

Project:	Bridge Farm, Twyford	SMA Ref:	7236
Subject:	Compliance with Planning Condition 40		
Prepared by:	Jason Mills	Date:	November 2024
Checked by:	Stewart Andrews	Date:	November 2024

1.0 INTRODUCTION

- 1.1. Stuart Michael Associates Limited (SMA) have been appointed by Croudace Homes (the Applicant) to provide assistance with the compliance of planning conditions for the consented development (Ref: 212720) at Bridge Farm, Twyford.
- 1.2. Outline planning permission was granted (all matters reserved except access to the site) for the development of up to 200 dwellings, including 40% affordable housing and associated infrastructure, open space, biodiversity enhancements, landscaping and green infrastructure, following demolition of existing agricultural buildings on land at Bridge Farm, Twyford.
- 1.3. This technical note has been produced to help comply with planning condition 40 for the residential development at Bridge Farm, Twyford. Road traffic data for 2026 has been used in the modelling.
- 1.4. Planning condition 40 states that:

“The reserved matters submitted pursuant to condition 4 shall be accompanied by a noise assessment report which demonstrates that the housing layout has been designed and/or insulated so as to provide attenuation against externally generated noise. The noise assessment shall demonstrate that all noise implications are mitigated so that internal ambient noise levels for dwellings shall not exceed 35 dB LAeq (16 hour) 07:00-23:00 during the daytime and 30 dB LAeq (8 hour) 23:00-07:00 during the night. The design and/or insulation measures identified in the scheme shall ensure that ambient internal noise levels for the dwellings meet the BS8233/2014 Sound insulation and noise reduction for buildings – Code of Practice. For gardens, the steady noise level should not exceed 50dB LAeq,T. The approved mitigation measures to serve each dwelling shall be implemented prior to occupation and retained thereafter.

Reason: To protect future residents from the harmful effects of high noise levels, in accordance with the NPPF and Wokingham Borough Core Strategy Policies CP1, CP3 and Managing Development Delivery Policy CC06.”

- 1.5. Submitted with the planning application was a Noise Assessment Report which included an assessment of the potential impacts and constraints on development from road and rail traffic noise and local noise sources. Section 8 sets out potential mitigation measures required to achieve internal noise levels to Wokingham Borough Council (WBC), British Standards (BS) and World Health Organisation (WHO) guidelines for the development where appropriate.
- 1.6. Within the mitigation section of the noise assessment report, it was recommended that windows with a Sound Reduction Index (SRI) of 24, 30 and 33 dB (C_{ir}) be used across the development. However, the assessment was undertaken for an “illustrative” layout and differs from Reserve Matters (RM) layout (Croudace Homes “Site Layout” Ref: DES/703/101 Rev. 3). Therefore, a more detailed analysis has been undertaken using the RM layout and 2026 road traffic data.
- 1.7. The Applicant has advised that the energy strategy includes mechanical ventilation and heat recovery (MVHR) in all the dwellings across the Site. The implementation of MVHR provides a method of ventilating the dwellings without having to open the windows. When required, the window will be able to be opened for purge ventilation.

2.0 DEVELOPMENT MIX

- 2.1. The proposed housing mix for the Bridge Farm development site is presented in Croudace Homes “Site Layout” drawing number DES/703/101 Rev. 3 presented in **Appendix 1**. There are 200 units consisting one and two bedroom flats and two, three, and four bedroom houses.
- PREDICTED NOISE LEVELS
- 2.2. A 3D digital noise model (SoundPLAN) has been used to calculate the daytime and night time noise levels across the proposed development for the predicted year of completion (2026). The model incorporates road traffic data for the A4 New Bath Road and A321 Wargrave Road and trains on the Henley Branch Great Western Railway. The footprints and number of storeys of the buildings have been obtained from the drawing presented in Appendix 1.
 - 2.3. All the proposed buildings have been modelled and the results for all façades and floors are presented in **Appendix 2**. The daytime and night time noise profiles are presented in **Figure 1** and **Figure 2** respectively.

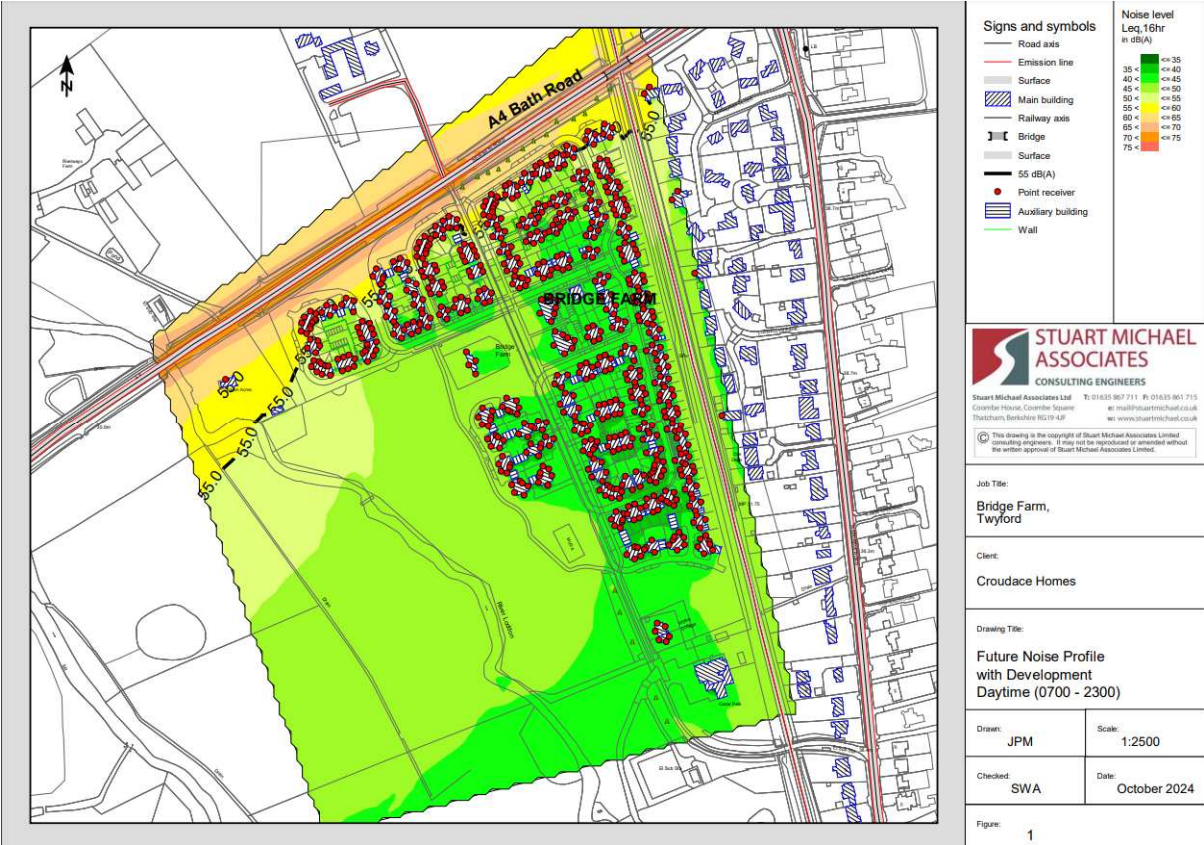


Figure 1: Daytime Noise Profile

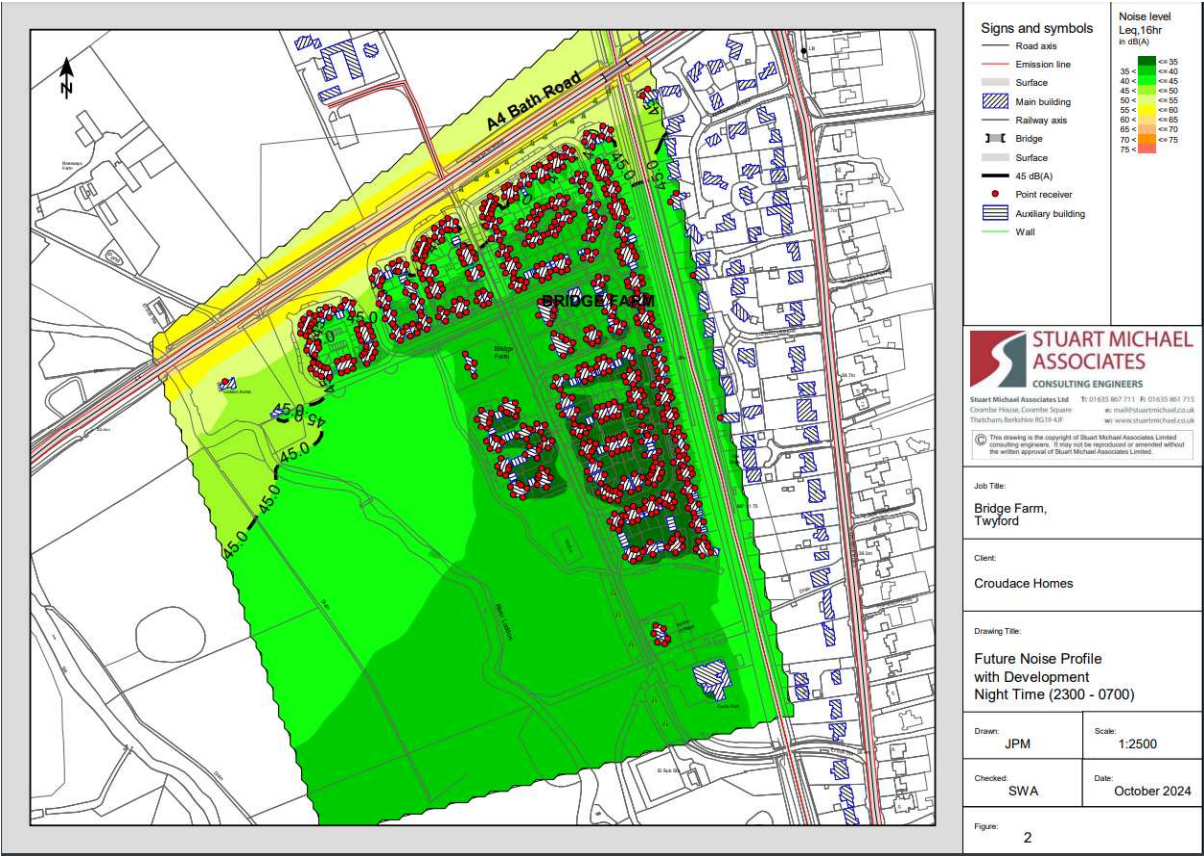


Figure 2: Night Time Noise Profile

- 2.4. For the purposes of the noise assessment, all Plots have been numbered individually and these are presented in **Figure 3**.



Figure 3: Noise Assessment Plot Number Plan

- 2.5. Plots fronting the A4 Bath Road are predicted to experience daytime façade noise levels of between 57 dB and 65 dB at ground floor level and 59 dB and 66 dB at first floor level. During the night time, façade noise levels are predicted to be between 51 dB and 58 dB at first floor level.
- 2.6. Within the Site, daytime façade noise levels are predicted to be between 33 dB and 43 dB at ground floor level and 35 dB and 44 dB at first floor level. During the night time, façade noise levels are predicted to be between 30 dB and 38 dB at first floor level.

- 2.7. Plots backing onto or adjacent to the railway line are predicted to be between 40 dB and 55 dB at ground floor level and 46 dB and 57 dB at first floor level. During the night time, façade noise levels are predicted to be between 39 dB and 49 dB at first floor level. However, maximum noise levels from trains passing the site were recorded as 76 dB.



Figure 4: Predicted Garden Noise Levels

- 2.8. With reference to Figure 4, all Plots adjacent to the A4 Bath Road are predicted to have gardens with daytime noise levels of below 55 dB and the majority will have an area which is below 50 dB.

3.0 PROPOSED MITIGATION

Windows

Road Traffic Noise

- 3.1. For Plots fronting the A4 Bath Road, we would recommend the following: on the N façade of Plots 1, 14 & 15 and 16; the NW façade of Plots 14 & 15, 17, 29, 30, 45 & 46, 47, 48, 60 & 61, 63 & 64, 65 & 66, 84, 85 and Plot 92; the W façade of Plots 45 & 46 and 58 & 59; the SW façade of Plots 29, 30 and 60 & 61; and the NE façade of Plot 50 we would recommend using a window with a Sound Reduction Index (SRI) of 37 dB (32 dB C_{tr}). A window configuration 6-20-4 (glass-air gap-glass) would provide an SRI of 37 dB and if the window is manufactured to the correct specifications and installed to manufacturer's guidelines should provide acceptable living conditions. An example window is provided in **Appendix 3**.

Train Noise (maximum levels)

- 3.2. For Plots backing onto the railway line, we would recommend the following: on the NE façade of Plots 86 to 97; and the E façade of Plots 98 to 122 we would recommend using a window with a Sound Reduction Index (SRI) of 37 dB (32 dB C_{tr}). A window configuration 6-20-4 (glass-air gap-glass) would provide an SRI of 37 dB and if the window is manufactured to the correct specifications and installed to manufacturer's guidelines should provide acceptable living conditions. An example window is provided in Appendix 3.
- 3.3. Where the façade is not mentioned in the preceding paragraphs, a window with an SRI of 29 dB and configuration 4-16-4 (glass-air gap-glass) would suffice. An example window is provided in Appendix 3.

Ventilation

- 3.4. The energy strategy includes MVHR in all the dwellings across the Site. The implementation of MVHR provides a method of ventilating the dwellings without having to open the windows.
- 3.5. To provide purge ventilation the future occupants will be able to open the windows.

Garden Walls

- 3.6. It should be noted that no garden walls have been used in the noise modelling. If there are any garden walls proposed on the layout, these would provide up to 10 dB reduction in the shadow zones of the walls whether this is in private gardens or amenity areas.

4.0 COMMENTARY

- 4.1. Based on the above, thermal double glazed window units with a minimum configuration of 6/20/4 and 4/16/4 (where indicated on Figure 3) are to be fitted to ensure internal noise levels in habitable rooms are below the guidance levels.
- 4.2. MVHR is to be fitted to all units as part of the energy strategy and will provide ventilation in accordance with Building Regulations negating the need to open the windows to provide background ventilation.
- 4.3. All Plots will have an area within their gardens which is below 50 dB $L_{Aeq,T}$ as illustrated on Figure 4.
- 4.4. In conclusion, it has been demonstrated that all Plots will have an area within their gardens below 50 dB during the daytime and it is considered that with the proposed glazing specification and MVHR presented in this report, internal and external noise levels would be below the daytime guidance levels of 35 dB in living rooms and bedrooms (resting) and night time guidance levels of 30 dB in bedrooms and are therefore considered appropriate to comply with Planning Condition 40.

5.0 APPENDICES

Appendix 1 – Site Layout



Appendix 2 – Predicted Façade Noise Levels

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
1	S	GF	45	38	✓	☐
1	S	F 1	48	41	✓	✓
1	E	GF	57	49	☐	☐
1	E	F 1	59	52	☐	☐
1	N	GF	61	53	☐	☐
1	N	F 1	64	56	☐	☐
1	W	GF	58	50	☐	☐
1	W	F 1	60	53	☐	☐
2 to 4	E	GF	50	43	☐	☐
2 to 4	E	F 1	53	45	☐	☐
2 to 4	E	GF	51	44	☐	☐
2 to 4	E	F 1	54	46	☐	☐
2 to 4	N	GF	54	47	☐	☐
2 to 4	N	F 1	56	49	☐	☐
2 to 4	W	GF	52	44	☐	☐
2 to 4	W	F 1	53	46	☐	☐
2 to 4	E	GF	52	45	☐	☐
2 to 4	E	F 1	55	47	☐	☐
2 to 4	W	GF	49	42	✓	☐
2 to 4	W	F 1	51	44	☐	✓
2 to 4	W	GF	50	43	☐	☐
2 to 4	W	F 1	52	45	☐	✓
5 & 6	N	GF	49	42	✓	☐
5 & 6	N	F 1	51	44	☐	✓
5 & 6	NW	GF	49	42	✓	☐
5 & 6	NW	F 1	51	44	☐	✓
5 & 6	W	GF	48	41	✓	☐
5 & 6	W	F 1	50	43	☐	✓
5 & 6	E	GF	49	42	✓	☐
5 & 6	E	F 1	52	44	☐	✓
5 & 6	SE	GF	44	37	✓	☐
5 & 6	SE	F 1	47	40	✓	✓
5 & 6	S	GF	45	38	✓	☐
5 & 6	S	F 1	47	40	✓	✓

KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
7 to 9	S	GF	45	38	✓	☐
7 to 9	S	F 1	47	40	✓	✓
7 to 9	S	GF	46	39	✓	☐
7 to 9	S	F 1	48	41	✓	✓
7 to 9	E	GF	47	40	✓	☐
7 to 9	E	F 1	49	42	✓	✓
7 to 9	N	GF	51	44	☐	☐
7 to 9	N	F 1	53	45	☐	☐
7 to 9	S	GF	47	40	✓	☐
7 to 9	S	F 1	49	41	✓	✓
7 to 9	N	GF	51	44	☐	☐
7 to 9	N	F 1	53	45	☐	☐
7 to 9	N	GF	51	44	☐	☐
7 to 9	N	F 1	53	45	☐	☐
10 & 11	SW	GF	55	48	☐	☐
10 & 11	SW	F 1	56	49	☐	☐
10 & 11	W	GF	56	49	☐	☐
10 & 11	W	F 1	58	50	☐	☐
10 & 11	N	GF	56	48	☐	☐
10 & 11	N	F 1	58	50	☐	☐
10 & 11	S	GF	52	45	☐	☐
10 & 11	S	F 1	53	46	☐	☐
10 & 11	E	GF	46	39	✓	☐
10 & 11	E	F 1	48	41	✓	✓
10 & 11	NE	GF	48	41	✓	☐
10 & 11	NE	F 1	50	43	✓	✓
10 & 11	N	GF	49	41	✓	☐
10 & 11	N	F 1	51	43	☐	✓
12 & 13	E	GF	49	42	✓	☐
12 & 13	E	F 1	51	44	☐	✓
12 & 13	E	GF	49	42	✓	☐
12 & 13	E	F 1	52	44	☐	✓
12 & 13	N	GF	57	49	☐	☐
12 & 13	N	F 1	58	51	☐	☐
12 & 13	W	GF	58	50	☐	☐
12 & 13	W	F 1	60	52	☐	☐
12 & 13	W	GF	57	50	☐	☐
12 & 13	W	F 1	59	51	☐	☐
12 & 13	S	GF	51	44	☐	☐
12 & 13	S	F 1	53	45	☐	☐
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Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
14 & 15	W	GF	60	52	☐	☐
14 & 15	W	F 1	62	54	☐	☐
14 & 15	S	GF	45	38	✓	☐
14 & 15	S	F 1	48	41	✓	✓
14 & 15	SE	GF	45	38	✓	☐
14 & 15	SE	F 1	48	41	✓	✓
14 & 15	S	GF	56	48	☐	☐
14 & 15	S	F 1	57	49	☐	☐
14 & 15	NW	GF	62	54	☐	☐
14 & 15	NW	F 1	64	56	☐	☐
14 & 15	N	GF	62	55	☐	☐
14 & 15	N	F 1	65	57	☐	☐
14 & 15	E	GF	58	50	☐	☐
14 & 15	E	F 1	60	52	☐	☐
14 & 15	E	GF	45	39	✓	☐
14 & 15	E	F 1	49	42	✓	✓
16	N	GF	62	54	☐	☐
16	N	F 1	65	57	☐	☐
16	E	GF	58	50	☐	☐
16	E	F 1	60	53	☐	☐
16	W	GF	58	51	☐	☐
16	W	F 1	61	53	☐	☐
16	S	GF	45	38	✓	☐
16	S	F 1	48	41	✓	✓
17	SE	GF	45	38	✓	☐
17	SE	F 1	48	41	✓	✓
17	SW	GF	45	39	✓	☐
17	SW	F 1	49	42	✓	✓
17	NW	GF	63	55	☐	☐
17	NW	F 1	65	57	☐	☐
17	NW	GF	63	55	☐	☐
17	NW	F 1	65	57	☐	☐
17	NE	GF	58	51	☐	☐
17	NE	F 1	60	53	☐	☐
18 & 19	SW	GF	51	44	☐	☐
18 & 19	SW	F 1	53	46	☐	☐
18 & 19	NW	GF	51	44	☐	☐
18 & 19	NW	F 1	55	47	☐	☐
18 & 19	SE	GF	46	39	✓	☐
18 & 19	SE	F 1	48	41	✓	✓
18 & 19	NE	GF	52	45	☐	☐
18 & 19	NE	F 1	55	47	☐	☐
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Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
20	SE	GF	43	36	✓	☐
20	SE	F 1	46	39	✓	✓
20	SW	GF	48	41	✓	☐
20	SW	F 1	50	43	☐	✓
20	NE	GF	50	43	✓	☐
20	NE	F 1	52	45	☐	✓
20	NW	GF	47	40	✓	☐
20	NW	F 1	49	42	✓	✓
21 & 22	SE	GF	42	35	✓	☐
21 & 22	SE	F 1	45	38	✓	✓
21 & 22	SW	GF	46	39	✓	☐
21 & 22	SW	F 1	48	41	✓	✓
21 & 22	NE	GF	48	41	✓	☐
21 & 22	NE	F 1	51	43	☐	✓
21 & 22	NW	GF	46	39	✓	☐
21 & 22	NW	F 1	49	41	✓	✓
23	SE	GF	42	35	✓	☐
23	SE	F 1	45	38	✓	✓
23	NE	GF	45	38	✓	☐
23	NE	F 1	47	40	✓	✓
23	NW	GF	47	40	✓	☐
23	NW	F 1	49	42	✓	✓
23 FoG	NW	GF	49	41	✓	☐
23 FoG	SE	GF	46	39	✓	✓
24 & 25	SW	GF	50	43	☐	☐
24 & 25	SW	F 1	53	45	☐	☐
24 & 25	NW	GF	46	39	✓	☐
24 & 25	NW	F 1	49	42	✓	✓
24 & 25	NE	GF	46	39	✓	☐
24 & 25	NE	F 1	48	41	✓	✓
24 & 25	SE	GF	42	36	✓	☐
24 & 25	SE	F 1	46	39	✓	✓
26	SW	GF	53	45	☐	☐
26	SW	F 1	55	48	☐	☐
26	NW	GF	48	41	✓	☐
26	NW	F 1	50	43	✓	✓
26	NE	GF	47	40	✓	☐
26	NE	F 1	50	42	✓	✓
26	SE	GF	43	36	✓	☐
26	SE	F 1	46	39	✓	✓
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Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
27 & 28	SW	GF	56	48	☐	☐
27 & 28	SW	F 1	58	50	☐	☐
27 & 28	NW	GF	56	49	☐	☐
27 & 28	NW	F 1	59	51	☐	☐
27 & 28	NE	GF	48	41	✓	☐
27 & 28	NE	F 1	51	43	☐	✓
27 & 28	SE	GF	47	40	✓	☐
27 & 28	SE	F 1	49	42	✓	✓
29	SW	GF	61	53	☐	☐
29	SW	F 1	63	55	☐	☐
29	SE	GF	53	45	☐	☐
29	SE	F 1	55	48	☐	☐
29	SE	GF	45	38	✓	☐
29	SE	F 1	48	41	✓	✓
29	NW	GF	63	56	☐	☐
29	NW	F 1	66	58	☐	☐
29	NE	GF	46	39	✓	☐
29	NE	F 1	49	42	✓	✓
30	SE	GF	47	40	✓	☐
30	SE	F 1	50	43	✓	✓
30	SW	GF	62	54	☐	☐
30	SW	F 1	64	56	☐	☐
30	NW	GF	64	56	☐	☐
30	NW	F 1	66	58	☐	☐
30	NW	GF	64	56	☐	☐
30	NW	F 1	66	58	☐	☐
30	SE	GF	45	38	✓	☐
30	SE	F 1	48	41	✓	✓
30	NE	GF	60	52	☐	☐
30	NE	F 1	62	54	☐	☐

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Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
31 to 33	SW	GF	48	41	✓	☐
31 to 33	SW	F 1	50	43	☐	✓
31 to 33	SW	GF	48	41	✓	☐
31 to 33	SW	F 1	51	44	☐	✓
31 to 33	SW	GF	48	41	✓	☐
31 to 33	SW	F 1	50	43	☐	✓
31 to 33	NE	GF	55	47	☐	☐
31 to 33	NE	F 1	56	49	☐	☐
31 to 33	NW	GF	55	47	☐	☐
31 to 33	NW	F 1	56	49	☐	☐
31 to 33	NE	GF	53	46	☐	☐
31 to 33	NE	F 1	55	47	☐	☐
31 to 33	NE	GF	54	46	☐	☐
31 to 33	NE	F 1	55	48	☐	☐
34 & 35	SW	GF	48	41	✓	☐
34 & 35	SW	F 1	50	43	✓	✓
34 & 35	NE	GF	52	44	☐	☐
34 & 35	NE	F 1	53	46	☐	☐
34 & 35	NE	GF	51	44	☐	☐
34 & 35	NE	F 1	53	45	☐	☐
34 & 35	SW	GF	48	41	✓	☐
34 & 35	SW	F 1	50	43	✓	✓
36	SE	GF	42	35	✓	☐
36	SE	F 1	45	38	✓	✓
36	NW	GF	48	41	✓	☐
36	NW	F 1	50	43	☐	✓
36	NE	GF	49	42	✓	☐
36	NE	F 1	51	44	☐	✓
37	SE	GF	42	35	✓	☐
37	SE	F 1	45	38	✓	✓
37	SW	GF	47	40	✓	☐
37	SW	F 1	49	42	✓	✓
37	NW	GF	48	41	✓	☐
37	NW	F 1	50	43	☐	✓
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Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
38 & 39	SW	GF	46	39	✓	☐
38 & 39	SW	F 1	48	41	✓	✓
38 & 39	NW	GF	48	41	✓	☐
38 & 39	NW	F 1	50	43	☐	✓
38 & 39	NW	GF	48	41	✓	☐
38 & 39	NW	F 1	50	43	☐	✓
38 & 39	NE	GF	46	39	✓	☐
38 & 39	NE	F 1	49	42	✓	✓
38 & 39	SE	GF	42	35	✓	☐
38 & 39	SE	F 1	45	38	✓	✓
38 & 39	SE	GF	42	35	✓	☐
38 & 39	SE	F 1	45	38	✓	✓
40	SW	GF	48	41	✓	☐
40	SW	F 1	50	43	☐	✓
40	NW	GF	47	40	✓	☐
40	NW	F 1	49	42	✓	✓
40	NE	GF	46	39	✓	☐
40	NE	F 1	48	41	✓	✓
40	SE	GF	42	35	✓	☐
40	SE	F 1	45	38	✓	✓
41 & 42	SW	GF	52	44	☐	☐
41 & 42	SW	F 1	54	46	☐	☐
41 & 42	NW	GF	48	41	✓	☐
41 & 42	NW	F 1	50	43	☐	✓
41 & 42	NE	GF	50	43	☐	☐
41 & 42	NE	F 1	52	45	☐	✓
41 & 42	NE	GF	49	42	✓	☐
41 & 42	NE	F 1	51	44	☐	✓
41 & 42	SW	GF	50	43	☐	☐
41 & 42	SW	F 1	53	45	☐	☐
41 & 42	SE	GF	43	36	✓	☐
41 & 42	SE	F 1	46	39	✓	✓

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Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
43 & 44	NE	GF	50	43	☐	☐
43 & 44	NE	F 1	52	45	☐	✓
43 & 44	NE	GF	50	43	☐	☐
43 & 44	NE	F 1	52	45	☐	☐
43 & 44	SE	GF	44	37	✓	☐
43 & 44	SE	F 1	47	40	✓	✓
43 & 44	SW	GF	54	46	☐	☐
43 & 44	SW	F 1	56	49	☐	☐
43 & 44	NW	GF	52	45	☐	☐
43 & 44	NW	F 1	55	47	☐	☐
43 & 44	SW	GF	55	48	☐	☐
43 & 44	SW	F 1	57	50	☐	☐
45 & 46	SW	GF	60	52	☐	☐
45 & 46	SW	F 1	62	54	☐	☐
45 & 46	W	GF	63	55	☐	☐
45 & 46	W	F 1	65	57	☐	☐
45 & 46	NE	GF	59	51	☐	☐
45 & 46	NE	F 1	61	53	☐	☐
45 & 46	NW	GF	64	56	☐	☐
45 & 46	NW	F 1	66	58	☐	☐
45 & 46	SE	GF	45	38	✓	☐
45 & 46	SE	F 1	48	41	✓	✓
45 & 46	E	GF	45	38	✓	☐
45 & 46	E	F 1	49	42	✓	✓
45 & 46	SE	GF	45	38	✓	☐
45 & 46	SE	F 1	48	41	✓	✓
45 & 46	NE	GF	46	39	✓	☐
45 & 46	NE	F 1	49	42	✓	✓
47	NW	GF	64	56	☐	☐
47	NW	F 1	66	58	☐	☐
47	NE	GF	53	45	☐	☐
47	NE	F 1	58	51	☐	☐
47	SE	GF	45	38	✓	☐
47	SE	F 1	48	41	✓	✓
47	SW	GF	59	52	☐	☐
47	SW	F 1	61	53	☐	☐

KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
48	NW	GF	62	54	☐	☐
48	NW	F 1	64	56	☐	☐
48	NE	GF	57	50	☐	☐
48	NE	F 1	59	52	☐	☐
48	SE	GF	44	38	✓	☐
48	SE	F 1	48	41	✓	✓
48	SW	GF	53	46	☐	☐
48	SW	F 1	55	48	☐	☐
49	NW	GF	52	45	☐	☐
49	NW	F 1	54	47	☐	☐
49	NE	GF	53	45	☐	☐
49	NE	F 1	54	47	☐	☐
49	SE	GF	44	37	✓	☐
49	SE	F 1	47	40	✓	✓
49	SW	GF	47	40	✓	☐
49	SW	F 1	50	42	✓	✓
50	NW	GF	46	39	✓	☐
50	NW	F 1	49	42	✓	✓
50	NE	GF	50	43	☐	☐
50	NE	F 1	52	45	☐	✓
50	SE	GF	43	36	✓	☐
50	SE	F 1	46	39	✓	✓
50	SW	GF	47	40	✓	☐
50	SW	F 1	49	42	✓	✓
51 & 52	NE	GF	47	40	✓	☐
51 & 52	NE	F 1	50	42	✓	✓
51 & 52	SE	GF	43	36	✓	☐
51 & 52	SE	F 1	46	39	✓	✓
51 & 52	SW	GF	47	40	✓	☐
51 & 52	SW	F 1	49	42	✓	✓
51 & 52	SE	GF	43	36	✓	☐
51 & 52	SE	F 1	46	39	✓	✓
51 & 52	NW	GF	48	41	✓	☐
51 & 52	NW	F 1	51	43	☐	✓
51 & 52	NW	GF	49	41	✓	☐
51 & 52	NW	F 1	51	43	☐	✓

KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
53	NE	GF	47	40	✓	☐
53	NE	F 1	49	42	✓	✓
53	SW	GF	50	43	✓	☐
53	SW	F 1	52	44	☐	✓
53	SE	GF	43	37	✓	☐
53	SE	F 1	46	39	✓	✓
53	NW	GF	50	43	☐	☐
53	NW	F 1	52	45	☐	✓
54 & 55	SE	GF	43	36	✓	☐
54 & 55	SE	F 1	46	39	✓	✓
54 & 55	SE	GF	43	36	✓	☐
54 & 55	SE	F 1	46	39	✓	✓
54 & 55	SW	GF	50	42	✓	☐
54 & 55	SW	F 1	51	44	☐	✓
54 & 55	NW	GF	51	44	☐	☐
54 & 55	NW	F 1	53	45	☐	☐
54 & 55	NW	GF	51	43	☐	☐
54 & 55	NW	F 1	52	45	☐	☐
54 & 55	NE	GF	48	41	✓	☐
54 & 55	NE	F 1	50	43	☐	✓
56	SE	GF	43	36	✓	☐
56	SE	F 1	46	39	✓	✓
56	SW	GF	54	47	☐	☐
56	SW	F 1	56	49	☐	☐
56	NW	GF	48	41	✓	☐
56	NW	F 1	51	43	☐	✓
56	NE	GF	49	42	✓	☐
56	NE	F 1	51	44	☐	✓
57	NE	GF	50	43	☐	☐
57	NE	F 1	52	45	☐	☐
57	NW	GF	49	42	✓	☐
57	NW	F 1	52	44	☐	✓
57	SW	GF	57	49	☐	☐
57	SW	F 1	58	51	☐	☐
57	SE	GF	44	37	✓	☐
57	SE	F 1	47	40	✓	✓

KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
58 & 59	NE	GF	46	39	✓	☐
58 & 59	NE	F 1	49	42	✓	✓
58 & 59	E	GF	45	38	✓	☐
58 & 59	E	F 1	48	41	✓	✓
58 & 59	SE	GF	45	38	✓	☐
58 & 59	SE	F 1	48	41	✓	✓
58 & 59	SW	GF	60	52	☐	☐
58 & 59	SW	F 1	61	54	☐	☐
58 & 59	W	GF	62	55	☐	☐
58 & 59	W	F 1	64	56	☐	☐
58 & 59	NW	GF	63	55	☐	☐
58 & 59	NW	F 1	65	57	☐	☐
58 & 59	NE	GF	59	51	☐	☐
58 & 59	NE	F 1	60	52	☐	☐
58 & 59	SE	GF	45	38	✓	☐
58 & 59	SE	F 1	48	41	✓	✓
60 & 61	SE	GF	45	38	✓	☐
60 & 61	SE	F 1	48	41	✓	✓
60 & 61	SE	GF	45	38	✓	☐
60 & 61	SE	F 1	48	41	✓	✓
60 & 61	NW	GF	63	55	☐	☐
60 & 61	NW	F 1	65	57	☐	☐
60 & 61	SW	GF	58	50	☐	☐
60 & 61	SW	F 1	59	52	☐	☐
60 & 61	NW	GF	63	55	☐	☐
60 & 61	NW	F 1	65	57	☐	☐
60 & 61	NE	GF	57	49	☐	☐
60 & 61	NE	F 1	58	51	☐	☐
63 & 64	NW	GF	62	54	☐	☐
63 & 64	NW	F 1	64	56	☐	☐
63 & 64	SW	GF	53	46	☐	☐
63 & 64	SW	F 1	55	48	☐	☐
63 & 64	NW	GF	62	55	☐	☐
63 & 64	NW	F 1	65	57	☐	☐
63 & 64	SE	GF	44	38	✓	☐
63 & 64	SE	F 1	48	40	✓	✓
63 & 64	SE	GF	45	38	✓	☐
63 & 64	SE	F 1	48	41	✓	✓
65 & 66	NW	GF	62	54	☐	☐
65 & 66	NW	F 1	64	56	☐	☐
KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor						

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
65 & 66	SE	GF	44	37	✓	☐
65 & 66	SE	F 1	47	40	✓	✓
65 & 66	SE	GF	44	38	✓	☐
65 & 66	SE	F 1	48	41	✓	✓
65 & 66	NE	GF	52	45	☐	☐
65 & 66	NE	F 1	55	47	☐	☐
65 & 66	NW	GF	62	54	☐	☐
65 & 66	NW	F 1	64	56	☐	☐
67	NE	GF	49	41	✓	☐
67	NE	F 1	50	43	☐	✓
67	SW	GF	46	39	✓	☐
67	SW	F 1	48	41	✓	✓
67	SE	GF	42	35	✓	☐
67	SE	F 1	45	38	✓	✓
67	NW	GF	46	40	✓	☐
67	NW	F 1	49	42	✓	✓
68	NE	GF	47	40	✓	☐
68	NE	F 1	49	42	✓	✓
68	SW	GF	46	39	✓	☐
68	SW	F 1	48	41	✓	✓
68	SE	GF	42	36	✓	☐
68	SE	F 1	45	38	✓	✓
69	NE	GF	43	36	✓	☐
69	NE	F 1	46	39	✓	✓
69	SE	GF	42	36	✓	☐
69	SE	F 1	45	38	✓	✓
69	SW	GF	46	39	✓	☐
69	SW	F 1	48	41	✓	✓
69	NW	GF	47	40	✓	☐
69	NW	F 1	49	41	✓	✓
70	NE	GF	44	37	✓	☐
70	NE	F 1	47	40	✓	✓
70	SE	GF	41	35	✓	☐
70	SE	F 1	44	37	✓	✓
70	SW	GF	45	38	✓	☐
70	SW	F 1	47	40	✓	✓
70	NW	GF	46	39	✓	☐
70	NW	F 1	48	41	✓	✓
KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor						

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
71 & 72	SE	GF	41	35	✓	☐
71 & 72	SE	F 1	44	37	✓	✓
71 & 72	SE	GF	41	35	✓	☐
71 & 72	SE	F 1	44	37	✓	✓
71 & 72	SW	GF	45	38	✓	☐
71 & 72	SW	F 1	47	40	✓	✓
71 & 72	NW	GF	47	40	✓	☐
71 & 72	NW	F 1	49	42	✓	✓
71 & 72	NW	GF	47	40	✓	☐
71 & 72	NW	F 1	49	42	✓	✓
71 & 72	NE	GF	45	38	✓	☐
71 & 72	NE	F 1	48	40	✓	✓
73 & 74	NW	GF	47	40	✓	☐
73 & 74	NW	F 1	49	42	✓	✓
73 & 74	SE	GF	42	35	✓	☐
73 & 74	SE	F 1	45	38	✓	✓
73 & 74	NW	GF	48	41	✓	☐
73 & 74	NW	F 1	50	43	✓	✓
73 & 74	SW	GF	46	39	✓	☐
73 & 74	SW	F 1	48	41	✓	✓
73 & 74	NE	GF	45	38	✓	☐
73 & 74	NE	F 1	47	40	✓	✓
73 & 74	SE	GF	41	35	✓	☐
73 & 74	SE	F 1	44	37	✓	✓
75	NW	GF	45	38	✓	☐
75	NW	F 1	48	41	✓	✓
75	NE	GF	45	38	✓	☐
75	NE	F 1	48	41	✓	✓
75	SE	GF	41	35	✓	☐
75	SE	F 1	45	38	✓	✓
75	NE	GF	45	38	✓	☐
75	NE	F 1	48	41	✓	✓
75	NW	GF	46	39	✓	☐
75	NW	F 1	48	41	✓	✓
75	SW	GF	49	42	✓	☐
75	SW	F 1	51	44		✓
KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor						

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
76 & 77	NE	GF	47	40	✓	☐
76 & 77	NE	F 1	49	42	✓	✓
76 & 77	NE	GF	47	40	✓	☐
76 & 77	NE	F 1	49	42	✓	✓
76 & 77	SE	GF	42	36	✓	☐
76 & 77	SE	F 1	45	38	✓	✓
76 & 77	SW	GF	51	44	☐	☐
76 & 77	SW	F 1	53	45	☐	☐
76 & 77	SW	GF	50	43	☐	☐
76 & 77	SW	F 1	52	45	☐	✓
76 & 77	NW	GF	46	39	✓	☐
76 & 77	NW	F 1	49	41	✓	✓
78	NW	GF	48	41	✓	☐
78	NW	F 1	50	43	☐	✓
78	NE	GF	48	41	✓	☐
78	NE	F 1	50	43	✓	✓
78	SW	GF	52	45	☐	☐
78	SW	F 1	54	47	☐	☐
78	SE	GF	43	36	✓	☐
78	SE	F 1	46	39	✓	✓
79 & 80	NW	GF	47	40	✓	☐
79 & 80	NW	F 1	49	42	✓	✓
79 & 80	NE	GF	44	38	✓	☐
79 & 80	NE	F 1	47	40	✓	✓
79 & 80	SE	GF	42	36	✓	☐
79 & 80	SE	F 1	45	38	✓	✓
79 & 80	SW	GF	48	41	✓	☐
79 & 80	SW	F 1	50	43	☐	✓
79 & 80	SE	GF	43	36	✓	☐
79 & 80	SE	F 1	46	39	✓	✓
79 & 80	NW	GF	46	39	✓	☐
79 & 80	NW	F 1	49	42	✓	✓
81	NW	GF	48	41	✓	☐
81	NW	F 1	50	43	☐	✓
81	NE	GF	44	37	✓	☐
81	NE	F 1	47	40	✓	✓
81	SW	GF	44	37	✓	☐
81	SW	F 1	47	40	✓	✓
81	SE	GF	42	36	✓	☐
81	SE	F 1	45	38	✓	✓
KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor						

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
82 & 83	NW	GF	47	40	✓	☐
82 & 83	NW	F 1	49	42	✓	✓
82 & 83	NE	GF	46	39	✓	☐
82 & 83	NE	F 1	48	41	✓	✓
82 & 83	SE	GF	42	36	✓	☐
82 & 83	SE	F 1	45	38	✓	✓
82 & 83	SE	GF	43	36	✓	☐
82 & 83	SE	F 1	46	39	✓	✓
82 & 83	SW	GF	46	39	✓	☐
82 & 83	SW	F 1	49	41	✓	✓
82 & 83	NW	GF	46	39	✓	☐
82 & 83	NW	F 1	49	42	✓	✓
84	NE	GF	57	50		☐
84	NE	F 1	59	51		☐
84	SE	GF	46	39	✓	☐
84	SE	F 1	49	42	✓	✓
84	SW	GF	56	48		☐
84	SW	F 1	58	51		☐
84	NW	GF	61	53	☐	☐
84	NW	F 1	63	55		☐
85	NE	GF	56	48		☐
85	NE	F 1	58	51		☐
85	SE	GF	45	38	✓	☐
85	SE	F 1	48	41	✓	✓
85	SW	GF	59	51		☐
85	SW	F 1	61	53		☐
85	NW	GF	61	54		☐
85	NW	F 1	64	56		☐

KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
86 to 88	SE	GF	43	37	✓	☐
86 to 88	SE	F 1	46	39	✓	✓
86 to 88	NE	GF	51	44		☐
86 to 88	NE	F 1	53	46		☐
86 to 88	SW	GF	51	44		☐
86 to 88	SW	F 1	53	46		☐
86 to 88	SW	GF	53	46		☐
86 to 88	SW	F 1	55	47		☐
86 to 88	SW	GF	52	45		☐
86 to 88	SW	F 1	54	46		☐
86 to 88	NW	GF	54	46		☐
86 to 88	NW	F 1	56	48		☐
86 to 88	NE	GF	51	44		☐
86 to 88	NE	F 1	53	46		☐
86 to 88	NE	GF	51	44		☐
86 to 88	NE	F 1	53	46	☐	☐
89 & 90	SE	GF	43	36	✓	☐
89 & 90	SE	F 1	46	39	✓	✓
89 & 90	NE	GF	51	44		☐
89 & 90	NE	F 1	53	46		☐
89 & 90	SW	GF	50	42	✓	☐
89 & 90	SW	F 1	51	44		✓
89 & 90	SW	GF	50	43		☐
89 & 90	SW	F 1	52	44		✓
89 & 90	NW	GF	47	40	✓	☐
89 & 90	NW	F 1	50	43	✓	✓
89 & 90	NE	GF	51	44		☐
89 & 90	NE	F 1	53	46		☐
KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor						

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
91 to 93	SE	GF	43	37	✓	☐
91 to 93	SE	F 1	46	40	✓	✓
91 to 93	NE	GF	50	43		☐
91 to 93	NE	F 1	52	45		✓
91 to 93	SW	GF	48	41	✓	☐
91 to 93	SW	F 1	49	42	✓	✓
91 to 93	SW	GF	48	41	✓	☐
91 to 93	SW	F 1	50	43	✓	✓
91 to 93	SW	GF	49	42	✓	☐
91 to 93	SW	F 1	50	43		✓
91 to 93	NW	GF	46	39	✓	☐
91 to 93	NW	F 1	48	41	✓	✓
91 to 93	NE	GF	50	43		☐
91 to 93	NE	F 1	52	45		☐
91 to 93	NE	GF	50	43		☐
91 to 93	NE	F 1	52	45	☐	✓
92	NW	GF	63	55		☐
92	NW	F 1	65	57		☐
92	NE	GF	55	48		☐
92	NE	F 1	57	49		☐
92	SW	GF	58	51		☐
92	SW	F 1	60	52		☐
92	SE	GF	44	37	✓	☐
92	SE	F 1	48	41	✓	✓
94	SW	GF	47	40	✓	☐
94	SW	F 1	49	42	✓	✓
94	NW	GF	48	41	✓	☐
94	NW	F 1	50	43	✓	✓
94	NE	GF	47	41	✓	☐
94	NE	F 1	50	43	✓	✓
94	SE	GF	42	35	✓	☐
94	SE	F 1	45	38	✓	✓
KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor						

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
95 to 97	W	GF	46	39	✓	☐
95 to 97	W	F 1	48	41	✓	✓
95 to 97	SW	GF	47	40	✓	☐
95 to 97	SW	F 1	48	41	✓	✓
95 to 97	SW	GF	46	39	✓	☐
95 to 97	SW	F 1	48	41	✓	✓
95 to 97	NW	GF	46	39	✓	☐
95 to 97	NW	F 1	48	41	✓	✓
95 to 97	NE	GF	45	38	✓	☐
95 to 97	NE	F 1	49	43	✓	✓
95 to 97	NE	GF	46	40	✓	☐
95 to 97	NE	F 1	50	43	✓	✓
95 to 97	NE	GF	46	39	✓	☐
95 to 97	NE	F 1	50	43	✓	✓
98 & 99	N	GF	45	39	✓	☐
98 & 99	N	F 1	48	41	✓	✓
98 & 99	W	GF	46	39	✓	☐
98 & 99	W	F 1	47	40	✓	✓
98 & 99	W	GF	45	38	✓	☐
98 & 99	W	F 1	47	40	✓	✓
98 & 99	E	GF	47	40	✓	☐
98 & 99	E	F 1	49	42	✓	✓
98 & 99	S	GF	42	35	✓	☐
98 & 99	S	F 1	45	38	✓	✓
98 & 99	E	GF	47	40	✓	☐
98 & 99	E	F 1	49	42	✓	✓
100 & 101	E	GF	47	40	✓	☐
100 & 101	E	F 1	49	42	✓	✓
100 & 101	N	GF	43	37	✓	☐
100 & 101	N	F 1	46	39	✓	✓
100 & 101	W	GF	45	38	✓	☐
100 & 101	W	F 1	47	40	✓	✓
100 & 101	W	GF	45	38	✓	☐
100 & 101	W	F 1	46	39	✓	✓
100 & 101	E	GF	47	40	✓	☐
100 & 101	E	F 1	49	42	✓	✓
100 & 101	S	GF	42	35	✓	☐
100 & 101	S	F 1	44	38	✓	✓
KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor						

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
102 & 103	S	GF	41	34	✓	☐
102 & 103	S	F 1	44	37	✓	✓
102 & 103	W	GF	44	37	✓	☐
102 & 103	W	F 1	46	39	✓	✓
102 & 103	W	GF	44	38	✓	☐
102 & 103	W	F 1	46	39	✓	✓
102 & 103	N	GF	43	37	✓	☐
102 & 103	N	F 1	46	39	✓	✓
102 & 103	E	GF	46	40	✓	☐
102 & 103	E	F 1	49	42	✓	✓
102 & 103	E	GF	46	40	✓	☐
102 & 103	E	F 1	49	42	✓	✓
104	W	GF	43	36	✓	☐
104	W	F 1	45	38	✓	✓
104	S	GF	43	36	✓	☐
104	S	F 1	46	39	✓	✓
104	N	GF	44	37	✓	☐
104	N	F 1	47	40	✓	✓
104	E	GF	46	40	✓	☐
104	E	F 1	49	42	✓	✓
105 & 106	N	GF	44	38	✓	☐
105 & 106	N	F 1	46	40	✓	✓
105 & 106	S	GF	42	35	✓	☐
105 & 106	S	F 1	45	39	✓	✓
105 & 106	E	GF	46	39	✓	☐
105 & 106	E	F 1	49	42	✓	✓
105 & 106	W	GF	44	37	✓	☐
105 & 106	W	F 1	46	39	✓	✓
105 & 106	W	GF	43	37	✓	☐
105 & 106	W	F 1	45	38	✓	✓
105 & 106	E	GF	45	39	✓	☐
105 & 106	E	F 1	48	42	✓	✓
107	W	GF	43	37	✓	☐
107	W	F 1	45	38	✓	✓
107	S	GF	40	34	✓	☐
107	S	F 1	44	37	✓	✓
107	N	GF	43	37	✓	☐
107	N	F 1	46	39	✓	✓
107	E	GF	47	40	✓	☐
107	E	F 1	49	42	✓	✓
KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor						

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
108	W	GF	42	35	✓	□
108	W	F 1	44	37	✓	✓
108	E	GF	47	41	✓	□
108	E	F 1	49	43	✓	✓
108	N	GF	44	37	✓	□
108	N	F 1	47	40	✓	✓
109	W	GF	42	35	✓	□
109	W	F 1	44	38	✓	✓
109	S	GF	43	36	✓	□
109	S	F 1	46	39	✓	✓
109	E	GF	48	41	✓	□
109	E	F 1	49	43	✓	✓
110 to 112	E	GF	46	40	✓	□
110 to 112	E	F 1	49	42	✓	✓
110 to 112	S	GF	40	34	✓	□
110 to 112	S	F 1	43	37	✓	✓
110 to 112	W	GF	43	36	✓	□
110 to 112	W	F 1	45	38	✓	✓
110 to 112	W	GF	43	36	✓	□
110 to 112	W	F 1	45	38	✓	✓
110 to 112	N	GF	43	37	✓	□
110 to 112	N	F 1	46	39	✓	✓
110 to 112	W	GF	43	36	✓	□
110 to 112	W	F 1	45	38	✓	✓
110 to 112	E	GF	46	39	✓	□
110 to 112	E	F 1	48	42	✓	✓
110 to 112	E	GF	46	39	✓	□
110 to 112	E	F 1	49	42	✓	✓
113	W	GF	41	35	✓	□
113	W	F 1	44	37	✓	✓
113	E	GF	48	41	✓	□
113	E	F 1	49	42	✓	✓
113	N	GF	43	37	✓	□
113	N	F 1	46	40	✓	✓
114	W	GF	42	35	✓	□
114	W	F 1	44	37	✓	✓
114	S	GF	43	36	✓	□
114	S	F 1	46	39	✓	✓
114	E	GF	47	40	✓	□
114	E	F 1	49	42	✓	✓
KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor						

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
115	S	GF	39	33	✓	☐
115	S	F 1	43	36	✓	✓
115	W	GF	42	35	✓	☐
115	W	F 1	44	37	✓	✓
115	N	GF	43	36	✓	☐
115	N	F 1	45	38	✓	✓
115	E	GF	46	39	✓	☐
115	E	F 1	48	42	✓	✓
116	S	GF	42	36	✓	☐
116	S	F 1	45	38	✓	✓
116	W	GF	42	35	✓	☐
116	W	F 1	44	37	✓	✓
116	N	GF	39	33	✓	☐
116	N	F 1	42	36	✓	✓
116	E	GF	46	39	✓	☐
116	E	F 1	48	42	✓	✓
117 & 118	S	GF	42	35	✓	☐
117 & 118	S	F 1	44	37	✓	✓
117 & 118	W	GF	41	35	✓	☐
117 & 118	W	F 1	43	37	✓	✓
117 & 118	E	GF	46	40	✓	☐
117 & 118	E	F 1	48	42	✓	✓
117 & 118	E	GF	46	40	✓	☐
117 & 118	E	F 1	48	42	✓	✓
117 & 118	N	GF	42	35	✓	☐
117 & 118	N	F 1	45	38	✓	✓
117 & 118	W	GF	41	35	✓	☐
117 & 118	W	F 1	43	37	✓	✓
119	W	GF	41	34	✓	☐
119	W	F 1	43	36	✓	✓
119	N	GF	42	35	✓	☐
119	N	F 1	45	38	✓	✓
119	E	GF	48	41	✓	☐
119	E	F 1	49	42	✓	✓
120	W	GF	41	34	✓	☐
120	W	F 1	43	36	✓	✓
120	N	GF	43	37	✓	☐
120	N	F 1	45	39	✓	✓
120	E	GF	48	42	✓	☐
120	E	F 1	49	42	✓	✓

KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
121	W	GF	41	35	✓	☐
121	W	F 1	43	37	✓	✓
121	N	GF	43	36	✓	☐
121	N	F 1	45	39	✓	✓
121	E	GF	48	42	✓	☐
121	E	F 1	49	43	✓	✓
122	W	GF	42	35	✓	☐
122	W	F 1	44	37	✓	✓
122	W	GF	42	35	✓	☐
122	W	F 1	44	37	✓	✓
122	E	GF	40	34	✓	☐
122	E	F 1	46	39	✓	✓
122	S	GF	44	37	✓	☐
122	S	F 1	45	38	✓	✓
122	N	GF	47	40	✓	☐
122	N	F 1	48	42	✓	✓
122	E	GF	47	40	✓	☐
122	E	F 1	48	42	✓	✓
122	N	GF	46	40	✓	☐
122	N	F 1	48	41	✓	✓
123	SW	GF	39	32	✓	☐
123	SW	F 1	42	36	✓	✓
123	SE	GF	38	31	✓	☐
123	SE	F 1	42	35	✓	✓
123	SW	GF	40	34	✓	☐
123	SW	F 1	43	36	✓	✓
123	NW	GF	42	35	✓	☐
123	NW	F 1	44	37	✓	✓
123	NE	GF	42	35	✓	☐
123	NE	F 1	44	37	✓	✓
123	NE	GF	42	35	✓	☐
123	NE	F 1	44	37	✓	✓
123	SE	GF	40	33	✓	☐
123	SE	F 1	42	35	✓	✓
KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor						

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
124	W	GF	41	35	✓	☐
124	W	F 1	43	37	✓	✓
124	N	GF	43	36	✓	☐
124	N	F 1	45	38	✓	✓
124	W	GF	42	35	✓	☐
124	W	F 1	44	38	✓	✓
124	S	GF	42	36	✓	☐
124	S	F 1	44	37	✓	✓
124	N	GF	43	36	✓	☐
124	N	F 1	45	39	✓	✓
124	E	GF	42	36	✓	☐
124	E	F 1	45	38	✓	✓
124	E	GF	43	36	✓	☐
124	E	F 1	45	38	✓	✓
125	W	GF	42	35	✓	☐
125	W	F 1	44	38	✓	✓
125	N	GF	43	36	✓	☐
125	N	F 1	46	39	✓	✓
125	S	GF	42	36	✓	☐
125	S	F 1	44	37	✓	✓
126	NE	GF	41	35	✓	☐
126	NE	F 1	43	37	✓	✓
126	NW	GF	41	35	✓	☐
126	NW	F 1	44	37	✓	✓
126	NE	GF	41	34	✓	☐
126	NE	F 1	43	36	✓	✓
126	SW	GF	46	39	✓	☐
126	SW	F 1	47	40	✓	✓
126	SE	GF	41	35	✓	☐
126	SE	F 1	43	36	✓	✓
126	SE	GF	41	35	✓	☐
126	SE	F 1	43	36	✓	✓

KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
127	NE	GF	39	33	✓	□
127	NE	F 1	42	35	✓	✓
127	SE	GF	39	32	✓	□
127	SE	F 1	41	35	✓	✓
127	SW	GF	47	40	✓	□
127	SW	F 1	48	41	✓	✓
127	SW	GF	46	39	✓	□
127	SW	F 1	47	40	✓	✓
127	NW	GF	45	39	✓	□
127	NW	F 1	47	40	✓	✓
127	NE	GF	40	34	✓	□
127	NE	F 1	43	36	✓	✓
127	SE	GF	39	32	✓	□
127	SE	F 1	42	35	✓	✓
128 & 129	SE	GF	39	33	✓	□
128 & 129	SE	F 1	42	35	✓	✓
128 & 129	SW	GF	40	33	✓	□
128 & 129	SW	F 1	42	36	✓	✓
128 & 129	NW	GF	44	37	✓	□
128 & 129	NW	F 1	46	39	✓	✓
128 & 129	NW	GF	44	37	✓	□
128 & 129	NW	F 1	46	39	✓	✓
128 & 129	NE	GF	41	34	✓	□
128 & 129	NE	F 1	44	37	✓	✓
128 & 129	SE	GF	39	33	✓	□
128 & 129	SE	F 1	42	35	✓	✓
130 & 131	NW	GF	42	35	✓	□
130 & 131	NW	F 1	44	37	✓	✓
130 & 131	NE	GF	41	34	✓	□
130 & 131	NE	F 1	43	36	✓	✓
130 & 131	SE	GF	39	33	✓	□
130 & 131	SE	F 1	42	35	✓	✓
130 & 131	SE	GF	39	33	✓	□
130 & 131	SE	F 1	42	35	✓	✓
130 & 131	NW	GF	42	35	✓	□
130 & 131	NW	F 1	44	38	✓	✓
130 & 131	SW	GF	40	33	✓	□
130 & 131	SW	F 1	43	36	✓	✓
KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor						

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
132	S	GF	40	33	✓	□
132	S	F 1	42	36	✓	✓
132	W	GF	43	36	✓	□
132	W	F 1	45	38	✓	✓
132	E	GF	42	36	✓	□
132	E	F 1	45	38	✓	✓
132	N	GF	43	36	✓	□
132	N	F 1	45	38	✓	✓
133 to 135	N	GF	41	35	✓	□
133 to 135	N	F 1	44	37	✓	✓
133 to 135	E	GF	42	35	✓	□
133 to 135	E	F 1	44	37	✓	✓
133 to 135	W	GF	42	36	✓	□
133 to 135	W	F 1	44	37	✓	✓
134	E	GF	43	36	✓	□
134	E	F 1	45	38	✓	✓
134	W	GF	43	36	✓	□
134	W	F 1	45	38	✓	✓
135	E	GF	42	35	✓	□
135	E	F 1	44	37	✓	✓
135	W	GF	42	35	✓	□
135	W	F 1	44	37	✓	✓
135	S	GF	39	32	✓	□
135	S	F 1	42	35	✓	✓
136 & 137	SW	GF	41	34	✓	□
136 & 137	SW	F 1	43	36	✓	✓
136 & 137	SE	GF	39	33	✓	□
136 & 137	SE	F 1	42	35	✓	✓
136 & 137	NW	GF	42	36	✓	□
136 & 137	NW	F 1	44	38	✓	✓
136 & 137	NE	GF	42	35	✓	□
136 & 137	NE	F 1	44	37	✓	✓
136 & 137	E	GF	40	34	✓	□
136 & 137	E	F 1	43	36	✓	✓
136 & 137	SW	GF	42	35	✓	□
136 & 137	SW	F 1	44	37	✓	✓
136 & 137	W	GF	42	36	✓	□
136 & 137	W	F 1	44	37	✓	✓
136 & 137	NW	GF	42	35	✓	□
136 & 137	NW	F 1	44	37	✓	✓
KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor						

KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
138	NW	GF	43	36	✓	□
138	NW	F 1	45	38	✓	✓
138	NE	GF	41	35	✓	□
138	NE	F 1	44	37	✓	✓
138	SE	GF	39	32	✓	□
138	SE	F 1	41	35	✓	✓
139	NW	GF	43	36	✓	□
139	NW	F 1	45	38	✓	✓
139	SW	GF	42	35	✓	□
139	SW	F 1	44	37	✓	✓
139	SE	GF	39	33	✓	□
139	SE	F 1	43	36	✓	✓
140 & 141	NW	GF	42	35	✓	□
140 & 141	NW	F 1	44	37	✓	✓
140 & 141	N	GF	42	35	✓	□
140 & 141	N	F 1	44	37	✓	✓
140 & 141	NE	GF	41	34	✓	□
140 & 141	NE	F 1	43	37	✓	✓
140 & 141	S	GF	42	35	✓	□
140 & 141	S	F 1	44	37	✓	✓
140 & 141	SW	GF	42	36	✓	□
140 & 141	SW	F 1	44	37	✓	✓
140 & 141	NW	GF	42	35	✓	□
140 & 141	NW	F 1	44	37	✓	✓
140 & 141	NE	GF	41	35	✓	□
140 & 141	NE	F 1	43	37	✓	✓
140 & 141	SE	GF	39	32	✓	□
140 & 141	SE	F 1	41	34	✓	✓
142	NE	GF	42	35	✓	□
142	NE	F 1	44	37	✓	✓
142	SW	GF	43	37	✓	□
142	SW	F 1	45	38	✓	✓
142	SE	GF	38	32	✓	□
142	SE	F 1	41	34	✓	✓
143	SW	GF	44	37	✓	□
143	SW	F 1	45	39	✓	✓
143	NW	GF	38	31	✓	□
143	NW	F 1	41	34	✓	✓
143	NE	GF	42	35	✓	□
143	NE	F 1	44	37	✓	✓

KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
144	SW	GF	43	36	✓	☐
144	SW	F 1	45	38	✓	✓
144	SE	GF	37	31	✓	☐
144	SE	F 1	41	34	✓	✓
144	NW	GF	39	33	✓	☐
144	NW	F 1	42	36	✓	✓
144	NE	GF	42	35	✓	☐
144	NE	F 1	44	37	✓	✓
145 & 146	SW	GF	42	35	✓	☐
145 & 146	SW	F 1	44	37	✓	✓
145 & 146	NW	GF	43	36	✓	☐
145 & 146	NW	F 1	45	38	✓	✓
145 & 146	NE	GF	41	35	✓	☐
145 & 146	NE	F 1	44	37	✓	✓
145 & 146	SE	GF	39	32	✓	☐
145 & 146	SE	F 1	41	35	✓	✓
147	NW	GF	43	36	✓	☐
147	NW	F 1	45	38	✓	✓
147	SW	GF	39	33	✓	☐
147	SW	F 1	42	35	✓	✓
147	SE	GF	39	32	✓	☐
147	SE	F 1	42	35	✓	✓
148	NE	GF	42	35	✓	☐
148	NE	F 1	44	37	✓	✓
148	NW	GF	43	37	✓	☐
148	NW	F 1	45	38	✓	✓
148	SE	GF	39	32	✓	☐
148	SE	F 1	42	35	✓	✓
149	NE	GF	44	37	✓	☐
149	NE	F 1	46	39	✓	✓
149	NW	GF	45	38	✓	☐
149	NW	F 1	47	40	✓	✓
149	SE	GF	40	33	✓	☐
149	SE	F 1	43	36	✓	✓
149	SW	GF	44	37	✓	☐
149	SW	F 1	45	38	✓	✓

KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
150 & 151	E	GF	43	36	✓	☐
150 & 151	E	F 1	45	38	✓	✓
150 & 151	N	GF	44	37	✓	☐
150 & 151	N	F 1	46	39	✓	✓
150 & 151	E	GF	42	36	✓	☐
150 & 151	E	F 1	45	38	✓	✓
150 & 151	W	GF	44	37	✓	☐
150 & 151	W	F 1	46	39	✓	✓
150 & 151	W	GF	44	37	✓	☐
150 & 151	W	F 1	46	39	✓	✓
152 & 153	W	GF	44	37	✓	☐
152 & 153	W	F 1	46	39	✓	✓
152 & 153	W	GF	43	37	✓	☐
152 & 153	W	F 1	45	38	✓	✓
152 & 153	S	GF	39	33	✓	☐
152 & 153	S	F 1	42	35	✓	✓
152 & 153	E	GF	42	36	✓	☐
152 & 153	E	F 1	45	38	✓	✓
152 & 153	E	GF	42	36	✓	☐
152 & 153	E	F 1	45	38	✓	✓
154	S	GF	39	33	✓	☐
154	S	F 1	42	35	✓	✓
154	W	GF	42	35	✓	☐
154	W	F 1	44	37	✓	✓
154	N	GF	42	35	✓	☐
154	N	F 1	44	37	✓	✓
154	E	GF	43	36	✓	☐
154	E	F 1	45	38	✓	✓
155	NW	GF	45	38	✓	☐
155	NW	F 1	46	39	✓	✓
155	NE	GF	43	36	✓	☐
155	NE	F 1	45	38	✓	✓
155	SE	GF	40	33	✓	☐
155	SE	F 1	42	35	✓	✓
156	SE	GF	39	33	✓	☐
156	SE	F 1	42	35	✓	✓
156	SW	GF	43	36	✓	☐
156	SW	F 1	45	38	✓	✓
156	NW	GF	45	38	✓	☐
156	NW	F 1	46	39	✓	✓
KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor						

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
157 & 158	NE	GF	41	34	✓	☐
157 & 158	NE	F 1	43	36	✓	✓
157 & 158	SE	GF	39	33	✓	☐
157 & 158	SE	F 1	42	35	✓	✓
157 & 158	SW	GF	42	35	✓	☐
157 & 158	SW	F 1	44	38	✓	✓
157 & 158	NW	GF	44	37	✓	☐
157 & 158	NW	F 1	46	39	✓	✓
159	SE	GF	38	32	✓	☐
159	SE	F 1	41	34	✓	✓
159	NE	GF	42	36	✓	☐
159	NE	F 1	44	38	✓	✓
159	NW	GF	38	31	✓	☐
159	NW	F 1	41	34	✓	✓
159	SW	GF	43	36	✓	☐
159	SW	F 1	44	38	✓	✓
160	SE	GF	38	31	✓	☐
160	SE	F 1	41	34	✓	✓
160	SW	GF	44	38	✓	☐
160	SW	F 1	46	39	✓	✓
160	NE	GF	43	36	✓	☐
160	NE	F 1	45	38	✓	✓
161	NE	GF	43	36	✓	☐
161	NE	F 1	45	38	✓	✓
161	NW	GF	45	38	✓	☐
161	NW	F 1	47	40	✓	✓
161	SW	GF	45	38	✓	☐
161	SW	F 1	46	39	✓	✓
162	SW	GF	47	40	✓	☐
162	SW	F 1	49	42	✓	✓
162	SE	GF	44	37	✓	☐
162	SE	F 1	46	39	✓	✓
162	NE	GF	44	37	✓	☐
162	NE	F 1	46	39	✓	✓
162	NW	GF	48	41	✓	☐
162	NW	F 1	49	42	✓	✓
KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor						

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
163 & 164	SE	GF	40	33	✓	☐
163 & 164	SE	F 1	43	36	✓	✓
163 & 164	SW	GF	43	36	✓	☐
163 & 164	SW	F 1	45	38	✓	✓
163 & 164	NW	GF	47	40	✓	☐
163 & 164	NW	F 1	48	41	✓	✓
163 & 164	NW	GF	46	39	✓	☐
163 & 164	NW	F 1	48	41	✓	✓
163 & 164	NE	GF	43	36	✓	☐
163 & 164	NE	F 1	45	38	✓	✓
163 & 164	SE	GF	40	33	✓	☐
163 & 164	SE	F 1	42	36	✓	✓
165 & 166	SE	GF	40	33	✓	☐
165 & 166	SE	F 1	43	36	✓	✓
165 & 166	SW	GF	42	36	✓	☐
165 & 166	SW	F 1	45	38	✓	✓
165 & 166	NW	GF	46	39	✓	☐
165 & 166	NW	F 1	48	41	✓	✓
165 & 166	NW	GF	46	39	✓	☐
165 & 166	NW	F 1	48	41	✓	✓
165 & 166	NE	GF	43	36	✓	☐
165 & 166	NE	F 1	45	39	✓	✓
165 & 166	SE	GF	40	33	✓	☐
165 & 166	SE	F 1	42	36	✓	✓
167	NE	GF	45	38	✓	☐
167	NE	F 1	47	40	✓	✓
167	NW	GF	46	39	✓	☐
167	NW	F 1	48	41	✓	✓
167	SE	GF	41	34	✓	☐
167	SE	F 1	44	37	✓	✓
167	SW	GF	45	38	✓	☐
167	SW	F 1	47	40	✓	✓
168	SW	GF	44	37	✓	☐
168	SW	F 1	46	39	✓	✓
168	NE	GF	44	37	✓	☐
168	NE	F 1	46	39	✓	✓
169	NE	GF	44	37	✓	☐
169	NE	F 1	46	39	✓	✓
169	SW	GF	45	38	✓	☐
169	SW	F 1	47	40	✓	✓
169	SE	GF	42	35	✓	☐
169	SE	F 1	45	38	✓	✓
KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor						

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
170	SW	GF	44	37	✓	□
170	SW	F 1	45	38	✓	✓
170	SE	GF	40	34	✓	□
170	SE	F 1	43	36	✓	✓
170	NE	GF	44	37	✓	□
170	NE	F 1	46	39	✓	✓
171 & 172	NE	GF	43	37	✓	□
171 & 172	NE	F 1	46	39	✓	✓
171 & 172	SW	GF	44	37	✓	□
171 & 172	SW	F 1	45	38	✓	✓
171 & 172	SE	GF	40	34	✓	□
171 & 172	SE	F 1	43	36	✓	✓
171 & 172	SE	GF	40	34	✓	□
171 & 172	SE	F 1	43	36	✓	✓
171 & 172	NW	GF	45	38	✓	□
171 & 172	NW	F 1	47	40	✓	✓
171 & 172	NW	GF	45	39	✓	□
171 & 172	NW	F 1	47	40	✓	✓
173 to 180	SW	GF	46	39	✓	□
173 to 180	SW	F 1	47	40	✓	✓
173 to 180	SE	GF	42	35	✓	□
173 to 180	SE	F 1	45	38	✓	✓
173 to 180	SE	GF	40	34	✓	□
173 to 180	SE	F 1	43	36	✓	✓
173 to 180	NE	GF	44	37	✓	□
173 to 180	NE	F 1	46	39	✓	✓
173 to 180	NW	GF	45	38	✓	□
173 to 180	NW	F 1	47	40	✓	✓
173 to 180	NW	GF	46	39	✓	□
173 to 180	NW	F 1	48	41	✓	✓
173 to 180	NE	GF	44	37	✓	□
173 to 180	NE	F 1	46	39	✓	✓

KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
181 to 188	NE	GF	44	38	✓	☐
181 to 188	NE	F 1	47	40	✓	✓
181 to 188	NW	GF	46	39	✓	☐
181 to 188	NW	F 1	48	41	✓	✓
181 to 188	SE	GF	44	37	✓	☐
181 to 188	SE	F 1	46	39	✓	✓
181 to 188	SE	GF	41	34	✓	☐
181 to 188	SE	F 1	43	37	✓	✓
181 to 188	SW	GF	47	40	✓	☐
181 to 188	SW	F 1	48	41	✓	✓
181 to 188	NW	GF	46	39	✓	☐
181 to 188	NW	F 1	48	41	✓	✓
181 to 188	NE	GF	42	35	✓	☐
181 to 188	NE	F 1	45	38	✓	✓
189 & 190	NW	GF	46	39	✓	☐
189 & 190	NW	F 1	48	41	✓	✓
189 & 190	NW	GF	46	39	✓	☐
189 & 190	NW	F 1	48	41	✓	✓
189 & 190	SW	GF	45	38	✓	☐
189 & 190	SW	F 1	46	39	✓	✓
189 & 190	SE	GF	41	34	✓	☐
189 & 190	SE	F 1	44	37	✓	✓
189 & 190	SE	GF	41	34	✓	☐
189 & 190	SE	F 1	43	37	✓	✓
189 & 190	NE	GF	45	38	✓	☐
189 & 190	NE	F 1	47	40	✓	✓
191	NE	GF	44	37	✓	☐
191	NE	F 1	46	39	✓	✓
191	NE	GF	45	38	✓	☐
191	NE	F 1	46	39	✓	✓
191	NW	GF	48	41	✓	☐
191	NW	F 1	50	43	✓	✓
191	SE	GF	39	33	✓	☐
191	SE	F 1	42	36	✓	✓
191	SW	GF	46	39	✓	☐
191	SW	F 1	48	41	✓	✓
191	SE	GF	39	32	✓	☐
191	SE	F 1	42	35	✓	✓
191	SW	GF	41	34	✓	☐
191	SW	F 1	44	37	✓	✓
KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor						

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
192	SW	GF	43	36	✓	☐
192	SW	F 1	45	38	✓	✓
192	SE	GF	39	33	✓	☐
192	SE	F 1	42	35	✓	✓
192	NW	GF	45	38	✓	☐
192	NW	F 1	47	40	✓	✓
192	NE	GF	44	37	✓	☐
192	NE	F 1	46	39	✓	✓
193	NE	GF	44	37	✓	☐
193	NE	F 1	45	38	✓	✓
193	NW	GF	45	38	✓	☐
193	NW	F 1	47	40	✓	✓
193	SW	GF	42	35	✓	☐
193	SW	F 1	46	39	✓	✓
193	SE	GF	39	33	✓	☐
193	SE	F 1	42	36	✓	✓
194	SW	GF	48	41	✓	☐
194	SW	F 1	50	43	✓	✓
194	NE	GF	42	35	✓	☐
194	NE	F 1	45	38	✓	✓
194	SE	GF	42	35	✓	☐
194	SE	F 1	44	37	✓	✓
194	NW	GF	43	36	✓	☐
194	NW	F 1	45	38	✓	✓
194	NE	GF	42	35	✓	☐
194	NE	F 1	45	38	✓	✓
194	SW	GF	48	41	✓	☐
194	SW	F 1	50	43	☐	✓
195	NE	GF	44	37	✓	☐
195	NE	F 1	46	39	✓	✓
195	NW	GF	49	42	✓	☐
195	NW	F 1	51	43	☐	✓
195	SE	GF	39	33	✓	☐
195	SE	F 1	42	35	✓	✓
195	SW	GF	48	41	✓	☐
195	SW	F 1	50	43	☐	✓
195	SW	GF	48	41	✓	☐
195	SW	F 1	50	43	✓	✓
195	NE	GF	41	34	✓	☐
195	NE	F 1	44	37	✓	✓
195	SE	GF	43	36	✓	☐
195	SE	F 1	45	38	✓	✓
KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor						

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
196	SE	GF	39	33	✓	□
196	SE	F 1	42	35	✓	✓
196	SW	GF	43	36	✓	□
196	SW	F 1	45	38	✓	✓
196	NE	GF	43	37	✓	□
196	NE	F 1	45	38	✓	✓
196	NW	GF	42	36	✓	□
196	NW	F 1	45	38	✓	✓
197	SW	GF	41	34	✓	□
197	SW	F 1	45	38	✓	✓
197	NW	GF	43	36	✓	□
197	NW	F 1	46	39	✓	✓
197	SW	GF	43	36	✓	□
197	SW	F 1	45	38	✓	✓
197	SE	GF	40	33	✓	□
197	SE	F 1	42	35	✓	✓
197	NW	GF	43	36	✓	□
197	NW	F 1	46	39	✓	✓
197	NE	GF	43	36	✓	□
197	NE	F 1	45	38	✓	✓
197	NE	GF	43	36	✓	□
197	NE	F 1	45	38	✓	✓
198	NW	GF	42	36	✓	□
198	NW	F 1	44	38	✓	✓
198	NE	GF	42	35	✓	□
198	NE	F 1	44	37	✓	✓
198	SW	GF	48	41	✓	□
198	SW	F 1	49	42	✓	✓
198	SW	GF	48	41	✓	□
198	SW	F 1	49	42	✓	✓
198	SE	GF	40	34	✓	□
198	SE	F 1	42	36	✓	✓
198	NE	GF	43	36	✓	□
198	NE	F 1	45	38	✓	✓

KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor

Name	Façade Direction	Floor Level	Daytime (LrD)	Night Time (LrN)	Do the internal noise levels comply with BS8233 or WHO with an open window?	
			dB(A)		Day	Night
199	SE	GF	40	34	✓	☐
199	SE	F 1	43	36	✓	✓
199	SW	GF	48	41	✓	☐
199	SW	F 1	50	43	✓	✓
199	SW	GF	48	41	✓	☐
199	SW	F 1	50	43	✓	✓
199	NW	GF	48	41	✓	☐
199	NW	F 1	50	43	✓	✓
199	SE	GF	39	32	✓	☐
199	SE	F 1	42	35	✓	✓
199	NE	GF	40	33	✓	☐
199	NE	F 1	43	36	✓	✓
200	SE	GF	39	33	✓	☐
200	SE	F 1	42	35	✓	✓
200	NE	GF	42	35	✓	☐
200	NE	F 1	44	37	✓	✓
200	NW	GF	43	36	✓	☐
200	NW	F 1	45	38	✓	✓
200	SW	GF	42	36	✓	☐
200	SW	F 1	48	41	✓	✓
KEY: S = South, N = North, E = East, W = West, GF = Ground Floor and F 1 = First Floor						

Appendix 3 – Example windows

Glass Guide

- choosing the right type of glass



Creating solutions the Ideal way.

Glass guide

Choosing the right glass

Today's glass and window units have become so advanced that in addition to basic functions such as offering protection against weather, daylight and unwanted views, they also protect against fire, noise, sunlight and much more.

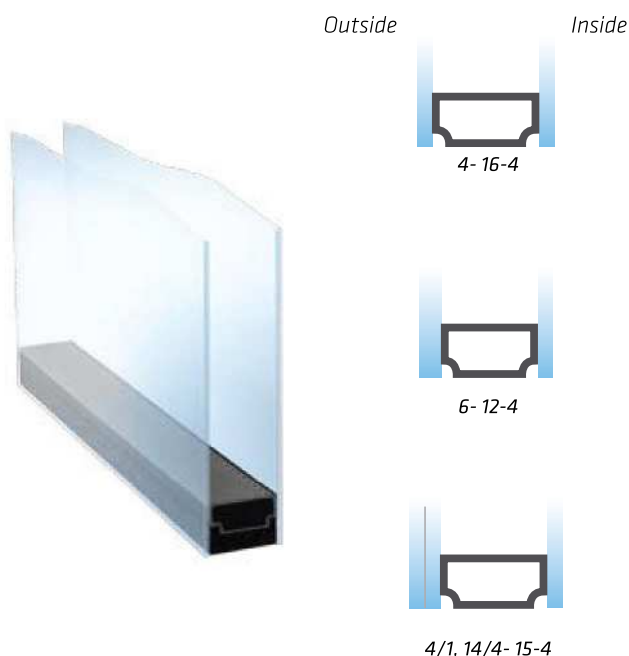
Standard units

Unit structure

Double glazing units are made up of two pieces of glass with a spacer.

The definition 4-15-4 means that the double glazing unit consists of a 4mm pane, a 15mm spacer and a 4mm pane. The first pane of glass is defined as glass layer 1 and is the exterior pane of glass, while the other pane is glass layer 2 and therefore the interior pane of glass (it follows that a three-layer triple glazing unit will have a third layer of glass).

Varying the thickness and number of panes, the width of the spacer, the types of coating/laminates and the type of air/gas in the cavity allows you to adjust the function of the glass. This makes it possible to create different types of glass which meet a variety of needs. It is also possible to combine specific features to create several functions in one unit.



Energy units

The heat loss from the building to the external environment has a significant impact on energy consumption making the insulation properties of the units important. The insulation properties of a unit are described as its Ug-value.

Energy units offer good insulation properties and excellent light transmission. Energy units improve the indoor climate by reducing cold down-draughts and cold radiation which minimises the need for heating and contributes to reduced heating bills and a better environment.

Warm edge

The distance between the two panes of glass in an energy unit is secured by a spacer. Spacers are usually made of aluminium or steel which produces an unwanted thermal bridge at the edge of the glass. Idealcombi A/S now introduces a warm edge design with a spacer made from a thermoplastic material.

The warm edge reduces the thermal bridge at the edge of the glass. This helps cut the total heat loss of the window, expressed as the Uw-value, which benefits both the environment and the heating bill. Using warm edge also raises the temperature along the edge of the glass which reduces the risk of internal condensation.

Improved look

The dark edge of the warm edge spacer gives the window a more harmonious look and eliminates much of the light reflection in the windows created by the shiny surface of steel spacers.

Facts

- Good insulation properties
- Lower Uw-value in the overall unit (whereas the Ug-value alone defines the insulation property of the glazing)
- Higher temperatures on the inner edge of the glass eliminates the risk of condensation
- More harmonious design
- No extra cost for customers

Idealcombi A/S uses warm edge as its standard spacer.



Abbreviations

Ug-value – Insulation property

The Ug-value is measured in the centre of the unit and is referred to as the centre point value.

The value is stated as: W/m^2K (Watt per $m^2 \times$ Kelvin).

A low figure means that the unit offers good protection against heat loss.

LT-value – Light transmission

The value is stated in percent expressing the amount of light which is admitted through the glass.

A high figure indicates a high degree of light transmission.

g-value - TST

(Total Solar Energy Transmittance or Solar Energy Transmission)

The value is stated in percent expressing the amount of solar energy (thermal energy) which is admitted through the glass.

A high figure indicates a large admittance of solar energy.

LRout - Outward light reflection

Reflection is stated in percent as the part of the light which is reflected outward. (For comparison inward reflection is stated as LRin)

A high figure indicates major reflection when viewed from outside.

Tuv- Transmission of ultraviolet radiation

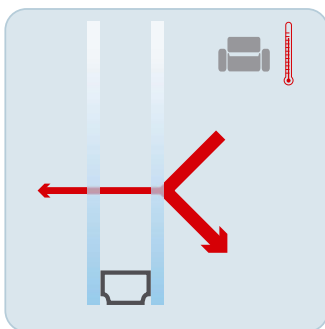
Transmission is stated in percent as the part of the sun's ultraviolet rays which is admitted through the glass.

A low figure indicates that the uv-rays have a low impact on objects inside the building which minimises fading.

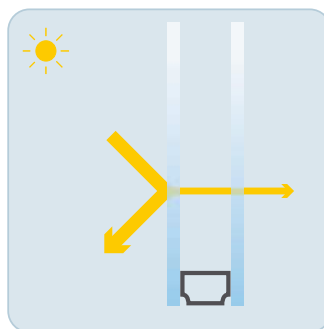
Rw dB – Sound reduction

Reduction is stated in decibel and describes the glass' ability to reduce discomforting noise.

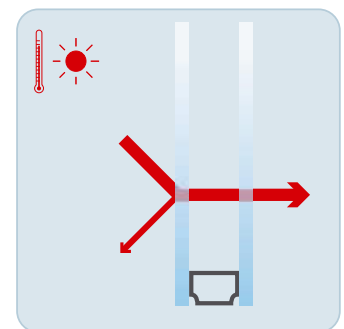
A high figure indicates a high degree of sound reduction. The figure is not calculated as a percentage reduction, but as a fixed figure in relation to the structure of the unit.



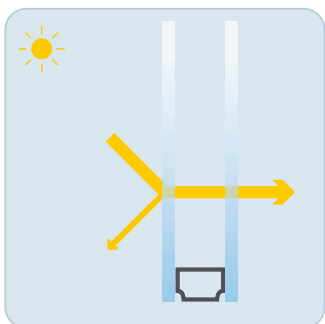
Ug.value



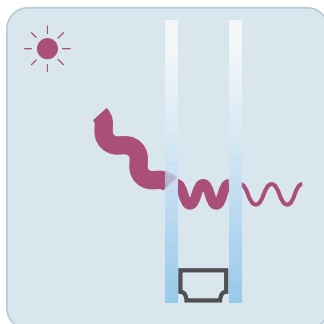
LT-value



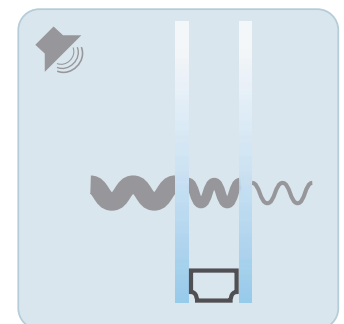
g-value



LRout-value



Tuv-value



Rw dB-value

Glass guide

Solar reflective glass

Solar reflective glass reduces the amount of thermal energy and/or light which is admitted through the unit. This type of glass is often used for large surfaces where the aim is to make full use of the sunlight while at the same time keeping out the solar heat. In other cases both the sun and the heat is kept out.

The g-value is the amount of the sun's thermal energy which the glass allows to pass into a room. The transmission of daylight is called the LT-value.

Solar reflective glass is available in a variety of options; colour neutral, coloured and with various degrees of reflection. All these factors determine the amount of light and heat which is admitted through the glass. If you choose solar reflective glass for aesthetic reasons the design is entirely up to you. In all other cases it depends on how highly you value low solar energy transmission in relation to high light admittance.

Acoustic insulating glass

Acoustic insulating glass reduces uncomfortable noise from heavy traffic and regular city noise. It is the distance between the unit's individual glass panes and the panes' individual thickness that helps define the unit's acoustic insulating properties.

When selecting the right type of acoustic glass, it is important to determine the source of the noise you want to reduce.

The acoustic insulation of the unit is stated in decibel, R_w , as a sound reduction figure. The figure indicates by how many decibel the unit reduces external noise – depending on the source of the noise. It is also important to keep in mind that R_w is a weighted value representing the entire sound frequency spectrum. Different sounds represent different frequencies in the spectrum. The R_w -value is consequently a mere base for the calculation of the actual reduction of any given noise.

Facts

Solar reflective glass absorbs a lot of solar energy. This is why the glass is toughened to eliminate the risk of thermal fractures.



Facts

The thicker the glass, the better the sound reduction
Glass of various thicknesses boosts sound reduction
The larger the distance between the panes, the better the sound reduction

Here are some examples of noise levels:

Whisper	30 dB
Speech	40-60 dB
Vacuum cleaner	65-75 dB
Car	70-80 dB
Truck	80-90 dB
Air hammer drill	90-110 dB
Jet plane	110-130 dB

Design glass

Design glass can either be patterned and cast, clear or coloured with varying degrees of light transmission and vision control.

The texture or surface of design glass is created using techniques such as embossing, matt grinding, etching, sandblasting or matt lamination. Each of these methods create their own look. Matt grinding produces an effect similar to etching, yet avoids the use of environmentally harmful chemicals.

Design glass is suitable for uses where the blocking of visibility or unwanted views is desired and for creating special and decorative effects.

Idealcombi A/S offers a wide range of different design glass types. Below you can see a selection of our most common glass types with different textures and patterns and visibility options.

Cotswold



Clear Glass C



Sahara/520



Satinato



Matt laminate



Mastercarre



Masterligne



Masterpoint



Safety glass

Personal safety

Safety glass is intended to prevent or minimise the risk of injury in case of human impact.

In places where people can come into contact with both sides of the pane through accidental impact, the requirement for safety glass extends to both layers of glass.

Safety glass is available as laminated and toughened glass both providing increased impact protection.

The plastic film in laminated glass holds the glass pieces together thus preventing serious injury.

When toughened glass breaks, it shatters into many small blunt pieces which reduces the risk of serious injury.

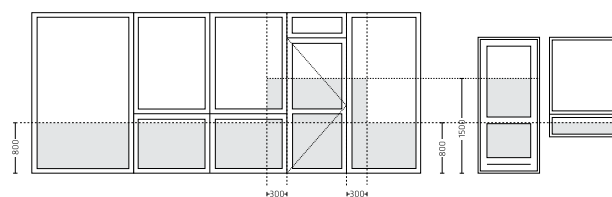
Laminated glass

Laminated glass is a combination of two or more layers of glass with an interlayer of plastic film. The glass is heated until the plastic film melts and bonds with the glass forming a transparent pane.

Toughened glass

Toughened glass is heated to very high temperatures creating compressive stress in the surface of the glass. The treatment makes the glass able to withstand severe impacts such as kicking or people tripping and hitting the glass.

Facts



Always choose personal safety glass if part of the unit is placed less than 1.50 metres above the floor in doors and door side-lights and access points.

The same applies to other risk areas where the unit is placed less than 0.8 metres above a particular surface. Guidelines for safety glass are described in BS 6206:1981 and BS 6262-4:1994.



Glass guide

Security glass

Burglary and vandalism

Security glass is intended to prevent or delay passage through the unit following a physical attack.

Security glass can offer protection against vandalism committed using objects such as hammers, axes and bricks or falling material, against planned intrusion (such as burglary) and against gunfire attacks (bullet-proof glass).

Security glass is made from laminated glass or glass which is both laminated and toughened.

Whether you should choose laminated security glass or security glass which is both laminated and toughened depends on what the glass should protect against and how effective the protection should be.

The thickness and number of glass panes as well as the type of film used determine the resistance of the security glass. Several layers of glass with a thicker film provide higher breaking resistance.

Facts

The requirements for security glass are always equal to laminated glass. The thicker the glass and film and the more layers, the more effective the protection.

Security glass against manual attack is classified in accordance with BS EN 356:2002

Security glass against bullet attack is classified in accordance with BS EN 1063:2000.



Facade glass

Facade glass for spandrels is used for various purposes on large external surfaces. It can also be used between floors and on surfaces where a blocking of the view is required.

Idealcombi A/S can supply facade glass as single glazing units or as double glazing units for spandrels.

Facade glass can be divided into three visual functions:

- Matching facades
- Look-a-like facades
- Contrast facades

Matching facades, if you want a calm and harmonious relationship with facade materials such as windows and spandrels. Usually enamelled or silk-printed glass is used.

Look-a-like facades, if you want optimum similarity in the reflection of facade glass and double glazing units. Coated glass types are normally used for these types of facades.

Contrast facades, if you want to create a contrast between facade glass and double glazing units. This can be done using coloured glass in various combinations of colour for a mosaic effect. Enamelled glass is typically used here.

Facts

"Look-a-like" facades

In order to produce reflection, the area behind the glass must be darker than the area in front of the glass.

The greater the difference in light on the inside/outside, the greater the reflection in the windows.

Look-a-like therefor occurs in the daytime – in the evening light conditions change and the reflection is reduced or disappears.



Units with integrated blind

Units with integrated blind are a combination of a double glazing unit and a Venetian blind.

The blind is sandwiched between two layers of glass and is isolated from the inside as well as the outside environment. The blind is operated by a single cord which both turns the strips and draws them up and down, depending on the type of blind.

The blind provides effective protection against solar heat. If kept shut completely, it works just like the third layer of a triple glazing unit.

Units with integrated blinds also have the advantage of being able to partially or completely block unwanted views whenever desired.

The blind requires no cleaning, is hygienic and suitable for use in for instance hospitals and surgeries.

It also saves energy for heating, air conditioning and maintenance/repairs of an external or internal blind.

Facts

- Shields against sunlight
- Shields against heat
- No cleaning
- Saves energy for heating and air-conditioning



Fire protective glass

Fire protective glass must provide efficient protection against flames and fumes. Certain types of fire protective glass can also reduce or stop the direct radiation heat and provide effective insulation. Ideal-combi A/S' fire protective glass can do just that.

The more layers of fire protective material, the longer it takes for the fire to penetrate the glass and the slower the rise in temperature on the other side of the glass. This is why it is a good idea to choose fire protective glass with at least three interlayers of protective material. Particularly for situations where radiation heat may set material on the other side of the glass on fire, or in situations where you want to secure an escape route.

Facts

The fire penetration time is directly proportional to the number of fire protective interlayers.

Reducing radiation heat prolongs the clearance period, minimises the spread of the fire and the cost of fire damage.

Fire protective glass is classified in accordance with BS EN 357:2001.

The total glass/window structure, i.e. the glass, the glass fitting method, the frame/sash design and mounting system must be approved by proper authorities in order to meet the classification requirements in the various fire classes.



Glass guide

Clear demands on function

When choosing the right type of glass you will probably have to consider many – and perhaps even conflicting – requirements and wishes.

The most common requirements are for:

- A low Ug-value, as it provides good insulation, reduced energy consumption and a high surface temperature resulting in less cold down-draughts and cold radiation.
- Light transmission which is defined according to the need for admitting a lot of daylight or for keeping it out. You may either want a very natural light which also reduces the cost of artificial lighting or you may want to prevent reflections in for instance computer screens.
- Solar energy transmission which is defined according to the need for a high thermal energy admittance versus a low thermal energy admittance. A high thermal energy admittance reduces heating costs while a low thermal energy admittance prevents for instance large offices from becoming too hot and also reduces air-conditioning costs.

Preferably, a window solution should be able to satisfy all three requirements, with the highest values possible while at the same time considering the reflection, colour and appearance of the pane.

The checklist can give you an idea of your options and the requirements you may have for the glass when choosing a window.

Warranties on glass, see pages 248-249.

Define:

- ☐ Insulation properties, Ug-value
- ☐ Light transmission, LT-value
- ☐ Solar energy transmission, g-value
- ☐ Fire protection
- ☐ Noise control
- ☐ Personal safety
- ☐ Security class
- ☐ Aesthetics



Tables

Energy units

Glazing	Composition	Dim.	Gas	Ug-value	LT %	g %	LR _{out} %	Rw (C;Ctr)dB
IC Low-E	4-16-4 (S3)	24	Argon	1,13	80	61	13	29 (-1;-4)
IC Low-E	6-14-4 (S3)	24	Argon	1,2	79	59	13	35 (-1;-5)
IC Low-E	6-12-6 (S3)	24	Argon	1,3	78	59	13	31 (-1;-4)
IC Low-E	8-12-4 (S3)	24	Argon	1,3	78	57	12	36 (-2;-5)
IC Low-E	4-20-4 (S3)	28	Argon	1,15	80	61	13	*
IC Low-E	6-18-4 (S3)	28	Argon	1,1	79	59	13	36 (-2;-5)
IC Low-E	6-16-6 (S3)	28	Argon	1,1	78	59	13	31 (-1;-4)
IC Low-E	8-16-4 (S3)	28	Argon	1,1	78	57	12	37 (-2;-6)
IC Low-E	4-22-4 (S3)	30	Argon	1,2	79	61	13	*
IC Low-E	6-20-4 (S3)	30	Argon	1,1	79	59	13	37 (-1;-5)
IC Low-E	6-18-6 (S3)	30	Argon	1,1	78	59	13	*
IC Low-E	8-18-4 (S3)	30	Argon	1,1	77	57	12	*
IC Low-E	4-24-4 (S3)	32	Argon	1,17	80	61	13	*
IC Low-E	6-22-4 (S3)	32	Argon	1,2	79	59	13	*
IC Low-E	6-20-6 (S3)	32	Argon	1,1	78	59	13	*
IC Low-E	8-20-4 (S3)	32	Argon	1,1	78	57	12	37 (-3;-7)
IC Low-E	4-10-4-10-4 (2xS3)	32	Argon	0,8	71	50	18	*
IC Low-E	4-10-4-10-4 (2xS3)	32	Krypton	0,6	71	50	18	*
IC Low-E	6-24-6 (S3)	36	Argon	1,2	78	59	13	*
IC Low-E	8-24-4 (S3)	36	Argon	1,2	78	57	12	37 (-3;-7)
IC Low-E	4-12-4-12-4 (2xS3)	36	Argon	0,7	71	50	18	*
IC Low-E	4-12-4-12-4 (2xS3)	36	Krypton	0,5	71	50	18	
IC Low-E	4-14-4-14-4 (S3)	40	Argon	0,6	71	50	18	*
IC Low-E	6-12-4-12-6 (S3)	40	Krypton	0,5	70	49	18	*

* No data available for this type of glazing.

Solar reflective glass

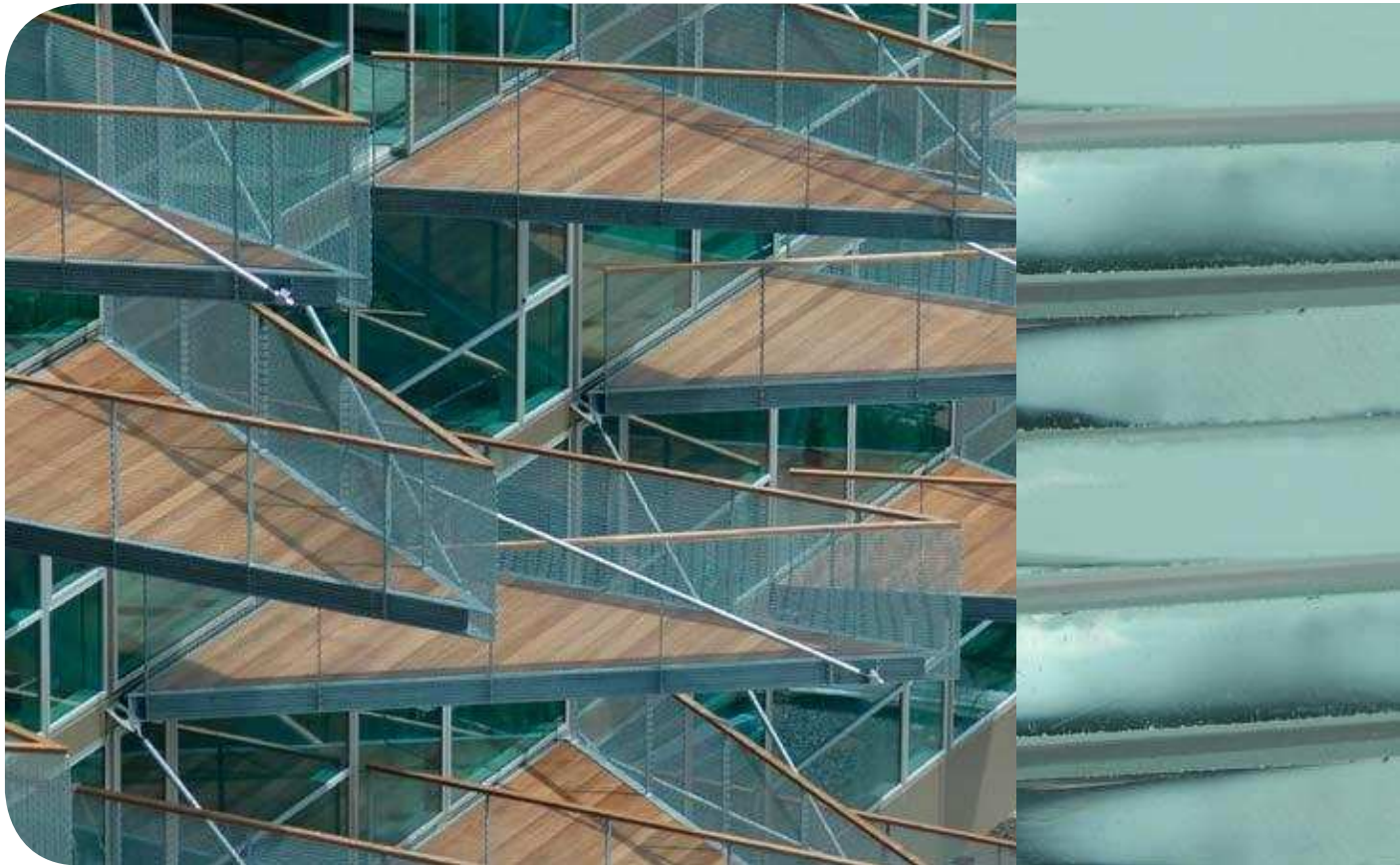
Glazing	Composition	Dim.	Gas	Ug-value	LT %	g %	LR _{out} %	Rw (C;Ctr)dB
Suncool 70/40	6-14-4	24	Argon	1,2	71	43	10	35 (-1;-5)
Suncool 70/40	6-12-6	24	Argon	1,3	70	43	10	31 (-1;-4)
Suncool 70/40	6-18-4	28	Argon	1,1	71	43	10	36 (-2;-5)
Suncool 70/40	6-16-6	28	Argon	1,1	70	43	10	31 (-1;-4)
Suncool 70/40	6-20-4	30	Argon	1,2	71	43	10	37 (-1;-5)
Suncool 70/40	6-18-6	30	Argon	1,1	70	43	10	*
Suncool 70/40	6-22-4	32	Argon	1,2	71	43	10	*
Suncool 70/40	6-20-6	32	Argon	1,2	70	43	10	*
Suncool 70/40	6-24-6	36	Argon	1,2	70	43	10	*
Suncool 70/40	6-12-4-12-6 (S3)	40	Krypton	0,5	63	38	13	*
Suncool 66/33	6-14-4	24	Argon	1,1	66	36	15	35 (-1;-5)
Suncool 66/33	6-12-6	24	Argon	1,2	65	36	15	31 (-1;-4)
Suncool 66/33	6-18-4	28	Argon	1,1	66	36	15	36 (-2;-5)
Suncool 66/33	6-16-6	28	Argon	1,1	65	36	15	31 (-1;-4)
Suncool 66/33	6-20-4	30	Argon	1,1	66	36	15	37 (-1;-5)
Suncool 66/33	6-18-6	30	Argon	1,1	65	36	15	*
Suncool 66/33	6-22-4	32	Argon	1,1	66	36	15	*
Suncool 66/33	6-20-6	32	Argon	1,1	66	36	15	*
Suncool 66/33	6-24-6	36	Argon	1,1	65	36	15	*
Suncool 66/33	6-12-4-12-6 (S3)	40	Krypton	0,5	58	32	18	*
Suncool 50/25	6-14-4	24	Argon	1,1	50	27	18	35 (-1;-5)
Suncool 50/25	6-12-6	24	Argon	1,2	49	28	18	31 (-1;-4)
Suncool 50/25	6-18-4	28	Argon	1,1	50	27	18	36 (-2;-5)
Suncool 50/25	6-16-6	28	Argon	1,1	49	27	18	31 (-1;-4)
Suncool 50/25	6-20-4	30	Argon	1,1	50	27	18	37 (-1;-5)
Suncool 50/25	6-18-6	30	Argon	1,1	49	27	18	*
Suncool 50/25	6-22-4	32	Argon	1,1	50	27	18	*
Suncool 50/25	6-20-6	32	Argon	1,1	49	27	18	*
Suncool 50/25	6-24-6	36	Argon	1,1	49	27	18	*
Suncool 50/25	6-12-4-12-6 (S3)	40	Krypton	0,5	44	24	20	*
Cool-lite SKN 178	6-14-4	24	Argon	1,2	70	41	12	35 (-1;-5)
Cool-lite SKN 178	6-12-6	24	Argon	1,3	69	41	12	31 (-1;-4)
Cool-lite SKN 178	6-18-4	28	Argon	1,1	70	41	12	36 (-2;-5)
Cool-lite SKN 178	6-16-6	28	Argon	1,1	69	41	12	31 (-1;-4)
Cool-lite SKN 178	6-20-4	30	Argon	1,1	70	41	12	37 (-1;-5)
Cool-lite SKN 178	6-18-6	30	Argon	1,1	69	41	12	*
Cool-lite SKN 178	6-22-4	32	Argon	1,2	70	41	12	*
Cool-lite SKN 178	6-20-6	32	Argon	1,1	69	41	12	*
Cool-lite SKN 178	6-24-6	36	Argon	1,2	69	41	12	*
Cool-lite SKN 178	6-12-4-12-6 (S3)	40	Krypton	0,5	62	37	14	*

Safety glass

Glazing	Composition**	Dim.	Gas	Ug-value	LT %	g %	LR _{out} %	Rw (C;Ctr)dB
IC SAFETY	6.4-14-4	24	Argon	1,1	78	57	12	*
IC SAFETY	6.4-12-6.4	24	Argon	1,3	73	54	14	*
IC SAFETY	6.4-18-4	28	Argon	1,1	78	57	12	*
IC SAFETY	6.4-16-6.4	28	Argon	1,1	73	54	14	*
IC SAFETY	6.4-20-4	30	Argon	1,1	78	57	12	*
IC SAFETY	6.4-18-6.4	30	Argon	1,1	73	54	14	*
IC SAFETY	6.4-22-4	32	Argon	1,2	78	57	12	*
IC SAFETY	6.4-20-6.4	32	Argon	1,1	73	54	14	*
IC SAFETY	6.4-12-4-10-4	36	Argon	0,8	66	43	17	*
IC SAFETY	6.4-10-4-10-6.4	36	Argon	0,8	62	42	18	*
IC SAFETY	6.4-14-4-12-4	40	Argon	0,7	66	43	17	*
IC SAFETY	6.4-12-4-12-6.4	40	Argon	0,7	62	42	18	*

* No data available for this type of glazing.

** Super low-energy coating on the inner pane



Choosing the right glass

This guide provides a short introduction to the design of double glazing units as well as simple explanations of glass terminology. The guide also includes tables with specifications for some of our most popular units such as energy glass, solar reflective glass, design glass, facade glass, safety glass, fire protective glass and units with integrated blind.

