

20180922.2/2603A/R0/JM

26/03/2019

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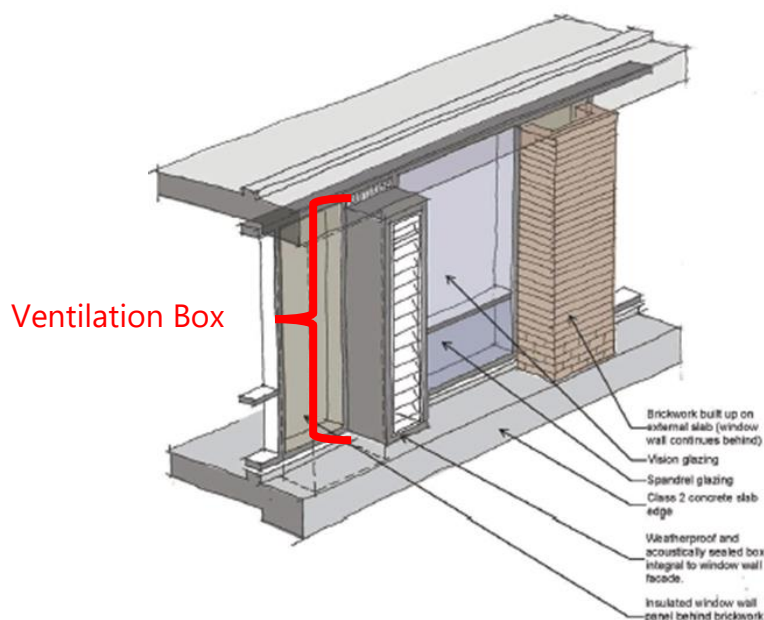
Attn: Timothy Farrell

Iglu II, 80-88 Regent Street, Redfern - Ventilation Box

This letter presents Acoustic Logic Consultancy's (ALC) response to the following noise query raised by the NSW Department of Planning and Environment:

"The Department notes the proposed "ventilation box" is now being replaced with the Breezeway Dualair Acoustic Louvre Window System. Please outline the predicted noise levels having reference to the standards in the CoS DCP with regards to residential use for open windows and doors: (i) 45dB for bedrooms (10pm-7am); and (ii) 55dB for main living areas (24 hours)."

The ventilation box is an architectural feature which contains a glazed louver system. This feature appears on the façade of every room.

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We note:

- The acoustic criteria referred to by NSW Planning above relative to internal noise levels assuming that windows to the rooms are open to allow for natural ventilation.
- As noted in section 4.3.2 of our DA Acoustic Assessment (Ref: 20180922.1/2108A/R0/YK, dated: 21/08/2018), internal noise levels compliant with the City of Sydney DCP could be achieved only with the windows/external louvres closed. This means that the criteria for the "windows closed" scenario in the DCP must be considered. It was never proposed that the windows open criteria (as referred to by NSW Planning above) could be achieved given the high external noise levels at the site.
- With respect to the required internal noise levels (windows closed), Subsection 4.2.3.11 of the council City of Sydney DCP is applicable:

(7) *"The repeatable maximum LAeq (1 hour) for residential buildings and serviced apartments must not exceed the following levels:*

(a) *for closed windows and doors:*

(i) *35dB for bedrooms (10pm-7am); and*

(ii) *45dB for main living areas (24 hours).*

For the windows closed scenario, the DCP then further considers the cumulative noise level as a result of both the road traffic (external) noise plus noise from any ventilation system. This is addressed in section Subsection 4.2.3.11 of the City of Sydney council DCP.

(8) *"Where natural ventilation of a room cannot be achieved, the repeatable maximum LAeq (1hour) level in a dwelling when doors and windows are shut and air conditioning is operating must not exceed:*

(a) *38dB for bedrooms (10pm-7am); and*

(b) *48dB for main living areas (24 hours)."*

(9) *"These levels are to include the combined measured level of noise from both external sources and the ventilation system operating normally."*

- To ensure that the combined noise level within the rooms (being outside noise and internal services noise) is no more than 38dB(A), the contribution of external noise contribution alone is designed to be less than 35dB(A). The Breezway Dualair system can achieve internal noise levels with the windows closed less than 35dB(A), as has already been demonstrated in item 1 of our 'Response to NSW Department of Planning and Environment Acoustic Queries' letter (Ref: 20180922.2/1412A/R0/YK, dated: 14/12/2018). The sound transmission performance of the louvre system is as follows:

| Frequency (Hz) | 125 | 250 | 500 | 1000 | 2000 | 4000 |
|---|------|------|------|------|------|------|
| Transmission Loss of glazing & frame system | 22.2 | 25.4 | 36.1 | 38.6 | 33.6 | 37.8 |

In the event that an alternative system is proposed, the system should have equal or better sound transmission performance than as specified above, and should be reviewed by an acoustic consultant to ensure that the target internal noise level will be achieved.

As discussed above, the internal noise goals are only achieved when the windows and louvres are closed. Given this, an alternate ventilation system is proposed (consisting of a combination of individual supply and exhaust fans for the units). Provided that any external louvre system meets the performance requirements detailed above is installed, the external noise intrusion will be satisfactory. With respect to building services noise, while mechanical plant selections have not been completed at this stage, the required internal noise levels can be achieved by implementing the following indicative constructions:

- Fans to be located in the apartment/corridor wall, over the bathroom.
- A bathroom perimeter wall is to be sheeted slab to slab (to stop fan noise propagating to the bedroom).
- Approximately 800mm of rigid ducting (internally lined with 25mm thick insulation) to be connected to the fan inlet.
- At least 1-meter of internally lined flex ducting to be installed between the rigid ducting and the bathroom exhaust grill

Depending on final fan selections, the extent of rigid ducting may be reduced, or potentially eliminated.

We trust this information is satisfactory. Please contact us should you have any further queries.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'Jenna MacDonald', written over a horizontal line.

Acoustic Logic Consultancy Pty Ltd
Jenna MacDonald