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QF7351/JT

9<sup>th</sup> December 2014

Carmody Groarke  
62-70 Shorts Gardens  
London  
WC2H 9AH

For the attention of Mr Marcus Andren

Dear Sir,

**Re: 11 Fitzroy Square – Additional Condenser within Front Vault**

Since the issue of our acoustic report reference QF7351/PF4765/RP1, we acknowledge your request to comment upon the noise impact of an additional condenser installed within a vault at the front at the house. The attached plan has been marked to show the location of the vault, and the attached extract from Fujitsu provides sound power levels of the AOYG14LALL unit proposed.

Our noise report recommended that external plant should be designed to achieve a noise level not exceeding 41.6dBA when measured at 1 metre outside the nearest affected residential window.

The unit has a published sound power level of 62dBA.

Within the small vault in which it is proposed to be located, we predict this will result in a reverberant sound pressure level inside the vault in the order of 65dBA.

The vault has a massive construction, so the vault walls will be sufficient to contain all of the condenser's noise. However, we understand that you propose to ventilate the vault via a louvre door set into the front wall of the vault.

Assuming the louvre door has an approximate dimension of 0.9m x 1.8m, then we can use the following formula to predict the effective sound power of the louvre door:

$L_w = SPL_{\text{inside}} - 6 + 10 \log S$  (where S = area of louvre door)

This reveals the louvre door will have the equivalent sound power,  $L_w$ , in the order of of 61dBA.

Now, using the formula:  $SPL_{\text{receiver}} = L_w - 20 \log r - 11 + D$ ,

where:  $SPL_{\text{receiver}}$  = Sound Pressure Level outside the nearest affected residential window,  
 $L_w$  = Sound Power Level of louvre door,  $r$  = distance = 8m and  $D$  = Directivity factor = 6,

we can predict that plant noise levels at 1 metre external to the nearest affected residential window, approximately 8 metres away, will be in the order of 38dBA.



Reg. No. 3164658. VAT Reg. No. GB675017042  
Directors: I.J.Marchant MIOA (Managing) – J.R.Tait B.Eng, AMIMechE, MIOA  
M.G.Roberts BSc., C.Eng., MIMechE, MIOA – R.T.H.Roberts FCA. (Co.Sec.)



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As 38dBA is less than the recommended design noise limit of 41.6dBA, it is predicted that the introduction of a the above specified condenser should attract no justifiable complaints under the guidelines set out in Camden's planning policies and as such reservations are not expected from the planning authority on the grounds of noise.

Using acoustic louvres in lieu of non-acoustic louvres would provide an additional reduction in noise and allow a margin for error in our above calculations.

As with any arrangement of plant as described above, we would recommend consultation with the condenser manufacturer to ensure the fresh air and exhaust air paths allow for efficient operation of the machinery.

We trust that the above is in line with your requirements, but should you have any queries with regard to our proposals, please do not hesitate to contact the undersigned.

Yours faithfully,



# Slim Duct

Model : ARYG12LLTB / **ARYG14LLTB** / ARYG18LLTB



ARYG12/14LLTB



ARYG18LLTB



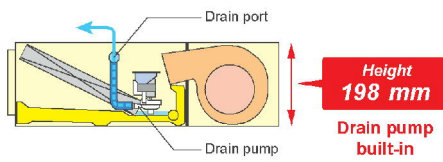
Wired R.C.



## Features

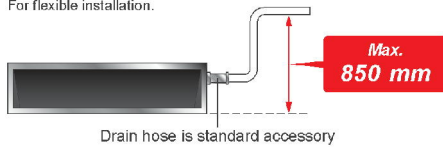
### Slim design

The slim design allows installations where ceilings are narrow.



### Drain hose as standard accessory

For flexible installation.



### Selectable with a wide range of static pressure

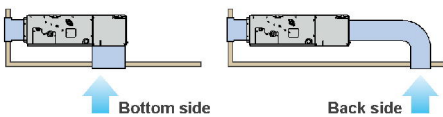
By using the DC fan motor, it is possible to change the static pressure range from 0 to 90 Pa.

The change of static pressure range is possible by remote controller.



### Air-intake

Air intake direction can be selected to match the installation site.



### Flexible installation

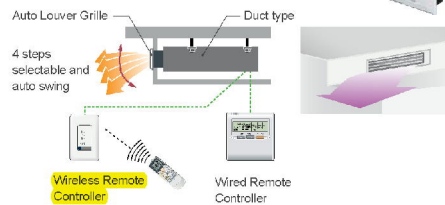
Ceiling concealed

Floor concealed



### Auto Louver Grille Kit (Option)

Simple flat Auto Louver will provide comfort airflow and harmonize with luxury interior.



### Optional parts

Wired Remote Controller:	UTY-RNNYM, UTY-RVNYM
Simple Remote Controller:	UTY-RSNYM
IR Receiver Kit:	<b>UTY-LRHYM</b>
Remote Sensor Unit:	UTY-XSZX
Auto Louver Grille Kit:	UTD-GXSA-W (For ARYG12 / 14LLTB) UTD-GXSB-W (For ARYG18LLTB)

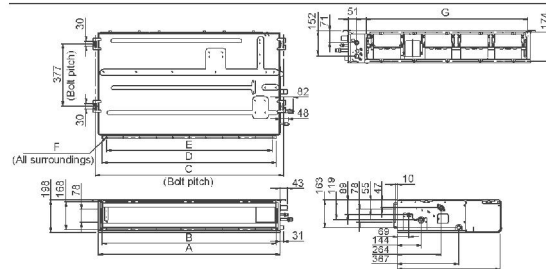


### Specifications

Model No.	Indoor unit		ARYG12LLTB	ARYG14LLTB	ARYG18LLTB
	Outdoor unit		AOYG12LALL	AOYG14LALL	AOYG18LALL
Power Source		V/∅/Hz	230/1/50	230/1/50	230/1/50
Capacity	Cooling	kW	3.5 (0.9-4.4)	4.3 (0.9-5.4)	5.2 (0.9-5.9)
	Heating	kW	4.1 (0.9-5.7)	5.0 (0.9-6.5)	6.0 (0.9-7.5)
Input Power	Cooling/Heating	kW	1.05/1.11	1.33/1.34	1.62/1.66
EER	Cooling	W/W	3.33	3.21	3.21
COP	Heating	W/W	3.69	3.71	3.61
Pdesign	Cooling/Heating	kW	3.5/4.2	4.3/4.5	5.2/5.2
SEER	Cooling	W/W	5.90	5.80	6.20
SCOP	Heating	W/W	4.00	3.90	4.10
Energy Efficiency Class	Cooling		A+	A+	A++
	Heating		A+	A	A+
Running Current	Cooling/Heating	A	4.8/5.1	6.1/6.1	7.2/7.4
Annual Energy Consumption	Cooling	kWh/a	207	258	293
	Heating	kWh/a	1467	1614	1774
Moisture Removal		l/h	1.3	1.5	2.0
Sound Pressure (Cooling)	Indoor	H/M/L/Q	29/28/26/25	32/30/28/26	32/30/28/27
	Outdoor	High	47	49	50
Sound Power (Cooling)	Indoor	High	58	60	58
	Outdoor	High	61	62	62
Airflow Rate (High)	Indoor / Outdoor	m <sup>3</sup> /h	650/1780	800/1810	940/2000
Static pressure range (Standard)		Pa	0 to 90 (25)	0 to 90 (25)	0 to 90 (25)
Net Dimension H x W x D	Indoor	mm	198x700x620	198x700x620	198x900x620
		kg(lbs)	19 (42)	19 (42)	23 (51)
	Outdoor	mm	578x790x300	578x790x300	578x790x300
		kg(lbs)	40 (88)	40 (88)	40 (88)
Piping Connections (Small / Large)		mm	6.35/9.52	6.35/12.70	6.35/12.70
Drain Hose Diameter (I.D./O.D.)		mm	25/32	25/32	25/32
Max Pipe Length (Pre-Charge)		m	25 (15)	25 (15)	25 (15)
Max Height Difference			15	15	15
Operation Range	Cooling	°CDB	-10 to 46	-10 to 46	-10 to 46
	Heating	°CDB	-15 to 24	-15 to 24	-15 to 24
Refrigerant (Global Warming Potential)			R410A (1,975)	R410A (1,975)	R410A (1,975)

### Dimensions Models : ARYG12LLTB / ARYG14LLTB / ARYG18LLTB

(Unit : mm)



	ARYG12 / 14LLTB	ARYG18LLTB
A	700	900
B	650	850
C	734	934
D	650	850
E	P100x6=600	P100x6=800
F	18x25	22x25
G	574	774



**NOTES**

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITIES AND FOR OBTAINING ALL NECESSARY APPROVALS FROM THE LOCAL AUTHORITIES.
2. ALL MECHANICAL SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE RELEVANT STANDARDS AND REGULATIONS.
3. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY APPROVALS FROM THE LOCAL AUTHORITIES.

NO.	DATE	DESCRIPTION
01	15/03/2018	ISSUED FOR TENDER
02	15/03/2018	ISSUED FOR TENDER
03	15/03/2018	ISSUED FOR TENDER

**ENVIRONMENTAL ENGINEERING PRACTICE**

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11 Fitzroy Square,  
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Fax: +44 (0)20 7638 4041  
Email: enquiries@eep.co.uk



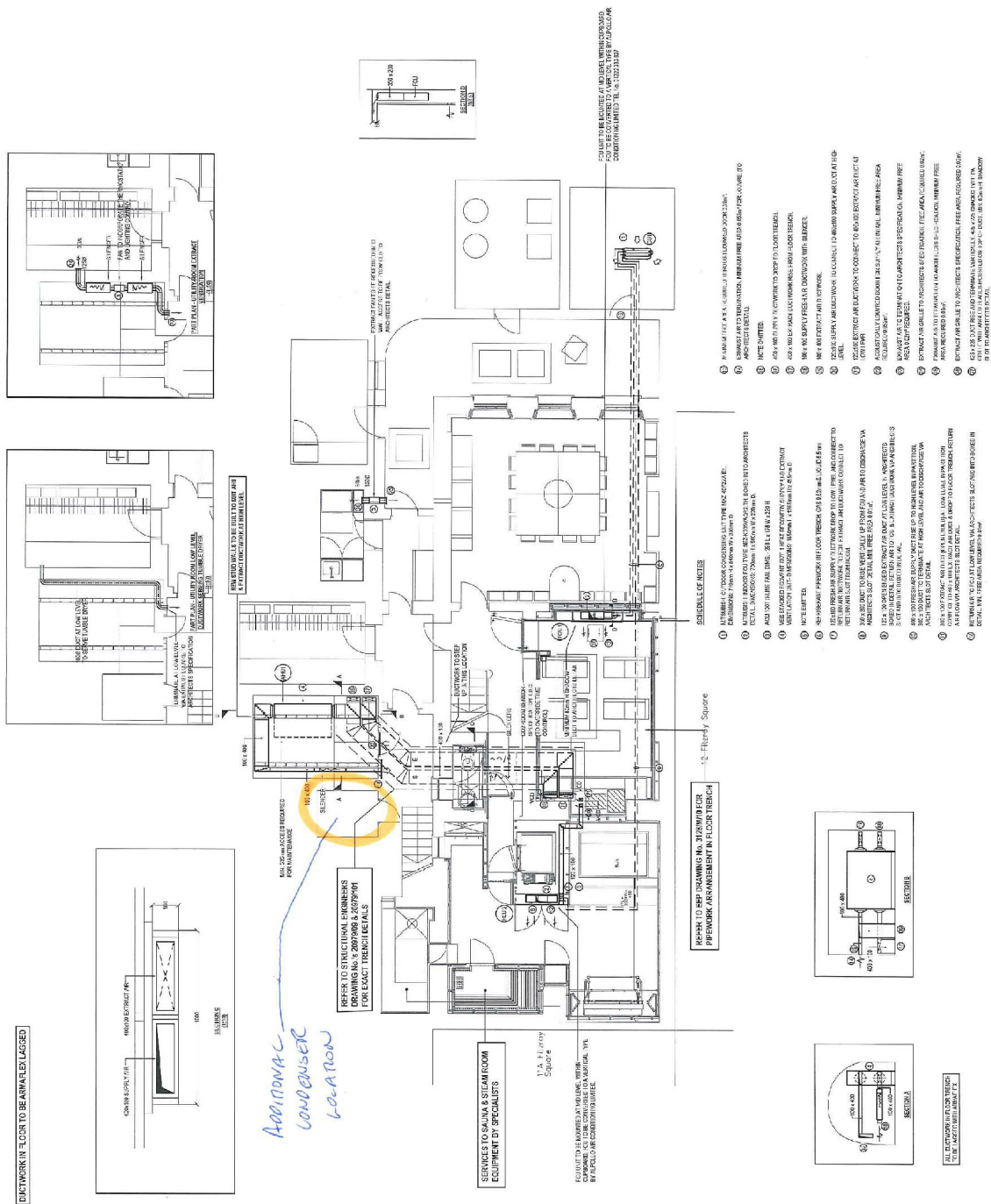
**RICHARD & JUDITH GREER**  
11 FITZROY SQUARE  
LONDON

**LOWER GROUND FLOOR VENTILATION LAYOUT**

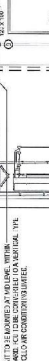
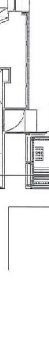
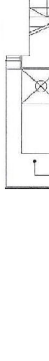
SCALE: 1:50 @ A1  
DATE: MARCH 2018

PROJECT NO: 3128/M/01

REV: C3



DUCTWORK IN FLOOR TO BE UNWATERLOGGED



REPAIR TO RFP DRAWING NO. 3128/W/01  
PIPEWORK ARRANGEMENT IN FLOOR TRENCH

SCHEDULE OF SERVICES

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