

Noise Impact Assessment

The applicant proposes to install one outside air-conditioning condenser Mitsubishi MXZ-2F42VF3. The manufacturer stated sound pressure level (cooling mode) is 44dB(A). The noise criteria curves for this unit is also attached to this report. The applicant will not operate the unit in heating mode as there is already internal heating provided to the flats.

Relevant Planning Policies

This assessment has carefully reviewed Section 33 of the Westminster City Plan (2019-2040) concerning local environmental impacts as well as the Draft noise technical guidance note, September 2020.

Section 2.4 of the Guidance note states that Development including plant or machinery, or contains activities that cause noise from amplified and unamplified music or human voices both internally and externally should achieve the following standards:

Residual sound levels exceed the WHO guideline criteria (refer to background noise measurement in next section) and the proposed equipment will not be tonal. Therefore the relevant noise criteria is to achieve a level 10dBA below the lowest measured background sound level.

See Table 3: Noise criteria for plant machinery and internal/external activities of Westminster Draft technical guidance note.

Exceed WHO Guideline levels.		
LAeq 55 dB over periods of daytime (07.00-23.00hrs) and LAeq 45 dB at night- time (23.00-07.00hrs).	Which does not contain tones or intermittent noise sufficient to attract attention.	10 dB below the minimum external background noise level

The measurements should be taken at the nearest noise sensitive receptors 1m from the most affected façade, relative to the existing external background noise level in this location and including assessment at the quietest time during which the plant operates or when there is internal activity at the development site.

Background Noise Measurement

Footnote 3 of Section 2.4 of the technical guidance note states that the background noise should be expressed in terms of the lowest LA90,15min during day time or night time (depending on the hours of use being applied for). The applicant is not proposing to operate the plant at night, nevertheless the calculation has been performed against the stricter nighttime standard.

The background sound level in the rear courtyard location was measured on 18 July 2021 see, Aragawa planning application reference 21/08123 FUL (withdrawn). The average nighttime background noise level was measured at 46dB with other results shown in the table below.

Location	Daytime LAeq	Night time LAeq	Lowest measured background sound level
Rear courtyard	52dB	46dB	45dB
North side			

Based on this measurement the Westminster noise criterion to be applied assuming nighttime usage is 35dB. (It should be noted the aircon unit would not be operated in heating mode at night at any time)

Location of nearest NSR

The nearest neighbouring window (noise sensitive receptor) to the proposed unit is the window of flat 22 in the same building which is directly above flat 12. This window is 2.97m from the emitting source (see attached photo of the rear elevation, north). For the purposes of the noise attenuation calculation in the next section a figure of 2.8 metres has been used to demonstrate the noise standard is met.

Noise Attenuation Calculation

Applying the standard sound attenuation formula:

$$SPL(1) = SPL(2) - 20 * \log (R1 / R2)$$

Where SPL(1) is sound pressure level of point 1 which is 44dB(A) according to manufacturer spec.

SPL(2) is sound pressure level of point 2

R1 is distance of point 1 taken as 1 metre

R2 is distance of point 2 the NSR, measured at 2.8 metres.

The sound level at the NSR is 35.06dB(A) which is 10dB below the lowest measured background noise and complies with the planning standard as outlined above.

Conclusion

The proposed aircon unit for flat 12 – Mitsubishi MXZ-2F42VF3 meets the Westminster Council Planning policy requirements for noise. Being one of the most modern and quiet aircon units on the market it is most unlikely to cause any noise disturbance to a neighbour or neighbouring amenity. All occupied flats in the building were consulted with no objections. Furthermore it should be noted that flat 22 did not oppose the recent planning application of Aragawa in relation to 38 Clarges St (reference above) that would have most probably resulted in a much higher noise level than this proposal. And it should also be taken into account that there have been no complaints in relation to the unit of flat 31 that has been in operation for around 15 years.

Finally the noise aspect must be balanced against the need to provide comfortable living/sleeping conditions in the expected hot summers in Central London that we are likely to experience in the years ahead.

