FILE_180508_0025.NBF	(2018/05/08 16:45:02.00)	(0:14:57.0)	67	92	59.30
NOR140_FILE_180508_0026.NBF	(2018/05/08 17:00:02.00)	(0:14:57.0)	68	85	58.00
NOR140_FILE_180508_0027.NBF	(2018/05/08 17:15:02.00)	(0:14:57.0)	66	87	59.40
NOR140_FILE_180508_0028.NBF	(2018/05/08 17:30:02.00)	(0:14:57.0)	67	86	49.10
NOR140_FILE_180508_0029.NBF	(2018/05/08 17:45:02.00)	(0:14:57.0)	48	67	40.50
NOR140_FILE_180508_0030.NBF	(2018/05/08 18:00:02.00)	(0:14:57.0)	44	62	40.00
NOR140_FILE_180508_0031.NBF	(2018/05/08 18:15:02.00)	(0:14:57.0)	45	63	40.20
NOR140_FILE_180508_0032.NBF	(2018/05/08 18:30:02.00)	(0:14:57.0)	44	64	40.20
NOR140_FILE_180508_0033.NBF	(2018/05/08 18:45:02.00)	(0:14:57.0)	43	60	39.80
NOR140_FILE_180508_0034.NBF	(2018/05/08 19:00:02.00)	(0:14:57.0)	45	57	40.50
NOR140_FILE_180508_0035.NBF	(2018/05/08 19:15:02.00)	(0:14:57.0)	44	62	39.00
NOR140_FILE_180508_0036.NBF	(2018/05/08 19:30:02.00)	(0:14:57.0)	44	63	38.10
NOR140_FILE_180508_0037.NBF	(2018/05/08 19:45:02.00)	(0:14:57.0)	47	71	40.00
NOR140_FILE_180508_0038.NBF	(2018/05/08 20:00:02.00)	(0:14:57.0)	51	84	41.00
NOR140_FILE_180508_0039.NBF	(2018/05/08 20:15:02.00)	(0:14:57.0)	45	62	39.70
NOR140_FILE_180508_0040.NBF	(2018/05/08 20:30:02.00)	(0:14:57.0)	43	54	39.10
NOR140_FILE_180508_0041.NBF	(2018/05/08 20:45:02.00)	(0:14:57.0)	46	67	37.40
NOR140_FILE_180508_0042.NBF	(2018/05/08 21:00:02.00)	(0:14:57.0)	52	74	36.20
NOR140_FILE_180508_0043.NBF	(2018/05/08 21:15:02.00)	(0:14:57.0)	37	55	34.90
NOR140_FILE_180508_0044.NBF	(2018/05/08 21:30:02.00)	(0:14:57.0)	38	53	35.10
NOR140_FILE_180508_0045.NBF	(2018/05/08 21:45:02.00)	(0:14:57.0)	39	55	34.80
NOR140_FILE_180508_0046.NBF	(2018/05/08 22:00:02.00)	(0:14:57.0)	36	51	34.00
NOR140_FILE_180508_0047.NBF	(2018/05/08 22:15:02.00)	(0:14:57.0)	37	47	34.30
NOR140_FILE_180508_0048.NBF	(2018/05/08 22:30:02.00)	(0:14:57.0)	38	56	34.40
NOR140_FILE_180508_0049.NBF	(2018/05/08 22:45:02.00)	(0:14:57.0)	37	48	33.80
NOR140_FILE_180508_0050.NBF	(2018/05/08 23:00:02.00)	(0:14:57.0)	36	51	33.40
NOR140_FILE_180508_0051.NBF	(2018/05/08 23:15:02.00)	(0:14:57.0)	35	54	32.70
NOR140_FILE_180508_0052.NBF	(2018/05/08 23:30:02.00)	(0:14:57.0)	35	43	33.10

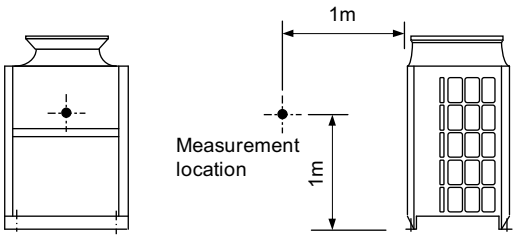
Background noise measurements at 17 Branch Hill, London, NW3 7NA.

File	Date	Duration	LAeq	LAFmax	LA90
NOR140_FILE_180508_0053.NBF	(2018/05/08 23:45:02.00)	(0:14:57.0)	35	53	32.80
NOR140_FILE_180509_0001.NBF	(2018/05/09 00:00:03.00)	(0:14:56.0)	34	44	32.50
NOR140_FILE_180509_0002.NBF	(2018/05/09 00:15:01.00)	(0:14:58.0)	34	52	32.70
NOR140_FILE_180509_0003.NBF	(2018/05/09 00:30:01.00)	(0:14:58.0)	34	50	32.20
NOR140_FILE_180509_0004.NBF	(2018/05/09 00:45:02.00)	(0:14:57.0)	33	47	32.00
NOR140_FILE_180509_0005.NBF	(2018/05/09 01:00:02.00)	(0:14:57.0)	39	59	32.30
NOR140_FILE_180509_0006.NBF	(2018/05/09 01:15:01.00)	(0:14:58.0)	34	53	32.10
NOR140_FILE_180509_0007.NBF	(2018/05/09 01:30:02.00)	(0:14:57.0)	35	47	32.30
NOR140_FILE_180509_0008.NBF	(2018/05/09 01:45:02.00)	(0:14:57.0)	35	52	31.60
NOR140_FILE_180509_0009.NBF	(2018/05/09 02:00:02.00)	(0:14:57.0)	33	41	31.50
NOR140_FILE_180509_0010.NBF	(2018/05/09 02:15:02.00)	(0:14:57.0)	33	46	31.60
NOR140_FILE_180509_0011.NBF	(2018/05/09 02:30:02.00)	(0:14:57.0)	33	49	31.60
NOR140_FILE_180509_0012.NBF	(2018/05/09 02:45:02.00)	(0:14:57.0)	38	58	31.60
NOR140_FILE_180509_0013.NBF	(2018/05/09 03:00:02.00)	(0:14:57.0)	46	64	31.90
NOR140_FILE_180509_0014.NBF	(2018/05/09 03:15:02.00)	(0:14:57.0)	34	56	31.30
NOR140_FILE_180509_0015.NBF	(2018/05/09 03:30:02.00)	(0:14:57.0)	36	50	31.60
NOR140_FILE_180509_0016.NBF	(2018/05/09 03:45:02.00)	(0:14:57.0)	37	54	31.50
NOR140_FILE_180509_0017.NBF	(2018/05/09 04:00:02.00)	(0:14:57.0)	48	63	32.90
NOR140_FILE_180509_0018.NBF	(2018/05/09 04:15:02.00)	(0:14:57.0)	49	67	36.50
NOR140_FILE_180509_0019.NBF	(2018/05/09 04:30:02.00)	(0:14:57.0)	52	63	38.90
NOR140_FILE_180509_0020.NBF	(2018/05/09 04:45:02.00)	(0:14:57.0)	56	70	41.80
NOR140_FILE_180509_0021.NBF	(2018/05/09 05:00:02.00)	(0:14:57.0)	53	68	38.60
NOR140_FILE_180509_0022.NBF	(2018/05/09 05:15:02.00)	(0:14:57.0)	53	69	36.00
NOR140_FILE_180509_0023.NBF	(2018/05/09 05:30:02.00)	(0:14:57.0)	48	67	35.60
NOR140_FILE_180509_0024.NBF	(2018/05/09 05:45:02.00)	(0:14:57.0)	50	66	36.00
NOR140_FILE_180509_0025.NBF	(2018/05/09 06:00:02.00)	(0:14:57.0)	57	77	36.70
NOR140_FILE_180509_0026.NBF	(2018/05/09 06:15:02.00)	(0:14:57.0)	55	76	37.30
NOR140_FILE_180509_0027.NBF	(2018/05/09 06:30:02.00)	(0:14:57.0)	47	61	36.30
NOR140_FILE_180509_0028.NBF	(2018/05/09 06:45:02.00)	(0:14:57.0)	47	64	36.30
NOR140_FILE_180509_0029.NBF	(2018/05/09 07:00:02.00)	(0:14:57.0)	44	64	36.10
NOR140_FILE_180509_0030.NBF	(2018/05/09 07:15:02.00)	(0:14:57.0)	46	63	37.00
NOR140_FILE_180509_0031.NBF	(2018/05/09 07:30:02.00)	(0:14:57.0)	44	65	36.80
NOR140_FILE_180509_0032.NBF	(2018/05/09 07:45:02.00)	(0:14:57.0)	56	87	37.80
NOR140_FILE_180509_0033.NBF	(2018/05/09 08:00:02.00)	(0:14:57.0)	71	99	53.30
NOR140_FILE_180509_0034.NBF	(2018/05/09 08:15:02.00)	(0:14:57.0)	69	86	56.20
NOR140_FILE_180509_0035.NBF	(2018/05/09 08:30:02.00)	(0:14:57.0)	68	84	56.60
NOR140_FILE_180509_0036.NBF	(2018/05/09 08:45:02.00)	(0:14:57.0)	69	88	51.20
NOR140_FILE_180509_0037.NBF	(2018/05/09 09:00:02.00)	(0:14:57.0)	72	96	53.10
NOR140_FILE_180509_0038.NBF	(2018/05/09 09:15:02.00)	(0:14:57.0)	68	88	46.80
NOR140_FILE_180509_0039.NBF	(2018/05/09 09:30:02.00)	(0:14:57.0)	67	95	51.40
NOR140_FILE_180509_0040.NBF	(2018/05/09 09:45:02.00)	(0:14:57.0)	68	85	57.30
NOR140_FILE_180509_0041.NBF	(2018/05/09 10:00:02.00)	(0:14:57.0)	76	101	63.30
NOR140_FILE_180509_0042.NBF	(2018/05/09 10:15:02.00)	(0:14:57.0)	74	100	63.20
NOR140_FILE_180509_0043.NBF	(2018/05/09 10:30:02.00)	(0:14:57.0)	76	106	61.80
NOR140_FILE_180509_0044.NBF	(2018/05/09 10:45:02.00)	(0:14:57.0)	69	96	38.70
NOR140_FILE_180509_0045.NBF	(2018/05/09 11:00:02.00)	(0:14:57.0)	49	67	38.20
NOR140_FILE_180509_0046.NBF	(2018/05/09 11:15:02.00)	(0:3:56.0)	78	108	38.60

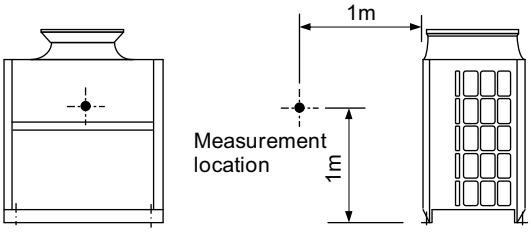
Considered LA90 day time (07:00 to 23:00)	34
Considered LA90 night time (23:00 to 07:00)	32
Average LAeq day time (07:00 to 23:00)	70
Average LAeq night time (23:00 to 07:00)	49

Appendix B

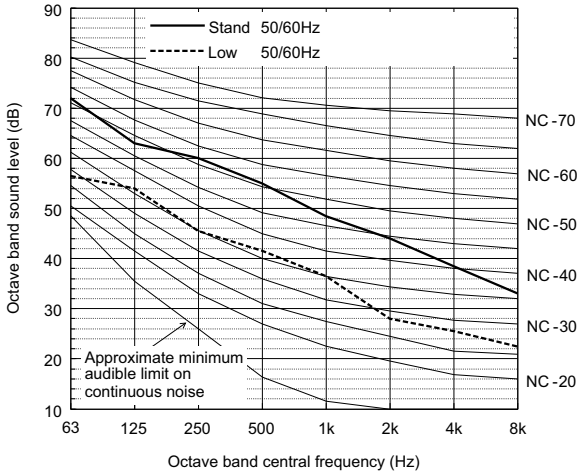
Measurement condition
PUHY-P200, 250YKB-A1(-BS)



Measurement condition
PUHY-P300, 350, 400YKB-A1(-BS)



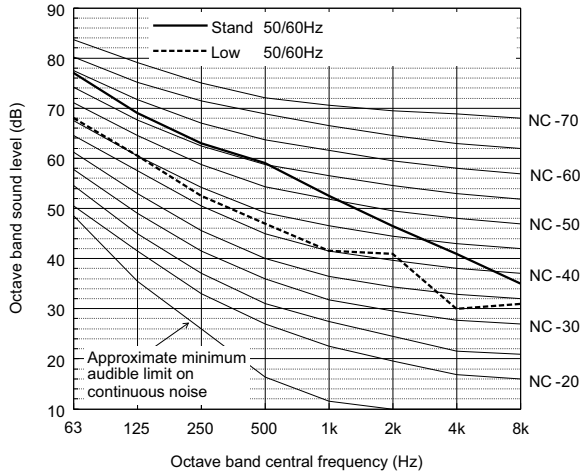
Sound level of PUHY-P200YKB-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard	50/60Hz	72.0	63.0	60.0	55.0	48.5	44.0	38.5	33.0	57.0
Low noise mode	50/60Hz	56.5	54.0	45.5	41.5	36.5	28.0	25.5	22.5	44.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

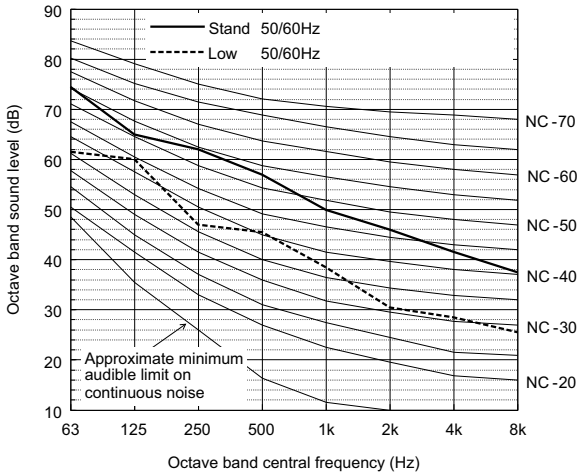
Sound level of PUHY-P300YKB-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard	50/60Hz	77.0	69.0	63.0	59.0	52.5	46.5	41.0	35.0	61.0
Low noise mode	50/60Hz	68.0	60.5	52.5	47.0	41.5	41.0	30.0	31.0	51.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

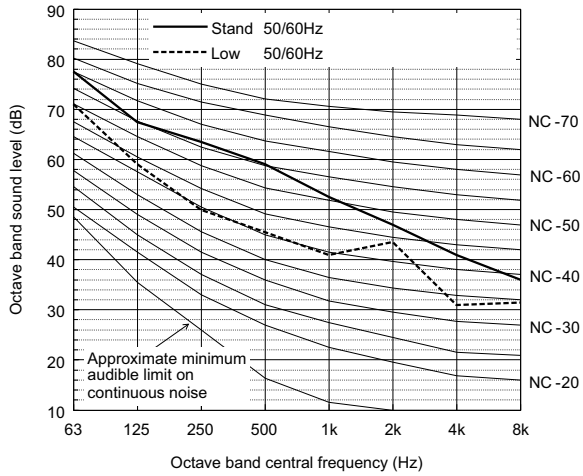
Sound level of PUHY-P250YKB-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard	50/60Hz	74.5	65.0	62.0	57.0	50.0	46.0	41.5	37.5	59.0
Low noise mode	50/60Hz	61.5	60.0	47.0	45.5	38.5	30.5	28.5	25.5	48.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

Sound level of PUHY-P350YKB-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard	50/60Hz	77.5	67.5	63.5	59.0	52.5	47.0	41.0	36.0	61.0
Low noise mode	50/60Hz	71.0	59.0	50.0	45.5	41.0	43.5	31.0	31.5	51.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

♦Depending on the operation conditions, the unit generates noise caused by valve actuation, refrigerant flow, and pressure changes when operating normally. Please consider to avoid location where quietness is required.

Air Conditioning

Product Information

Acoustic Kits

PUHY and PURY series units (YJM)

Making a World of Difference

*2

A range of Acoustic Kits designed for noise reduction. An industry first, these kits offer up to an 8dBA noise level reduction from standard.

Key Features

- Up to 8dBA noise reduction
- Manufacturer approved
- From £607 to £2326*1

*1 May vary slightly depending on application and size of order
*2 Colour for representation only, real colour is matched to standard outdoor unit colour (off white)

MITSUBISHI ELECTRIC
LIVING ENVIRONMENTAL SYSTEMS

Air Conditioning | Commercial Heating
Domestic Heating | Photovoltaics

Product Information

Acoustic Kits

PUHY and PURY series units (YJM)

Making a World of Difference

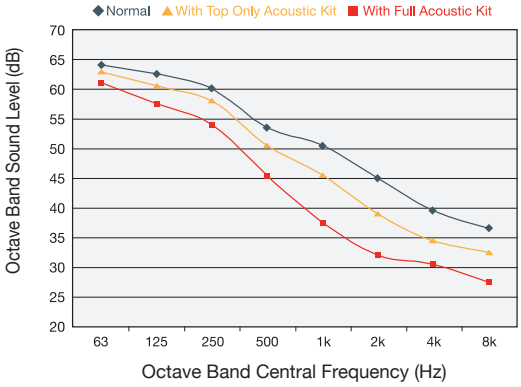
TYPES OF KIT

Both a 'full kit' and 'top only' kit are available. The 'full kit' comprises left, right and back louvres with a top attenuator. The 'top only' has a top attenuator only.

If space is an issue, then the 'top only' kit is available which can still reduce the noise level by up to 4dBA.

The noise level is calculated from an average of the noise at a height of 1m and distance of 1m from the front, back, left, right and 1m above the top. All noise measurements are performed in an anechoic chamber.

PURY-EP200YJM-A ACOUSTIC NOISE LEVEL DATA*



* Indication only

SUPPLY AND/OR INSTALLATION

Please contact Ambient Acoustics directly for supply and installation costs.

Installation costs will vary depending on location and number of units to be fitted with acoustic kits.

Ambient Acoustics Ltd
PO Box 1585, Wedmore, Somerset, BS28 4WZ
Tel: 01934 712802
Fax: 01934 710420
Email: sales@ambientacoustics.co.uk

Ambient Acoustics is an independent supplier of acoustic attenuation products, all warranties and liabilities rest with Ambient Acoustics Ltd. The acoustic attenuation kits have been tested and approved by Mitsubishi Electric UK.

BASIC ACOUSTIC KIT COSTS

S-module L-module XL-module

For all PUHY and PURY Series (YJM)

3 models are available, small, large and extra large. Small fits on the S-module outdoor units, large fits on the L-module outdoor units and extra large on the XL-module outdoor units.

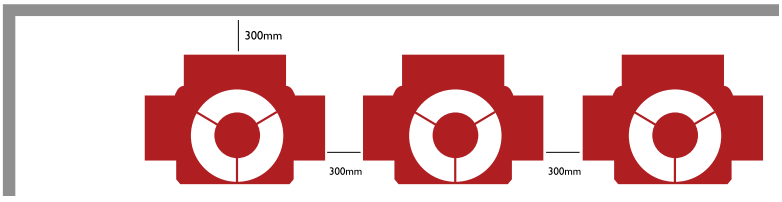
S-module	Complete acoustic kit target price Top attenuator only target price	£1452 £607
L-module	Complete acoustic kit target price Top attenuator only target price	£1585 £648
XL-module	Complete acoustic kit target price Top attenuator only target price	£2326 £1102

All costs include delivery.

INSTALLATION

Due to the wrap around coil of the YJM, the louvres are attached to 3 sides of the unit. Therefore, when installing multiple module systems, a 300mm gap between each louvre is required.

See diagram below.



1 full kit per outdoor unit is required, unless specifying top attenuator only. In this case, space units as normal.

MITSUBISHI ELECTRIC
Changes for the Better

Green Gateway
www.greengateway.mitsubishielectric.co.uk
Mitsubishi Electric's commitment to the environment

Telephone: 01707 282880
email: airconditioning@meuk.mee.com web: www.mitsubishielectric.co.uk/aircon

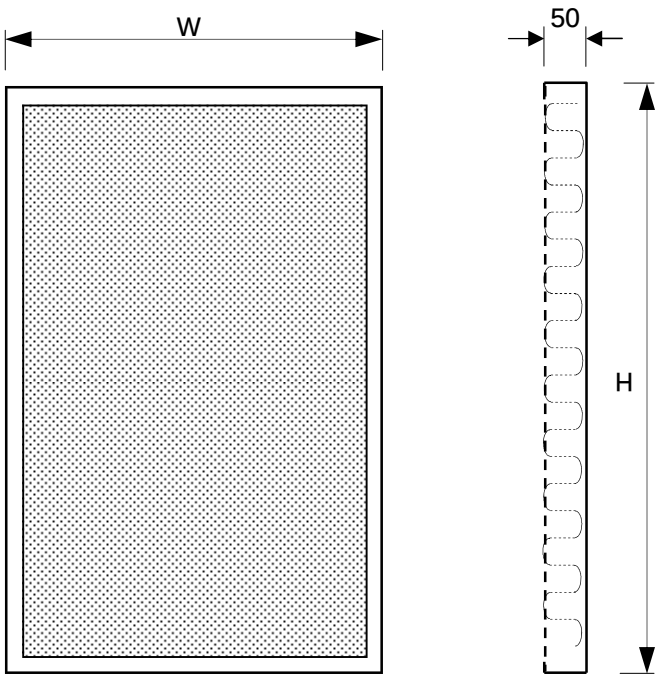
UNITED KINGDOM Mitsubishi Electric Europe Living Environmental Systems Division
Travellers Lane, Hatfield, Hertfordshire, AL10 8XB, England General Enquiries Telephone: 01707 282880 Fax: 01707 278881
IRELAND Mitsubishi Electric Europe Westgate Business Park, Ballymount, Dublin 24, Ireland
Telephone: Dublin (01) 419 8800 Fax: Dublin (01) 419 8890 International code: (003531)

DATA SHEET E40D

ACOUSTIC ENCLOSURE PANEL MODEL EP50/UF

IMPORTANT : THIS IS NOT A STAND ALONE DOCUMENT AND UNLESS REFERRED TO IN A DATED AND CERTIFIED EQUIPMENT SCHEDULE IS SUBJECT TO REVISION WITHOUT NOTICE.

DIMENSIONS



ACOUSTIC PERFORMANCE

SOUND REDUCTION INDEX BS EN ISO 10140/2 : 2010

63	125	250	500	1000	2000	4000	8000	HZ
17	19	26	33	38	42	45	44	dB

SOUND ABSORPTION BS EN ISO 354 : 2003

63	125	250	500	1000	2000	4000	8000	HZ
.10	.25	.65	1.00	1.00	1.00	.95	.90	-

NOTES

THIS DATA SHEET IS TO BE READ IN CONJUNCTION WITH THE EQUIPMENT SCHEDULE

PANELS WILL BE SUPPLIED WITHOUT SUPPORT STEELWORK, BRACKETS, FIXINGS OR MASTIC UNLESS OTHERWISE STATED.

PANELS MORE THAN 1800 WIDE OR 2500 HIGH MAY BE MANUFACTURED IN SECTIONS FOR ON SITE ASSEMBLY.

SPECIFICATION

THE ACOUSTIC ENCLOSURE PANEL COMPRISES A COMBINATION OF SOUND ABSORBENT MATERIALS AND HIGH MASS BARRIERS CONTAINED WITHIN A METAL CASING HAVING AN PLAIN OUTER AND PERFORATED INNER FACE, OFFERING EXCELLENT SOUND REDUCTION AND ABSORPTION PROPERTIES.

PANELS ARE CONSTRUCTED FROM PRE-GALVANISED SHEET STEEL AS STANDARD.

THE OUTER CASING IS FORMED FROM PLAIN SHEET METAL AND INSIDE FACE FROM PERFORATED METAL.

PANELS CONTAIN A FIBROUS SOUND ABSORBENT INFILL THAT IS NON-SHEDDING, NON-COMBUSTIBLE, NON-HYGROSCOPIC AND CHEMICALLY INERT. THE INFILL IS FACED WITH GLASS CLOTH TO PREVENT FIBRE MIGRATION.

THE CASING CAN BE SUPPLIED WITH A PERIMETER FLANGE FOR FIXING ADJACENT SECTIONS TOGETHER, FIXING THE PANELS INTO THE BUILDERSWORK OPENING OR FIXING INTO THE FRAMEWORK OF AN ACOUSTIC ENCLOSURE (OPTION F).

POLYESTER POWDER FINISH AVAILABLE (SUFFIX P)

SUFFIX

P - POLYESTER POWDER COAT

F - PERIPHERAL FIXING FRAME

X - SPECIAL CONSTRUCTION, REFER TO EQUIPMENT SCHEDULE FOR DETAILS.

BUILDERSWORK

THE W AND H DIMENSIONS GIVEN ON THE CERTIFIED EQUIPMENT SCHEDULE ARE AS MANUFACTURED.

ADEQUATE CLEARANCE MUST BE ALLOWED WHEN CONSTRUCTING THE BUILDERSWORK OPENING, MIN 10mm IS RECOMMENDED.

WEIGHT

ACTUAL WEIGHTS ARE GIVEN ON THE EQUIPMENT SCHEDULE.

APPROXIMATE WEIGHT: 38kg/M^2.

STANDARD SIZES

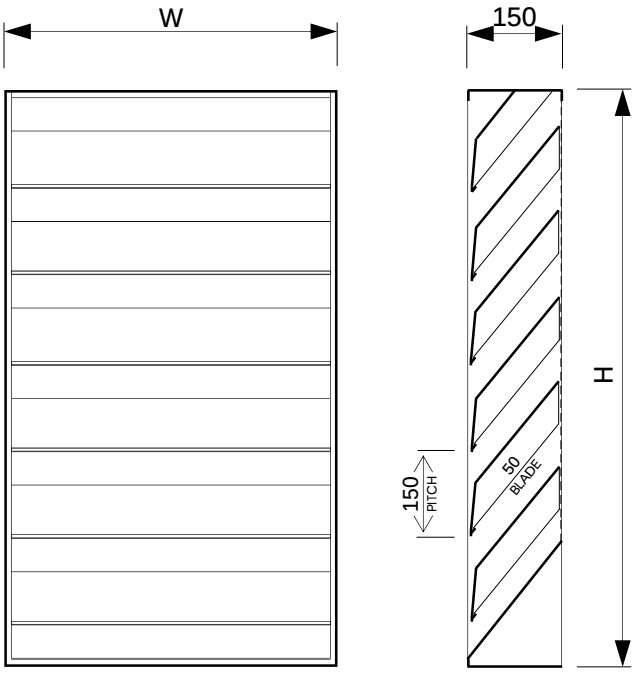
THERE ARE NO STANDARD SIZES. PANELS ARE MANUFACTURED TO ORDER

ALLAWAY ACOUSTICS LIMITED Old Police Station, 1 Queens Road, Hertford SG14 1EN
T | 01992 550825 E | enquiries@allawayacoustics.co.uk W | allawayacoustics.co.uk

DATA SHEET L60E
ACOUSTIC LOUVRE
MODEL AL1515

THIS IS NOT A STAND ALONE DOCUMENT AND UNLESS REFERRED TO IN A DATED EQUIPMENT SCHEDULE IS SUBJECT TO REVISION WITHOUT NOTICE.

DIMENSIONS



SPECIFICATION

LOUVRES ARE CONSTRUCTED FROM FOLDED SHEET METAL AND HAVE A SERIES OF HORIZONTAL BLADES CONTAINED WITHIN A FOUR SIDED EXTERNAL FRAME.

THE MATERIAL OF CONSTRUCTION MAY BE PRE-GALVANISED STEEL (SUFFIX G) OR ALUMINIUM (SUFFIX A).

GALVANISED BIRD SCREENS ARE FITTED AS STANDARD.

CASING SIDES ARE PROVIDED WITH 10mm DIA HOLES FOR FIXING ADJACENT SECTIONS TOGETHER, OR FIXING THE LOUVRE INTO THE BUILDERSWORK OPENING.

LOUVRES ARE SUPPLIED SELF FINISH AS STANDARD OR WITH AN OPTIONAL POLYESTER POWDER FINISH (SUFFIX P).

NOTES

THIS DATA SHEET IS TO BE READ IN CONJUNCTION WITH THE EQUIPMENT SCHEDULE.

WIDTH (W) AND HEIGHT (H) DIMENSIONS GIVEN ON THE EQUIPMENT SCHEDULE ARE AS MANUFACTURED. ADEQUATE CLEARANCE MUST BE ALLOWED WHEN CONSTRUCTING THE BUILDERSWORK OPENING, A MINIMUM OF 10 mm IS RECOMMENDED.

LOUVRES WILL BE SUPPLIED WITHOUT SUPPORT STEELWORK, CLEATS, BRACKETS, FIXINGS, FLASHING, MASTIC, OR OTHER SUCH ITEMS, UNLESS OTHERWISE STATED.

EXCESSIVELY LARGE OR HEAVY LOUVRES MAY BE MANUFACTURED IN MATING SECTIONS FOR EASE OF HANDLING.

LOUVRES ARE MANUFACTURED TO STANDARD SHEET METAL TOLERANCES OF +/- 3 mm.

SUFFIX

THE SUFFIX DEFINES ADDITIONAL FEATURES OR SPECIAL CONSTRUCTIONAL DETAILS

A ALUMINIUM CONSTRUCTION.

G GALVANISED STEEL CONSTRUCTION.

P POLYESTER POWDER COAT.

X SPECIAL CONSTRUCTION - REFER TO EQUIPMENT SCHEDULE FOR DETAILS.

WEIGHT

LOUVRE WEIGHTS ARE GIVEN ON THE EQUIPMENT SCHEDULE. APPROXIMATELY:

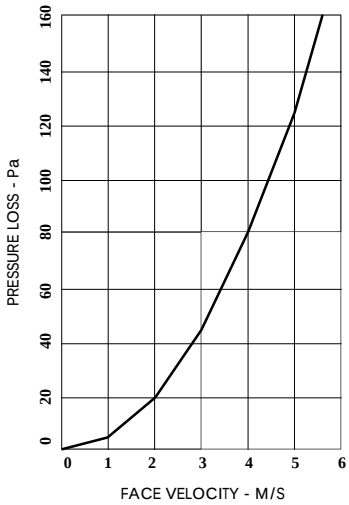
28kg/M² GALVANISED CONSTRUCTION
20kg/M² ALUMINIUM CONSTRUCTION

ACOUSTIC PERFORMANCE

SOUND REDUCTION INDEX: BS EN ISO 10140 - 2

63	125	250	500	1000	2000	4000	8000	HZ
4	4	5	8	12	16	15	13	dB

PRESSURE LOSS



STANDARD SIZES

THERE ARE NO STANDARD SIZES. ALL LOUVRES ARE MADE TO ORDER.

ALLAWAY ACOUSTICS LIMITED Old Police Station, 1 Queens Road, Hertford SG14 1EN
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DATA SHEET L360E

SINGLE ACOUSTIC LOUVRED DOOR
MODEL SAL1515
RAISED THRESHOLD

THIS IS NOT A STAND ALONE DOCUMENT AND UNLESS REFERRED TO IN A CERTIFIED EQUIPMENT SCHEDULE IS SUBJECT TO REVISION WITHOUT NOTICE.

SPECIFICATION

DOORSET WILL COMPRISE OF FLUSH LEAF, LOUVRE, FRAME AND THRESHOLD .

DOOR LEAF TO BE FORMED FROM GALVANISED STEEL (SUFFIX G) OR ALUMINIUM (SUFFIX A) TO PROVIDE A DOUBLE SKIN CONSTRUCTION SO AS TO ACHIEVE THE STATED ACOUSTIC RATING.

DOOR TO HAVE A MINIMUM OF 3 STAINLESS STEEL BEARING WASHERED HINGES PER LEAF.

WELDED FIXING PLATES TO BE CONCEALED WITHIN THE DOOR FRAME FOR MASONRY ANCHORS. ACCESS HOLES TO BE COVERED BY DECORATIVE CAPS AND LOCATED IN THE FRAME REBATE SO AS TO BE HIDDEN FROM VIEW WHEN DOORS ARE CLOSED.

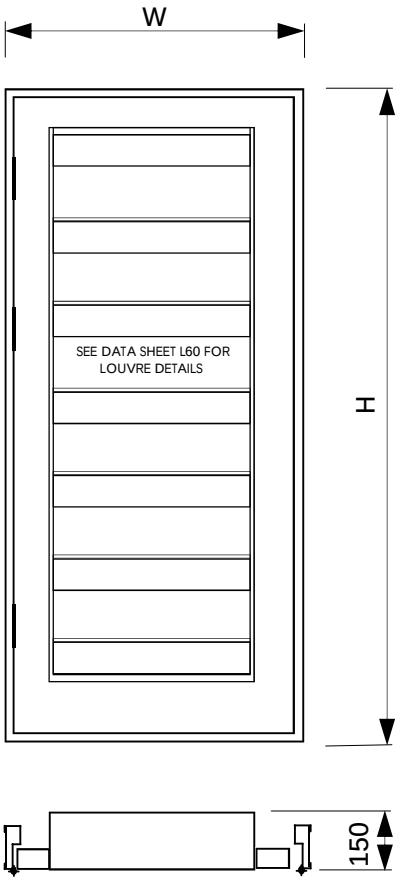
DOORSETS TO HAVE STOVED POLYESTER COAT AS STANDARD.

DOORSETS TO BE FITTED WITH IRONMONGERY AS DESCRIBED ON THE EQUIPMENT SCHEDULES.

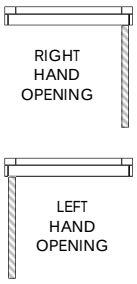
ACOUSTIC PERFORMANCE (SOUND REDUCTION INDEX)

63	125	250	500	1000	2000	4000	8000	HZ
4	4	5	8	12	16	15	13	dB

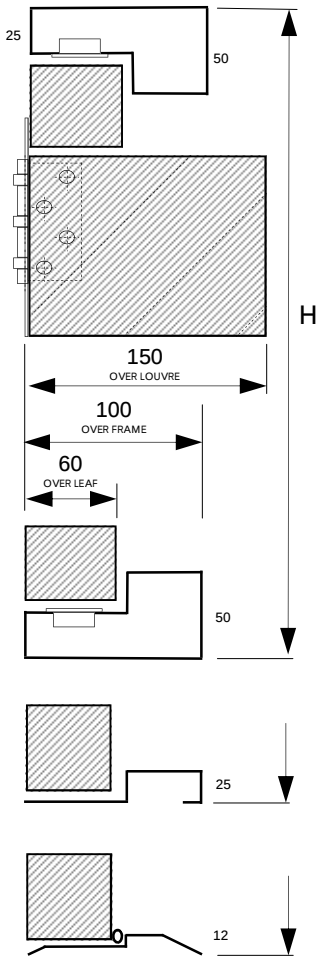
DIMENSIONS



HANDING



SECTIONAL ELEVATION



STANDARD SIZES

THERE ARE NO STANDARD SIZES. ALL DOORSETS ARE MANUFACTURED TO ORDER.
MAXIMUM AVAILABLE SIZE :
WIDTH (W) - 1350 mm
HEIGHT (H) - 2700 mm

WEIGHT

OVERALL APPROX DOORSET WEIGHT:
28Kg/M² GALVANISED
OR
20Kg/M² ALUMINIUM

BUILDERSWORK

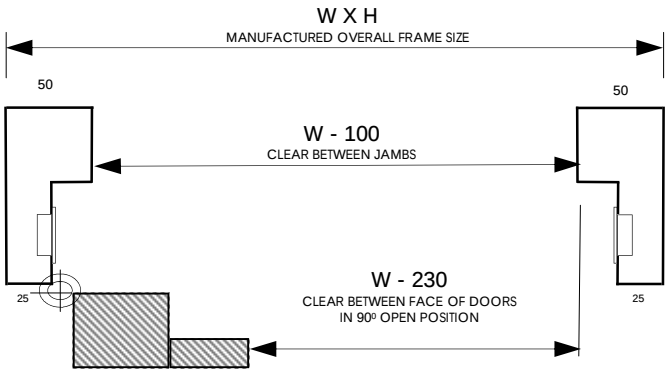
W AND H DIMENSIONS ARE AS MANUFACTURED.
BUILDERSWORK OPENING MUST ALLOW ADEQUATE CLEARANCE.

T1 THRESHOLD FULL PROFILE
50 mm HIGH - SHEET METAL.

T2 THRESHOLD MED PROFILE
22 mm HIGH - SHEET METAL.

T3 THRESHOLD LOW PROFILE
12 mm HIGH - EXTRUDED ALUMINIUM.

SECTIONAL PLAN



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DATA SHEET L460E
DOUBLE ACOUSTIC LOUVRED DOOR
MODEL DAL1515
RAISED THRESHOLD

THIS IS NOT A STAND ALONE DOCUMENT AND UNLESS REFERRED TO IN A CERTIFIED EQUIPMENT SCHEDULE IS SUBJECT TO REVISION WITHOUT NOTICE.

SPECIFICATION

DOORSET WILL COMPRISE OF FLUSH LEAF, LOUVRE, FRAME AND THRESHOLD .

DOOR LEAF TO BE FORMED FROM GALVANISED STEEL (SUFFIX G) OR ALUMINIUM (SUFFIX A) TO PROVIDE A DOUBLE SKIN CONSTRUCTION SO AS TO ACHIEVE THE STATED ACOUSTIC RATING.

DOOR TO HAVE A MINIMUM OF 3 STAINLESS STEEL BEARING WASHERED HINGES PER LEAF.

WELDED FIXING PLATES TO BE CONCEALED WITHIN THE DOOR FRAME FOR MASONRY ANCHORS. ACCESS HOLES TO BE COVERED BY DECORATIVE CAPS AND LOCATED IN THE FRAME REBATE SO AS TO BE HIDDEN FROM VIEW WHEN DOORS ARE CLOSED.

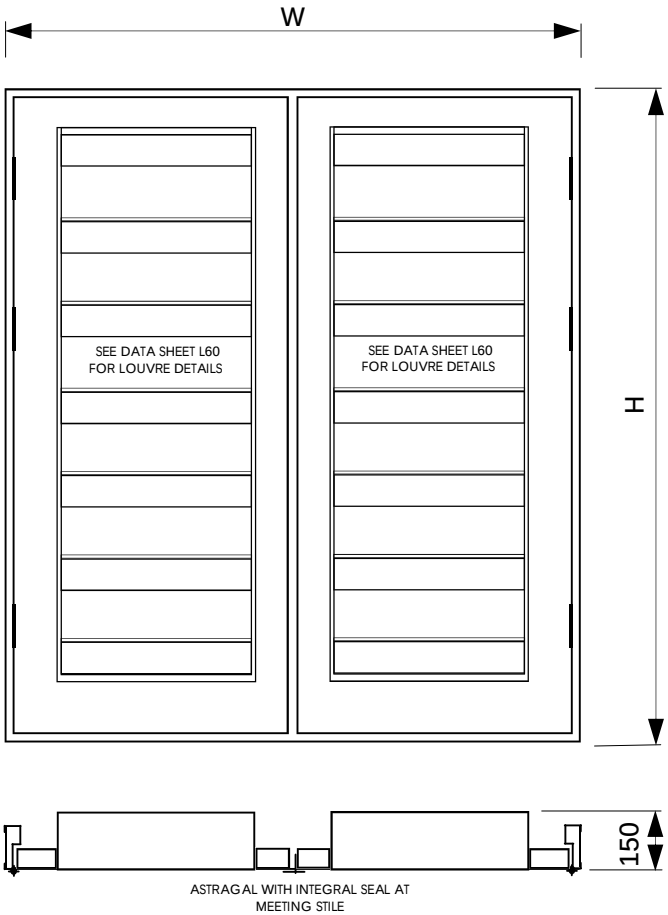
DOORSETS TO HAVE STOVED POLYESTER COAT AS STANDARD.

DOORSETS TO BE FITTED WITH IRONMONGERY AS DESCRIBED ON THE EQUIPMENT SCHEDULES.

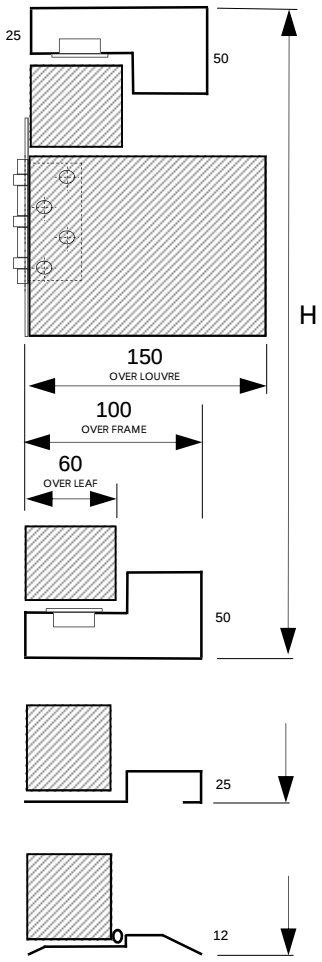
ACOUSTIC PERFORMANCE (SOUND REDUCTION INDEX)

63	125	250	500	1000	2000	4000	8000	HZ
4	4	5	8	12	16	15	13	dB

DIMENSIONS



SECTIONAL ELEVATION



STANDARD SIZES

THERE ARE NO STANDARD SIZES.
ALL DOORSETS ARE MANUFACTURED TO ORDER.
MAXIMUM AVAILABLE SIZE :
WIDTH (W) - 2700 mm
HEIGHT (H) - 2700 mm

WEIGHT

OVERALL APPROX DOORSET WEIGHT:
28Kg/M² GALVANISED
OR
20Kg/M² ALUMINIUM

BUILDERSWORK

W AND H DIMENSIONS ARE AS MANUFACTURED.
BUILDERSWORK OPENING MUST ALLOW ADEQUATE CLEARANCE.

T1 THRESHOLD FULL PROFILE
50 mm HIGH - SHEET METAL.

T2 THRESHOLD MED PROFILE
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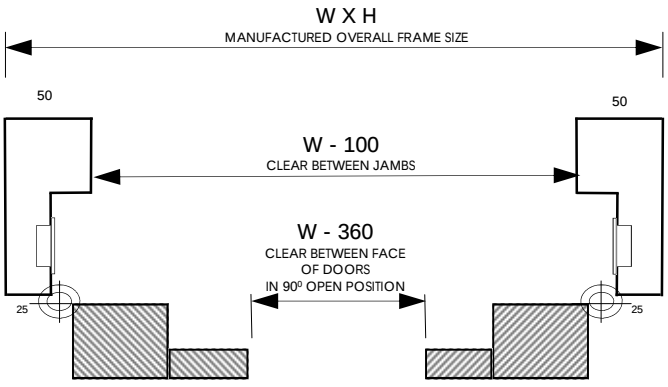
T3 THRESHOLD LOW PROFILE
12 mm HIGH - EXTRUDED ALUMINIUM.

SECTIONAL PLAN



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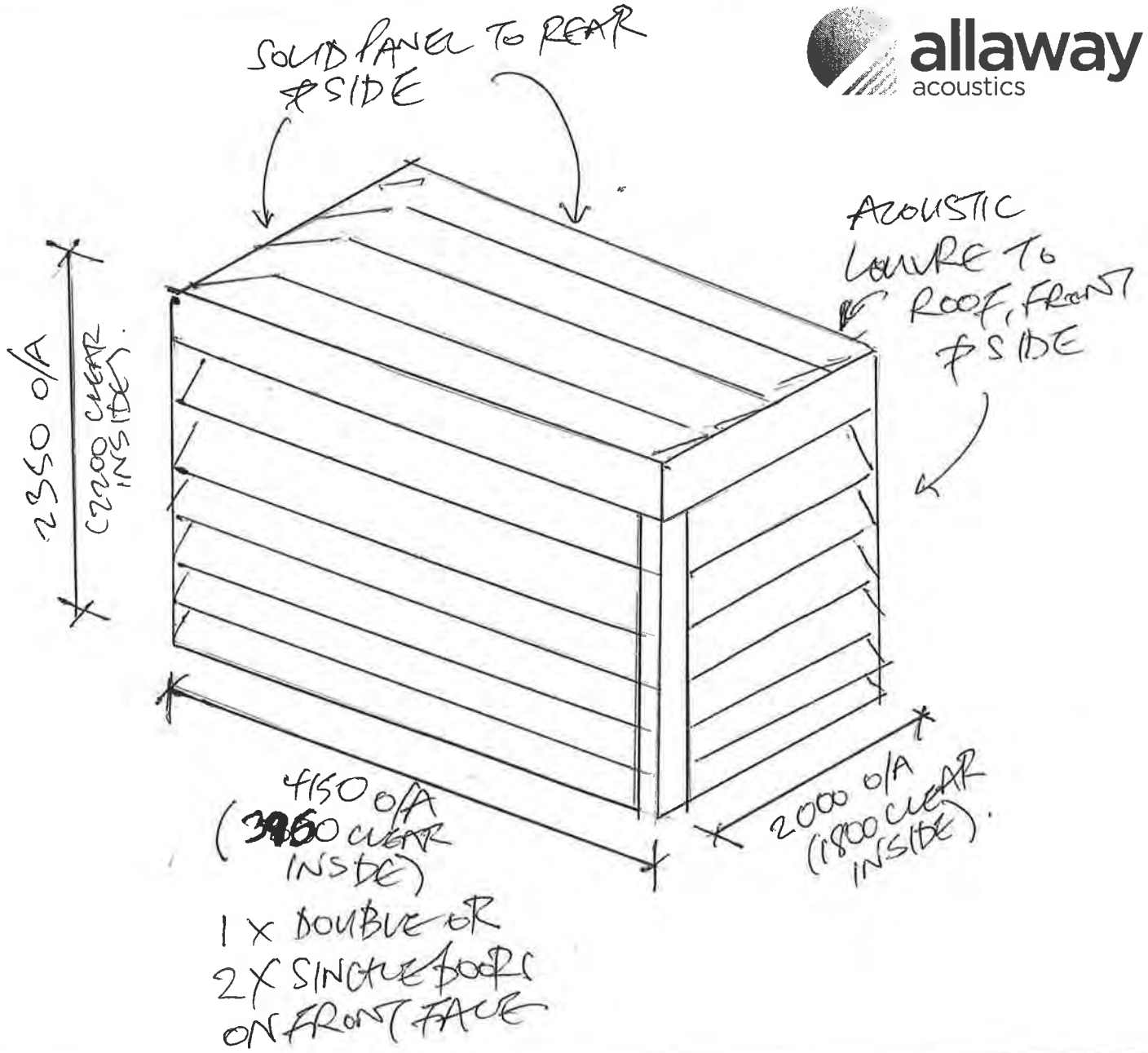
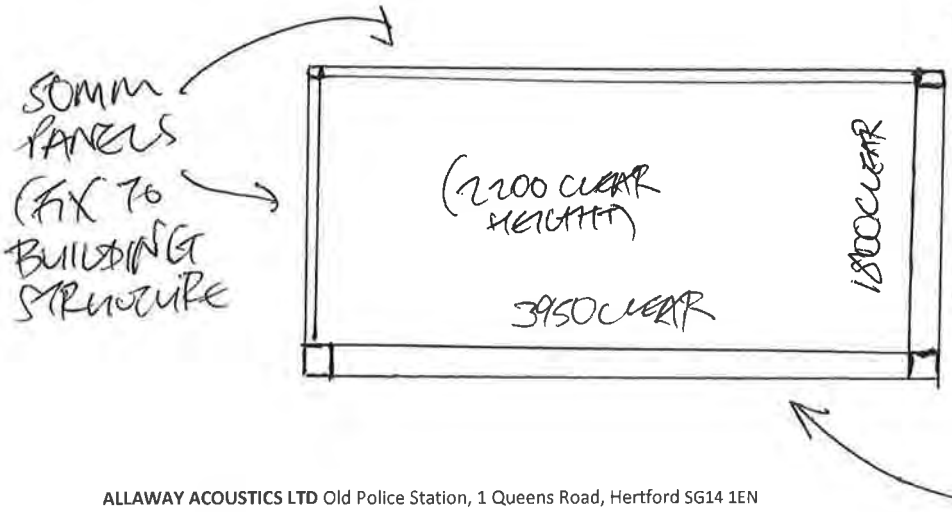
62287 17 BRANCH HILL HAMPSTEAD



PLAN



NOTE: CLEAR INTERNAL DIMS ARE BETWEEN PANELS/LOUVRES. THERE WILL BE SOME SUPPORTING STEELWORK/ANGLES AT CERTAIN POINTS WITHIN THIS SPACE.

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