

Ref: P23-139-M02
Project: New Science Block - Xaverian College, Rusholme
Date: 13 June 2025
To: Simon Yearsley, Seddon Construction Ltd
From: James Shaw BSc MIOA – Senior Consultant

Subject: Plant Noise Compliance Measurements

1. Hepworth Acoustics Ltd has been commissioned by Seddon Construction Ltd to carry out noise measurements to demonstrate that noise from newly installed rooftop plant and equipment at the new Science Block at Xaverian College in Rusholme is within acceptable limits.
2. Conditions 16a and 16b of planning consent are as follows:

16.A) 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.

16.B) Prior to the operation of the scheme a verification report shall be submitted to and approved in writing by the City Council as local planning authority to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic report. The report shall also undertake post completion testing to confirm that the noise criteria have been met.
3. Hepworth Acoustics previously carried out an assessment of potential noise impact from the equipment (P23-139-M01v01). The report identified the relevant existing background noise level was 45 dB L_{A90} and therefore the scheme should be designed to achieve a rating level of no higher than 40 dB $L_{A,T,r}$.
4. The equipment has now been installed and commissioned, and this memo sets out the details and findings of compliance noise measurements to determine whether the requirements of condition 16 have been achieved.
5. The nearest/most exposed dwellings to the rooftop plant and equipment are houses to the south on Crecent Range. As such, it has not been possible to measure resulting noise levels outside the dwellings themselves.
6. Indeed, we calculated that noise from the equipment would be below the existing background noise levels in the area. This means that even if we were able to gain access to an appropriate location equipment noise levels would be too low to measure (i.e. the equipment noise would be masked by the residual noise climate in the area).
7. In order to demonstrate compliance with the requirements of condition 16 we have therefore carried out a series of short-term noise measurements close up to the equipment whilst operating. Using the measured source noise levels we have then applied relevant propagation corrections to determine the likely corresponding noise levels outside the dwellings.

8. Measurements were taken Thursday 12th June 2025 using a B&K 2250 'Class 1' sound analyser (serial no. 3011706) that was field-calibrated before and after the measurements with no variance observed.
9. The measurements were taken as a series of short-term samples as noise from the equipment was found to be very steady. The weather conditions during the survey were dry, clear and sunny with low wind speeds (<2m/s) and were considered suitable for the noise measurements.
10. The rooftop plant area consists of the following equipment:
 - Samsung Air Conditioning Condensing Units

2x AM260AXVGGR/EU:
 1x AM240AXVGGR/EU:
 2x AC100BXAPNG/EU:
 - 'TempAir 56T-EXT' air handling unit (AHU) with louvred intakes and exhausts and Caice silencers fitted to each of the supply and exhausts.
11. The 'TempAir 56T-EXT' unit was measured first in isolation at full operating duty, with all other equipment turned off. Subsequent measurements were taken with the TempAir unit manually turned off and the five air conditioning (AC) units all operating at their normal duty.
12. In order to minimise the propagation corrections that it would be necessary to apply, measurements were taken at a distance of 1 metre from each source.
13. It was noted that equipment is below the line of, and generally screened by, the parapet roof surrounding the plant area and well as additional screening provided by the decorative metal enclosure. Therefore, we have applied a nominal -5 dB correction for partial screening. In reality, the level of screening is likely to be greater, but the applied correction is considered a conservative estimate in line with a robust approach and is the same correction applied as part of our initial assessment.
14. The measured source noise levels, propagation corrections and corresponding calculated noise levels outside the dwellings to the rear are summarised in Table 1.

Table 1: Summary of measured calculated ventilation equipment noise levels (dB)

Description	Source noise level (dB L_{Aeq} at 1m)	Screening attenuation (dB)	Distance attenuation (m)	Calculated noise level outside Dwellings (dB L_{Aeq})
TempAir 56T-EXT – Extract termination	54	5	60	13
TempAir 56T-EXT – Extract casing/ductwork	51		58	11
TempAir 56T-EXT – Supply termination	55		53	16
TempAir 56T-EXT – Supply casing/ductwork	52		54	12
Air Conditioning Units	76		48	37
Overall				37

15. During the survey it was observed that the rooftop plant did not exhibit tonal or impulsive characteristics that were readily distinctive against the residual acoustic environment. However, it was noted that the condensers can operate on demand and therefore function intermittently.

16. As such, a +3 dB acoustic feature correction for intermittency has been applied when calculating the rating level of sound, in accordance with the guidance in BS 4142.

Table 2: Plant Noise Assessment (dB)

Description	Dwellings on Crescent Range
Specific Sound Level outside dwelling	37
Acoustic feature correction (intermittency)	+3
Noise Limit ($L_{A,r,Tr}$)	40
Rating Level ($L_{A,r,Tr}$)	40
Difference	0

17. The overall resulting noise level outside the dwelling therefore meets the 40 dB noise limit we identified as part of our initial assessment.
18. We therefore conclude that the requirements of planning condition 16 have been met.