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**Report No 8550 (3820 R3)**

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## **PPG24 Noise Report:**

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# **Campion House, Thornbury Rd, Isleworth**

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For: Linden Homes

17/10/2009

MEADOW VIEW, NEWNHAM GROUNDS, KINGS NEWNHAM LANE, BRETTFORD, WARKS CV23 0JU

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## 1.0 Object

The object of this report is to present the findings of a noise survey carried out at the proposed development site at Campion House, Thornbury Rd, Isleworth by Acoustic Design Consultants 27<sup>th</sup> & 28<sup>th</sup> July 2006 to assess aircraft noise affecting the site.

## 2.0 Scope

The scope of this report is as follows:

- 1) Presentation of survey findings
- 2) Presentation of acoustic findings and comparison with recommended internal criteria.
- 3) Recommendations for glazing specification in conjunction with the use of living areas and bedrooms.

## 3.0 Survey

The measurement exercise was carried out to collect noise data over a 24 hour time period at the nearest affected façade. The monitoring position was chosen to represent the proposed properties on the development and was at roof top level. The monitoring position is detailed in the Site Plan in the Appendix to Acoustic Design Consultants Report NoADC/8071/JT Dated 30<sup>th</sup> July 2006.

## 4.0 Measurements

During the survey recordings were made which were subsequently analysed into hourly periods.

The following measurements were carried out:

$L_{Aeq,1hr}$  ,

The measurements and their interpretation shall be in accordance with BS 7445: Parts 1, 2, and 3.

All sound pressure levels are in dB re 20 micro pascals.

## 5.0 Discussion of Results

### Proposed Development Position:

Table 1 shows the free field noise levels recorded over the 24-hour period.

The daytime 16 hour free field level is measured as 65.0dB.

The night-time 8 hour free field level is calculated as 62.0dB

### Aircraft Noise

Because the aircraft noise is the dominant noise source on site the criteria for air traffic in the PPG 24 document is selected. This is detailed in the Table below.

The planning Policy Guidance document divides the noise to be analysed into four categories A, B, C, and D with a further division between nighttime (2300-0700hrs) and daytime (0700-2300hrs) periods.

PPG 24 - NOISE LEVELS CORRESPONDING TO THE NOISE EXPOSURE CATEGORIES FOR NEW DWELLINGS LAEQ,T DB				
NOISE SOURCE	NOISE EXPOSURE CATEGORY			
	A	B	C	D
Air Traffic				
0700-2300	<55	57 - 66	66 - 72	>72
2300-0700	<48	48 - 57	57 - 66	>66

**Proposed Facade Position:** The site is categorised as NEC C for night time & NEC B for day time.

The guidance states:

**NEC B:** "Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise."

**NEC C:** "Planning permission should not normally be granted. Where it is considered that permission should be given, for example because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise."

### Internal Noise:

**Internal Criteria** – This is taken from Table 5 on p19 of BS8233:1999. It is based on the “reasonable” standards.

**Living Rooms** – 40dB L<sub>Aeq,16hr</sub>

**Bedrooms** – 35dB L<sub>Aeq,8hr</sub>

### Night Time – LAeq - Proposed Facade Position:

If the LAeq for night-time levels is 62dB the simple BS8233 glazing selection procedure is detailed in Table 2 “Internal noise criteria & Glazing Options”.

62 – 35 = 27dB(A) LAeq: Required Glazing Performance

The Glazing Specification based on this criterion would be 4.12.4 Double Glazing = 27dB R<sub>AIR</sub><sup>1</sup>

This glazing selection is within the “reasonable” criteria when referenced to BS8233: 1999 for bedrooms with “windows closed”.

### Day Time – LAeq : Proposed Facade Position:

If the LAeq for day-time levels is 65dB the simple BS8233 glazing selection procedure is detailed in Table 2 “Internal noise criteria & Glazing Options”.

65 – 40 = 25dB(A) LAeq: Required Glazing Performance

The Glazing Specification based on this criterion would be 4.12.4 Double Glazing = 27dB R<sub>AIR</sub><sup>2</sup>

This glazing selection is within the “reasonable” criteria when referenced to BS8233: 1999 for bedrooms with “windows closed”.

## **6.0 Conclusion**

The site is classed as NEC B for daytime and NEC C for night time.

In line with Local Authority requirements noise mitigation should be provided to ensure recommended internal criteria are met. This can take the form of a glazing option which in the worst case conditions can be defined for Living Room and Bedroom internal criteria.

<sup>1</sup> Glazing Performance related to traffic noise spectra. R AIR = R TRA + 2dB

<sup>2</sup> Glazing Performance related to traffic noise spectra. R AIR = R TRA + 2dB

## 7.0 Recommendations

### Aircraft Noise

#### Proposed Facade Position:

Glazing: Bedrooms: provide glazing configuration of 4.12.4 Double Glazing (or glazing that performs to a MINIMUM standard of 27dB R<sub>AIR</sub> - Equivalent to 25dB R TRA)

Living Rooms provide glazing configuration of 4.12.4 double glazing (or glazing that performs to a MINIMUM standard of 27dB R<sub>AIR</sub> Equivalent to 25dB R TRA)

Windows must remain closed to achieve internal design criteria. See Site Plan in Appendix for the glazing extent.

All other rooms : Provide glazing above or equal to (4.12.4 double-glazing).

To ensure the acoustic specification of the proposed glazing treatment is not compromised we recommend that suitable acoustic Ventilators are fitted to achieve internal ventilation requirements of the building regulations.

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Noise & Vibration Consultant.

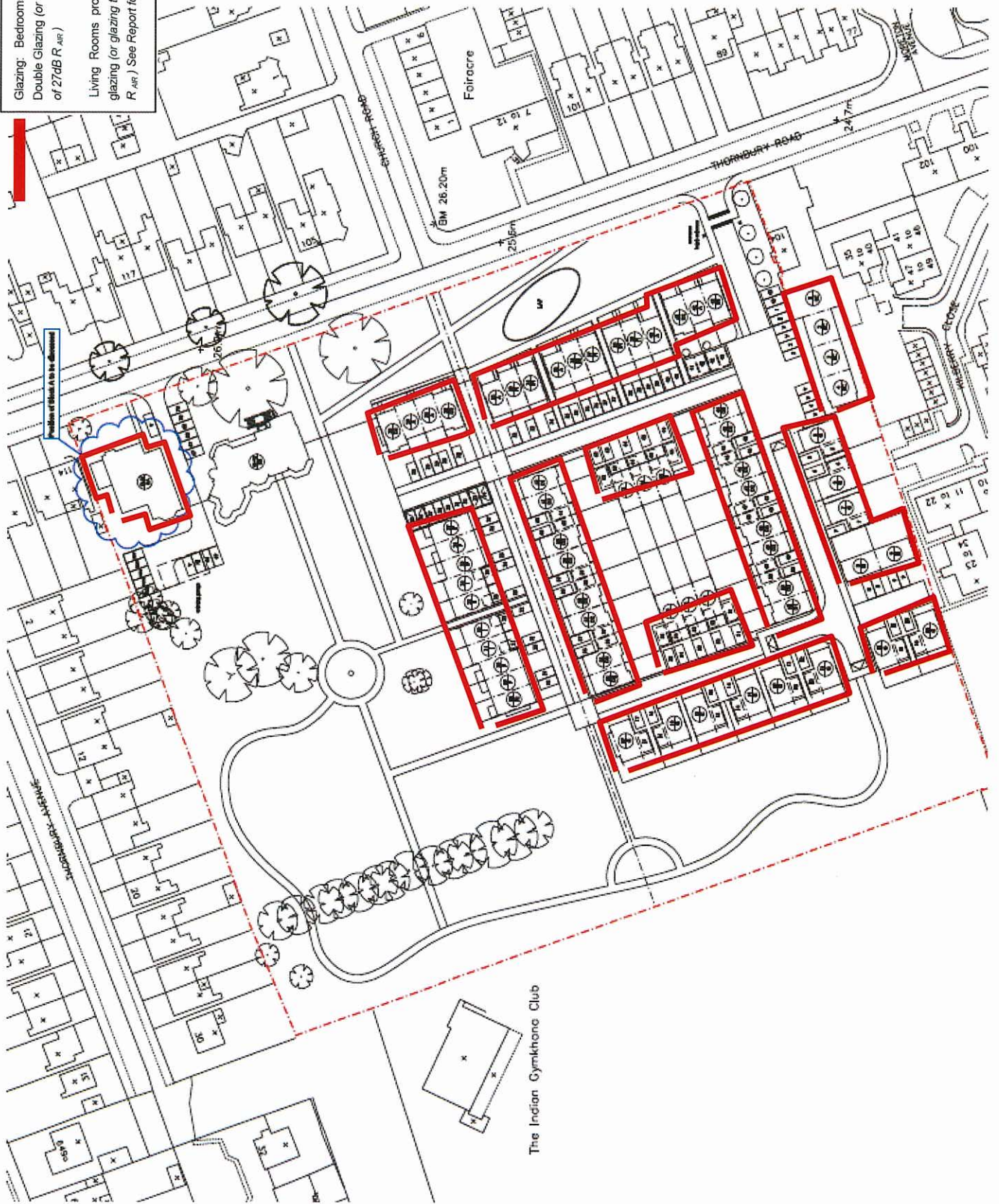
# Appendix

Glazing: Bedrooms: provide glazing configuration of 4.12.4 Double Glazing (or glazing that performs to a MINIMUM standard of 27dB R<sub>AF</sub>)

Living Rooms provide glazing configuration of 4.12.4 double glazing (or glazing that performs to a MINIMUM standard of 27dB R<sub>AF</sub>) See Report for comparison with R<sub>714</sub> performance

Proposed Site Layout -  
Campion House Site:

Drg No 002 - 25/2/2009



The Indian Gymkhana Club

## **Table 1**

Development Site Campion House, Thornbury Rd Isleworth - ADC Noise Survey Data - Position No1

Survey Date: 27th-28th July 2006

All readings sound pressure levels

Hour End	Measured Levels dB LAeq	Façade Correction dB	Free Field dB LAeq
17:00:00	70.5	0	70.5
18:00:00	70.1	0	70.1
19:00:00	63.5	0	63.5
20:00:00	55.3	0	55.3
21:00:00	55.2	0	55.2
22:00:00	55.1	0	55.1
23:00:00	54.2	0	54.2
00:00:00	51.4	0	51.4
01:00:00	50.0	0	50.0
02:00:00	47.5	0	47.5
03:00:00	46.5	0	46.5
04:00:00	49.2	0	49.2
05:00:00	56.9	0	56.9
06:00:00	67.9	0	67.9
07:00:00	66.6	0	66.6
08:00:00	65.1	0	65.1
09:00:00	65.0	0	65.0
10:00:00	64.9	0	64.9
11:00:00	66.0	0	66.0
12:00:00	64.8	0	64.8
13:00:00	65.5	0	65.5
14:00:00	64.7	0	64.7
15:00:00	52.6	0	52.6
16:00:00	54.5	0	54.5

### PPG 24 Aircraft Noise NEC Calculation

		NEC
Daytime	<b>65</b>	<b>B</b>
Night time	<b>62</b>	<b>C</b>

## Table 2 - Internal Noise Criteria & Glazing Options

Development Site: Campion House, Thornbury Rd Isleworth - ADC Noise Survey Data - Position No1  
 Survey Date: 27th-28th July 2006

### Assumptions

Night time 2300 - 0700hrs / Day 0700-2300hrs (worst case condition)  
 Assume aircraft noise dominant

BS8233: 1999

Bedroom Criteria LAeq, T -30dBA "Good" - 35dBA "Reasonable"  
 Living Rooms Criteria LAeq, T - 30dBA "Good" - 40dBA "Reasonable"

$R_{AIR} = R_{TRA} + 2$  Pilkington Glass & Noise Control "Technical Bulletin": Design Guide p16

Double Glazing	$R_{AIR}$	$R_{TRA}$
4.12.4	27	25
6.12.6	28	26
6.12.6.4pvb	29	27
10.12.4	31	29
10.12.6	34	32
10.12.6.4pvb	36	34
Secondary Glazing		
6.100.4 Secondary	39	37
6.150.4 Secondary	41	39
10.200.6 Secondary	47	45

Internal Criteria: Calculation for Acoustic Glazing

Noise Level at Property dB(A)

Desired Internal Level

Required Glazing Performance  $R_{AIR}$

### Glazing Selection

Specification of Glazing

Bedrooms

Living Rooms

4.12.4

4.12.4

Selected Glazing

Performance dB  $R_{AIR}$

27

27

**note:** windows must remain closed to ensure compliance with internal design criteria

Type in Noise Levels Here  
 Worst Case Noise Levels

Night  
 LAeq  
 62

Day  
 LAeq  
 65

Barrier Performance dB(A)  
 From barrier Calc Sheet  
 if Applicable

0

### Calculation

62

35

27

4.12.4

65

40

25

4.12.4

### Predicted Maximum Internal Levels with Glazing Selected

Night LAeq

35

Day LAeq

38

### Tables 1-3 Sound Insulation Data for a Variety of Glazings

(No contribution from wall)

In addition to the full thirdoctaveband sound insulation spectra, corresponding octaveband equivalent values are given in adjacent columns. Pilkington AUDIOSCREEN is a special acoustic laminate.

Table 1 - Single Glazing

Thirdoctaveband Centre Frequency (Hz)	Sound Insulation (dB) for Glass Thickness (mm)																	
						Pilkington AUDIOSCREEN												
	4	6	10	19	6.4 PVB	7	9	11	13	17								
100	17		18	24	25	18	23	25	26	27	27	26	28					
125	23	20	22	26	26	22	26	27	29	27	30	29	28					
160	22		22	28	31	22	25	27	29		30		32					
200	21		22	26	31	22	26	28	29		31		31					
250	21	22	26	24	28	27	32	32	26	24	27	27	33	32				
315	24		26	29	29	35	26	28	30		32		33	34				
400	26		29	32	36	29	30	32	34		34		35	37				
500	29	28	31	34	34	38	31	31	34	34	36	36	37	37	39	39		
630	30		33	36	36	33	33	36	38		38		38	41				
800	32		34	37	37	35	34	35	37		39		40	42				
1000	34	33	36	35	36	35	38	37	36	35	36	36	38	38	40	44	43	
1250	34		36	33	33	44	36	39	39		40		40	41			45	
1600	36		32	33	33	44	36	39	41		41		40	40			46	
2000	36	34	26	29	38	36	47	46	34	33	40	40	38	38	40	44	41	
2500	31		30	41	41	50	31	40	40		38		37	41			38	
3150	25		34	43	52	35	38	37	37		42		45	45			42	
4000	31	28	37	36	44	44	55	54	39	38	36	38	41	40	45	44	46	45
R <sub>w</sub> (dB)	27		29	33	37	30	32	34	35	36	37	38	39	40	41	42	43	38
R <sub>w</sub> (dB)	30		32	36	40	33	36	37	38	39	40	41	42	43	44	45	46	41
R <sub>18,5</sub> (dBA)	25		28	32	35	29	31	33	34	35	36	37	38	39	40	41	42	36

Table 2 - Pilkington Insulating Units

Thirdoctaveband Centre Frequency (Hz)	Sound Insulation (dB) for Glass Thickness (mm)																					
						Pilkington AUDIOSCREEN																
	4/12/4	6/12/6	6/12/6.4 pvb	10/12/4	10/12/6	10/12/6.4 pvb	6/12/7	6/12/9	6/12/11	6/12/13	13/12/13											
100	25	17	19	23	27	27	26	24	26	26	27	27	29									
125	24	24	21	28	27	26	28	26	27	26	28	27	27	28								
160	23	22	21	26	24	26	26	25	26	26	26	26	29									
200	21	18	19	19	24	24	23	24	24	24	24	24	33									
250	21	20	18	19	20	23	22	29	27	30	29	26	25	28	27	30	28	37	36			
315	19		24	26	31	32	31	32	34	34	36	36	37	37	37	37	39	39	39			
400	22		27	28	31	33	33	34	34	34	36	36	37	37	37	37	39	39	39			
500	25	25	29	32	31	33	33	34	34	34	36	36	37	37	37	37	39	39	45	45		
630	30		33	34	36	37	37	40	40	40	41	41	41	41	41	41	43	43	49	49		
800	33		37	38	39	39	39	41	41	41	41	41	41	41	41	41	43	43	52	52		
1000	36	35	39	40	41	40	41	40	42	41	43	43	45	45	45	45	46	46	52	52		
1250	38		39	40	41	41	41	41	41	41	45	45	46	46	46	46	46	46	52	52		
1600	40		39	39	41	41	41	41	41	41	45	45	45	45	45	45	46	46	50	50		
2000	41	38	34	36	35	37	45	43	37	38	42	42	45	46	45	46	42	44	42	44	51	52
2500	35		37	39	45	40	44	44	44	44	49	47	44	44	44	44	46	46	55	55		
3150	31		42	44	42	43	49	49	49	49	55	50	51	51	51	51	52	52	60	60		
4000	40	35	47	45	49	47	44	44	47	46	53	52	57	57	55	53	56	54	57	56	65	63
R <sub>w</sub> (dB)	29		30	31	34	34	36	36	37	37	38	38	39	40	40	41	42	43	44	44	44	44
R <sub>w</sub> (dB)	31		33	34	36	38	40	38	40	40	41	41	42	43	43	44	45	46	47	47	47	47
R <sub>18,5</sub> (dBA)	25		26	27	29	32	34	31	32	34	35	35	36	37	37	38	39	40	41	42	43	39

Table 3 - Double Windows (Secondary Sashes)

Thirdoctaveband Centre Frequency (Hz)	Sound Insulation (dB) for Glass Thickness (mm)					
	6/100/4	6/150/4	10/200/6			
100	25	27	32			
125	27	30	37	35		
160	33	34	45			
200	33	34	46	46		
250	33	34	46	46		
315	37	39	46	46		
400	41	42	47	47		
500	46	44	46	45	46	
630	50	50	45	45	45	
800	54	54	44	44	44	
1000	57	56	45	45	46	
1250	59	58	50	50	50	
1600	58	58	53	53	53	
2000	52	53	52	52	58	56
2500	51	49	58	58	58	58
3150	48	47	64	64	64	64
4000	57	52	64	65	64	65
R <sub>w</sub> (dB)	44	44	47	47	47	47
R <sub>w</sub> (dB)	46	47	49	49	49	49
R <sub>18,5</sub> (dBA)	37	39	45	45	45	45