



RIGHT OF LIGHT
CONSULTING
Chartered Surveyors

Daylight and Sunlight Report

(Within Development)

26 January 2022

75 to 81 Southampton Street
Reading
Berkshire
RG1 2QU

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1 EXECUTIVE SUMMARY

1.1 Overview

- 1.1.1 Right of Light Consulting has been commissioned by Perfect Property Developments Ltd to undertake a daylight and sunlight assessment in connection with the development at 75 to 81 Southampton Street, Reading, Berkshire RG1 2QU. The aim of the assessment is to check whether the proposed accommodation will provide its future occupiers with adequate levels of natural light.
- 1.1.2 The assessment is based on the numerical tests laid down in the Building Research Establishment (BRE) guide 'Site Layout Planning for Daylight and Sunlight: a good practice guide, 2nd Edition' by P J Littlefair 2011.
- 1.1.3 Appendix 1 identifies the windows analysed in this assessment. The no sky line contours for the habitable rooms are also presented in Appendix 1. The numerical results of the BRE daylight and sunlight tests are provided in Appendix 2.
- 1.1.4 The numerical results demonstrate that the majority of the proposed rooms meet or surpass the BRE recommendations. Whilst a small number do not meet the recommendations, the results are not unusual in the context of an urban location. The BRE guide explains that the numerical guidelines should be interpreted flexibly, since natural lighting is only one of many factors in site layout design. The local authority should therefore balance daylight and sunlight considerations against all other material planning considerations when deciding whether to grant planning permission.

2 INFORMATION SOURCES

2.1 Documents Considered

2.1.1 This report is based on the following drawings:

PAD Architect

LOC.00	Location Site	Rev -
LOC.00	Location Plan	Rev -
PD01	Proposed Ground Context	Rev N
PD02	Proposed Plans	Rev P
PD03	Proposed Elevations	Rev L

3 METHODOLOGY OF THE ASSESSMENT

3.1 Local Planning Policy

3.1.1 We understand that the Local Authority takes the conventional approach of considering daylight and sunlight amenity with reference to the various numerical tests laid down in the Building Research Establishment (BRE) guide 'Site Layout Planning for Daylight and Sunlight: a guide to good practice, 2nd Edition' by P J Littlefair 2011. A new European standard BS EN 17037 'Daylight in Buildings' was published in May 2019. An update to the BRE guide to take into account the European standard is expected sometime in 2022. It is not yet clear how, and to what extent, the European recommendations will be adopted by the BRE and Local Authorities.

3.1.2 The standards set out in the BRE guide are intended to be used flexibly. The BRE guide states:

"The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and the guide 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, since natural lighting is only one of many factors in site layout design."

3.2 National Planning Policy Framework

3.2.1 The BRE numerical guidelines should be considered in the context of the National Planning Policy Framework (NPPF), which stipulates that local planning authorities should take a flexible approach to daylight and sunlight to ensure the efficient use of land. The NPPF states:

"Local planning authorities should refuse applications which they consider fail to make efficient use of land, taking into account the policies in this Framework. In this context, when considering applications for housing, authorities should take a flexible approach in applying policies or guidance relating to daylight and sunlight, where they would otherwise inhibit making efficient use of a site (as long as the resulting scheme would provide acceptable living standards)."

3.3 Interior Daylighting

- 3.3.1 The interior daylighting recommendations set out in the BRE guide are based on British Standard BS 8206 Part 2 and the Chartered Institute of Building Services Engineers Applications Manual on window design. Collectively, the guides set out three main criteria for interior daylighting. These are summarised as follows:

Test 1 - Average Daylight Factor

- 3.3.2 The Average Daylight Factor (ADF) can be calculated using the following formula:

$$df = \frac{T A_w \theta}{A (1-R^2)} \%$$

where

T is the diffuse visible transmittance of the glazing
A_w is the net glazed area of the window (m²)
A is the total area of the room surfaces (m²)
R is their average reflectance
θ is the angle of visible sky in degrees

- 3.3.3 The ADF test is applied to habitable rooms within domestic properties. A kitchen is generally deemed to be a habitable room if it is large enough to accommodate a dining area. If the kitchen is small, or if the property has a separate dining area, then the accepted practice is to treat the kitchen as a non-habitable room.
- 3.3.4 For the purpose of this assessment, we have assumed BRE internal reflectance coefficients pertaining to medium wooden floors (0.4), light painted walls (0.8) and matt white painted ceilings (0.85).
- 3.3.5 We have assumed that each window is double-glazed and has a glazed area that equates to 80% of the structural opening size. A glazing transmittance value, inclusive of a maintenance to allow for the effect of dirt and grime on the glazing, of 0.68 has been used.
- 3.3.6 To achieve a predominately daylit appearance, the guide recommends an ADF of 5% or more if there is no supplementary electric lighting, or 2% or more if supplementary lighting is provided. The guide also gives minimum recommendations for dwellings of 2% for kitchens, 1.5% for living rooms and 1% for bedrooms. The minimum targets have been adopted for the purpose of this assessment.

-
- 3.3.7 The BRE guide does not give guidance on how to apply the ADF test to spaces which contain a mix of room uses e.g. open plan living, dining and kitchen areas. For this assessment we have set a target of 2% with the aim of reaching the predominately daylit benchmark.
- 3.3.8 A special procedure is required for floor to ceiling windows such as patio doors. If part of a window is below the height of the working plane (a horizontal plane 0.85m above the floor in housing), this portion should be treated as a separate window. The ADF for this window has an extra factor applied to it, to take account of the reduced effectiveness of low level glazing in lighting the room. A value equal to the floor reflectance may be taken for this factor. The ADF for the portion of the window above the working plane is calculated in the normal way without this additional factor, and the ADFs for the two portions are added together.
- 3.3.9 Reflected light can be factored into the ADF calculation. For example, where a window has a large obstruction in front of it, the angle of visible sky can be increased by around 6°, assuming the obstruction is painted a light colour.

Test 2 - Room Depth

- 3.3.10 If a daylit room is lit by windows in one wall only, the depth of the room L should not exceed the limiting value given by:

$$\frac{L}{W} + \frac{L}{H} \leq \frac{2}{1-R_b}$$

where

W is the room width

H is the window-head height above floor level

R_b is the average reflectance of the surfaces in the rear half of the room

Test 3 - Position of the no sky line (Daylight Distribution)

- 3.3.11 If a significant area of the working plane lies beyond the no sky line (i.e. it receives no direct skylight), then the distribution of daylight in the room will look poor and supplementary electric lighting will be required.

3.3.12 The no sky line assessment is not applicable where a room derives its daylight solely from a light well or atrium. In these situations the room relies on borrowed light instead of direct skylight.

3.4 Sunlight to Windows

3.4.1 The BRE guide states that, in general, a dwelling or non-domestic building which has a particular requirement for sunlight, will appear reasonably sunlit if:

- at least one main window wall faces within 90 degrees of due south, and
- the centre of at least one window to a main living room can receive 25% of annual probable sunlight hours, including at least 5% of the annual probable sunlight hours during the winter months between 21st September and 21st March.

3.4.2 The guide states that, where groups of dwellings are planned, site layout design should aim to maximise the number of dwellings with a main living room that meets the above recommendations.

3.4.3 The guide states that sunlight is viewed as less important in kitchens and bedrooms.

4 RESULTS OF THE ASSESSMENT

4.1 Window Reference Points and No Sky Line Contours

4.1.1 Appendix 1 identifies the positions of the windows analysed in this assessment. The no skyline contours for the habitable rooms are also presented in Appendix 1.

4.2 Daylight & Sunlight Data

4.2.1 The numerical results of the BRE daylight and sunlight tests are provided in Appendix 2.

4.3 Interior Daylighting

4.3.1 75% of all rooms achieve or surpass their Average Daylight Factor (ADF) targets. 13 out of the 51 rooms tested fall short of the targets, 11 of which are living/dining/kitchens. However, as explained in paragraphs 3.3.6 and 3.3.7 of this report, whilst the BRE guide gives minimum targets for living rooms, bedrooms and kitchens, no equivalent target is given for open plan rooms comprising two or more uses. Therefore, we have adopted the more onerous 2% target for these rooms. 7 of the 11 living/dining/kitchen that do not achieve an ADF of 2%, achieve an ADF of 1.5%, which is the minimum recommended target for living rooms. In overall terms, the ADF scores represent a relatively high level of compliance with the BRE recommendations.

4.3.2 All rooms pass the room depth test.

4.3.3 The BRE guide does not give fixed numerical pass/fail criteria for the No Sky Line test when applied to new dwellings. However, for completeness, we have illustrated the no sky line contours in Appendix 1.

4.4 Sunlight to Windows

4.4.1 The BRE guide acknowledges that, in some cases, it may not be possible for every dwelling to achieve ideal levels of sunlight. The guide explains that, where groups of dwellings are planned, the aim should be to maximise the number of dwellings that:

- have at least one main window that faces within 90 degrees of due south, and
- have at least one window to a main living room that meets the BRE numerical targets.

4.4.2 In the case of the proposed development, 12 of the 19 units have a living room window which faces within 90 degrees of due south. 10 of the 19 units have a living room window which meets the BRE numerical targets.

4.4.3 In our opinion, the proposed development represents good site layout design. Since the design maximises sunlight availability, as far as practically possible given the constraints of the site, the BRE direct sunlight to windows recommendations for groups of dwellings have been met.

4.5 Conclusion

4.5.1 The numerical results demonstrate that the majority of the proposed rooms meet or surpass the BRE recommendations. Whilst a small number do not meet the recommendations, the results are not unusual in the context of an urban location. The BRE guide explains that the numerical guidelines should be interpreted flexibly, since natural lighting is only one of many factors in site layout design. The local authority should therefore balance daylight and sunlight considerations against all other material planning considerations when deciding whether to grant planning permission.

5 CLARIFICATIONS

5.1 General

- 5.1.1 The report provided is solely for the use of the client and no liability to anyone else is accepted.
- 5.1.2 The assessment is limited to assessing daylight, sunlight of the proposed development as set out in section 2.1 and 3.1 of the BRE Guide.
- 5.1.3 The assessment is based on the information listed in section 2 of this report and a site visit undertaken in September 2020.
- 5.1.4 We have undertaken the survey following the guidelines of the RICS publication "Surveying Safely". Where limited access is available, assumptions will have been made.
- 5.1.5 This report is based upon and subject to the scope of work set out in Right of Light Consulting's quotation and standard terms and conditions.

APPENDICES

APPENDIX 1

WINDOW KEY & NO SKY LINE CONTOURS



Southampton Street

Proposed
Development

83

63

43

23

22

81

61

41

21

80

60

40

20

19



Proposed
Development

69

68

67

49

48

47

29

28

27

3

2

1

86

85

84

66

65

64

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45

44

26

25

24

82

62

42

22



Proposed
Development

79

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6



Proposed
Development

73

71

53

70

51

50

33

31

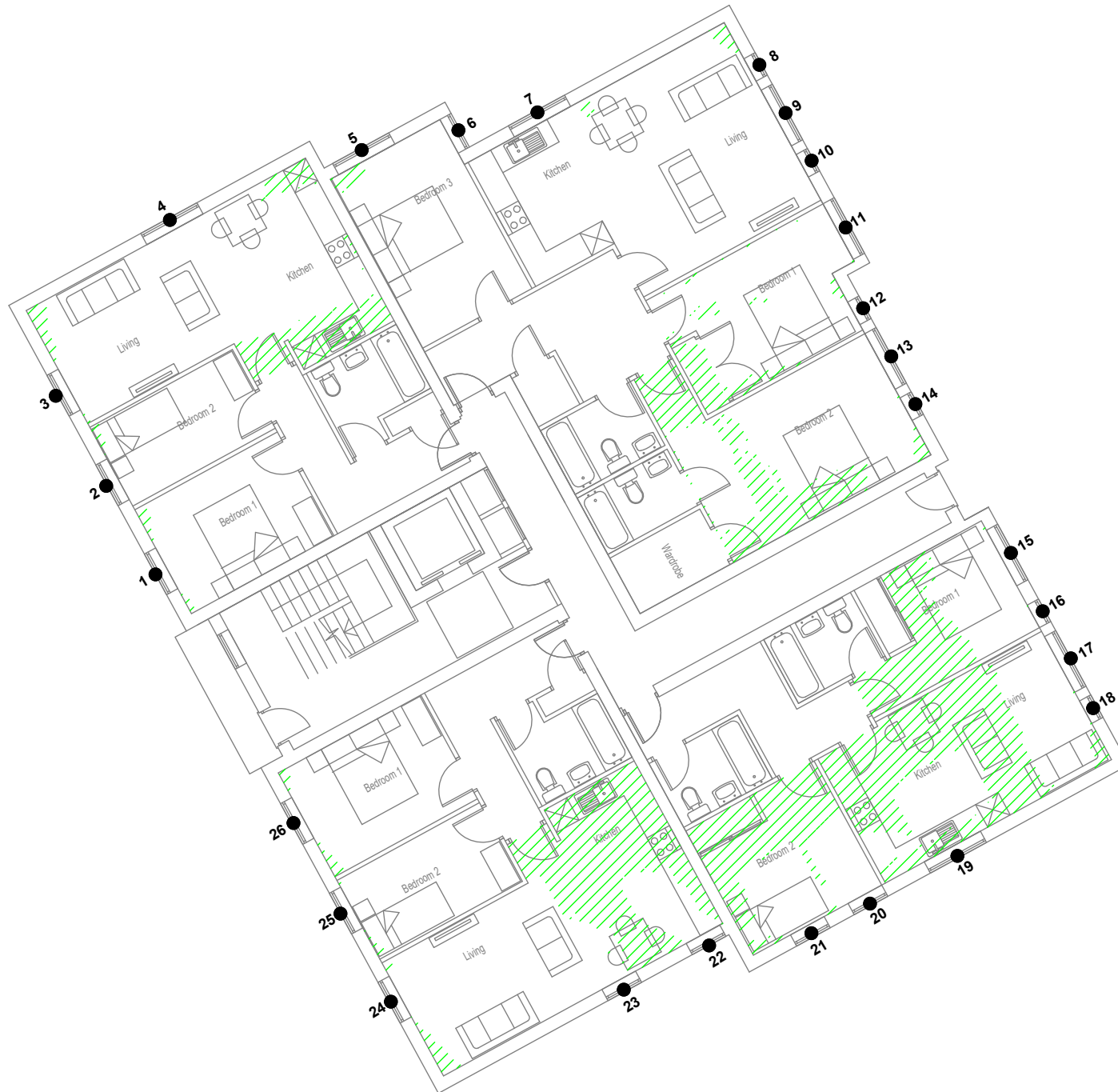
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7

5

4

Southampton Street



Key:

● Window reference

 Area receives no direct sky light (applied to habitable rooms)

 Area does receive direct sky light.

 Light aperture.

Project Name: 75-81 Southampton Street, Reading, Berkshire RG1 2QU

Drawing Title: Window Key and No Sky Line Contours

Scale: Do not scale

Drawing No: 1 of 4

Rev. .

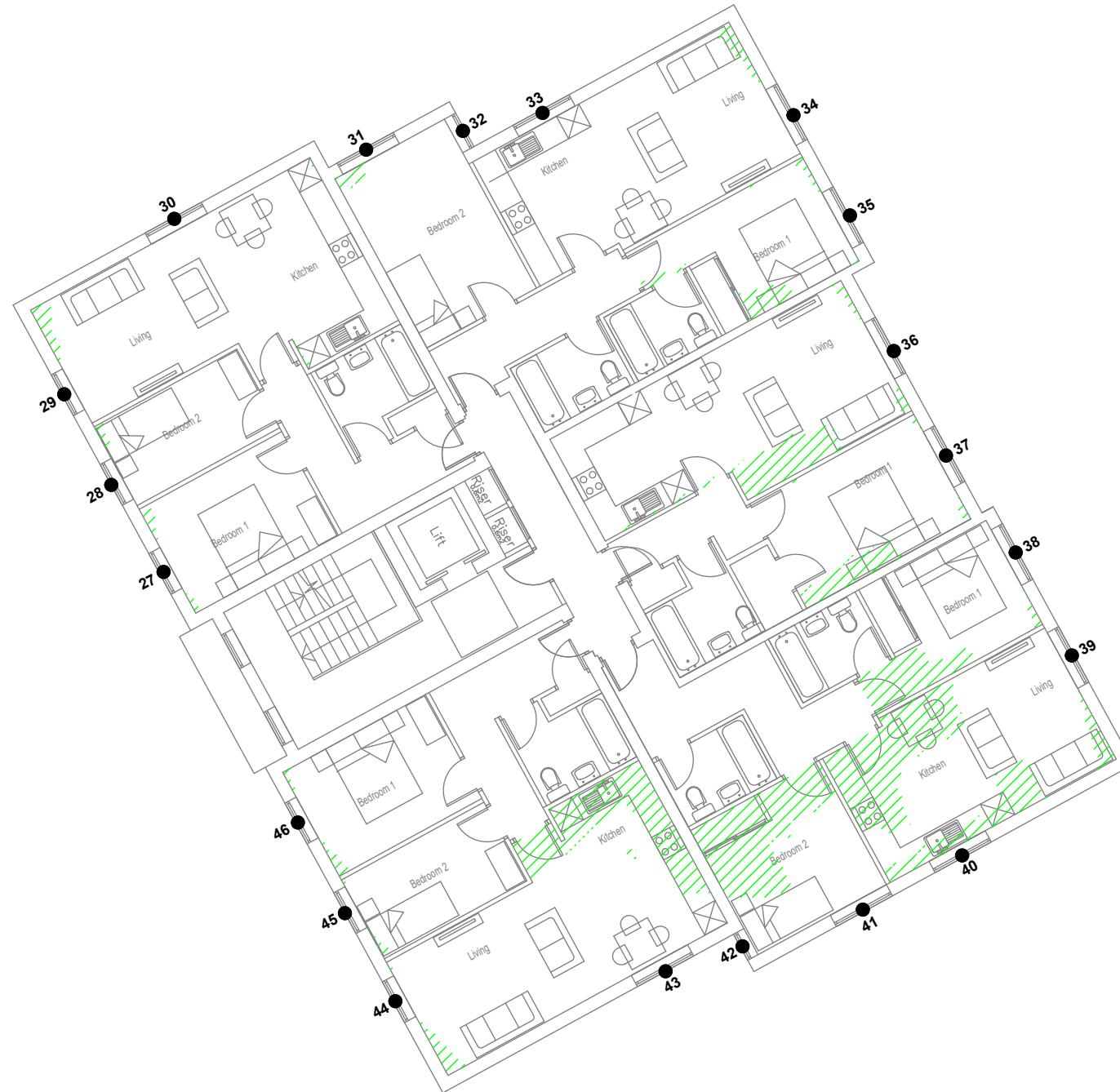
Rev	Date	Details of revision



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Key:

● Window reference

 Area receives no direct sky light (applied to habitable rooms)

 Area does receive direct sky light.

 Light aperture.

Project Name: 75-81 Southampton Street, Reading, Berkshire RG1 2QU

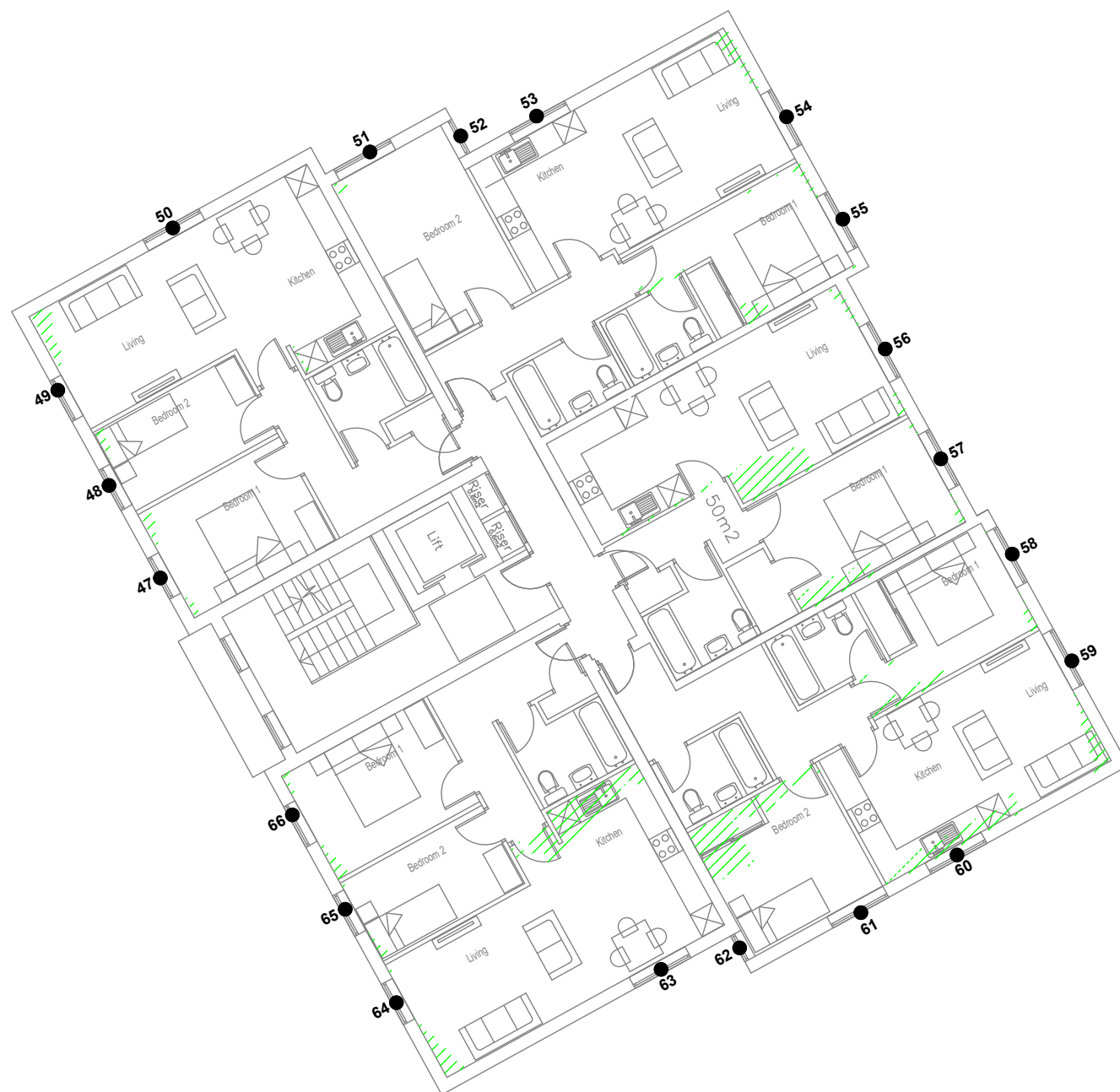
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Scale: Do not scale

Drawing No: 2 of 4

Rev. .

Rev	Date	Details of revision



Key:

● Window reference

 Area receives no direct sky light (applied to habitable rooms)

 Area does receive direct sky light.

 Light aperture.

Project Name: 75-81 Southampton Street, Reading, Berkshire RG1 2QU

Drawing Title: Window Key and No Sky Line Contours

Scale: Do not scale

Drawing No: 3 of 4

Rev. .

Rev	Date	Details of revision



Right of Light Consulting

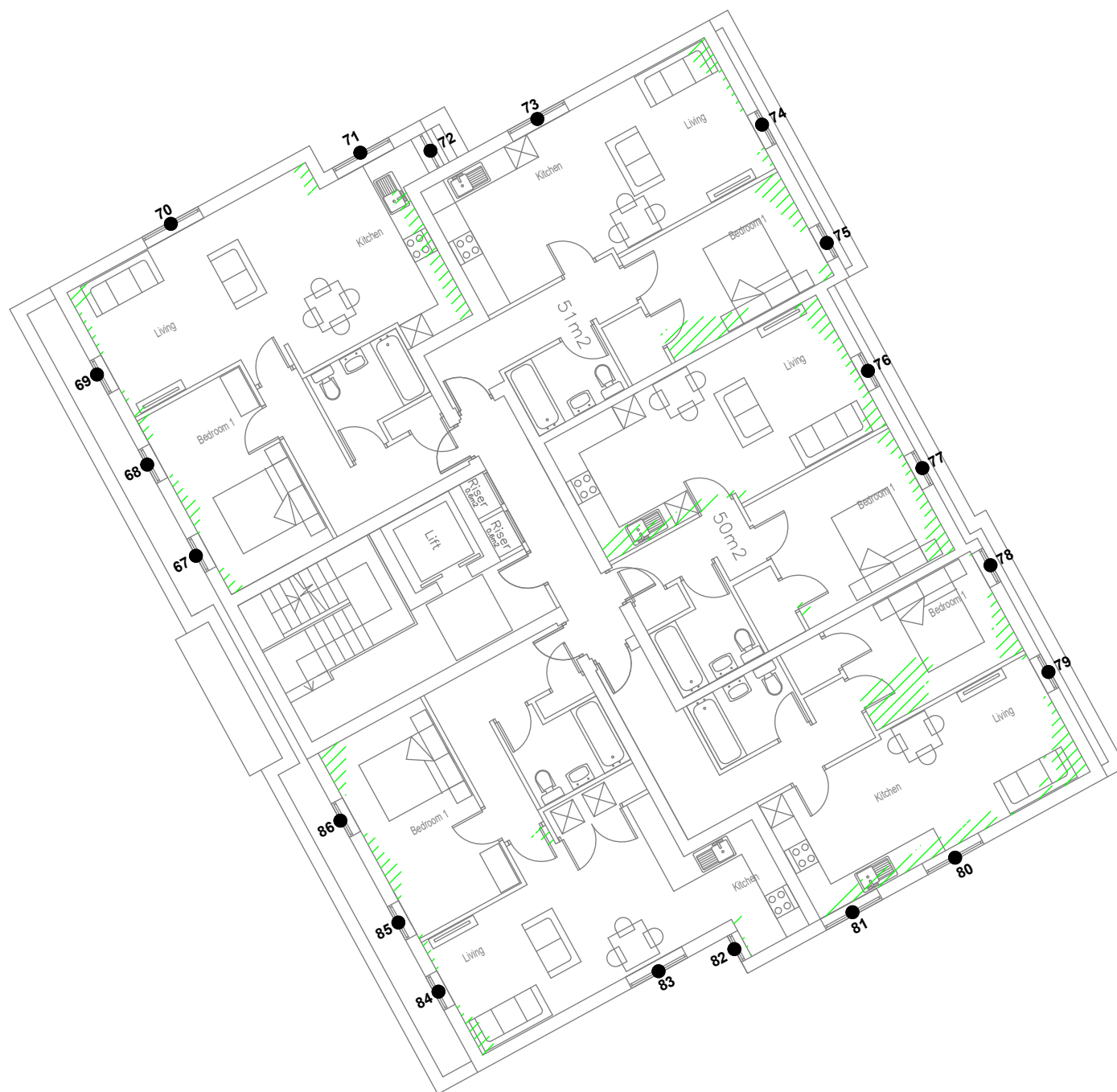
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Key:

● Window reference

 Area receives no direct sky light (applied to habitable rooms)

 Area does receive direct sky light.

 Light aperture.

Project Name: 75-81 Southampton Street, Reading, Berkshire RG1 2QU

Drawing Title: Window Key and No Sky Line Contours

Scale: Do not scale

Drawing No: 4 of 4

Rev. .

Rev	Date	Details of revision


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APPENDIX 2

DAYLIGHT & SUNLIGHT DATA

Appendix 2 - Average Daylight Factor (ADF)

75 to 81 Southampton Street, Reading, Berkshire RG1 2QU

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					ADF		
	Primary room use	ADF	T	Aw	A	R	θ			
<u>75 to 81 Southampton Street</u>										
<u>Ground Floor</u>										
Window 1 (lower)	Bedroom	1.0%	0.68	0.28	51.51	0.71	13.1	0.0%		
Window 1 (upper)			0.68	1.3	51.51	0.71	70.5	2.4%		
Total ADF for room									2.4%	
Window 2 (lower)	Bedroom	1.0%	0.68	0.28	43.18	0.71	15.2	0.1%		
Window 2 (upper)			0.68	1.3	43.18	0.71	70.2	2.9%		
Total ADF for room									3.0%	
Window 3 (lower)	Living/Dining/Kitchen	2.0%	0.68	0.28	112.56	0.7	12.8	0.0%		
Window 3 (upper)			0.68	1.3	112.56	0.7	69.1	1.1%		
Window 4			0.68	0.82	112.56	0.7	47.0	0.5%		
Total ADF for room									1.6%	
Window 5 (lower)	Bedroom	1.0%	0.68	0.61	63.33	0.7	10.4	0.1%		
Window 6 (upper)			0.68	1.11	63.33	0.7	29.4	0.7%		
Window 6			0.68	0.82	63.33	0.7	49.3	0.8%		
Total ADF for room									1.6%	
Window 7	Living/Dining/Kitchen	2.0%	0.68	0.82	114.31	0.68	64.4	0.6%		
Window 8 (lower)			0.68	0.0	114.31	0.68	8.3	0.0%		
Window 8 (upper)			0.68	0.72	114.31	0.68	22.2	0.2%		
Window 9 (lower)			0.68	0.38	114.31	0.68	10.3	0.0%		
Window 9 (upper)			0.68	1.77	114.31	0.68	28.3	0.6%		
Window 10 (lower)			0.68	0.0	114.31	0.68	12.4	0.0%		
Window 10 (upper)			0.68	0.72	114.31	0.68	31.0	0.2%		
Total ADF for room									1.6%	
Window 11 (lower)			Bedroom	1.0%	0.68	0.38	64.27	0.7	11.5	0.0%
Window 11 (upper)					0.68	1.77	64.27	0.7	29.6	1.1%
Window 12 (lower)	0.68	0.0			64.27	0.7	5.2	0.0%		
Window 12 (upper)	0.68	0.72			64.27	0.7	13.9	0.2%		
Total ADF for room									1.3%	
Window 13 (lower)	Bedroom	1.0%	0.68	0.38	86.14	0.7	7.9	0.0%		
Window 13 (upper)			0.68	1.77	86.14	0.7	22.5	0.6%		
Window 14 (lower)			0.68	0.0	86.14	0.7	11.9	0.0%		
Window 14 (upper)			0.68	0.72	86.14	0.7	26.2	0.3%		
Total ADF for room									0.9%	
Window 15 (lower)	Bedroom	1.0%	0.68	0.46	53.96	0.7	0.4	0.0%		
Window 15 (upper)			0.68	2.11	53.96	0.7	5.5	0.3%		
Window 16 (lower)			0.68	0.0	53.96	0.7	3.3	0.0%		
Window 16 (upper)			0.68	0.72	53.96	0.7	12.1	0.2%		
Total ADF for room									0.5%	
Window 17 (lower)			0.68	0.38	86.31	0.69	5.4	0.0%		
Window 17 (upper)			0.68	1.77	86.31	0.69	16.5	0.4%		
Window 18 (lower)			0.68	0.0	86.31	0.69	5.2	0.0%		

Appendix 2 - Average Daylight Factor (ADF)

75 to 81 Southampton Street, Reading, Berkshire RG1 2QU

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					ADF
	Primary room use	ADF	T	Aw	A	R	θ	
Window 18 (upper)			0.68	0.72	86.31	0.69	14.6	0.2%
Window 19			0.68	0.82	86.31	0.69	31.8	0.4%
Total ADF for room	Living/Dining/Kitchen	2.0%						1.0%
Window 20 (lower)			0.68	0.01	54.99	0.7	28.5	0.0%
Window 20 (upper)			0.68	1.07	54.99	0.7	30.8	0.8%
Window 21 (lower)			0.68	0.01	54.99	0.7	30.1	0.0%
Window 21 (upper)			0.68	1.07	54.99	0.7	31.9	0.8%
Total ADF for room	Bedroom	1.0%						1.6%
Window 22 (lower)			0.68	0.01	112.56	0.69	15.1	0.0%
Window 22 (upper)			0.68	1.07	112.56	0.69	15.8	0.2%
Window 23 (lower)			0.68	0.61	112.56	0.69	14.0	0.0%
Window 23 (upper)			0.68	1.07	112.56	0.69	15.5	0.2%
Window 24 (lower)			0.68	0.28	112.56	0.69	13.1	0.0%
Window 24 (upper)			0.68	1.3	112.56	0.69	61.1	0.9%
Total ADF for room	Living/Dining/Kitchen	2.0%						1.3%
Window 25 (lower)			0.68	0.28	43.18	0.71	18.0	0.1%
Window 25 (upper)			0.68	1.3	43.18	0.71	65.9	2.8%
Total ADF for room	Bedroom	1.0%						2.9%
Window 26 (lower)			0.68	0.28	51.51	0.71	14.4	0.0%
Window 26 (upper)			0.68	1.3	51.51	0.71	68.2	2.4%
Total ADF for room	Bedroom	1.0%						2.4%
<u>First Floor</u>								
Window 27 (lower)			0.68	0.37	51.51	0.71	74.8	0.3%
Window 27 (upper)			0.68	1.21	51.51	0.71	76.7	2.5%
Total ADF for room	Bedroom	1.0%						2.8%
Window 28 (lower)			0.68	0.37	43.18	0.71	74.9	0.4%
Window 28 (upper)			0.68	1.21	43.18	0.71	76.8	3.0%
Total ADF for room	Bedroom	1.0%						3.4%
Window 29 (lower)			0.68	0.37	112.56	0.7	74.9	0.1%
Window 29 (upper)			0.68	1.21	112.56	0.7	76.8	1.1%
Window 30			0.68	0.82	112.56	0.7	81.6	0.8%
Total ADF for room	Living/Dining/Kitchen	2.0%						2.0%
Window 31 (lower)			0.68	0.31	63.33	0.7	41.1	0.1%
Window 32 (upper)			0.68	1.0	63.33	0.7	42.0	0.9%
Window 32			0.68	0.82	63.33	0.7	73.7	1.3%
Total ADF for room	Bedroom	1.0%						2.3%
Window 33			0.68	0.82	96.66	0.69	73.0	0.8%
Window 34 (lower)			0.68	0.51	96.66	0.69	57.2	0.2%
Window 34 (upper)			0.68	1.65	96.66	0.69	59.1	1.3%
Total ADF for room	Living/Dining/Kitchen	2.0%						2.3%
Window 35 (lower)			0.68	0.51	55.49	0.71	57.7	0.3%

Appendix 2 - Average Daylight Factor (ADF)

75 to 81 Southampton Street, Reading, Berkshire RG1 2QU

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					ADF	
	Primary room use	ADF	T	Aw	A	R	θ		
Window 35 (upper)	Bedroom	1.0%	0.68	1.65	55.49	0.71	59.8	2.4%	
Total ADF for room									2.7%
Window 36 (lower)	Living/Dining/Kitchen	2.0%	0.68	0.51	102.65	0.7	56.6	0.2%	
Window 36 (upper)			0.68	1.65	102.65	0.7	59.1	1.3%	
Total ADF for room									1.5%
Window 37 (lower)			0.68	0.51	58.84	0.7	55.5	0.3%	
Window 37 (upper)	Bedroom	1.0%	0.68	1.65	58.84	0.7	58.7	2.2%	
Total ADF for room									2.5%
Window 38 (lower)	Bedroom	1.0%	0.68	0.51	52.89	0.71	52.2	0.3%	
Window 38 (upper)			0.68	1.65	52.89	0.71	56.2	2.4%	
Total ADF for room									2.7%
Window 39 (lower)			0.68	0.51	87.39	0.69	50.5	0.2%	
Window 39 (upper)	Living/Dining/Kitchen	2.0%	0.68	1.65	87.39	0.69	54.9	1.4%	
Window 40			0.68	0.82	87.39	0.69	40.9	0.5%	
Total ADF for room									2.1%
Window 41	Bedroom	1.0%	0.68	0.82	54.99	0.71	39.8	0.8%	
Window 42 (lower)			0.68	0.24	54.99	0.71	22.7	0.1%	
Window 42 (upper)			0.68	0.77	54.99	0.71	23.8	0.5%	
Total ADF for room									1.4%
Window 43	Living/Dining/Kitchen	2.0%	0.68	0.82	112.56	0.7	21.0	0.2%	
Window 44 (lower)			0.68	0.37	112.56	0.7	66.0	0.1%	
Window 44 (upper)			0.68	1.21	112.56	0.7	67.8	1.0%	
Total ADF for room									1.3%
Window 45 (lower)	Bedroom	1.0%	0.68	0.37	43.18	0.71	70.3	0.3%	
Window 45 (upper)			0.68	1.21	43.18	0.71	72.3	2.8%	
Total ADF for room									3.1%
Window 46 (lower)	Bedroom	1.0%	0.68	0.37	51.51	0.71	72.4	0.3%	
Window 46 (upper)			0.68	1.21	51.51	0.71	74.4	2.4%	
Total ADF for room									2.7%
Second Floor									
Window 47 (lower)	Bedroom	1.0%	0.68	0.36	51.51	0.71	80.8	0.3%	
Window 47 (upper)			0.68	1.22	51.51	0.71	82.6	2.7%	
Total ADF for room									3.0%
Window 48 (lower)	Bedroom	1.0%	0.68	0.36	43.18	0.71	80.9	0.4%	
Window 48 (upper)			0.68	1.22	43.18	0.71	82.6	3.2%	
Total ADF for room									3.6%
Window 49 (lower)	Living/Dining/Kitchen	2.0%	0.68	0.36	112.56	0.7	80.9	0.1%	
Window 49 (upper)			0.68	1.22	112.56	0.7	82.6	1.2%	
Window 50			0.68	0.82	112.56	0.7	83.9	0.8%	
Total ADF for room									2.1%
Window 51 (lower)			0.68	0.31	63.33	0.7	44.3	0.1%	

Appendix 2 - Average Daylight Factor (ADF)

75 to 81 Southampton Street, Reading, Berkshire RG1 2QU

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					ADF
	Primary room use	ADF	T	Aw	A	R	θ	
Window 52 (upper)	Bedroom	1.0%	0.68	1.0	63.33	0.7	45.6	1.0%
Window 52			0.68	0.82	63.33	0.7	76.1	1.3%
Total ADF for room								
Window 53	Living/Dining/Kitchen	2.0%	0.68	0.82	96.66	0.69	77.1	0.9%
Window 54 (lower)			0.68	0.49	96.66	0.69	63.7	0.2%
Window 54 (upper)			0.68	1.66	96.66	0.69	65.8	1.5%
Total ADF for room							2.6%	
Window 55 (lower)	Bedroom	1.0%	0.68	0.49	55.49	0.71	65.0	0.3%
Window 55 (upper)			0.68	1.66	55.49	0.71	67.3	2.8%
Total ADF for room								
Window 56 (lower)	Living/Dining/Kitchen	2.0%	0.68	0.49	102.65	0.7	65.2	0.2%
Window 56 (upper)			0.68	1.66	102.65	0.7	68.2	1.5%
Total ADF for room								
Window 57 (lower)	Bedroom	1.0%	0.68	0.49	58.84	0.7	66.2	0.3%
Window 57 (upper)			0.68	1.66	58.84	0.7	69.9	2.6%
Total ADF for room								
Window 58 (lower)	Bedroom	1.0%	0.68	0.49	52.89	0.71	65.9	0.3%
Window 58 (upper)			0.68	1.66	52.89	0.71	70.5	3.1%
Total ADF for room								
Window 59 (lower)	Living/Dining/Kitchen	2.0%	0.68	0.49	87.39	0.69	65.6	0.2%
Window 59 (upper)			0.68	1.66	87.39	0.69	71.0	1.8%
Window 60			0.68	0.82	87.39	0.69	54.7	0.7%
Total ADF for room							2.7%	
Window 61	Bedroom	1.0%	0.68	0.82	54.99	0.71	51.3	1.0%
Window 62 (lower)			0.68	0.23	54.99	0.71	26.9	0.1%
Window 62 (upper)			0.68	0.77	54.99	0.71	28.8	0.5%
Total ADF for room							1.6%	
Window 63	Living/Dining/Kitchen	2.0%	0.68	0.82	112.56	0.7	29.7	0.3%
Window 64 (lower)			0.68	0.36	112.56	0.7	72.4	0.1%
Window 64 (upper)			0.68	1.22	112.56	0.7	74.6	1.1%
Total ADF for room							1.5%	
Window 65 (lower)	Bedroom	1.0%	0.68	0.36	43.18	0.71	76.9	0.4%
Window 65 (upper)			0.68	1.22	43.18	0.71	79.1	3.1%
Total ADF for room								
Window 66 (lower)	Bedroom	1.0%	0.68	0.36	51.51	0.71	79.0	0.3%
Window 66 (upper)			0.68	1.22	51.51	0.71	81.0	2.6%
Total ADF for room								
Third Floor								
Window 67 (lower)			0.68	0.37	63.05	0.7	85.8	0.3%
Window 67 (upper)			0.68	0.71	63.05	0.7	86.9	1.3%
Window 68 (lower)			0.68	0.37	63.05	0.7	85.9	0.3%

Appendix 2 - Average Daylight Factor (ADF)

75 to 81 Southampton Street, Reading, Berkshire RG1 2QU

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					ADF
	Primary room use	ADF	T	Aw	A	R	θ	
Window 68 (upper)	Bedroom	1.0%	0.68	0.71	63.05	0.7	87.0	1.3%
Total ADF for room								3.2%
Window 69 (lower)			0.68	0.37	132.13	0.7	85.8	0.1%
Window 69 (upper)			0.68	0.71	132.13	0.7	86.9	0.6%
Window 70	Living/Dining/Kitchen	2.0%	0.68	0.82	132.13	0.7	86.1	0.7%
Window 71 (lower)			0.68	0.37	132.13	0.7	48.8	0.1%
Window 72 (upper)			0.68	0.71	132.13	0.7	52.4	0.4%
Window 72			0.68	0.82	132.13	0.7	83.7	0.7%
Total ADF for room								2.6%
Window 73 (lower)			0.68	0.37	105.19	0.7	70.4	0.1%
Window 74 (upper)	Living/Dining/Kitchen	2.0%	0.68	0.71	105.19	0.7	71.9	0.7%
Window 74			0.68	0.82	105.19	0.7	83.1	0.9%
Total ADF for room								1.7%
Window 75 (lower)			0.68	0.37	57.18	0.72	72.1	0.3%
Window 75 (upper)	Bedroom	1.0%	0.68	0.71	57.18	0.72	73.5	1.3%
Total ADF for room								1.6%
Window 76 (lower)			0.68	0.37	100.07	0.71	73.4	0.1%
Window 76 (upper)			0.68	0.71	100.07	0.71	75.1	0.7%
Total ADF for room	Living/Dining/Kitchen	2.0%						0.8%
Window 77 (lower)	Bedroom	1.0%	0.68	0.37	59.63	0.71	74.3	0.3%
Window 77 (upper)			0.68	0.71	59.63	0.71	76.2	1.3%
Total ADF for room								1.6%
Window 78 (lower)			0.68	0.37	52.56	0.72	77.3	0.3%
Window 78 (upper)	Bedroom	1.0%	0.68	0.71	52.56	0.72	78.2	1.5%
Total ADF for room								1.8%
Window 79 (lower)			0.68	0.37	94.52	0.7	78.3	0.2%
Window 79 (upper)			0.68	0.71	94.52	0.7	79.3	0.8%
Window 80	Living/Dining/Kitchen	2.0%	0.68	0.82	94.52	0.7	67.1	0.8%
Window 81			0.68	0.82	94.52	0.7	71.7	0.8%
Total ADF for room								2.6%
Window 82 (lower)			0.68	0.23	116.52	0.7	35.5	0.0%
Window 82 (upper)			0.68	0.55	116.52	0.7	39.6	0.3%
Window 83 (lower)	Living/Dining/Kitchen	2.0%	0.68	0.37	116.52	0.7	76.5	0.1%
Window 84 (upper)			0.68	0.71	116.52	0.7	78.7	0.6%
Window 84			0.68	0.82	116.52	0.7	48.0	0.5%
Total ADF for room								1.5%
Window 85 (lower)			0.68	0.37	63.05	0.7	81.0	0.3%
Window 85 (upper)			0.68	0.71	63.05	0.7	82.9	1.3%
Window 86 (lower)	Bedroom	1.0%	0.68	0.37	63.05	0.7	84.1	0.3%
Window 86 (upper)			0.68	0.71	63.05	0.7	85.5	1.3%
Total ADF for room								3.2%

Appendix 2 - Room Depth Calculation

75 to 81 Southampton Street, Reading, Berkshire RG1 2QU

Reference	Room Depth Coefficients				Room Depth Calculation		
	L	W	H	Rb	L/W + L/H	<=	2/1-Rb
<u>75 to 81 Southampton Street</u>							
<u>Ground Floor</u>							
Window 1	3.8	2.8	2.3	0.71	3.01	<=	6.92
Window 2	3.8	2.1	2.3	0.71	3.46	<=	7.01
Window 25	3.8	2.1	2.3	0.71	3.46	<=	7.01
Window 26	3.8	2.8	2.3	0.71	3.01	<=	6.92
<u>First Floor</u>							
Window 27	3.8	2.8	2.2	0.71	3.08	<=	6.92
Window 28	3.8	2.1	2.2	0.71	3.54	<=	7.01
Window 35	4.7	2.8	2.2	0.71	3.81	<=	6.94
Window 36	7.8	3.5	2.2	0.7	5.77	<=	6.72
Window 37	4.4	2.8	2.2	0.7	3.57	<=	6.72
Window 38	4.4	2.8	2.2	0.71	3.57	<=	6.93
Window 45	3.8	2.1	2.2	0.71	3.54	<=	7.01
Window 46	3.8	2.8	2.2	0.71	3.08	<=	6.92
<u>Second Floor</u>							
Window 47	3.8	2.8	2.3	0.71	3.01	<=	6.92
Window 48	3.8	2.1	2.3	0.71	3.46	<=	7.01
Window 55	4.7	2.8	2.3	0.71	3.72	<=	6.94
Window 56	7.8	3.5	2.3	0.7	5.62	<=	6.72
Window 57	4.4	2.8	2.3	0.7	3.48	<=	6.72
Window 58	4.4	2.8	2.3	0.71	3.48	<=	6.93
Window 65	3.8	2.1	2.3	0.71	3.46	<=	7.01
Window 66	3.8	2.8	2.3	0.71	3.01	<=	6.92
<u>Third Floor</u>							
Window 75	4.2	2.8	1.8	0.72	3.83	<=	7.02
Window 76	7.3	3.5	1.8	0.71	6.14	<=	6.84
Window 77	3.9	3.3	1.8	0.71	3.35	<=	6.97
Window 78	3.9	2.7	1.8	0.72	3.61	<=	7.05

Appendix 2 - Sunlight to Windows

75 to 81 Southampton Street, Reading, Berkshire RG1 2QU

Reference	Room Use	APSH	
		Total	Winter
<u>75 to 81 Southampton Street</u>			
<u>Ground Floor</u>			
Window 3	Living/Dining/Kitchen	40%	10%
Window 4	Living/Dining/Kitchen	1%	0%
Window 7	Living/Dining/Kitchen	2%	0%
Window 8	Living/Dining/Kitchen	0%	0%
Window 9	Living/Dining/Kitchen	4%	0%
Window 10	Living/Dining/Kitchen	1%	0%
Window 17	Living/Dining/Kitchen	2%	0%
Window 18	Living/Dining/Kitchen	0%	0%
Window 19	Living/Dining/Kitchen	3%	1%
Window 22	Living/Dining/Kitchen	3%	0%
Window 23	Living/Dining/Kitchen	0%	0%
Window 24	Living/Dining/Kitchen	29%	3%
<u>First Floor</u>			
Window 29	Living/Dining/Kitchen	45%	12%
Window 30	Living/Dining/Kitchen	6%	0%
Window 33	Living/Dining/Kitchen	2%	0%
Window 34	Living/Dining/Kitchen	19%	0%
Window 36	Living/Dining/Kitchen	16%	0%
Window 39	Living/Dining/Kitchen	12%	0%
Window 40	Living/Dining/Kitchen	5%	2%
Window 43	Living/Dining/Kitchen	3%	0%
Window 44	Living/Dining/Kitchen	36%	7%
<u>Second Floor</u>			
Window 49	Living/Dining/Kitchen	49%	15%
Window 50	Living/Dining/Kitchen	6%	0%
Window 53	Living/Dining/Kitchen	2%	0%
Window 54	Living/Dining/Kitchen	23%	3%
Window 56	Living/Dining/Kitchen	23%	3%
Window 59	Living/Dining/Kitchen	22%	2%
Window 60	Living/Dining/Kitchen	21%	5%
Window 63	Living/Dining/Kitchen	7%	0%
Window 64	Living/Dining/Kitchen	41%	8%
<u>Third Floor</u>			
Window 69	Living/Dining/Kitchen	62%	21%
Window 70	Living/Dining/Kitchen	7%	0%
Window 71	Living/Dining/Kitchen	6%	0%
Window 72	Living/Dining/Kitchen	0%	0%
Window 73	Living/Dining/Kitchen	7%	0%

Appendix 2 - Sunlight to Windows
75 to 81 Southampton Street, Reading, Berkshire RG1 2QU

Reference	Room Use	APSH	
		Total	Winter
Window 74	Living/Dining/Kitchen	33%	6%
Window 76	Living/Dining/Kitchen	33%	6%
Window 79	Living/Dining/Kitchen	26%	3%
Window 80	Living/Dining/Kitchen	35%	16%
Window 81	Living/Dining/Kitchen	32%	13%
Window 82	Living/Dining/Kitchen	20%	1%
Window 83	Living/Dining/Kitchen	16%	2%
Window 84	Living/Dining/Kitchen	51%	10%