

Studios Ltd
25 Hill Street
Mayfair
London
W1J 5LW

Head Office 0191 620 0750
Midlands 0115 708 0751
E info@apexacoustics.co.uk
W www.apexacoustics.co.uk

1st February 2018
Ref: 5628.6A

Dear Sevi et al,

RE: Building 1, New Century Place, Reading

Apex Acoustics have completed noise surveys to determine the likely noise impact on the proposed residential development of Building 1, New Century Place, Reading.

It is understood that the glazing is to be replaced to the building, and concerns regarding the internal noise levels due to external noise sources, in particular road traffic on the A329, have been raised by the Local Planning Authority.

An assessment of noise on the worst affected rooms is shown below, along with glazing and trickle vent specifications which achieve the internal noise level requirements of the Local Planning Authority.

If you have any queries, please do not hesitate to contact me.

Yours sincerely,



Rich Hinton MIOA BSc

Assessment

Noise surveys have been undertaken at the locations shown in Figure 1, the measured levels are shown in Table 1.

Pos	Date	St time	T / hh:mm	dB L _{Aeq,T}	dB L _{Aeq,T} @ octave band / Hz				
					125	250	500	1000	2000
1	21/9/16 & 22/9/16	Day	10:51	71	50	56	61	68	64
		Night	08:00	66	45	53	58	64	59
2	21/9/16 & 22/9/16	Day	10:31	55	42	46	48	51	48
		Night	08:00	49	34	39	42	46	41
A	21/9/16	16:53	00:15	69	54	58	60	67	62
B	21/9/16	17:10	00:15	64	51	52	54	60	59

Table 1: Summary of measured noise levels



Figure 1: Site outlined in red, monitoring positions indicated by markers

Following the methodology defined in BS 8233, Reference 1, calculations have been completed to determine glazing and trickle vent specifications which show the internal

noise levels specified in BS 8233 for habitable rooms in residential properties, as shown in Table 2, can be achieved.

Calculations are undertaken for the worst case rooms only i.e. those most exposed to noise with the largest ratio of glazing to room volume. Other rooms may achieve the BS 8233 internal levels with lower performing glazing and vents. However, this report shows that the worst case rooms can achieve suitable internal noise levels.

A summary of the calculated levels and glazing and vent specifications are shown in Table 3. Detailed calculations are shown in the Appendix.

Location	Guideline upper limit, $L_{Aeq,T}$ / dB	
	07:00 to 23:00	23:00 to 07:00
Living rooms	35	-
Bedroom	35	30

Table 2: Guideline indoor ambient noise levels defined in BS 8233: 2014

Room	Double glazing performance	Vent performance	Period	Calculated internal noise level, dB $L_{Aeq,T}$
B1 1:12	34 dB $R_w + C_{tr}$ e.g. 10/12/6.4 PVB	41 dB $D_{n,e,w} + C_{tr}$ e.g. Titon SF X V75 +C 75	Daytime	33
			Night-time	30
B1 1:14	29 dB $R_w + C_{tr}$ e.g.10/12/4		Daytime	34
			Night-time	30

Table 3: Calculated internal noise levels based on upgraded glazing and “acoustic” trickle vent

References

1. BS 8233: 2014, Guidance on sound insulation and noise reduction for buildings.

Appendix – detailed noise break-in calculations

Building 1 Room 1:12	
Volume, V / m^3	51.5
Window area, S / m^2	5.3
Wall area, S / m^2	11.8
Reverberation Time, T / s	0.5
Number of vents required	1

Octave centre frequency	dB(A)	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz
Daytime freefield noise, $L_{1in} / dB(A) Leq$	71	50	56	61	68	64
10/12/6.4 PVB		27	29	36	41	42
Equation 1, $L_2 / dB(A) Leq$	31	21	25	23	26	21
Wall 100 brick, 100 mm air gap, 100 mm concrete block at 960 kg/m^3 , R / dB		40	37	45	53	62
Equation 1, $L_2 / dB(A) Leq$	24	11	21	18	17	4
TITON SF X V75 + C75 vent, $Dn,e / dB$		37	37	36	47	49
Equation 2, $L_2 / dB(A) Leq$	29	14	20	26	22	16
Combined noise through all building elements / $dB(A) Leq$	33					

Octave centre frequency	dB(A)	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz
Night time freefield noise, $L_{1in} / dB(A) Leq$	66	45	53	58	64	59
10/12/6.4 PVB		27	29	36	41	42
Equation 1, $L_2 / dB(A) Leq$	27	16	22	20	21	15
Wall 100 brick, 100 mm air gap, 100 mm concrete block at 960 kg/m^3 , R / dB		40	37	45	53	62
Equation 1, $L_2 / dB(A) Leq$	20	6	17	15	13	-1
TITON SF X V75 + C75 vent, $Dn,e / dB$		37	37	36	47	49
Equation 2, $L_2 / dB(A) Leq$	25	9	16	23	18	11
Combined noise through all building elements / $dB(A) Leq$	30	17	24	25	23	17

Table 4: Noise break-in calculation for Building 1 Room 1:12

Building 1 Room 1:14	
Volume, V / m^3	39.0
Window area, S / m^2	2.1
Wall area, S / m^2	4.2
Reverberation Time, T / s	0.5
Number of vents required	1

Octave centre frequency	dB(A)	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz
Daytime freefield noise, $L_{1in} / dB(A) Leq$	71	50	56	61	68	64
10/12/4 double glazing, R / dB		25	22	33	40	43
Equation 1, $L_2 / dB(A) Leq$	32	20	30	23	24	17
Wall 100 brick, 100 mm air gap, 100 mm concrete block at 960 kg/m^3 , R / dB		40	37	45	53	62
Equation 1, $L_2 / dB(A) Leq$	21	8	18	14	14	1
TITON SF X V75 + C75 vent, $Dn,e / dB$		37	37	36	47	49
Equation 2, $L_2 / dB(A) Leq$	30	15	21	27	24	17
Combined noise through all building elements / $dB(A) Leq$	34					

Octave centre frequency	dB(A)	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz
Night time freefield noise, $L_{1in} / dB(A) Leq$	66	45	53	58	64	59
10/12/4 double glazing, R / dB		25	22	33	40	43
Equation 1, $L_2 / dB(A) Leq$	28	15	26	21	19	11
Wall 100 brick, 100 mm air gap, 100 mm concrete block at 960 kg/m^3 , R / dB		40	37	45	53	62
Equation 1, $L_2 / dB(A) Leq$	17	3	14	12	9	-5
TITON SF X V75 + C75 vent, $Dn,e / dB$		37	37	36	47	49
Equation 2, $L_2 / dB(A) Leq$	26	10	18	24	19	12
Combined noise through all building elements / $dB(A) Leq$	30	16	27	26	22	15

Table 5: Noise break-in calculation for Building 1 Room 1:14