



Our ref: PS114959-190722-ACO-LTR-Gibbons St Redfern - Acoustic review Trickle vent system - Rev2.docx

Your ref: SSD7749

By email
dennis.lee@ipcn.nsw.gov.au

22 July 2019

Dennis Lee
Independent Planning Commission NSW
Level 3, 201 Elizabeth Street
Sydney NSW 2000

Dear Dennis,

11 Gibbons Street, Redfern - Acoustic review of trickle vent system

WSP have been engaged by the Independent Planning Commission of NSW (IPC) to conduct a review of the proposed natural ventilation façade system and the Residential State Significant Development (SSD) application for 11 Gibbons Street, Redfern (ref SSD7749).

Our review and letter has been conducted to provide a specific response to IPC's query as follows:

Advise whether the proposed noise mitigation measures will be effective i.e. would the proposed acoustic baffles on the door and window vents provide effective noise attenuation.

The following outlines our understanding of the applicable acoustic criteria, our assumptions and our conclusion regarding suitability of the proposed system.

This letter has been updated to revision 2 after WSP received the acoustic test report of the proposed system by the supplier.

Criteria

As the proposed project is located near a major rail and road corridor, an acoustic assessment is required in accordance with the NSW *State Environmental Planning Policy (Infrastructure) 2007* [ISEPP]. It is therefore assumed that the proposed façade system would need to be constructed to ensure compliance with the noise criteria outlined in the ISEPP clause 87 and 102:

- (3) *If the development is for the purposes of residential accommodation, the consent authority must not grant consent to the development unless it is satisfied that appropriate measures will be taken to ensure that the following LAeq levels are not exceeded:*
 - (a) *in any bedroom in the residential accommodation—35 dB(A) at any time between 10.00 pm and 7.00 am,*
 - (b) *anywhere else in the residential accommodation (other than a garage, kitchen, bathroom or hallway)—40 dB(A) at any time.*

An acoustic assessment was undertaken in the acoustic report provided by Renzo Tonin and Associates (RTA) (reference: *11 GIBBONS STREET, REDFERN Acoustic Assessment for Development*)

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Application, dated 14 February 2019). The markups in Appendix F of the RTA acoustic report outline recommend glazing sound insulation performances ranging from 27 dB R_w to 40 dB R_w . WSP have not conducted any modelling (as this is outside the scope of our commission) and it is assumed that compliance with the R_w ratings as per the acoustic report will result in compliance with the ISEPP internal noise criteria for residences.

It is also noted that the acoustic report does not mention the proposed trickle vent system. It is therefore assumed that the recommended minimum sound insulation rating of the glazing assembly applies to the whole window system: i.e. glazing, framing and trickle vent.

Proposed system

We understand that the proposed trickle vent system is the 'Renson Invisivent HF' system. WSP have been provided with the acoustic test report of the proposed system by the manufacturer; an excerpt of the relevant results is provided in Appendix B.

The sound insulation performance of this system has been tested to achieve the following:

- Open position: 28 dB $D_{n,e,w}$ or 6 dB R_w
- Closed position 49 dB $D_{n,e,w}$ or 27 dB R_w

Discussion

Based on the information provided, it is our understanding that the trickle vent system is required to comply with the ventilation requirements outlined in the Building Code of Australia (BCA) and Australian Standard AS 1668.2:2012 (make-up air paths for apartment exhaust systems)¹. It is therefore assumed that the system is required to comply with the criteria outlined in the ISEPP while in the 'open' position.

The sound insulation performance of the proposed system in the open position (6 dB R_w) is much lower than the minimum required sound insulation ratings of the glazing assembly as outlined in the RTA acoustic report (27 dB to 40 dB R_w). Therefore, the proposed trickle vent system, in combination with the proposed glazing systems as per the RTA acoustic report, may not result in compliance with the internal noise criteria outlined in the ISEPP.

Conclusion

Given the outcome of this assessment, it is recommended that detailed noise modelling of the whole facade assembly (i.e. solid facade, window, door, frame and trickle vent in open position) is conducted by a qualified acoustic engineer to ascertain compliance with the ISEPP noise criteria, and determine further noise mitigation measures if deemed to be non-compliant.

We trust the above is suitable for your immediate needs. Feel free to contact undersigned should you wish to discuss any aspects of this letter.

Yours sincerely,



Tom Krikke (MAAS)
Associate – NSW Acoustic Engineering Manager

Encl: INVISIVENT evo HF - specification sheet - ENG
Excerpt of 'Invisivent Evo Highflow 65' test report

¹ As per Keylan Consulting Pty Ltd – responses to Submissions – 21 February 2019

RENSON WINDOW VENTILATION® SPECIFICATIONS

Brand : Invisivent
Type : Invisivent®*EVO* HF

Manufacturer and reference:

The Invisivent®*EVO* HF is manufactured and supplied by Renson Ventilation Tel: 01622 754 123 Email: vents@rensonuk.net

Description:

The RENSON® Invisivent®*EVO* HF is a thermally broken, discrete and self-regulating flap ventilator that can be installed on top of an aluminium, timber or uPVC window frame. Its interior flap deflects the incoming air upwards, causing an optimal spread of fresh air in the room. Inside is a 3.9 x 9.25mm perforated profile that acts as an insect mesh (removable for cleaning purposes).

When closed there is no visual difference between the Invisivent® *EVO* and the Invisivent® *EVO* HF.

Optionally available with Pollux filter: for strongly fine dust and pollen impacted environments.

System operation and performance:

Self-regulating

Thermal conductivity: U-value = 2.8 W/m²K

Watertightness up to 150 Pa in open position

Watertightness up to 900 Pa in closed position

Air leakage at 50Pa: <15% in closed position

Burglar resistance: class 2

Airflow and sound reduction:

D_{n,e,w} (C;C_{tr}) open (dB) 28 (-1;-2)

D_{n,e,w} (C;C_{tr}) closed (dB) 49 (-2;-4)

Q at 1 Pa (l/s/m) 14,1

Q at 1 Pa (m³/h/m) 50,8

Q at 2 Pa (l/s/m) 18,5

Q at 2 Pa (m³/h/m) 66,6

Q at 10 Pa (l/s/m) 16,5

Q at 20 Pa (l/s/m) 18,0

Equivalent area (mm²/m) 17942

Dimensions / Size Range:

Height: 62mm

Fits to frame depths of: 50-64, 65-79, 80-94, 95-109, 110-124, 125-139, 140-154, 155-169, 170-184 mm (or more upon demand)

Maximum length: 6000mm

Ventilator Construction:

Profile: manufactured from aluminium alloy Al Mg Si 0.5

Thermal bridge: PVC

Pivoting and self-regulating flap: PVC.

End caps: ASA polymer type Luran S (colour-fast, weather and UV-resistant)

Surface treatment:

Natural anodised (EV6/EV1-SAA) process (20 micron): pre-treated and anodised.

Polyester powder coating in RAL colours (60 to 70 micron): aluminium profiles pre-treated to resist corrosion to guarantee (dual colour possible).

End cap colours: white, black, grey or other colours in bulk or painted in the colour of the frame (dual colour possible).

Controls Options:

Manual: internal tip vent with an optional cord or rod (5 stepped positions)

Motorised: electric motor 24 volt DC (continuous adjustment)

Control flap is split up for lengths >3000mm.

Optional plastic air flow limiters can be clipped into the interior flap to regulate airflow.

Integrated soft PVC gasket makes flap wind- and watertight in the closed position.

Installation:

The vent is attached to special plastic mounting clips that are screwed to the window frame (different screw holes depending on the position of the thermal break in the window frame) to guarantee correct operation. The aluminium outside profile slides into the PVC profile (first clicked upon the mounting clips) using a telescopic sliding system. For greater stability, screws can be inserted through the profiles into the window frame. Plastic side mounting plates are optionally available for a better fit to the window, and wall bracket for a good fit to the wall.

Standards:

EN ISO 140-10, EN ISO 717-1, EN 1026, EN 1027, EN 13141-1, EN 12020-2, EN AW 6063 T66, NBN D50-001, EN 10077-2, DIN 16491prEN:1627, 1628, 1629, 1630

Source: from *Renson Ventilation NV - type Invisivent Evo Highflow 65 Laboratoriumonderzoek* by LBP|SIGHT (reference R085020aaA1.hve, dated 14 April 2011)

Tabel 7.2

Overzicht meetresultaten type: Invisivent Evo Highflow 65

Renson Ventilation nv																		
Ventilatie-voorziening	Standaard buitengeluid				Standaard spectrum railverkeer				Standaard spectrum luchtverkeer				Volgens DIN 52210 in dB			Bruto opp. m ²	Geom. doorn m ²	Figuur in bijlage III nr.
	D _{n,e,A}	R _A	R _{a,netto}	R _{q,A}	D _{n,e,A,r}	R _{A,r}	R _{a,r,netto}	R _{q,A,r}	D _{n,e,A,l}	R _{A,l}	R _{a,l,netto}	R _{q,A,l}	D _{n,w}	R _w	R _{so,w}			
Invisivent Evo Highflow 65																		
Open stand	26,7	4,7	-1,5	-2,3*	26,4	4,4	-1,8	-2,6*	26,6	4,6	-1,6	-2,4*	28	6	20	0,062	0,0151	1a,1c,1d,1e
Gesloten stand	45,6	23,5	17,3	--	46,9	24,9	18,7	--	46,2	24,1	18,0	--	49	27	42	0,062	--	1b

* gerelateerd aan de nominale capaciteit bij een standaard lengte van 1m inclusief kopschotten en bediening

Tabel 7.3

Overzicht meetresultaten type: Invisivent Evo Highflow 65

Renson Ventilation nv								
Volgens NEN-EN_ISO 717-1 in dB								
	D _{n,e,w}	(C;Ctr)	C ₅₀₋₃₁₅₀	C ₁₂₅₀₋₃₁₅₀	C ₅₀₋₅₀₀₀	C ₁₂₅₀₋₅₀₀₀	C ₁₀₀₋₅₀₀₀	C ₁₂₅₀₋₅₀₀₀
Open stand	28	(-1; -2)	-1	-2	0	-2	0	-2
Gesloten stand	49	(-2; -4)	-2	-4	-1	-4	-1	-4

As above with relevant results highlighted and translated by the author

Tabel 7.2

Measurement results: Invisivent Evo Highflow 65

Renson Ventilation nv																		
Ventilatie-voorziening	Standaard buitengeluid				Standaard spectrum railverkeer				Standaard spectrum luchtverkeer				As per DIN 52210 in dB			Area m ²	Geom. doorn m ²	Figuur in bijlage III nr.
	D _{n,e,A}	R _A	R _{a,netto}	R _{q,A}	D _{n,e,A,r}	R _{A,r}	R _{a,r,netto}	R _{q,A,r}	D _{n,e,A,l}	R _{A,l}	R _{a,l,netto}	R _{q,A,l}	D _{n,w}	R _w	R _{so,w}			
Invisivent Evo Highflow 65																		
Open stand	26,7	4,7	-1,5	-2,3*	26,4	4,4	-1,8	-2,6*	26,6	4,6	-1,6	-2,4*	28	6	20	0,062	0,0151	1a,1c,1d,1e
Gesloten stand	45,6	23,5	17,3	--	46,9	24,9	18,7	--	46,2	24,1	18,0	--	49	27	42	0,062	--	1b

* gerelateerd aan de nominale capaciteit bij een standaard lengte van 1m inclusief kopschotten en bediening

Tabel 7.3

Measurement results: Invisivent Evo Highflow 65

Renson Ventilation nv								
As per NEN-EN_ISO 717-1 in dB								
	D _{n,e,w}	(C;Ctr)	C ₅₀₋₃₁₅₀	C ₁₂₅₀₋₃₁₅₀	C ₅₀₋₅₀₀₀	C ₁₂₅₀₋₅₀₀₀	C ₁₀₀₋₅₀₀₀	C ₁₂₅₀₋₅₀₀₀
Open Position	28	(-1; -2)	-1	-2	0	-2	0	-2
Closed Position	49	(-2; -4)	-2	-4	-1	-4	-1	-4