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INTERNAL DAYLIGHT REPORT

Chatham Street, Reading

26 February 2021

A low-angle, upward-looking photograph of a modern building's exterior. The facade is composed of large glass panels and horizontal wooden slats. The sky is blue with scattered white clouds. The image is partially obscured by a large, dark grey geometric shape on the right side of the page.

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1. Introduction

- 1.1. This practice has been instructed to provide an assessment of the relevant amenity considerations for the proposed scheme at 115 Chatham Street Reading RG1 7JX.
- 1.2. There are no relevant neighbouring residential receptors such that our assessment has concentrated on the quality of daylight and sunlight levels within the proposed accommodation.
- 1.3. The methodology and criteria used for these assessments is provided by the Building Research Establishments guidance 'Site layout planning for daylight and sunlight: a guide to good practice' (BRE, 2011).

2. Guidance

Daylight for planning

Site layout planning for daylight and sunlight: a guide to good practice, BRE 2011

- 2.1. This document follows from previous guidance produced by Her Majesty's Stationary Office (HMSO) on daylight in the built environment and is now the accepted methodology used by local authorities for assessing daylight in relation to new developments. It provides methods for the calculation of daylight impacts of development upon existing surrounding properties and within proposed new dwellings.

Daylight Assessment

- 2.2. The Average Daylight Factor (ADF) assessment is prescribed the BRE guidance for the assessment of internal daylight levels within proposed units.
- 2.3. The ADF method calculates the average illuminance within a room as a proportion of the illuminance available to an unobstructed point outdoors under a sky of known luminance and luminance distribution. It considers the physical nature of the room behind the window, including the room sizing, glazing transmittance and surface reflectivity. The BRE guidelines / British Standard sets the following recommended ADF levels for habitable room uses:
 - 1% Bedrooms
 - 1.5% Living Rooms
 - 2.0% Kitchens
- 2.4. Whilst there is an aspiration for multi-purpose Living / Kitchen / Dining (LKD) spaces to achieve the 2.0% ADF target (as per a kitchen) these rooms are inherently larger than either standalone kitchens or living spaces. As such the living rooms are to be

considered in isolation, with the 1.5% ADF target for a 'living room' considered an appropriate target for these spaces, with the kitchen areas also benefitting from supplementary task lighting.

Policy Context

- 2.5. It is important to note that within urban centres achieving good levels of daylight in accordance with the BRE guidelines, can be weighed in the balance against other beneficial design factors.

- 2.6. The opening paragraphs of the BRE guidelines state: -

"The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and the document should not be seen as an instrument of planning policy. Its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of many factors in site layout design. In special circumstances the developer or planning authority may wish to use different target values. For example, in a historic city centre a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings".

- 2.7. The targets set out in the BRE document are very much 'guidelines' and they should be applied sensibly and flexibly based on the site-specific context of development.

National Planning Policy Framework, 2019

- 2.8. The NPPF makes it clear that daylight standards should be applied flexibly to optimise the land use of sites particular for securing housing delivery. Para 123 states that when consider housing schemes, local planning authorities should refuse applications which they consider fail to make efficient use of land, taking into account the policies in the NPPF. Para 123 further states that authorities should take a flexible approach in applying policies or guidance relating to daylight, where they would otherwise inhibit making efficient use of a site, subject to the resulting scheme providing acceptable living standards.

3. Assumptions

- 3.1. Architect's drawings and modelling, site photographs and Ordnance Survey information have been used to create a 3D computer model of the proposed development in the context of the existing site and surrounding buildings.
- 3.2. For the ADF assessment some of the inputs can be accurately quantified (room size and angle of obstruction and window size), but some need to be based upon assumptions that have been agreed with the architects. These are as follows:-
- Floor reflectance: 0.4 (wood – light veneers)
 - Reflectance : 0.81 (Pale cream - 10C31)
 - Ceiling reflectance: 0.85 (White – 00E55)

4. Sources of Information

Warner Surveys

022014-ARC-01 -08.02.21.dwg

Received 08/02/2021

DHA Architecture Ltd

Apartment Block - 11.02.21.dwg

Received 23/02/2021

EB7 Ltd

Site Photographs

Ordnance Survey

5. The Site and Proposal

- 5.1. The development site is situated in Reading and comprises commercial buildings and an associated surface car park fronting Chatham Road.
- 5.2. The proposed development is for the demolition of the existing buildings on site and erection of a 3 - 5 storey building to provide 54 residential units (Class C3). Provision of private and communal external amenity areas, car and cycle parking and refuse storage.

6. Internal Daylight Results

Daylight

- 6.1. The Average Daylight Factor (ADF) method described above has been used in this assessment to calculate the daylight within the proposal, using specialist software applied to 3D AutoCAD models.
- 6.2. Full results of the assessment and drawings showing the layouts of the proposed accommodation are attached within appendix 1.
- 6.3. The results indicate that 127 out of 133 (95%) rooms tested will satisfy or exceed their respective ADF target. This is considered to be an excellent level of compliance for a flatted scheme within an urban setting.
- 6.4. 77 (97%) of the 79 bedrooms tested will adhere to the recommended target of 1% ADF. The two bedrooms that do not adhere to the 1% ADF target achieve c.0.9%, which is a modest transgression and would not be noticeable to the occupants.
- 6.5. All (100%) of the four Studios tested will satisfy their ADF target of 1.5%.
- 6.6. 100% of the living rooms assessed will adhere to the 1.5% ADF target.
- 6.7. In terms of Living Kitchen Diners (LKD's), 44 (94%) of 48 LKDs tested will satisfy their ADF target of 1.5%. The remaining rooms have levels ranging between 1.3-1.4% ADF against the 1.5% target. This minor transgression of up to 0.2% is unlikely to be noticeable to the occupants. Moreover, a number of the rooms that fall marginally below the targets do so because of the effect of projecting balconies above the windows.
- 6.8. Balconies provide much-needed private amenity space, but are a common trade-off with internal daylight penetration to the room due to the of projection above the window below. This effect of balconies is recognised within the BRE guidance which encourages flexibility in such circumstances although, as noted, the deviation from the targets in this instance is exceptionally minor.
- 6.9. Overall, the scheme demonstrates an excellent level of compliance for an urban environment.

Sunlight

- 6.10. In respect of direct sunlight levels the focus of the BRE guidelines is on main living rooms that are oriented within 90 degrees of due south/.
- 6.11. The results show that all of the 27 (100%) relevant living rooms assessed will adhere to the Annual Probable Sunlight Hours target of 25% including 5% Winter Probable Sunlight Hours.

7. Conclusions

- 7.1. This practice has considered the potential amenity effects of the proposals at 115 Chatham Street, Reading RG1 7JX, based on the latest February 2021 DHA architects proposals for the site.
- 7.2. There are no relevant neighbouring residential receptors such that our assessment has concentrated on the quality of daylight and sunlight levels within the proposed accommodation. This has been assessed using the ADF assessment as recommended within the BRE Report 209 (2011) 'Site layout planning for daylight and sunlight – a guide to good practice'.
- 7.3. The results show that the scheme achieves a high level of daylight will be achieved for the vast majority of the habitable rooms, with an adherence rate of 95%. Deviations from the targets are very minor and predominantly affect rooms that are positioned below projecting balconies. There is a modest trade-off between the internal daylight levels and the provision of balcony amenity space. The overall amenity provision is however considered to be excellent and indicative of a well considered design,
- 7.4. The sunlight levels show that all of the relevant living rooms meet the recommended target of 25% APSH, with at least 5% in the winter.
- 7.5. Overall, the results show excellent levels of internal amenity for future occupiers. All rooms meet or only marginally fall below the BRE target levels and the scheme is therefore considered to adhere to all relevant planning policy.



Appendix 1

Results and drawings showing the layouts of the proposed accommodation



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Sources of information

Warner Surveys
022014-ARC-01 -08.02.21.dwg
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DHL Architecture Ltd
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Received 12/02/2021

022014 - Apartment Block - 23.02.21.dwg
Received 26/02/2021

EB7 Ltd
Site Photographs
Ordnance Survey



Project Chatham Street
Reading
RG1 7JE

Title Ground Floor
Room Layout

Drawn AP Checked --

Date 26/02/2021 Project 4443

Rel no. R04 Prefix ID01 Page no. 01



Sources of information

Warner Surveys
022014-ARC-01 -08.02.21.dwg
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DHL Architecture Ltd
Apartment Block - 11.02.21.dwg
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022014 - Apartment Block - 23.02.21.dwg
Received 26/02/2021

EB7 Ltd
Site Photographs
Ordnance Survey



Project Chatham Street
Reading
RG1 7JE

Title First and Second Floor
Room Layout

Drawn AP Checked --

Date 26/02/2021 Project 4443

Rel no. R04 Prefix ID01 Page no. 02



Sources of information

Warner Surveys
022014-ARC-01 -08.02.21.dwg
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DHL Architecture Ltd
Apartment Block - 11.02.21.dwg
Received 12/02/2021

022014 - Apartment Block - 23.02.21.dwg
Received 26/02/2021

EB7 Ltd
Site Photographs
Ordnance Survey



Project Chatham Street
Reading
RG1 7JE

Title Third Floor
Room Layout

Drawn AP Checked --

Date 26/02/2021 Project 4443

Rel no. R04 Prefix ID01 Page no. 03



Sources of information

Warner Surveys
022014-ARC-01 -08.02.21.dwg
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DHL Architecture Ltd
Apartment Block - 11.02.21.dwg
Received 12/02/2021

022014 - Apartment Block - 23.02.21.dwg
Received 26/02/2021

EB7 Ltd
Site Photographs
Ordnance Survey



Project Chatham Street
Reading
RG1 7JE

Title Fourth Floor
Room Layout

Drawn AP Checked --

Date 26/02/2021 Project 4443

Rel no. R04 Prefix ID01 Page no. 04

Floor	Room ID	Window ID	Room Use	VSC	ADF	TOTAL ADF	ROOM TOTAL APSH	ROOM WINTER APSH
Proposed								
Ground	R1	W1-L	LKD	35.43	0.3			
		W1-U	LKD	34.53	1.2			
		W2-L	LKD	36.55	0.0			
		W2-U	LKD	35.70	1.3			
		W3-L	LKD	37.02	0.0			
		W3-U	LKD	36.16	1.3	4.1		
Ground	R2	W4-L	Bedroom	34.49	0.2			
		W4-U	Bedroom	33.92	1.7	1.9		
Ground	R3	W5-L	Bedroom	37.73	0.4			
		W5-U	Bedroom	36.79	2.1	2.6		
Ground	R4	W6-L	LKD	37.77	0.1			
		W6-U	LKD	36.88	1.8			
		W7-L	LKD	37.77	0.1			
		W7-U	LKD	36.88	1.8	3.8		
Ground	R5	W8-L	Bedroom	34.49	0.2			
		W8-U	Bedroom	33.92	1.7	1.9		
Ground	R6	W9-L	Bedroom	37.92	0.5			
		W9-U	Bedroom	36.96	2.2			
		W10-L	Bedroom	13.12	0.1			
		W10-U	Bedroom	13.16	0.5	3.3		
Ground	R7	W11-L	Bedroom	34.45	0.1			
		W11-U	Bedroom	33.74	2.3	2.4		
Ground	R8	W12-L	LKD	35.14	0.0			
		W12-U	LKD	34.15	1.2			
		W13-L	LKD	29.16	0.2			
		W13-U	LKD	20.29	0.7			
		W14	LKD	0.00	0.0			
		W15	LKD	0.00	0.0	2.1		
Ground	R9	W17-L	Bedroom	5.18	0.1			
		W17-U	Bedroom	5.37	0.4			
		W18-L	Bedroom	3.68	0.1			
		W18-U	Bedroom	4.04	0.3	0.90		
Ground	R10	W17	LKD	0.00	0.0			
		W18	LKD	0.32	0.0			
		W19	LKD	22.15	0.9			
		W20-L	LKD	2.00	0.1			
		W20-U	LKD	1.74	0.3	1.3	28	17
Ground	R11	W21-L	Bedroom	8.37	0.4			
		W21-U	Bedroom	4.63	1.5	1.9		
Ground	R12	W22-L	LKD	14.35	0.0			
		W22-U	LKD	14.01	0.3			
		W23-L	LKD	20.84	0.1			
		W23-U	LKD	16.04	0.6			

Floor	Room ID	Window ID	Room Use	VSC	ADF	TOTAL ADF	ROOM TOTAL APSH	ROOM WINTER APSH
		W24-L	LKD	22.54	0.3	2.4	57	17
		W24-U	LKD	17.82	1.1			
Ground	R13	W25-L	Bedroom	25.82	0.0	1.6		
		W25-U	Bedroom	26.06	1.6			
Ground	R14	W26-L	Bedroom	26.41	0.0	1.7		
		W26-U	Bedroom	26.66	1.6			
Ground	R15	W27-L	LKD	24.02	0.3	2.2	45	22
		W27-U	LKD	19.27	1.2			
		W28-L	LKD	22.21	0.1			
		W28-U	LKD	16.48	0.6			
Ground	R16	W29-L	LKD	22.52	0.1	2.2	46	23
		W29-U	LKD	16.74	0.6			
		W30-L	LKD	24.95	0.3			
		W30-U	LKD	20.10	1.2			
Ground	R17	W31-L	Bedroom	28.23	0.0	1.7		
		W31-U	Bedroom	28.23	1.7			
First	R1	W1-L	Bedroom	31.77	0.3	1.7		
		W1-U	Bedroom	31.10	1.5			
First	R2	W2-L	Bedroom	35.74	0.4	3.3		
		W2-U	Bedroom	35.48	2.9			
First	R3	W3-L	LKD	36.78	0.2	4.2		
		W3-U	LKD	35.93	1.9			
		W4-L	LKD	37.19	0.2			
		W4-U	LKD	36.32	1.9			
First	R4	W5-L	Bedroom	34.49	0.2	2.0		
		W5-U	Bedroom	33.92	1.8			
First	R5	W6-L	Bedroom	37.78	0.5	3.5		
		W6-U	Bedroom	37.35	3.0			
First	R6	W7-L	LKD	37.80	0.2	4.3		
		W7-U	LKD	36.88	1.9			
		W8-L	LKD	37.80	0.2			
		W8-U	LKD	36.88	1.9			
First	R7	W9-L	Bedroom	34.49	0.2	2.0		
		W9-U	Bedroom	33.92	1.8			
First	R8	W10-L	Bedroom	37.95	0.5	4.4		
		W10-U	Bedroom	37.50	3.1			
		W11-L	Bedroom	14.47	0.1			
		W11-U	Bedroom	15.08	0.7			
First	R9	W12-L	Bedroom	34.61	0.3	3.0		
		W12-U	Bedroom	33.93	2.7			
First	R10	W13-L	LKD	36.40	0.2			
		W13-U	LKD	35.64	1.5			

Floor	Room ID	Window ID	Room Use	VSC	ADF	TOTAL ADF	ROOM TOTAL APSH	ROOM WINTER APSH
		W14-L	LKD	35.06	0.2			
		W14-U	LKD	34.32	1.5			
		W15	LKD	2.92	0.1			
		W16	LKD	2.88	0.1	3.7		
First	R11	W19	Bedroom	3.89	0.9	0.9		
First	R12	W19	LKD	2.76	0.1			
		W20	LKD	3.04	0.1			
		W21	LKD	27.13	1.0			
		W22-L	LKD	2.48	0.1			
		W22-U	LKD	2.02	0.3	1.7	31	21
First	R13	W23-L	Bedroom	11.10	0.6			
		W23-U	Bedroom	6.91	2.3	2.9		
First	R14	W24-L	LKD	18.72	0.0			
		W24-U	LKD	19.04	0.6			
		W25-L	LKD	26.14	0.4			
		W25-U	LKD	19.11	1.8	2.8	56	24
First	R15	W26-L	Bedroom	31.94	0.1			
		W26-U	Bedroom	31.52	2.3	2.4		
First	R16	W27-L	Bedroom	32.20	0.1			
		W27-U	Bedroom	31.74	2.3	2.4		
First	R17	W28-L	LKD	26.95	0.4			
		W28-U	LKD	19.65	1.8	2.3	40	24
First	R18	W29-L	LKD	27.28	0.4			
		W29-U	LKD	19.89	1.8	2.3	38	24
First	R19	W30-L	Bedroom	33.22	0.1			
		W30-U	Bedroom	32.59	2.4	2.5		
First	R20	W31-L	Bedroom	33.29	0.1			
		W31-U	Bedroom	32.65	2.4	2.5		
First	R21	W32-L	Living Room	28.52	0.5			
		W32-U	Living Room	20.96	1.9			
		W33-L	Living Room	23.82	0.0			
		W33-U	Living Room	24.31	0.7			
		W34-L	Living Room	19.50	0.0			
		W34-U	Living Room	19.86	0.6	3.7	56	24
First	R22	W35-L	LKD	20.99	0.0			
		W35-U	LKD	20.82	0.9			
		W36-L	LKD	23.26	0.0			
		W36-U	LKD	23.14	0.5	1.4	43	17
First	R23	W37-L	Bedroom	28.42	0.1			
		W37-U	Bedroom	28.30	2.8	2.9		
First	R24	W38-L	Bedroom	30.14	0.4			
		W38-U	Bedroom	31.19	2.2			
		W39-L	Bedroom	23.95	0.5			

Floor	Room ID	Window ID	Room Use	VSC	ADF	TOTAL ADF	ROOM TOTAL APSH	ROOM WINTER APSH
First		W39-U	Bedroom	26.12	2.4	6.3		
		W40-L	Bedroom	19.56	0.1			
		W40-U	Bedroom	20.30	0.6			
	R25	W41-L	Bedroom	20.67	0.2	3.2		
		W41-U	Bedroom	21.06	1.8			
		W42-L	Bedroom	23.38	0.1			
		W42-U	Bedroom	23.94	1.1			
	R26	W43-L	LKD	28.17	0.1	5.5		
		W43-U	LKD	28.84	1.1			
		W44-L	LKD	28.95	0.1			
		W44-U	LKD	29.84	1.2			
		W45-L	LKD	33.84	0.1			
		W45-U	LKD	34.37	1.3			
		W46-L	LKD	33.55	0.1			
		W46-U	LKD	34.10	1.3			
First	R27	W47-L	Bedroom	31.10	0.3	3.0		
		W47-U	Bedroom	32.13	2.7			
First	R28	W48-L	LKD	28.37	0.1	5.9		
		W48-U	LKD	31.15	1.3			
		W49-L	LKD	20.70	0.1			
		W49-U	LKD	24.30	1.1			
		W50-L	LKD	37.32	0.2			
		W50-U	LKD	36.63	1.5			
		W51-L	LKD	37.66	0.2			
		W51-U	LKD	36.81	1.5			
First	R29	W52-L	Bedroom	34.49	0.2	5.0		
		W52-U	Bedroom	33.92	1.5			
		W53-L	Bedroom	37.80	0.4			
		W53-U	Bedroom	36.88	3.0			
First	R30	W54-L	LKD	37.80	0.2	3.8		
		W54-U	LKD	36.88	1.7			
		W55-L	LKD	37.80	0.2			
		W55-U	LKD	36.88	1.7			
First	R31	W56-L	Bedroom	37.80	0.4	3.9		
		W56-U	Bedroom	36.88	3.5			
First	R32	W57-L	Bedroom	37.85	0.6	7.4		
		W57-U	Bedroom	37.28	2.9			
		W58-L	Bedroom	24.58	0.5			
		W58-U	Bedroom	24.73	2.6			
		W59-L	Bedroom	20.27	0.1			
		W59-U	Bedroom	19.98	0.7			
First	R33	W60-L	LKD	23.48	0.2	3.2		
		W60-U	LKD	22.93	1.3			
		W61-L	LKD	29.58	0.2			
		W61-U	LKD	28.90	1.6			
Second	R1	W1-L	Bedroom	32.31	0.2	1.9		
		W1-U	Bedroom	32.00	1.7			

Floor	Room ID	Window ID	Room Use	VSC	ADF	TOTAL ADF	ROOM TOTAL APSH	ROOM WINTER APSH
Second	R2	W2-L	Bedroom	36.24	0.5	3.2		
		W2-U	Bedroom	35.98	2.7			
Second	R3	W3-L	LKD	37.05	0.2	4.2		
		W3-U	LKD	36.24	1.9			
		W4-L	LKD	37.37	0.2			
		W4-U	LKD	36.51	1.9			
Second	R4	W5-L	Bedroom	34.49	0.2	2.0		
		W5-U	Bedroom	33.92	1.8			
Second	R5	W6-L	Bedroom	37.80	0.6	3.3		
		W6-U	Bedroom	37.25	2.8			
Second	R6	W7-L	LKD	37.80	0.2	4.3		
		W7-U	LKD	36.88	1.9			
		W8-L	LKD	37.80	0.2			
		W8-U	LKD	36.88	1.9			
Second	R7	W9-L	Bedroom	34.49	0.2	2.0		
		W9-U	Bedroom	33.92	1.8			
Second	R8	W10-L	Bedroom	37.94	0.6	4.3		
		W10-U	Bedroom	37.37	2.9			
		W11-L	Bedroom	16.32	0.1			
		W11-U	Bedroom	17.04	0.7			
Second	R9	W12-L	Bedroom	34.80	0.3	3.0		
		W12-U	Bedroom	34.13	2.7			
Second	R10	W13-L	LKD	37.08	0.2	4.3		
		W13-U	LKD	36.45	1.6			
		W14-L	LKD	36.37	0.2			
		W14-U	LKD	36.08	1.6			
		W15	LKD	18.92	0.4			
		W16	LKD	18.85	0.4			
Second	R11	W19	Bedroom	20.68	2.2	2.2		
Second	R12	W20	LKD	18.70	0.4	1.9	48	25
		W21	LKD	30.40	1.1			
		W22-L	LKD	2.63	0.1			
		W22-U	LKD	2.14	0.3			
Second	R13	W23-L	Bedroom	12.71	0.6	3.2		
		W23-U	Bedroom	8.24	2.5			
Second	R14	W24-L	LKD	22.12	0.0	3.1	61	28
		W24-U	LKD	22.60	0.7			
		W25-L	LKD	28.67	0.5			
		W25-U	LKD	21.44	1.9			
Second	R15	W26-L	Bedroom	34.21	0.1	2.5		
		W26-U	Bedroom	33.84	2.5			
Second	R16	W27-L	Bedroom	34.33	0.1			

Floor	Room ID	Window ID	Room Use	VSC	ADF	TOTAL ADF	ROOM TOTAL APSH	ROOM WINTER APSH
		W27-U	Bedroom	33.93	2.5	2.5		
Second	R17	W28-L	LKD	28.41	0.5			
		W28-U	LKD	20.90	1.9	2.3	42	26
Second	R18	W29-L	LKD	28.55	0.5			
		W29-U	LKD	20.97	1.9	2.3	40	26
Second	R19	W30-L	Bedroom	34.68	0.1			
		W30-U	Bedroom	34.10	2.5	2.6		
Second	R20	W31-L	Bedroom	34.73	0.1			
		W31-U	Bedroom	34.16	2.5	2.6		
Second	R21	W32-L	Living Room	29.68	0.5			
		W32-U	Living Room	21.96	1.9			
		W33-L	Living Room	27.77	0.0			
		W33-U	Living Room	28.00	0.8			
		W34-L	Living Room	22.79	0.0			
		W34-U	Living Room	23.02	0.7	4.0	58	26
Second	R22	W35-L	LKD	22.39	0.0			
		W35-U	LKD	22.12	0.9			
		W36-L	LKD	24.62	0.0			
		W36-U	LKD	24.44	0.5	1.4	45	18
Second	R23	W37-L	Bedroom	30.74	0.1			
		W37-U	Bedroom	30.36	3.0	3.1		
Second	R24	W38-L	Bedroom	33.31	0.5			
		W38-U	Bedroom	33.54	2.4			
		W39-L	Bedroom	29.93	0.5			
		W39-U	Bedroom	31.27	2.8			
		W40-L	Bedroom	23.89	0.1			
		W40-U	Bedroom	24.23	0.7	7.0		
Second	R25	W41-L	Bedroom	23.32	0.2			
		W41-U	Bedroom	23.09	2.0			
		W42-L	Bedroom	26.58	0.1			
		W42-U	Bedroom	26.49	1.1	3.4		
Second	R26	W43-L	LKD	32.37	0.1			
		W43-U	LKD	32.14	1.2			
		W44-L	LKD	33.92	0.1			
		W44-U	LKD	33.78	1.3			
		W45-L	LKD	37.03	0.2			
		W45-U	LKD	36.51	1.4			
		W46-L	LKD	36.94	0.2			
		W46-U	LKD	36.52	1.4	6.0		
Second	R27	W47-L	Bedroom	35.66	0.3			
		W47-U	Bedroom	35.71	3.0	3.3		
Second	R28	W48-L	LKD	36.31	0.2			
		W48-U	LKD	36.43	1.5			
		W49-L	LKD	35.92	0.2			
		W49-U	LKD	36.41	1.5			

Floor	Room ID	Window ID	Room Use	VSC	ADF	TOTAL ADF	ROOM TOTAL APSH	ROOM WINTER APSH
		W50-L	LKD	37.80	0.2	6.6		
		W50-U	LKD	36.88	1.5			
		W51-L	LKD	37.80	0.2			
		W51-U	LKD	36.88	1.5			
Second	R29	W52-L	Bedroom	34.49	0.2	5.0		
		W52-U	Bedroom	33.92	1.5			
		W53-L	Bedroom	37.80	0.4			
		W53-U	Bedroom	36.88	3.0			
Second	R30	W54-L	LKD	37.80	0.2	3.8		
		W54-U	LKD	36.88	1.7			
		W55-L	LKD	37.80	0.2			
		W55-U	LKD	36.88	1.7			
Second	R31	W56-L	Bedroom	37.80	0.4	3.9		
		W56-U	Bedroom	36.88	3.5			
Second	R32	W57-L	Bedroom	37.85	0.6	7.6		
		W57-U	Bedroom	37.28	2.9			
		W58-L	Bedroom	26.49	0.5			
		W58-U	Bedroom	27.13	2.8			
		W59-L	Bedroom	21.59	0.1			
		W59-U	Bedroom	21.42	0.7			
Second	R33	W60-L	LKD	23.75	0.2	3.2		
		W60-U	LKD	23.30	1.3			
		W61-L	LKD	30.10	0.2			
		W61-U	LKD	29.55	1.6			
Third	R1	W1-L	Bedroom	33.53	0.1	1.7		
		W1-U	Bedroom	33.10	1.5			
Third	R2	W2-L	Bedroom	37.10	0.6	3.5		
		W2-U	Bedroom	36.94	2.9			
Third	R3	W3-L	LKD	36.64	0.0	2.6		
		W3-U	LKD	35.76	1.2			
		W4-L	LKD	36.80	0.0			
		W4-U	LKD	35.87	1.3			
Third	R4	W5-L	Bedroom	34.67	0.1	1.7		
		W5-U	Bedroom	33.93	1.6			
Third	R5	W6-L	Bedroom	37.92	0.6	3.5		
		W6-U	Bedroom	37.40	2.9			
Third	R6	W7-L	LKD	36.89	0.0	2.6		
		W7-U	LKD	35.93	1.3			
		W8-L	LKD	36.89	0.0			
		W8-U	LKD	35.93	1.3			
Third	R7	W9-L	Bedroom	34.67	0.1	1.7		
		W9-U	Bedroom	33.93	1.6			
Third	R8	W10-L	Bedroom	38.04	0.6			
		W10-U	Bedroom	37.50	3.0			

Floor	Room ID	Window ID	Room Use	VSC	ADF	TOTAL ADF	ROOM TOTAL APSH	ROOM WINTER APSH
		W11-L	Bedroom	18.41	0.2	4.7		
		W11-U	Bedroom	19.21	0.8			
Third	R9	W12-L	Bedroom	35.06	0.2	2.6		
		W12-U	Bedroom	34.08	2.4			
Third	R10	W13-L	LKD	36.89	0.0	3.3		
		W13-U	LKD	35.93	1.1			
		W14-L	LKD	36.89	0.0			
		W14-U	LKD	35.93	1.1			
		W15	LKD	33.46	0.6			
		W16	LKD	33.46	0.6			
Third	R11	W19	Bedroom	36.58	3.4	3.4		
Third	R12	W19	LKD	33.46	0.6	2.6	61	28
		W20	LKD	33.46	0.6			
		W21	LKD	32.38	1.1			
		W22-L	LKD	2.77	0.1			
		W22-U	LKD	1.49	0.2			
Third	R13	W23-L	Bedroom	12.26	0.8	2.5		
		W23-U	Bedroom	5.02	1.7			
Third	R14	W24-L	LKD	26.89	0.1	4.0	87	30
		W24-U	LKD	27.35	0.7			
		W25-L	LKD	37.47	0.7			
		W25-U	LKD	37.09	2.6			
Third	R15	W26-L	Bedroom	36.52	0.1	2.1		
		W26-U	Bedroom	35.76	2.1			
Third	R16	W27-L	Bedroom	36.54	0.1	2.1		
		W27-U	Bedroom	35.75	2.1			
Third	R17	W28-L	LKD	37.32	0.7	3.3	72	28
		W28-U	LKD	37.03	2.6			
Third	R18	W29-L	LKD	37.28	0.7	3.3	72	28
		W29-U	LKD	37.00	2.6			
Third	R19	W30-L	Bedroom	36.39	0.1	2.1		
		W30-U	Bedroom	35.66	2.1			
Third	R20	W31-L	Bedroom	36.42	0.1	2.1		
		W31-U	Bedroom	35.64	2.1			
Third	R21	W32-L	LKD	37.25	0.7	4.8	83	28
		W32-U	LKD	36.91	2.6			
		W33-L	LKD	30.59	0.1			
		W33-U	LKD	30.60	0.8			
		W34-L	LKD	26.54	0.1			
		W34-U	LKD	27.07	0.7			
Third	R22	W35-L	LKD	23.82	0.0			
		W35-U	LKD	23.44	0.8			
		W36-L	LKD	26.46	0.0			

Floor	Room ID	Window ID	Room Use	VSC	ADF	TOTAL ADF	ROOM TOTAL APSH	ROOM WINTER APSH
		W36-U	LKD	26.33	0.5	1.3	48	19
Third	R23	W37-L	Bedroom	32.17	0.1			
		W37-U	Bedroom	31.75	2.7	2.8		
Third	R24	W38-L	Bedroom	34.99	0.7			
		W38-U	Bedroom	34.37	2.5			
		W39-L	Bedroom	34.59	0.8			
		W39-U	Bedroom	35.00	3.1			
		W40-L	Bedroom	28.70	0.1			
		W40-U	Bedroom	29.73	1.1	8.3		
Third	R25	W41-L	Bedroom	24.90	0.1			
		W41-U	Bedroom	24.64	1.5			
		W42-L	Bedroom	28.56	0.1			
		W42-U	Bedroom	28.46	0.9			
		W43-L	Bedroom	33.04	0.4			
		W43-U	Bedroom	36.11	1.7	4.7		
Third	R26	W44-L	Bedroom	35.21	0.1			
		W44-U	Bedroom	35.85	2.6	2.7		
Third	R27	W45-L	Bedroom	28.18	0.1			
		W45-U	Bedroom	30.32	1.5			
		W46-L	Bedroom	24.99	0.2			
		W46-U	Bedroom	26.97	2.5	4.3		
Third	R28	W47-L	Bedroom	28.65	0.5			
		W47-U	Bedroom	33.62	1.9			
		W48-L	Bedroom	36.89	0.1			
		W48-U	Bedroom	35.93	1.8			
		W49-L	Bedroom	36.89	0.1			
		W49-U	Bedroom	35.93	1.8	6.1		
Third	R29	W50-L	LKD	37.86	0.1			
		W50-U	LKD	36.72	1.0			
		W51-L	LKD	37.91	0.3			
		W51-U	LKD	36.72	1.0			
		W52-L	LKD	30.02	0.3			
		W52-U	LKD	30.60	1.1			
		W53-L	LKD	24.45	0.0			
		W53-U	LKD	25.07	0.4	4.2		
Third	R30	W54-L	LKD	24.12	0.0			
		W54-U	LKD	24.47	0.9			
		W55-L	LKD	32.20	0.0			
		W55-U	LKD	32.22	1.1	2.1		
Fourth	R1	W1-L	LKD	13.73	0.2			
		W1-U	LKD	38.27	1.8			
		W35	LKD	93.56	2.0			
		W36	LKD	94.03	2.0	6.0		
Fourth	R2	W2-L	Studio	11.57	0.1			
		W2-U	Studio	36.85	0.9			
		W3-L	Studio	13.73	0.2			
		W3-U	Studio	38.27	1.6			

Floor	Room ID	Window ID	Room Use	VSC	ADF	TOTAL ADF	ROOM TOTAL APSH	ROOM WINTER APSH
		W37	Studio	94.65	1.9	4.6		
Fourth	R3	W4-L	Studio	13.73	0.2			
		W4-U	Studio	38.27	1.6			
		W5-L	Studio	11.57	0.1			
		W5-U	Studio	36.85	0.9			
		W38	Studio	94.65	1.9	4.6		
Fourth	R4	W6-L	Studio	11.57	0.1			
		W6-U	Studio	36.85	0.9			
		W7-L	Studio	13.73	0.2			
		W7-U	Studio	38.27	1.6			
		W39	Studio	94.65	1.9	4.6		
Fourth	R5	W8-L	Bedroom	33.64	0.5			
		W8-U	Bedroom	37.10	1.9	2.4		
Fourth	R6	W9-L	LKD	20.86	0.3			
		W9-U	LKD	11.67	0.8			
		W40	LKD	94.65	2.2	3.4		
Fourth	R7	W10-L	Studio	20.55	0.3			
		W10-U	Studio	11.50	0.7			
		W11-L	Studio	28.33	0.2			
		W11-U	Studio	31.39	0.7			
		W41	Studio	94.65	1.8	3.7	74	24
Fourth	R8	W12-L	Bedroom	37.90	0.5			
		W12-U	Bedroom	37.42	2.5	3.0		
Fourth	R9	W13-L	Bedroom	37.13	0.1			
		W13-U	Bedroom	36.87	1.7	1.9		
Fourth	R10	W14-L	LKD	38.30	0.0			
		W14-U	LKD	37.93	1.2			
		W15-L	LKD	38.30	0.0			
		W15-U	LKD	37.93	1.2	2.5	70	28
Fourth	R11	W16-L	Bedroom	37.89	0.5			
		W16-U	Bedroom	37.42	2.5	3.0		
Fourth	R12	W17-L	Bedroom	37.12	0.1			
		W17-U	Bedroom	36.87	1.7	1.9		
Fourth	R13	W18-L	LKD	38.29	0.0			
		W18-U	LKD	37.93	1.2			
		W19-L	LKD	38.29	0.0			
		W19-U	LKD	37.93	1.2	2.5	70	28
Fourth	R14	W20-L	Bedroom	37.87	0.5			
		W20-U	Bedroom	37.42	2.5	3.0		
Fourth	R15	W21-L	Bedroom	37.11	0.1			
		W21-U	Bedroom	36.87	1.7	1.9		
Fourth	R16	W22-L	LKD	38.28	0.0			
		W22-U	LKD	37.93	1.2			

Floor	Room ID	Window ID	Room Use	VSC	ADF	TOTAL ADF	ROOM TOTAL APSH	ROOM WINTER APSH
		W23-L	LKD	38.27	0.0			
		W23-U	LKD	37.93	1.2			
		W24-L	LKD	35.78	0.1			
		W24-U	LKD	36.11	0.8			
		W25-L	LKD	34.17	0.1			
		W25-U	LKD	35.26	0.8	4.2	82	28
Fourth	R17	W26-L	LKD	19.87	0.3			
		W26-U	LKD	10.92	0.8			
		W32	LKD	72.38	1.1			
		W33	LKD	93.97	2.0			
		W34	LKD	89.08	1.9	6.1	72	20
Fourth	R18	W27-L	Bedroom	33.45	0.4			
		W27-U	Bedroom	36.90	1.5			
		W28-L	Bedroom	37.71	0.1			
		W28-U	Bedroom	37.50	1.6	3.6		
Fourth	R19	W29-L	Bedroom	23.81	0.5			
		W29-U	Bedroom	36.85	2.6			
		W30-L	Bedroom	33.40	1.2			
		W30-U	Bedroom	38.27	4.9	9.2		
Fourth	R20	W31-L	Bedroom	11.57	0.3			
		W31-U	Bedroom	36.85	2.0	2.3		