Technical Memorandum

To: Simon Brown - APS
From: Chris McConnell – 24 Acoustics Ltd
Date: 8th September 2014
Job: 5275 Holborn Tower
Ref: Proposed Enclosures by Environ

It is understood that the 1st floor outdoor VRV units will be housed in an enclosure. 24 Acoustics has reviewed the acoustic performance data from Environ, which is provided overleaf. Based on the data provided, the proposed enclosure would achieve the minimum performance requirements as specified in Table 4 of 24 Acoustics' report R5275-1 Rev 1, and is therefore an acoustically suitable solution.

environ™
Dynamic Acoustic Technology

Environ Technologies Ltd
Regus House, 1010 Cambourne Business Park
Cambourne, Cambridgeshire, UK CB3 6DP
Tel: +44 (0)870 383 3344
Fax: +44 (0)1223 598001
www.environ.co.uk

environmodula EM2.2.25AC Acoustic Performance Data (November 2008)

Noise Measurement Information:

Test: Environ Modula Acoustic Enclosure - W 3200mm x D 1510mm x H 3000mm

Test Standard:

BS EN ISO 140-3 Acoustics - Measurement of Sound Insulation in Buildings and of Building Elements - Part 1: Airborne Sound Insulation

Sound Level Measuring Equipment:

Norsonic 830 RTA Precision Sound Analyser - Type 1
CEL 284/2 Acoustic Calibrator Type 1
JBL Loudspeaker driven by CEL White Noise Source

Transmission Loss Data:

Transmission Loss - Environ Modula EM2.2.25AC							
Octave Frequency in Hertz (dB ref 2 x 10^{-5} Pascals)							
63	125	250	500	1K	2K	4K	8K
16	18	24	37	40	39	39	37
Summary							
Transmission Loss Equates to an Overall Reduction of 27 dB(A)							

Support Information:

Monitoring was carried out using the BS3740 technique, insofar as measurements were taken in each quadrant and the results averaged. Internal Test Room: 6m W x 12m L x 4m H. Background noise in the semi-reverberant test room was such as not to interfere with the practical measurements

Environ acoustic enclosure designs are protected under patent

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Tel: 0870 383 3344
www.environ.co.uk

SELECTION MATRIX

environmodula 2.2.25AC Series S6

28 March 2014

Acoustic enclosures for VRV/VRF/Chiller Applications

CUSTOMER:	SITE / LOCATION / REFERENCE

ORIGINAL EQUIPMENT MANUFACTURERS PUBLISHED DATA

MAKE, MODEL, DIMENSIONS, AIR FLOW & SOUND PRESSURE LEVEL @1.0M FREE FIELD

MAKE:	MODEL:	AIR IN	AIR OUT
Daikin	REYQ28P9Y1B	H - 3 Sides	V

WIDTH (MM)	DEPTH (MM)	HEIGHT (MM)	AIRFLOW (M^3S^{-1})	SPL dB(A)	DISTANCE (M)
1240+1240	765	1680	7.17	63	1

INNER CUBE DIMENSIONS		
2800	765	2275
WIDTH (MM)	817	HEIGHT (MM)
7.17	1.0	63
AIRFLOW (M^3S^{-1})	DISTANCE (M)	SPL dB(A)

ENCLOSURE DETAIL		
3500	1500	2950
WIDTH (MM)	DEPTH (MM)	HEIGHT (MM)
7.2	1.0	36
AIRFLOW (M^3S^{-1})	DISTANCE (M)	Estimated SPL dB(A)

INLET AIRWAYS		
3250	300	2
WIDTH (MM)	HEIGHT (MM)	NO.

DESIGN CRITERIA		
OK	OK	OK
UNIT SIZE	OUTLET	INLET

OUTLET AIRWAYS		
300	2925	2
WIDTH (MM)	HEIGHT (MM)	NO.

AIRFLOW INFORMATION		
16	4.1	3.7
PD (NM^{-2})	OUTLET (MS^{-1})	INLET (MS^{-1})

Select Inlet & Outlet Duct Sizes to Ensure Airflows are kept Below 6.0m/s

ENCLOSURE INFORMATION	WIDTH (MM)	DEPTH (MM)	HEIGHT (MM)
INLET AIRWAY	3250		300
OUTLET AIRWAY	300		2925
EXTERNAL SIZE	4000	1500	3000
ESTIMATED SOUND LEVEL @ 1 M (Free Field)	36	SPL dB(A) SOUND PRESSURE	

NOTES CONCERNING ENCLOSURE DESIGN
REYQ12 + REYQ16