Mechanical Plant Noise Impact Assessment
WallaceSpace

First Floor, 53 Parker St
London, WC2B 5PT

Report ref.
NDT5842/19353/0

Issued to
Peldon Rose Ltd

Prepared by
N D Treby BEng (Hons) MIOA MAES
Principal Consultant

Version	Comments	Date
0	Initial report issue	22.10.19

SECTION	TITLE	PAGE

1. SUMMARY

- Peldon Rose Ltd propose to install new plant (one air cooled condensers) at 53 Parker Street, London, WC2B 5PT. The plant is to go in a lightwell.
- The Local Authority, London Borough of Camden, require a noise impact assessment in accordance with their current guidelines to demonstrate that the proposed plant items meet their planning noise criteria.
- The nearest noise sensitive receptor to the plant is the office building's upper floors that overlook the lightwell. Residential property is further away, and well screened.
- The new plant will have the potential to operate at any time.
- This report describes the analysis carried out in determining the baseline noise environment, noise emission levels from the proposed condenser unit and the resultant sound pressure levels at the nearest noise-sensitive location for assessment purposes.
- The assessment concludes that noise from the plant is acceptable.

2. INTRODUCTION

Peldon Rose Ltd intend to install 1 new condenser on the lightwell adjacent to the first floor of 53 Parker St, London, WC2B 5PT. The lightwell is already populated by plant for other users.

As part of planning policy London Borough of Camden (LBC) require an acoustic report to be prepared assessing the noise impact of the proposed mechanical plant installation.

Spectrum Acoustic Consultants have been commissioned to assess the noise impact from the proposed equipment.

This report presents the results of the assessment, including:

- Details of LBC's noise policy;
- Measurements of existing background sound levels;
- Manufacturers noise data for the proposed condenser units;
- Predictions of noise levels to the nearest noise-sensitive receptor;
- Assessment of the noise impact against LBC policy.

3. SITE DESCRIPTION AND PROPOSALS

3.1 GENERAL DESCRIPTION OF THE SITE AND AREA

53 Parker St has a ground floor reception and 5 floors above of offices. There is a ground floor club "Secrets". The roof, above 5th floor level, already contains extensive mechanical plant unrelated to this proposal. There is a lightwell located centrally which also has existing plant at basement level, again un related to this proposal, a roof over part of the ground floor and a wall at the rear that to extends to the height of the first/second floor.

The new condenser is to be tucked behind the wall of the lightwell at first floor level as shown in Appendix A and figures 1 and 2.

The ambient sound at this location is a mixture of road traffic and existing mechanical plant.

The upper floor offices overlooking the lightwell represent the nearest noise-sensitive receptor. There are residential dwellings immediately to the rear (Apartments 1-7 Parker St), but these are wholly lower than the lightwell wall, and so are well screened from the new plant. There is a more distant residential tower block.

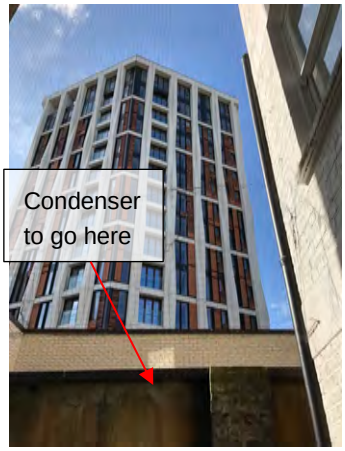


Figure 1: Image of plant location

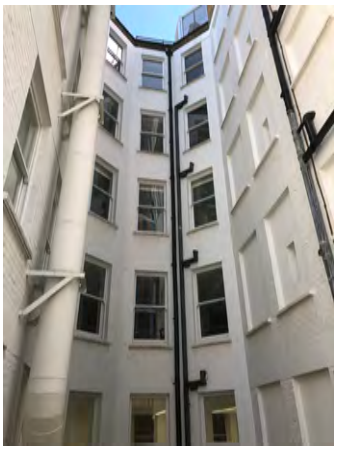


Figure 2: Office windows overlooking lightwell

Figure 3: Existing mechanical plant in basement of lightwell

3.2 DETAILS OF PLANT

Product datasheets for the condenser unit, including noise emission data, are given in Appendix B. The sound power levels of the proposed equipment are summarised in Table 1 below.

Manufacturer	Model and mode	Manufacturer's noise data
Mitsubishi	PUMY-P112VKM4	Sound Power Level L_{wA} 69 dB (no separate information for heating and cooling modes)
	Heating	L_{pA}51 dB 1.5 m off ground, 1 m from front of unit
	Cooling	L_{pA}49 dB 1.5 m off ground, 1 m from front of unit

Table 1: Sound pressure level of proposed equipment.

The calculations given in Appendix B show the conversion between sound pressure and sound power, and suggest that using the manufacturer provided sound power levels of the plant is a robust (and conservative) approach to this assessment and may be considered a noisiest case.

The plant items are required to operate at any time.

4. CRITERIA

London Borough of Camden advised that where offices are the closest residential receptor, the internal design criterion should be 35-40 dB $L_{Aeq,T}$, (in accordance BS 8233 2014) which correlates to an external façade level of 50-55 dB, assuming the windows are partially open.

For residential receptors, The LBC Local plan Appendix 3 asks for noise from plant to be 10 dB below the existing background sound level.

Correspondence with LBC is attached at Appendix C.

5. SURVEY

5.1 MEASUREMENT PROCEDURE

An unmanned background noise survey has been carried out between Thursday 9th and Friday 10th October 2019. The measurement position was located on a pole outside the first floor windows to the lightwell, at a height outside the second floor window. (shown in the figure in Appendix A as 2250/4).

Noise levels at this location were affected predominantly by road traffic, with noise from existing plant and aircraft occasionally audible.

5.2 INSTRUMENTATION

The following instrumentation was used during the survey:

- Bruel & Kjaer Type 2250 Sound Level Meter s/n 3009933
- Bruel & Kjaer Type 4189 Microphone s/n 3043744
- Bruel & Kjaer Type 4231 Acoustic Calibrator s/n 2115516

Before and after the survey, the sound level meter was field-calibrated in accordance with the manufacturer's guidelines, and no significant drift was observed. The meter, microphone and field calibrator are laboratory calibrated biennially in accordance with UKAS procedures or to traceable National Standards.

5.3 MEASUREMENT RESULTS

Continuous measurements were taken in 15 minute periods. Noise levels have been determined from this data.

Noise metrics consisted of equivalent continuous ($L_{Aeq,T}$) noise levels as well as statistical noise levels (termed L_n, where n is the percentage of time the level is exceeded during the measurement period) including $L_{A90,T}$ levels (the noise level exceeded for 90% of the individual measurement period) which is taken to be the background noise level.

Results of the noise survey are included graphically in Appendix D. Table 2 sets out the measured survey results in terms of day and night noise levels. The typical level has been determined by considering the mean minus 1 standard deviation as suggested in BS4142.

Proposed Operating Period	Typical background noise level ($L_{A90,15min}$ dB)
Day (07:00-19:00)	$L_{A90,15min}$ 50 dB
Night (23:00-07:00)	$L_{A90,15min}$ 47 dB

Table 2: Measured noise levels

6. ASSESSMENT

6.1 DESCRIPTION OF CALCULATIONS

The calculations have been based on the manufacturer's noise data, as discussed in more detail in Section 3.2 and Appendix B.

6.1.1 Office Windows

In this case, the plant is *partially* enclosed space (the lightwell). Therefore, normal reduction of noise level with distance does not apply.

For the purposes of this calculation, the lightwell has been treated as a *fully* enclosed space. This will over-predict the noise level at the office windows, but is a reasonable representation.

This follows the method in SRL Text Book "Noise Control in Building Services".

$$Lp = Lw + 10\log Tp - 10\log Vp + 14$$

Condenser Sound Power Level	69 dBA
Estimated Reverberation time in lightwell	1.5 seconds
Volume of lightwell (11 m * 4.4 m * 15 m)	726 m^3

Therefore, the sound pressure level in the lightwell is $L_{Aeq,T}$ 56 dB.

6.1.2 Residential Windows

As shown in 6.1.1, noise levels in the lightwell are predicted to be $L_{Aeq,T}$ 56 dB.

The properties immediately behind the lightwell, Apartments 1-7 Parker St, benefit are very close to the lightwell, but wholly screened by the wall, providing approximately 20 dB of screening.

As a result, we would expect noise levels at these apartments due to the new condenser to be approximately $L_{Aeq,T}$ 36 dB.

7. DISCUSSION

7.1 OFFICE WINDOWS

As discussed above, LBC advised that where offices are the closest noise sensitive receptor, the internal design criterion should be 35-40 dB $L_{Aeq,T}$, (in accordance BS 8233 2014) which correlates to an external façade level of 50-55 dB, assuming the windows are partially open.

In this case, noise levels predicted marginally (by 1 dB) exceed the upper end of the range.

7.2 RESIDENTIAL WINDOWS

As discussed above, LBC advised that where residential dwellings are the closest residential receptor, noise from the new plant should be 10 dB below the existing background sound level.

In this case, noise levels predicted are 11 dB below the typical background noise level at night, and 14 dB below the typical background noise level during the day.

7.3 OVERVIEW

Noise levels marginally exceed (by just 1 dB) LBC guidelines for offices, but meets the requirements for the residential properties.

However, this assessment has been “worst case” for the reasons described:

- Assumes the lightwell is a wholly enclosed space, with no reduction of noise with distance
- Assumes the mechanical plant is operating at full power, all the time. In reality, the operation of the equipment is demand led, and it rare for equipment to operate at full speed for lengthy periods.
- Is based on manufacturer’s sound power data, whereas a calculation based on the manufacturer’s sound pressure levels would be 3 dB quieter

Therefore, it is considered unlikely that the operation of the plant proposed will cause loss of acoustic amenity for nearby office and residential occupiers.

8. CONCLUSIONS

Peldon Rose Ltd propose to locate external mechanical plant (one condenser) on the lightwell of Parker St, London, WC2B 5PT.

The Local Authority require a noise impact assessment to be carried out prior to the installation of any external mechanical plant items. A noise survey has been carried out to determine the existing ambient sound levels, and noise emission from the proposed plant has been calculated at the nearest noise-sensitive receptors.

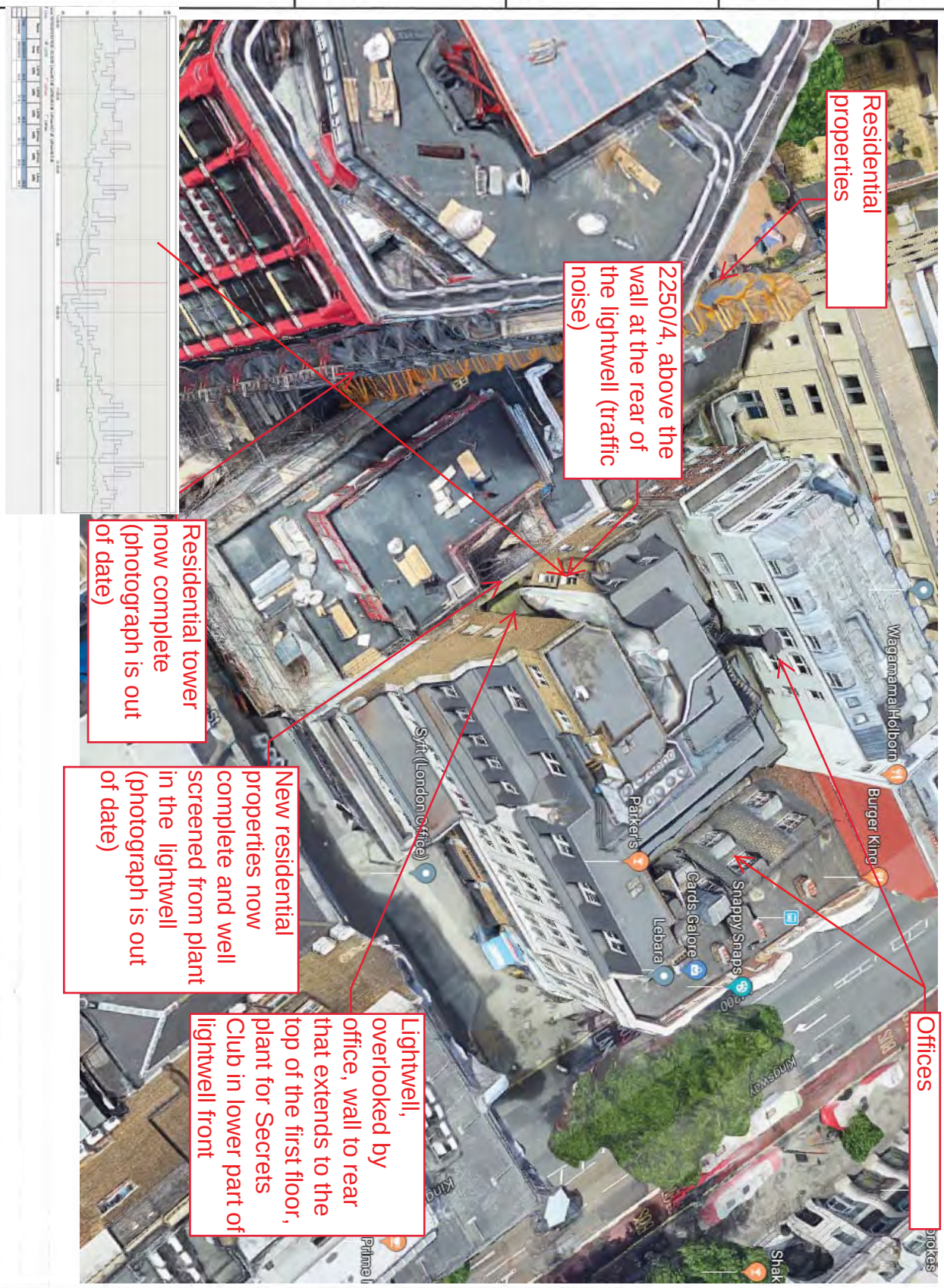
Noise from the proposed plant has been considered to be acceptable.

Report Code: A/PRA/EM

APPENDIX A

Proposed Plant Layout Drawings

Project Name Wallacespace, 53 Parker St, London				Spectrum ACOUSTIC CONSULTANTS
Calculation Title Site notes				
Spectrum Job No. 19353				
Client Reference	**Prepared By** NDT	**Date** 9/10/19	**Calc No.**	**Sheet** 1 of 1



HEAD OFFICE 27-29 HIGH STREET BIGGLESWADE BEDFORDSHIRE SG18 0JE UNITED KINGDOM
TELEPHONE +44 (0)1767 318871 FACSIMILE +44 (0)1767 317704 e-mail enquiries@spectrumacoustic.com

NORTH

SCALE: 1:250

0 10m 20m 30m 40m 50m 60m

= Boundary of site

NOTE

This drawing is not to be scaled.

Appointed contractors are requested to notify Peldon Rose Limited of any discrepancies or variations relating to setting out prior to manufacture and construction.

All information is subject to statutory approval and site survey.

The general contractor is to carry out a check site survey to confirm that the design intent can be met and that it is appropriate for the environment in which it is to be installed.

The general contractor is to notify Peldon Rose Limited in writing of all preparation works that are required to be carried out prior of their works.

DRAWING STATUS

FOR APPROVAL

REVISIONS

REV	DATE	DESCRIPTION	BY	CHK

CLIENT

PROJECT

WALLACESPACE
53 PARKER STREET
LONDON - WC2B 5PT

TITLE

PLANNING APPLICATION

LOCATION PLAN

Peldon Rose

Peldon Rose Limited
Sterling House, 42 Worple Road
London SW19 4EQ
Telephone: 020 8971 7777
web: www.peldonrose.com

DATE	SHEET	DRAWN BY
18.10.2019	A1	PH
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DRAWING NUMBER

PROJECT NUMBER	FLOOR/TYPE	NUMBER	REVISION
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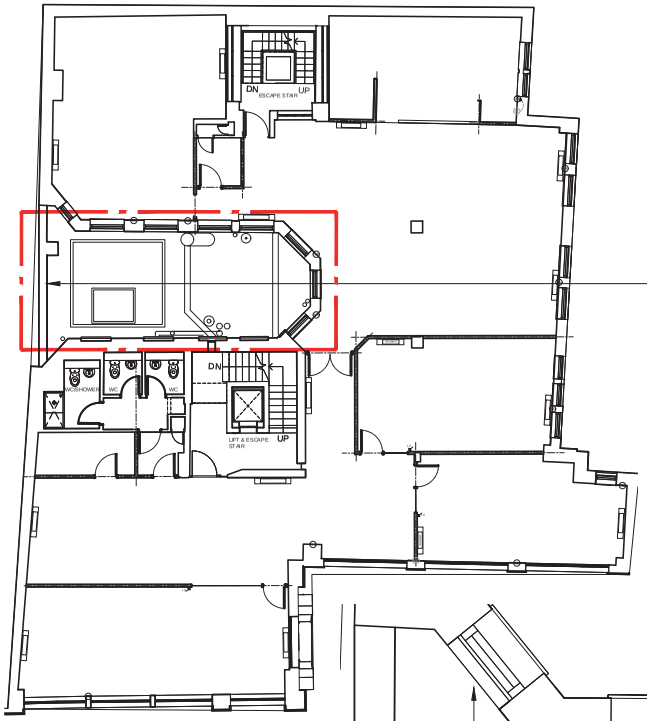

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Scale 1:100

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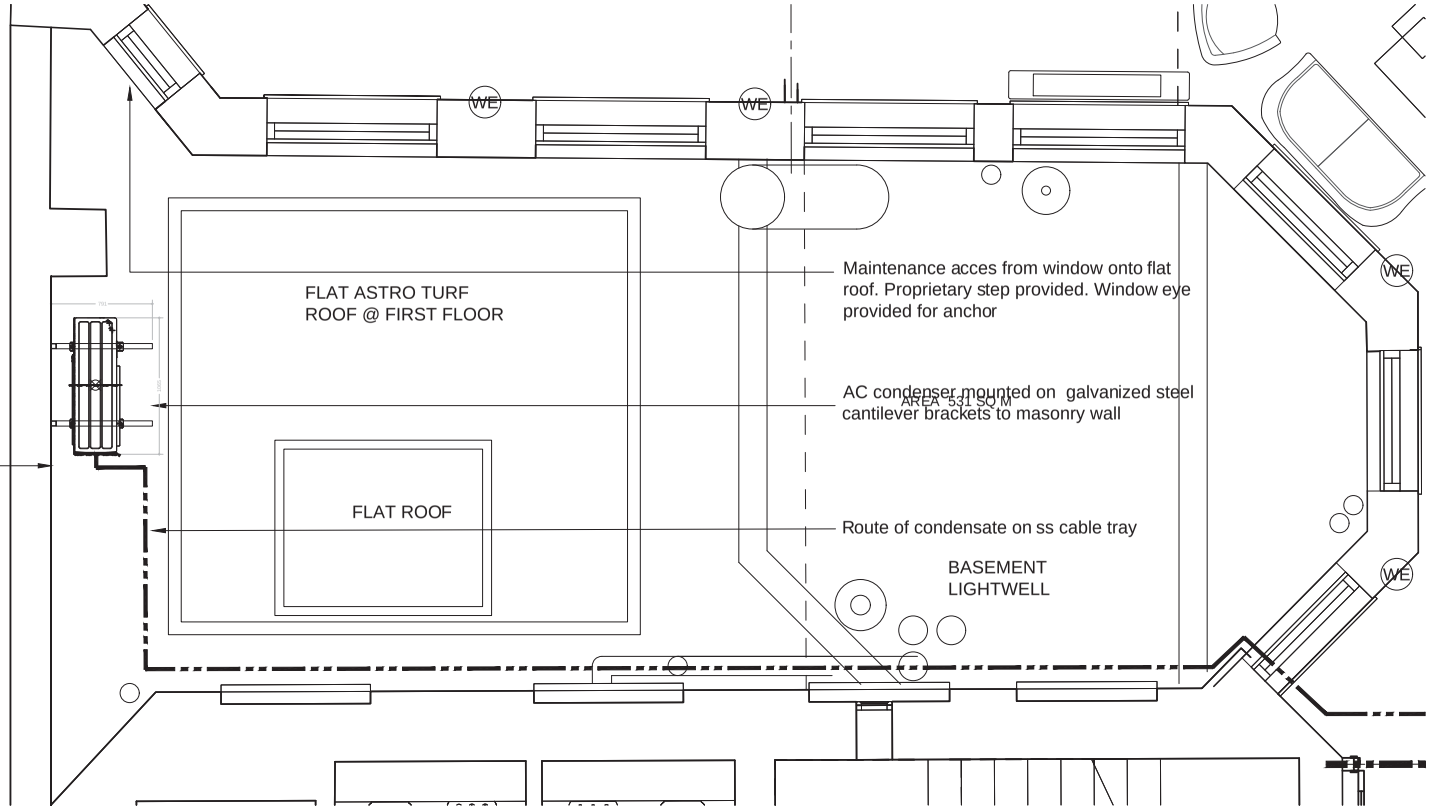

02 PROPOSED PLAN DETAIL
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SCALE 1:100

NOTE
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DRAWING STATUS
FOR APPROVAL

REVISIONS

REV	DATE	DESCRIPTION	BY	CHK

CLIENT

PROJECT
WALLACESPACE
53 PARKER STREET
LONDON - WC2B 5PT

TITLE
PLANNING APPLICATION

PROPOSED PLAN

Peldon Rose

Peldon Rose Limited
Sterling House, 42 Worple Road
London SW19 4EQ
Telephone 020 8971 7777
web: www.peldonrose.com

DATE	SHEET	DRAWN BY
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DRAWING NUMBER

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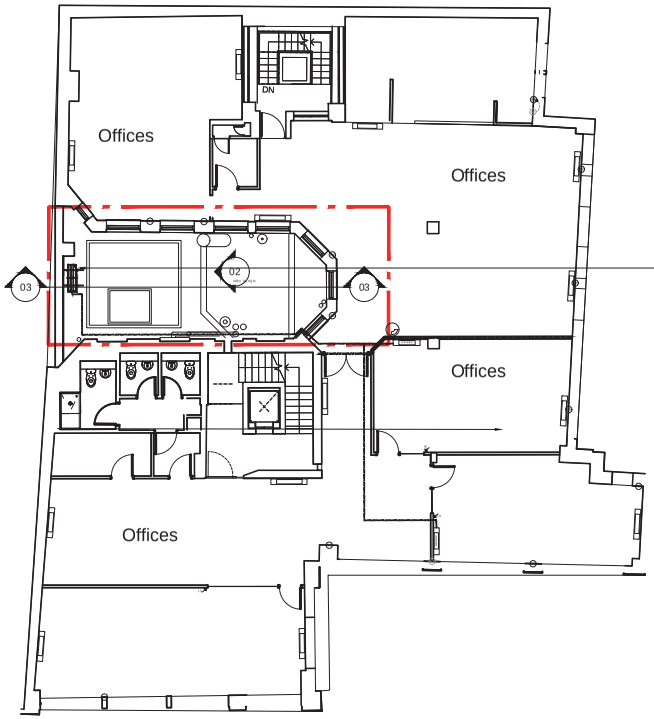
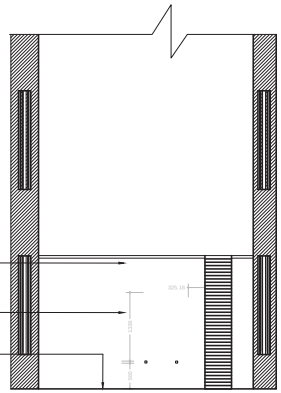
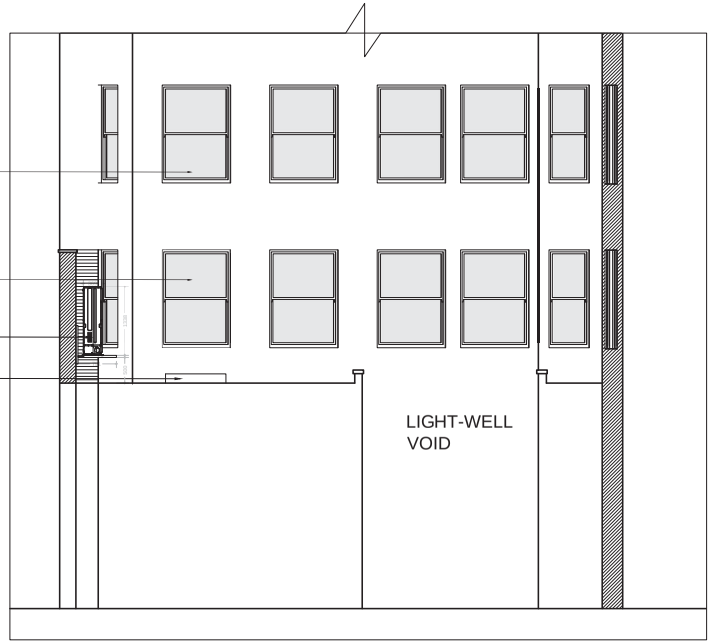


01 SITE PLAN
Scale 1:100

PHOTO MONTAGE OF PROPOSED
A/C CONDENSER



02 ELEVATION TO REAR WALL
Scale 1:50



03 SECTIONAL ELEVATION THRU LIGHTWELL
Scale 1:50

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SCALE 1:100

0 1 2.5 5m
SCALE 1:50

NOTE
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FOR APPROVAL

REVISIONS

DATE	DESCRIPTION	BY	CHK

CLIENT

PROJECT
WALLACESPACE
53 PARKER STREET
LONDON - WC2B 5PT

TITLE
PLANNING APPLICATION
LIGHT-WELL
PROPOSED ELEVATIONS

Peldon Rose

Peldon Rose Limited
Sterling House, 42 Worple Road
London SW19 4EQ
Telephone 020 8971 7777
web: www.peldonrose.com

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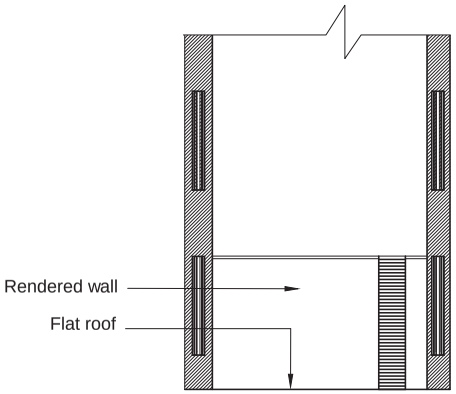
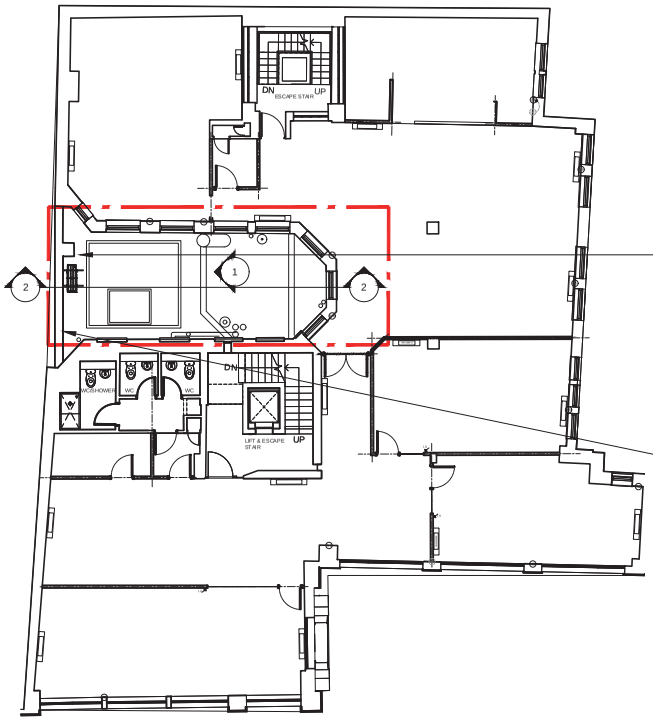
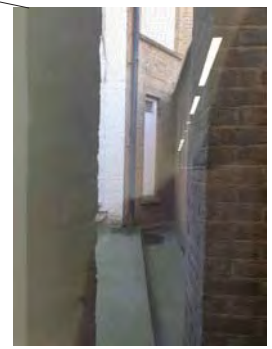
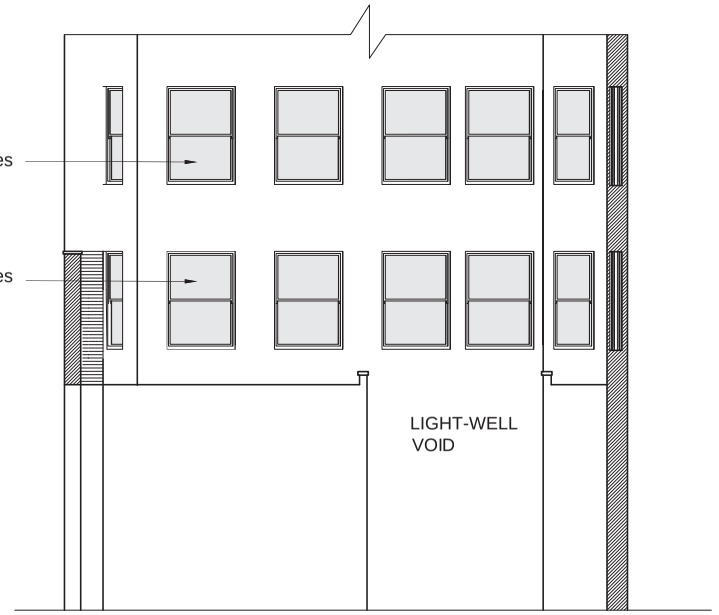


01 ELEVATION TO REAR WALL
Scale 1:50



01 SITE PLAN
Scale 1:100





02 SECTIONAL ELEVATION TO LIGHTWELL
Scale 1:50

0 2 5 10m
SCALE 1:100

0 1 2.5 5m
SCALE 1:50

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DRAWING STATUS
FOR APPROVAL

REVISIONS

REV	DATE	DESCRIPTION	BY	CHK

CLIENT

PROJECT
WALLACESPACE
53 PARKER STREET
LONDON - WC2B 5PT

TITLE
PLANNING APPLICATING
LIGHT-WELL
EXISTING ELEVATION

Peldon Rose

Peldon Rose Limited
Sterling House, 42 Worple Road
London SW19 4EQ
Telephone: 020 8971 7777
web: www.peldonrose.com

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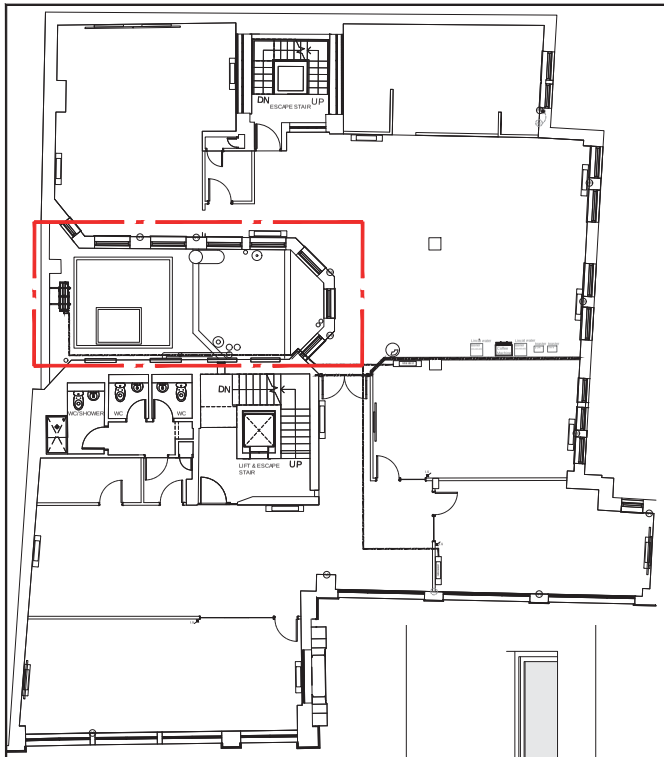

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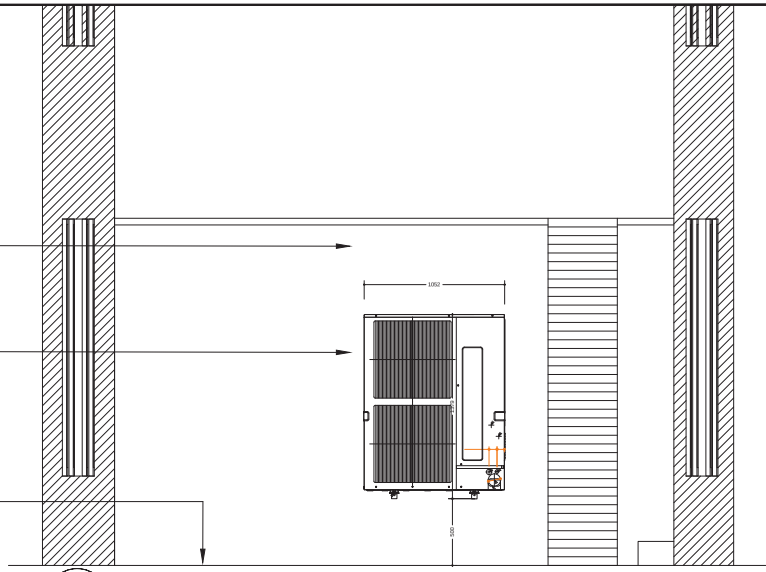
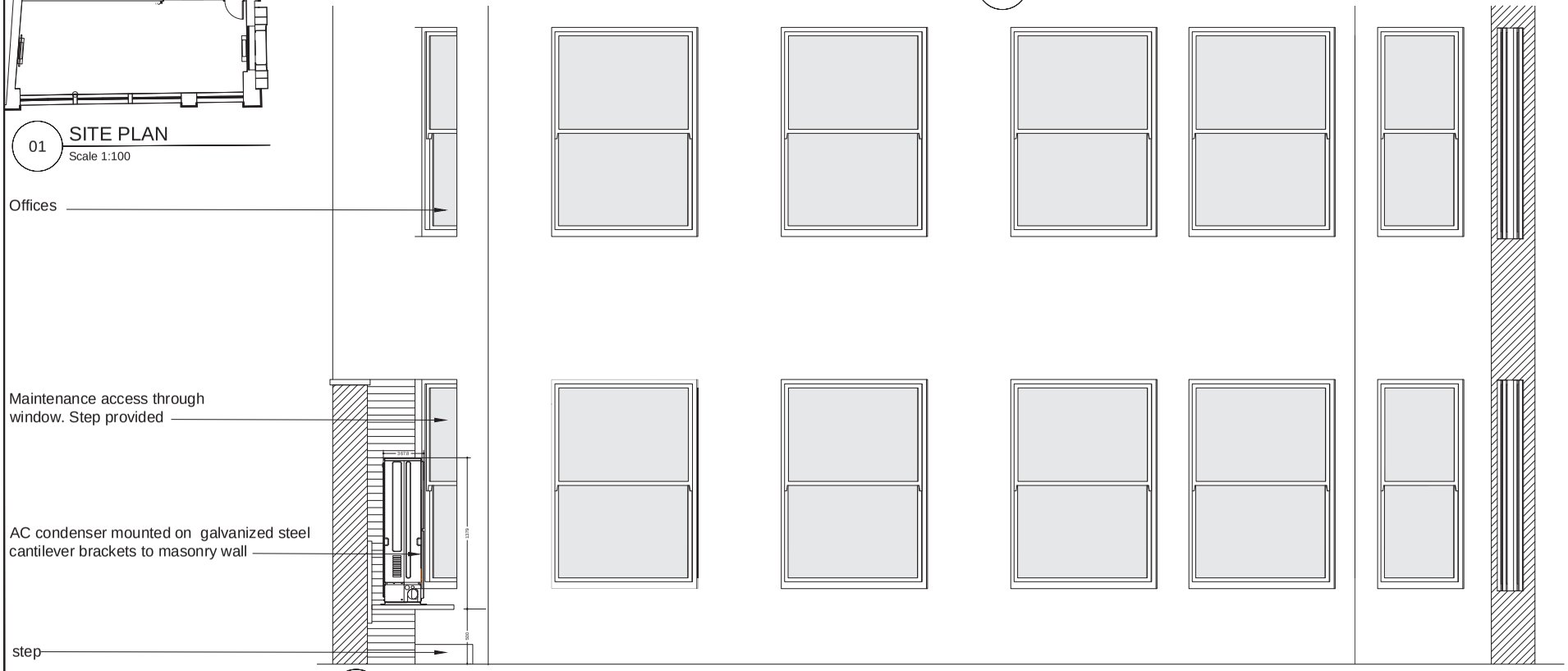
Scale 1:100



02 SECTIONAL ELEVATION
Scale 1:20



0 2 5 10m
SCALE 1:100

03 SECTIONAL ELEVATION LIGHTWELL
Scale 1:20

0 0.4 1 2m
SCALE 1:20

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DRAWING STATUS
FOR APPROVAL

REVISIONS

REV	DATE	DESCRIPTION	BY	CHK

CLIENT

PROJECT
WALLACESPACE
53 PARKER STREET
LONDON - WC2B 5PT

TITLE
PLANNING APPLICATION
FIRST FLOOR
PROPOSED ELEVATIONS

Peldon Rose Limited
Sterling House, 42 Worple Road
London SW19 4EQ
Telephone: 020 8971 7777
web: www.peldonrose.com

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PROJECT NUMBER	FLOOR/TYPE	NUMBER	REVISION
EN2510	01	103	-

APPENDIX B

Condenser Data Sheet

Air Conditioning

Product Information

PUMY-P R410A
Inverter Heat Pump (12.5-22.4kW)
Multi-Split Units

Making a World of Difference

Multi-Splits

The **PUMY-P** series allow up to 11 indoor units to be connected to a single outdoor unit, using the standard City Multi branch pipework system or via branch boxes and/or LEV kits to connect M Series or Mr Slim indoor units. This makes it an economic and efficient answer for multi-room applications, whilst also offering space saving benefits.

Key Features

- The condensing unit is extremely slimline which allows easy location and application of the system
- Connect stylish M Series wall mounted and floor mounted indoor units to the system via the LEV kit interface **PAC-LV11M**
- Connect M Series and Mr Slim indoor units via the **PAC-MK-BC** boxes alongside VRF indoor units to the same system

MITSUBISHI ELECTRIC

Cooling | Heating | Ventilation | Controls

Air Conditioning

Product Information

PUMY-P R410A
Inverter Heat Pump (12.5-22.4kW)
Multi-Split Units

Making a World of Difference

PUMY-P OUTDOOR UNITS		PUMY-P112VKM4	PUMY-P112YKM4	PUMY-P125VKM4	PUMY-P125YKM4	PUMY-P140VKM4	PUMY-P140YKM4	PUMY-P200YKM2
NUMBER OF CONNECTABLE INDOOR UNITS	Branch box / Mixed*1	8 / 10	8 / 10	8 / 10	8 / 10	8 / 10	8 / 10	8 / 11
CAPACITY (kW)	Heating (nominal)	14.0	14.0	16.0	16.0	18.0	18.0	25.0
	Cooling (nominal)	12.5	12.5	14.0	14.0	15.5	15.5	22.4
	Heating (UK)	13.9	13.9	15.8	15.8	17.8	17.8	24.8
	Cooling (UK)	10.0	10.0	11.2	11.2	12.4	12.4	17.9
COP / EER (NOMINAL)		4.61 / 4.48	4.61 / 4.48	4.28 / 4.05	4.28 / 4.05	4.03 / 3.43	4.03 / 3.43	4.28 / 3.70
SCOP / SEER		-	-	-	-	-	-	-
MAX AIRFLOW (m^3/min)	Heating / Cooling	110	110	110	110	110	110	141
SOUND PRESSURE LEVEL (dBA)		49	49	50	50	51	51	56
SOUND POWER LEVEL (dBA)	Cooling	69	69	70	70	71	71	75
DIMENSIONS (mm)	Width x Depth x Height	1050 x 330+40 x 1338	1050 x 330+40 x 1338	1050 x 330+40 x 1338	1050 x 330+40 x 1338	1050 x 330+40 x 1338	1050 x 330+40 x 1338	1050 x 330+40 x 1338
WEIGHT (kg)		122	125	122	125	122	125	141
ELECTRICAL SUPPLY		220-240v, 50Hz	380-415v, 50Hz	220-240v, 50Hz	380-415v, 50Hz	220-240v, 50Hz	380-415v, 50Hz	380-415v, 50Hz
PHASE		Single	Three	Single	Three	Single	Three	Three
POWER INPUT (kW)	Heating/Cooling (nominal)	3.04 / 2.79	3.04 / 2.79	3.74 / 3.46	3.74 / 3.46	4.47 / 4.52	4.47 / 4.52	5.84 / 6.05
	Heating/Cooling (UK)	4.01 / 1.56	4.01 / 1.56	4.94 / 1.94	4.94 / 1.94	5.90 / 2.53	5.90 / 2.53	7.71 / 3.39
STARTING CURRENT (A)		14	7	14	7	14	7	7
RUNNING CURRENT (A)	Heating/Cooling [MAX]	12.86 / 11.80 [29.5]	4.98 / 4.57 [13.0]	15.82 / 14.64 [29.5]	5.78 / 5.35 [13.0]	18.91/ 19.12 [29.5]	6.55 / 6.62 [13.0]	8.74 / 9.05 [19.0]
FUSE RATING (BS88) – HRC (A)		1 x 32	1 x 16	1 x 32	1 x 16	1 x 32	1 x 16	1 x 20
PIPE SIZE MM (in)	Gas	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")	19.05 (3/4")
	Liquid	9.52 (3/8")	9.52 (3/8")	9.52 (3/8")	9.52 (3/8")	9.52 (3/8")	9.52 (3/8")	9.52 (3/8")*2
TOTAL PIPING LENGTH (m)	Branch box / Mixed*1	150 / 300 (240)	150 / 300 (240)	150 / 300 (240)	150 / 300 (240)	150 / 300 (240)	150 / 300 (240)	150 / 150 (150)
FURTHEST PIPING LENGTH (m)	(With no branch boxes)	80 (85)	80 (85)	80 (85)	80 (85)	80 (85)	80 (85)	80
BETWEEN BRANCH BOX AND OUTDOOR UNIT - LENGTH (m)		55	55	55	55	55	55	55
BETWEEN BRANCH BOX AND INDOOR UNIT - LENGTH (m)		25	25	25	25	25	25	25
BETWEEN INDOOR AND OUTDOOR UNIT - HEIGHT (m)		50m max*3	50m max*3	50m max*3	50m max*3	50m max*3	50m max*3	50m max*3
BETWEEN INDOOR AND INDOOR UNITS - HEIGHT (m)	Branch box / Mixed*1	12	12	12	12	12	12	12
CHARGE REFRIGERANT (kg) / CO_2 EQUIVALENT (t) - R410A (GWP 2088)		4.8 / 10.0	4.8 / 10.0	4.8 / 10.0	4.8 / 10.0	4.8 / 10.0	4.8 / 10.0	7.3 / 15.2
MAX ADDITIONAL REFRIGERANT (kg) / CO_2 EQUIVALENT (t) - R410A (GWP 2088)		13.7 / 28.6	13.7 / 28.6	13.7 / 28.6	13.7 / 28.6	13.7 / 28.6	13.7 / 28.6	13.5 / 28.2

Notes: *1 **Branch box** - only using branch boxes (PAC-MK) on the system. **Mixed** - using a mix of branch boxes (PAC-MK) and City Multi indoor units on the same system. Figure in brackets - when using 2 branch boxes. *2 12.7mm (1/2") if furthest length ≥ 60m. *3 40m max if outdoor installed below. *4 SCOP / SEER available separately in the 'City Multi VRF Seasonal Efficiency' document. Based on Ecodesign Lot 6 to EN14825 standard.

PAC-MK - BRANCH BOX		PAC-MK31BC	PAC-MK51BC
NUMBER OF CONNECTABLE INDOOR UNITS		3	5
COMPATIBLE INDOOR UNITS		M Series, Mr Slim	M Series, Mr Slim
WEIGHT (kg)		6.7	7.4
DIMENSIONS (mm)	Width x Depth x Height	450 x 280 x 170	450 x 280 x 170
POWER SUPPLY TO BRANCH BOX*1	From outdoor unit	3 core + earth	3 core + earth
	Separate supply	220-240v, 50Hz / Single Phase	220-240v, 50Hz / Single Phase
	Separate supply fuse rating (BS88) - HRC (A)	6	6
POWER SUPPLY TO INDOOR UNITS	From branch box	3 core + earth	3 core + earth

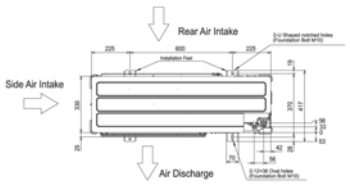
Note: *1 Either option is available for power supply from outdoor unit OR from a separate supply.

PAC-LV - LEV KIT INTERFACE		PAC-LV11M
NUMBER OF CONNECTABLE INDOOR UNITS		1
COMPATIBLE INDOOR UNITS		M Series
CAPACITY INDEX OF INDOOR UNITS		15 to 50
WEIGHT (kg)		3.5
DIMENSIONS (mm)	Width x Depth x Height	355 x 142 x 138
ELECTRICAL SUPPLY		220-240v, 50Hz / Single Phase
FUSE RATING (BS88) - HRC (A)		6

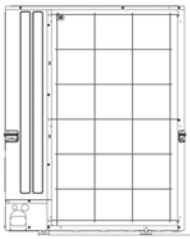
PRODUCT DIMENSIONS

PUMY-P112/125/140(V)(Y)KM4, PUMY-P200YKM2

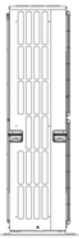
Upper View



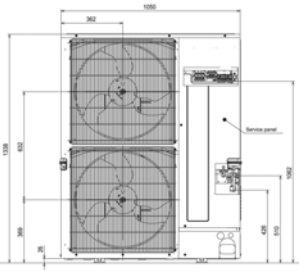
Rear View



Side View



Front View



Side View

Note: The indoor unit connected to the PAC-LV11 cannot be grouped with other City Multi indoor units. Group control with other M Series indoor units + PAC-LV11 is possible via ME controller or system controller only. Group control is not possible via an MA controller, IT terminal or wireless remote controller. ME control functions energy management, charge apportioning, interlock and free contact are not available.

MITSUBISHI ELECTRIC
Changes for the Better

Telephone: 01707 282880
email: air.conditioning@meuk.mee.com
web: airconditioning.mitsubishielectric.co.uk

UNITED KINGDOM Mitsubishi Electric Europe Living Environment 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)

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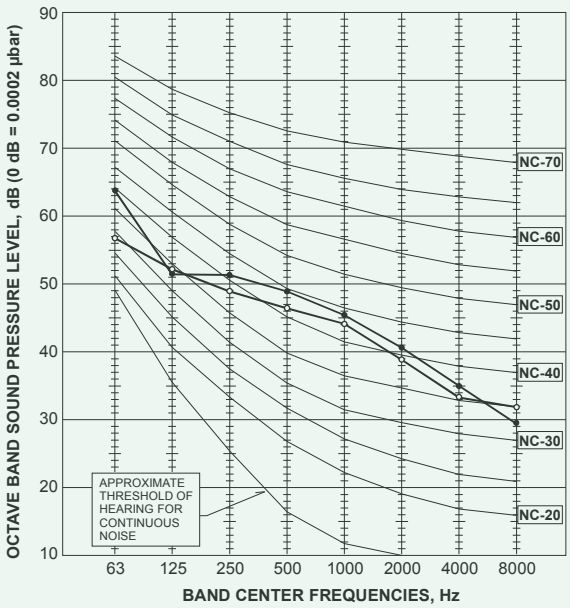
Note: The fuse rating is for guidance only. Please refer to the relevant databook for detailed specification. It is the responsibility of a qualified electrician/electrical engineer to select the correct cable size and fuse rating based on current regulation and site specific conditions. Mitsubishi Electric's air conditioning equipment and heat pump systems contain a fluorinated greenhouse gas, R410A (GWP:2088), R32 (GWP:675), R407C (GWP:1774) or R134a (GWP:1430). *These GWP values are based on Regulation (EU) No 517/2014 from IPCC 4th edition. In case of Regulation (EU) No.626/2011 from IPCC 3rd edition, these are as follows. R410A (GWP:1975), R32 (GWP: 550), R407C (GWP:1650) or R134a (GWP:1300).

Effective as of April 2018

4-5. NOISE CRITERION CURVES

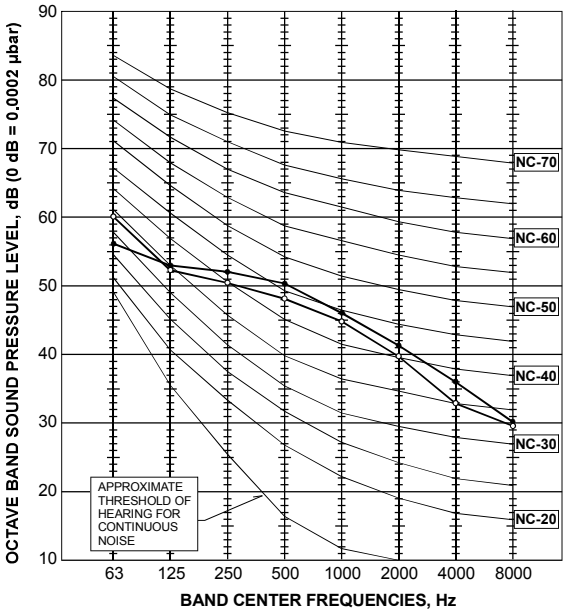
PUMY-P112VKM(-BS)
PUMY-P112YKM(-BS)

MODE	SPL(dB)	LINE
COOLING	49	○—○
HEATING	51	●—●



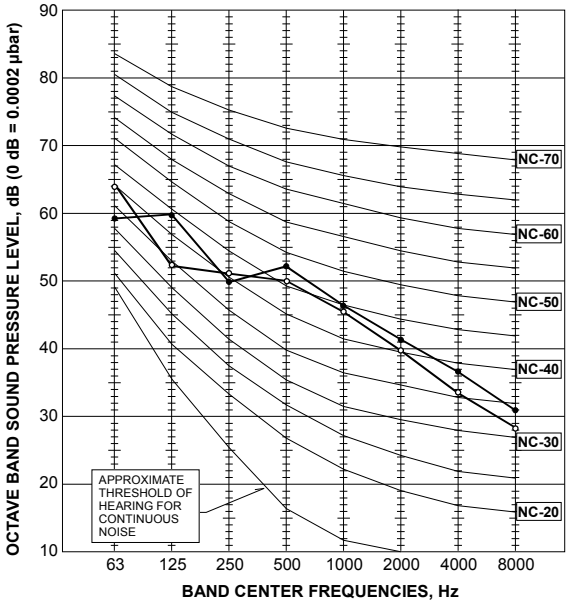
PUMY-P125VKM(-BS)
PUMY-P125YKM(-BS)

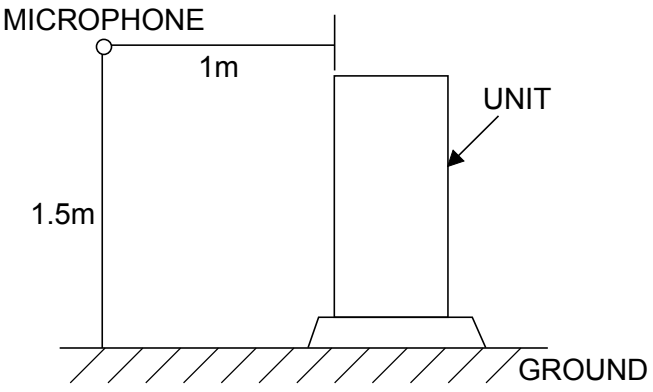
MODE	SPL(dB)	LINE
COOLING	50	○—○
HEATING	52	●—●



PUMY-P140VKM(-BS)
PUMY-P140YKM(-BS)

MODE	SPL(dB)	LINE
COOLING	51	○—○
HEATING	53	●—●





Sound power level calculation

Project:	WallaceSpace
Project number:	19353
Date:	22/10/2019
Plant:	

Parameters	Metric	Value	Unit	Comments
SOURCE DETAILS				
Measured sound pressure level	L_{pA}:	51	dB	
Source dimensions:				
	Width:	1.05	m	
	Depth:	0.37	m	
	Height:	1.338	m	
POINT SOURCE ASSUMPTION TEST				
Characteristic source dimension	d_0:	1.4	m	As per BS 3746:2010 for assumed hemispherical propagation
Measurement distance to acoustic centre	r:	1.44	m	Measurement distance within valid range (1 ≤ r ≤ 16)
	Ratio r/d_0:	1.0		Point source assumption invalid (r/d0 < 2). Use parallelepiped model.
→ **PARALLELEPIPED SOURCE MODEL**				
Measurement distance from surface	d:	1	m	Distance should be at least 0.15m, but preferably 1m or more.
Measurement surface area	S:	33	m^2	
Sound power level	**L_{wA}:**	**66**	**dB**	

APPENDIX C

Correspondence with London Borough of Camden

From:	Nick Treby
To:	Priddle, Nick; Castro-Llach, Camilo; Perella, Lee
Cc:	Davis, Edward
Subject:	RE: Noise limits for units/ plant
Date:	14 October 2019 09:33:00
Attachments:	image001.png image002.png image003.png

Thanks Nick. That seems like a pretty reasonable approach, and one we have used elsewhere in the UK for this kind of thing.

Thank you, and your colleagues, very much indeed for getting on to this so promptly for me. Your speedy response, and clarity of explanation is very much appreciated.

Kind regards

Nick Treby
Principal Consultant

Spectrum Acoustic Consultants Ltd
27-29 High St, Biggleswade
Bedfordshire. SG18 0JE
DDI. +44(0)1767 603220
Mob. +44(0)7793 655887
ntreby@spectrumacoustic.com
http://www.spectrumacoustic.com

From: Priddle, Nick <Nick.Priddle@camden.gov.uk>
Sent: 14 October 2019 07:42
To: Nick Treby <NTreby@spectrumacoustic.com>; Castro-Llach, Camilo <Camilo.Castro-Llach@camden.gov.uk>; Perella, Lee <Lee.Perella@camden.gov.uk>
Cc: Davis, Edward <Edward.Davis2@camden.gov.uk>
Subject: RE: Noise limits for units/ plant

Hi Nick

In terms of offices the internal design criterion should be 35-40 dB $L_{Aeq,}$ (in accordance BS 8233 2014) which correlates to an external façade level of 50-55 dB, basis partially open.

Best regards

Nick Priddle
Technical Officer Contaminated Land & Noise

Telephone: 0207 974 4054

From: Nick Treby <NTreby@spectrumacoustic.com>
Sent: 11 October 2019 15:43
To: Castro-Llach, Camilo <Camilo.Castro-Llach@camden.gov.uk>; Perella, Lee

<Lee.Perella@camden.gov.uk>
Cc: Davis, Edward <Edward.Davis2@camden.gov.uk>; Priddle, Nick <Nick.Priddle@camden.gov.uk>
Subject: RE: Noise limits for units/ plant

Hi

Thanks all.

I see from Table C that the 10 dB below background applies to dwellings, and from note ** that "*levels given are for dwellings, however levels are use specific and different levels will apply dependent on the use of premises*"

It would be very onerous to apply that to office windows as well as residential dwellings. I think this allows me the opportunity to propose something different for offices. Is that right?

Nick

Nick Treby
Principal Consultant

Spectrum Acoustic Consultants Ltd
27-29 High St, Biggleswade
Bedfordshire. SG18 0JE
DDI. +44(0)1767 603220
Mob. +44(0)7793 655887
ntreby@spectrumacoustic.com
http://www.spectrumacoustic.com

From: Castro-Llach, Camilo <Camilo.Castro-Llach@camden.gov.uk>
Sent: 11 October 2019 15:36
To: Perella, Lee <Lee.Perella@camden.gov.uk>; Nick Treby <NTreby@spectrumacoustic.com>
Cc: Davis, Edward <Edward.Davis2@camden.gov.uk>; Priddle, Nick <Nick.Priddle@camden.gov.uk>
Subject: RE: Noise limits for units/ plant

HI Nick,

Please see attached Appendix 3 from our Local Plan which is available on our website. If the info you are after is not included in the Appendix please let us know.

Regards,

Camilo Castro-Llach
Noise Officer

Telephone: 020 7974 5249

From: Perella, Lee <Lee.Perella@camden.gov.uk>
Sent: 11 October 2019 15:31
To: ntreby@spectrumacoustic.com
Cc: Castro-Llach, Camilo <Camilo.Castro-Llach@camden.gov.uk>; Davis, Edward <Edward.Davis2@camden.gov.uk>; Priddle, Nick <Nick.Priddle@camden.gov.uk>
Subject: Noise limits for units/ plant

Dear Nick

I have c.c. in those that deal with planning and plant installation matters.

From what I gather the plant should operate 10dB below backround levels at the receptor or 15 dB if there is a characteristic sound / tonal element to the operation of the plant.

Background level being the lowest background measured for the intended operating period.

Receptors such as offices or residential were treated the same. So no difference in noise limits.

In any case, I have cc in the above to feedback to you. They may also be able to highlight where this information can be found on Camden Website for future reference.

Regards

Lee Perella
Pollution EHT
Place Management
Supporting Communities
London Borough of Camden

Web: camden.gov.uk
8th floor
5 Pancras Square
London N1C 4AG

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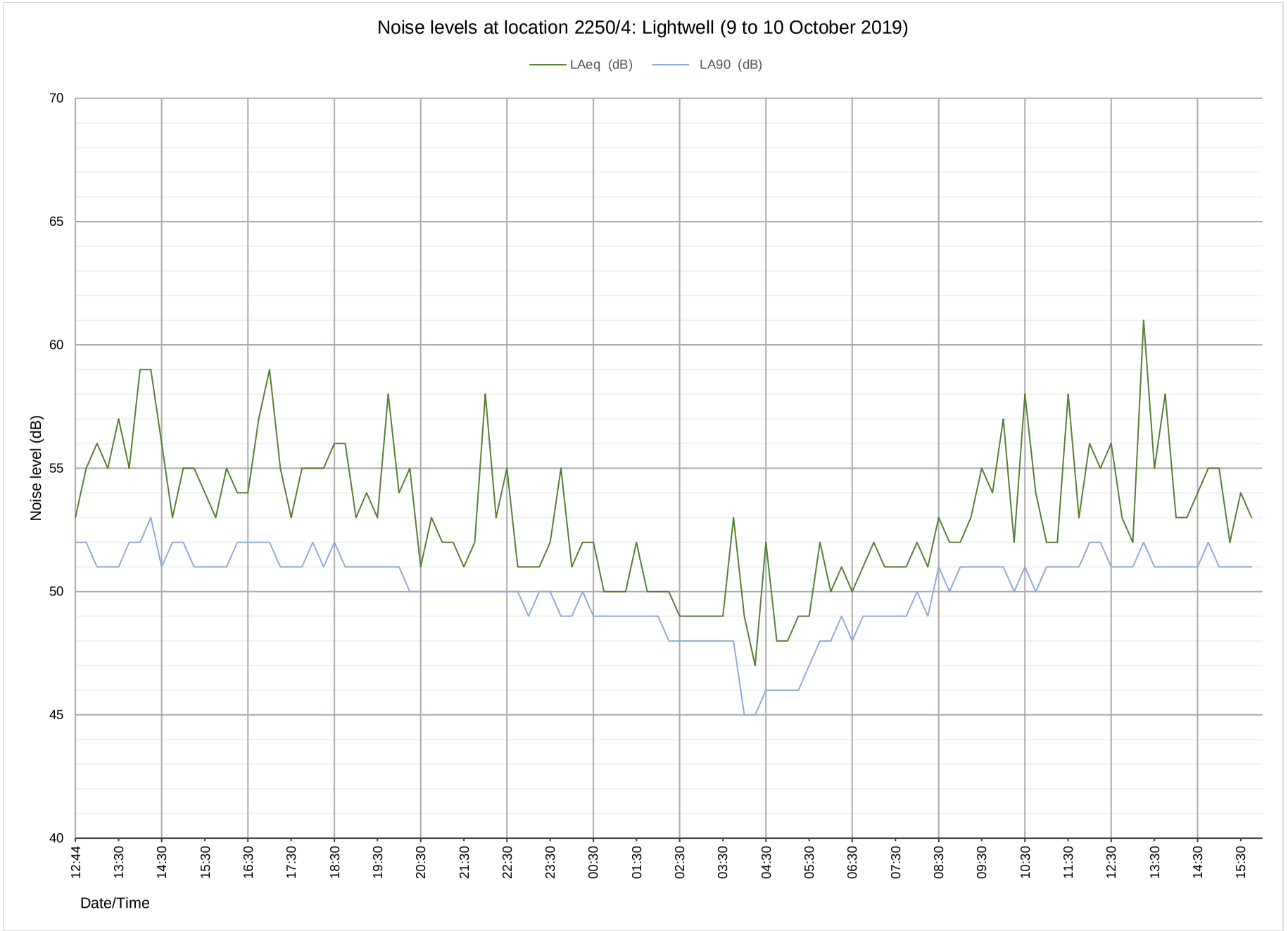
APPENDIX D

Noise Survey Details and Results


Noise levels at location 2250/4: Lightwell (9 to 10 October 2019)
LAeq (dB)
LA90 (dB)
Noise level (dB)
70
65
60
55
50
45
40
12:44
13:30
14:30
15:30
16:30
17:30
18:30
19:30
20:30
21:30
22:30
23:30
00:30
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11:30
12:30
13:30
14:30
15:30
Date/Time

Head Office
Spectrum Acoustic Consultants Ltd
27-29 High Street
Biggleswade
Bedfordshire
SG18 0JE
UNITED KINGDOM

+44 (0)1767 318871
enquiries@spectrumacoustic.com
www.spectrumacoustic.com