

MPF/PR0625/L02

6 April 2023

John Messer
Renaker Build Limited
NQ Building
47 Bengal Street
Ancoats
Manchester
M4 6BB

Flint Glass Works
64 Jersey Street
Manchester M4 6JW

0161 605 0905 📞
info@fisheracoustics.co.uk 📧
www.fisheracoustics.co.uk 🌐

Dear John

VITA T1, MANCHESTER – PLANNING CONDITION 19

I write with confirmation of the results of the acoustic assessment of the external building services plant at Vita Union T1, St Johns, Manchester.

INTRODUCTION

Fisher Acoustics Ltd has been commissioned by Renaker Limited to determine the expected external noise levels generated by the external building services plant at Vita Union T1, St Johns, Manchester and to respond to condition 19 of the planning approval for the development.

PLANNING CONDITION

Planning condition 19 for Vita Union T1 (planning application number 125655/FO/2019) states:

Condition 19:

- *“Externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB (LAeq) below the typical background (LA90) level at the nearest noise sensitive location. The scheme shall be submitted to and approved in writing by the City Council as local planning authority in order to secure a reduction in the level of noise emanating from the site.*

Reason - To minimise the impact of the development and to prevent a general increase in pre-existing background noise levels around the site, pursuant to policy DM1 of the Core Strategy for the City of Manchester.”

PRE-EXISTING NOISE LEVELS & ENVIRONMENTAL NOISE STUDIES

The Noise and Vibration chapter of the Environmental Statement for Vita Union T1 identifies the results of daytime and night time environmental noise surveys at and around the site. The results of the noise surveys have been to establish the allowable noise levels due to building services plant.

Table 1 below gives the applicable noise limits for non-emergency building services plant based upon the environmental noise survey data in order to comply with the guidance of Manchester City Council.

Location	Rating noise level (dB LAeq)	
	Daytime (07:00 hrs to 23:00 hrs)	Night time (23:00 hrs to 07:00 hrs)
A: The Slate Yard	50	42
B: Left Bank	50	42
C: Marriott Hotel	47	39
D: Manchester Goods Yard	50	45
E: Vita Union T1	45	39

Table 1: Environmental noise limits for non-emergency building services plant

With regard to emergency plant, such plant would only operate in an emergency or during periodical short-duration test runs. On this basis, it is not considered appropriate to require emergency plant to comply with the noise limits for continuously operating non-emergency plant. It is therefore suggested that the noise level from any emergency plant is no more than 10 dB(A) greater than the background noise level (measured as an LA90) at any residential receptor.

It is therefore recommended that the noise level at any residential façade during operation of any emergency plant does not exceed the daytime noise levels given in Table 2.

Location	Daytime noise level (dB LAeq)
A: The Slate Yard	65
B: Left Bank	67
C: Marriott Hotel	65
D: Manchester Goods Yard	65
E: Vita Union T1	65

Table 2: Environmental noise limits for emergency building services plant

BUILDING SERVICES PLANT (NON-EMERGENCY)

There is no external non-emergency plant to be installed at Vita Union T1.

BUILDING SERVICES PLANT (EMERGENCY)

The following external emergency plant items have been installed at Vita Union T1:

- 4 no. (2no. duty, 2 no. standby) PVE/ 800mm diameter inverter driven, smoke rated axial fans with 1D ENP attenuators

It has been advised that the above smoke extract fans would be tested on a weekly or fortnightly basis, operating for under five minutes per test. During these tests, the plant would be operated at 20% of its normal duty.

Table 3 identifies the reported emergency in-duct sound power levels of the rooftop smoke extract plant.

Building services plant item	Sound Power Level (dB re 1 x 10 ⁻¹² Watts)							
	dB(A)	Octave Band Centre Frequency (Hz)						
		63	125	250	500	1k	2k	4k
PVE 800mm dia. inverter driven, smoke rated axial fan at 20% Duty (Test Mode)	63	69	70	63	58	53	57	49
PVE 800mm dia. inverter driven, smoke rated axial fan at 100% Duty (Emergency)	102	99	99	98	96	95	97	91

Table 3: Sound power levels of emergency smoke extract plant – in-duct

Table 4 identifies the estimated emergency casing radiated sound power levels of the rooftop smoke extract plant.

Building services plant item	Sound Power Level (dB re 1 x 10 ⁻¹² Watts)							
	dB(A)	Octave Band Centre Frequency (Hz)						
		63	125	250	500	1k	2k	4k
PVE 800mm dia. inverter driven, smoke rated axial fan at 20% Duty (Test Mode)	57	67	63	62	57	44	39	26
PVE 800mm dia. inverter driven, smoke rated axial fan at 100% Duty (Emergency)	94	97	92	97	95	86	79	68

Table 4: Estimated sound power levels of emergency smoke extract plant – casing radiated

Figure 1 identifies the locations of the roof mounted emergency smoke extract fans at Vita Union T1.

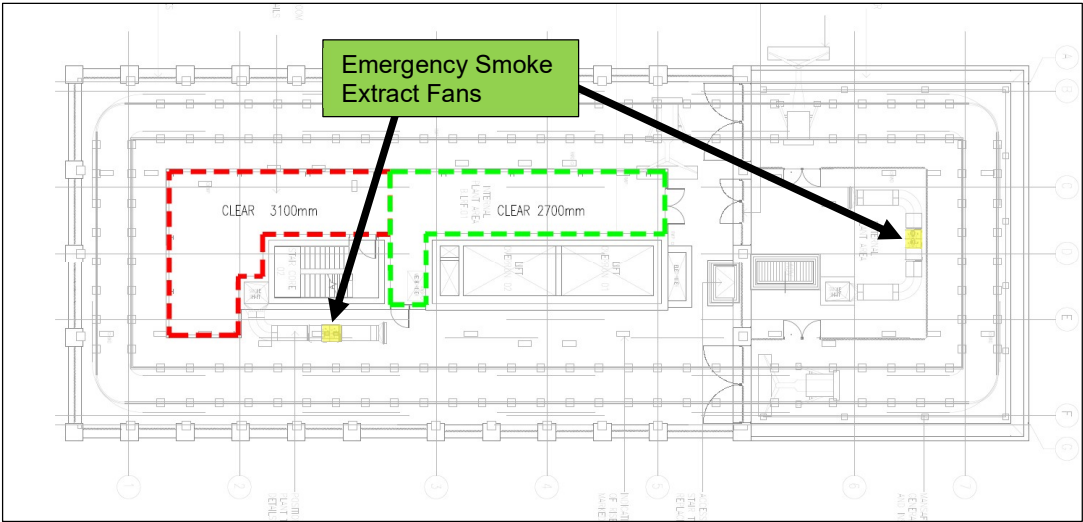


Figure 1: Roof-mounted emergency plant locations, Vita Union T1 - Plan

The roof area that houses the emergency plant is enclosed by a parapet.

Figure 2 shows a cross-section of the roof and parapet in the vicinity of the smoke extract fans.

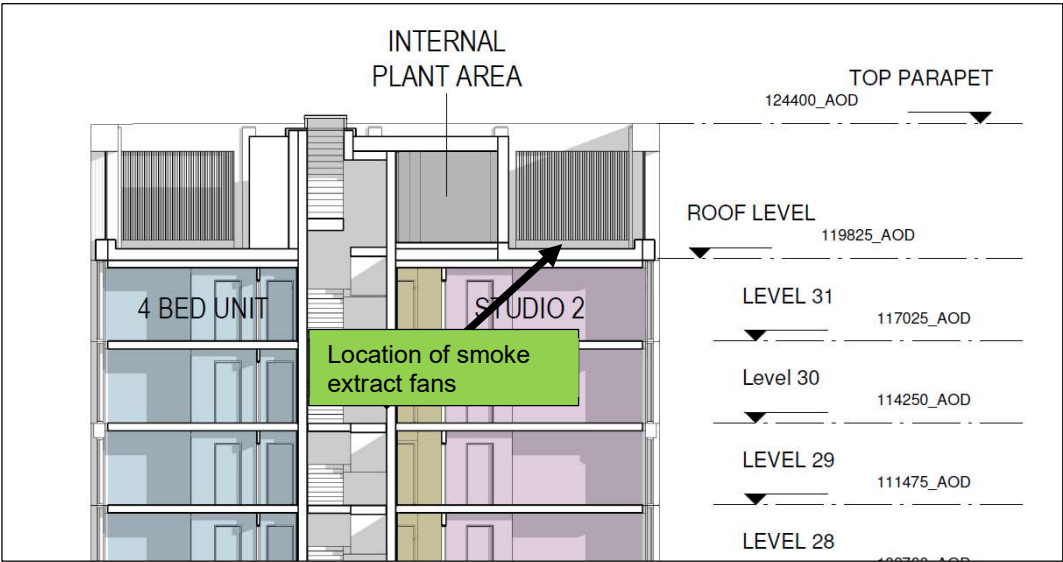


Figure 2: Roof-mounted emergency plant locations, Vita Union T1 – Cross-section

CALCULATED EXTERNAL NOISE LEVELS DUE TO BUILDING SERVICES PLANT

Based on the reported sound power level for the plant items detailed above, the expected noise levels at the nearest noise sensitive façades have been calculated.

Table 5 identifies the calculated noise levels. The calculated noise levels assume that all emergency plant is running simultaneously and at the 20% test mode or 100% duty.

Location	Free-field Sound Pressure Level (dBA)		
	Test Mode 20%	Emergency 100%	Limit
Vita Union T1, Level 31	25	64	65
Manchester Goods Yard	< 10	46	65

Table 5: Calculated noise levels at the nearest noise sensitive locations due to external plant at T1

With reference to Table 5, it can be seen that the calculated plant noise levels comply with the relevant noise limits.

The receptors that are at a greater distance from the T1 building than the receptors identified in Table 5 will benefit from greater attenuation of noise due to distance. Therefore, compliance with the identified noise limits at these other receptors is also fully expected.

It should be noted that the 'Emergency' noise level would only be generated in a live emergency. It is therefore hoped that the 'Emergency' noise levels would never be realised in reality.

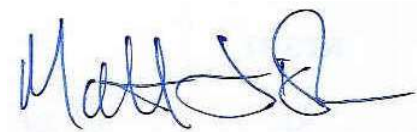
CONCLUSION

Based on the reported sound power data for the external building services plant at Vita Union T1, it can be seen that the worst-case calculated noise levels at the nearest noise sensitive receptors due to emergency plant do not exceed the applicable noise limits.

The expected noise levels at the noise-sensitive properties due to the operation of all emergency building services plant at T1 is considered to be commensurate with the maintenance of residential amenity.

If there are any aspects that you would like to discuss, please do not hesitate to contact the undersigned.

Yours sincerely



MATT FISHER BEng(Hons) CEng MIOA
For and on behalf of Fisher Acoustics Limited