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Dukelease Properties Ltd
3rd Floor
50 New Bond Street
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TALLY HO PUB SITE, FORTRESS ROAD, KENTISH TOWN

HVAC PLANNING REPORT

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HVAC PLANNING REPORT

CONTROLLED DOCUMENT

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TALLY HO PUB SITE, FORTRESS ROAD, KENTISH TOWN

HVAC PLANNING REPORT

C O N T E N T S

1. INTRODUCTION

This report describes the current heating, cooling and ventilation proposals for the retail section of the Tally Ho Pub Site project in Kentish Town, London. The project consists of 3No retail areas at ground floor below a residential building.

Usually Heating, comfort cooling, and fresh air are all required for retail areas.
Due to high occupancy and lighting loads for retail spaces, comfort cooling is normally required to achieve comfortable conditions for the workforce and the cliental.
Heating and cooling for this type of project are usually combined to reduce on plant space and maintenance.
Fresh air is also required for the occupancy at a recommended 8 litres / second / person for non-smoking establishments in accordance with CIBSE.

Noise levels are an issue for this type of project where retail heating, cooling and ventilation external plant is located close to residential buildings. The plant described in the acoustic report by Hann Tucker Associates is an indication of the type of plant that will be installed externally. These units have been based on Daikin Heat recovery and condenser units however the manufacturer and type of unit may change.

2. RETAIL AREA

2.1 Heating and Cooling

Heating and cooling will be provided via a combined heating and cooling system, produced by a VRV (heating and cooling) internal units located in the ceiling voids within the retail space. The VRV internal units are connected to an external condenser unit for each of the retail areas. The heat produced by the retail space will be rejected by the condenser unit (refer to external areas and heat rejection)

Fresh air will be introduced to each of the retail areas via an architectural external louver at high level above the shop front.
A mini air-handling unit per retail space will be located in the ceiling void; this will treat the primary fresh air before it is introduced to the space. The air-handling units will be provided with electric heating and a refrigerant DX coil. A heat exchanger will be optional to reduce on energy consumption.
Rather than introducing the fresh air directly to the space it will be distributed to each of the fan coil units and mixed with the re-circulated air from the space.

Attenuation will be provided on the ductwork of the fresh air systems.

3. EXTERNAL AREAS

3.1 Heat Rejection

Heat rejection from the retail space is provided by 3No external air-cooled condenser units strategically positioned on the Podium level above the retail area.

Heat rejection from the internal fresh air units will be provided via an external condenser connected to each unit, these will be strategically positioned on the Podium level above the retail area

The units draw cooler air through either the sides or the rear of the units; pass the air over cool refrigerant coils via a fan and discharge warm air either at the top or the front of the units.

The units which utilise fans to reject the heat generate noise (refer to acoustic report) and therefore will either need to be strategically positioned or acoustically treated to satisfy the local governments minimum noise levels.

The noise levels of the units are as follows:

- Condenser Unit – 57db(A)
- Heat Recovery Unit – 60 dB(A)

For the units to meet with Camden Councils requirements, noise levels must be 5dB(A) below the current prevailing L_{A90} noise level and meet the following Noise Emission Limits given by Hann Tucker.

- Daytime – 49dB(A)
- Night Time – 45dB(A)

- 24 Hrs – 45dB(A)

The units will be hidden / disguised within an architectural feature. These features will be designed in accordance with the VRV manufacturer's requirements.

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Frogbox Technical Information

RETAIL SYSTEM SOLUTIONS

Noise Measurement Information

Test: Standard sized Frogbox Retail System with dimensions 1500x2500x2400 (Latitude x Longitude x High)

All Measuring conformable with:

EN ISO 11957: Acoustics – Determination of sound insulation performance of cabin – Labory and in situ measurements
EN ISO 717 – 1: Acoustics – Rating of sound insulation in buildings and of building elements – Part 1: Airbone sound insulation

Sound Level Measuring Equipment

Sound Analyser B&K type 2145 b.n. 2000272 $ BZ 5048
Measuring microphone B&K 4155 b.n. 1394590
Pistonphone B&K 4220 v.c.613837

Certified Sound Isolation Data

Part	D'_w (dB)	R'_w (dB)
front flank of system	35	-
right flank of system	39	-
back flank of system	37	-
left flank of system	38	-
Whole system	38	37

Note: All noise measurements taken at 1 metre from test unit.

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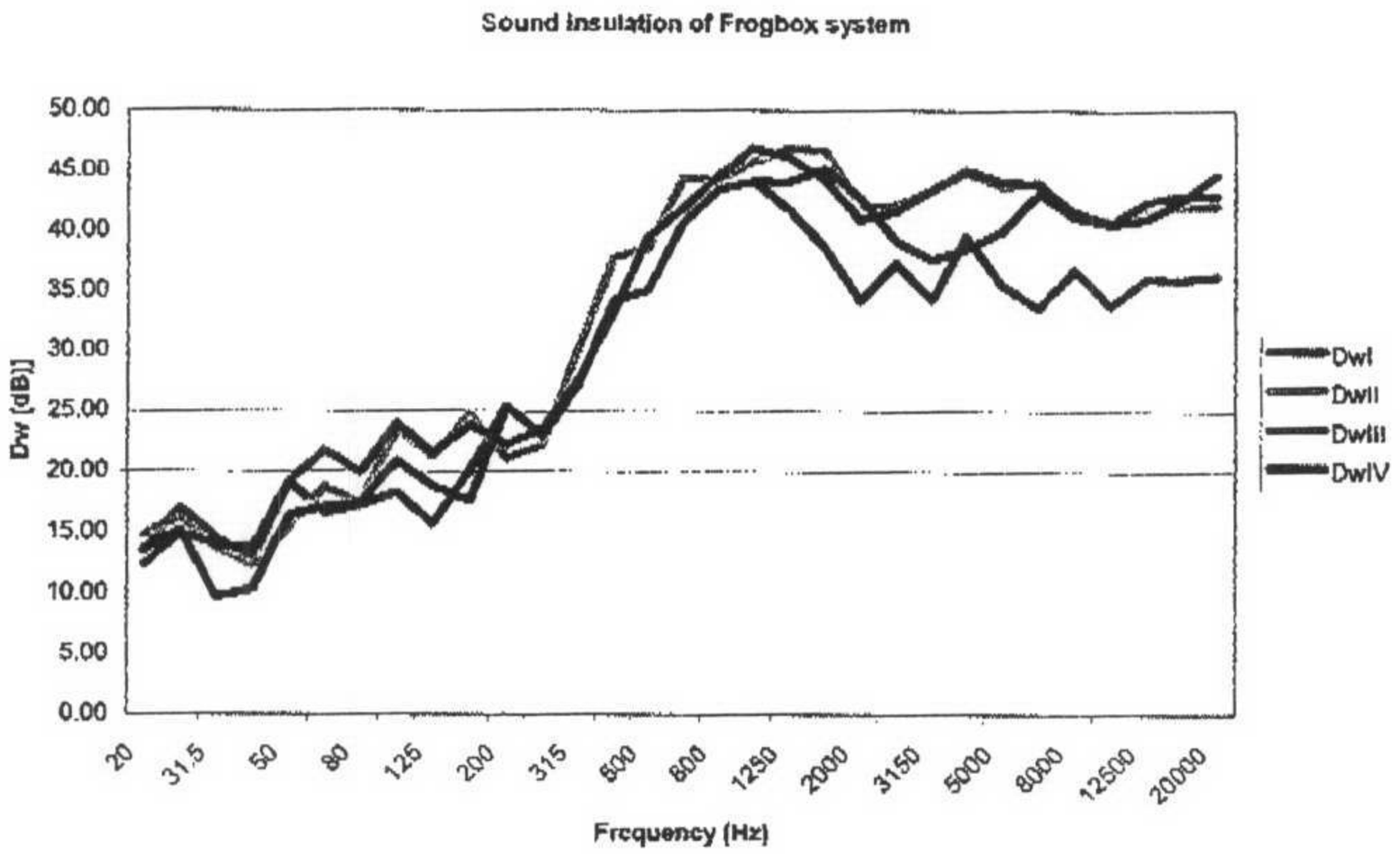
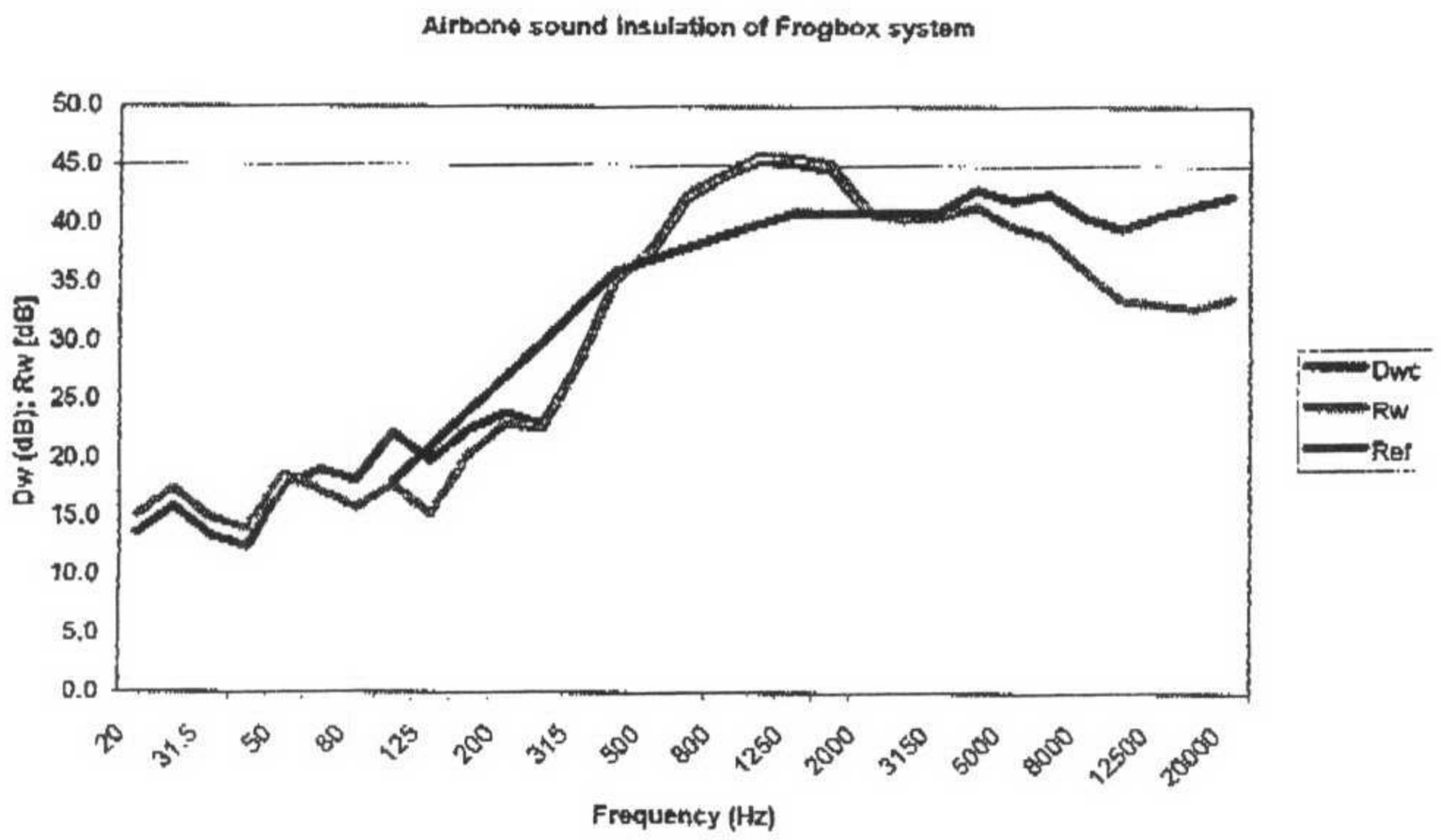
Sound insulation and airborne sound insulation of Frogbox Refrigeration System





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Certified Sound Level Data

(Hz)	(dB)										
Frequency	Dwi	Dwii	Dwiii	DwiV	Dwc	Rw	Ref	S (m2)	V (m3)	T (s)	A (m2)
20	13.41	14.80	13.63	12.40	13.6	15.2		23.2	1000	10.000	16.3
25	17.00	16.22	15.21	14.91	15.9	17.4		23.2	1000	10.000	16.3
31.5	14.60	13.76	9.71	14.02	13.4	14.9		23.2	1000	10.000	16.3
40	12.68	12.33	10.34	13.68	12.4	14.0		23.2	1000	10.000	16.3
50	19.10	15.44	16.38	19.17	17.8	18.6		23.2	1000	8.474	19.2
63	16.58	18.73	17.09	21.72	19.0	17.2		23.2	1000	4.650	35.1
80	17.16	17.36	17.36	19.89	18.1	15.8		23.2	1000	4.114	39.6
100	18.27	23.48	20.85	23.96	22.2	17.7	18	23.2	1000	2.534	64.3
125	15.67	21.20	18.78	21.44	19.8	15.2	21	23.2	1000	2.428	67.1
160	20.04	24.68	17.61	23.79	22.4	20.2	24	23.2	1000	4.266	38.2
200	25.42	21.07	25.42	22.20	23.9	23.0	27	23.2	1000	5.622	29.0
250	22.90	22.18	22.90	23.48	22.9	22.5	30	23.2	1000	6.362	25.6
315	27.16	29.99	27.16	27.49	28.1	28.0	33	23.2	1000	6.754	24.1
400	34.29	37.84	34.29	33.22	35.3	35.2	36	23.2	1000	6.802	24.0
500	35.10	38.58	35.10	39.50	37.5	37.9	37	23.2	1000	7.696	21.2
630	40.66	44.34	40.66	41.88	42.2	42.6	38	23.2	1000	7.806	20.9
800	43.49	44.28	43.49	44.60	44.0	44.3	39	23.2	1000	7.464	21.8
1000	44.12	45.77	44.12	46.89	45.4	45.8	40	23.2	1000	7.742	21.1
1250	41.83	46.87	44.11	46.16	45.2	45.7	41	23.2	1000	7.926	20.6
1600	38.65	46.72	45.17	44.27	44.5	45.1	41	23.2	1000	8.006	20.4
2000	34.22	42.04	42.77	40.95	41.0	41.2	41	23.2	1000	7.474	21.8
2500	37.35	42.20	39.16	41.64	40.5	40.4	41	23.2	1000	6.888	23.7
3150	34.28	43.39	37.61	43.46	41.2	40.6	41	23.2	1000	6.194	26.3
4000	39.56	44.88	38.55	45.07	43.0	41.5		23.2	1000	5.032	32.4
5000	35.50	43.76	40.03	44.20	42.0	39.8		23.2	1000	4.208	38.7
6300	33.63	44.11	43.18	43.81	42.6	38.9		23.2	1000	2.968	54.9
8000	36.81	41.22	41.16	41.57	40.6	35.9		23.2	1000	2.400	67.9
10000	33.81	40.70	40.54	40.69	39.7	33.5		23.2	1000	1.702	95.8
12500	36.01	41.48	40.98	42.39	40.8	33.2		23.2	1000	1.230	132.5
16000	35.98	42.14	42.56	43.00	41.6	32.9		23.2	1000	0.936	174.1
20000	36.31	42.10	44.70	42.93	42.4	33.7		23.2	1000	0.952	171.2
D'w	35	39	37	38	38	-					
R'w	-	-	-	-	-	37					