



# Daylight Report

**Client:** ZVI Construction Co. LLC  
c/o Halstead Associates  
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London  
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**Project:** Conversion of 150 Southampton Row, London WC1B 5AL

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## **About MES Energy Services**

**MES Energy Services is an established consultancy practice specialising in providing building solutions throughout the UK.**

We offer a full range of services for both residential and commercial buildings from small individual properties through to highly complex mixed used developments.

We are an industry leader in delivering a professional, accredited and certified service to a wide range of clients including architects, developers, builders, housing associations, the public sector and private householders.

Employing highly qualified staff, our team comes from a variety of backgrounds within the construction industry with combined knowledge of building design, engineering, assessment, construction, development, research and surveying.

We are renowned for our creative thinking and provide a high quality, honest and diligent service.

MES Energy Services maintains its position at the forefront of changes in building regulations as well as technological advances. Our clients, large or small are therefore assured of a cost effective, cohesive and fully integrated professional service.

## **About the Author**

Alex Hole is the Managing Director of MES Energy Services. Alex has been a Member of the Royal Institution of Chartered Surveyors for over 20 years. He has a degree in Estate Management and a Diploma in Non Domestic Energy Assessment. He is also an accredited SAP & Code for Sustainable Homes Assessor, BREEAM In-Use Auditor and is registered with the Institute of Non Destructive Testing. Alex also heads up the daylighting and Right to Light division of MES.

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## **Section 1: Executive Summary**

We have assessed the amount of light in the subject building and compared the results to guidance figures.

Our conclusions are that although many rooms will meet these guidance figures a number at lower levels and overlooking light wells do not, as would be expected in a building such as this.

It should be noted that the benchmark figures are for guidance only and are the same targets for new buildings that do not have the same constraints as an existing building.

This building is further constrained by the fact that it is a historic building of architectural significance and therefore the opportunity to introduce further openings is restricted.

It is important to note that this project is a change of use from commercial to residential and it is generally accepted that the daylighting requirements of residential uses is lower than for commercial uses.

## Section 2: Introduction

The purpose of this report is to assess the natural daylight levels in the bedrooms of the proposed conversion of 150 Southampton Row.

This report considers the daylight issues against the criteria set out for national guidance in the following publications:

- Site Layout Planning for Daylight & Sunlight (SLPDS), PJ Littlefair 2011 published by the BRE (British Research Establishment).

The SLPDS is the culmination of research undertaken by the BRE to determine whether or not a new development will adversely affect the light to nearby properties. The BRE tests are approved by the Department of the Environment and are widely used by local authorities when deciding on development applications.

- BS 8206-2- Code of practice for skylighting.

There are no minimum mandatory requirements for daylighting in Building Regulations for England & Wales but the guidance set out in SLP is widely accepted as the approved methodology when calculating light levels in habitable rooms.

It is worthy of note that SLPDS was first published in 1991 and BS 8206-2 in 1992. However SLPDS has recently been updated (Oct 2011). We have undertaken this study on the basis of this new guidance document.

### Section 3: Description of development

150 Southampton Row, WC1B 5AL is located on the eastern side of Southampton Row (A4200) in the Bloomsbury area of Midtown, near to the junction with Guildford Street.

At present, mixed use accommodation is arranged over basement, ground and seven upper floors.

It is proposed to strategically extend the building in places to the rear and to convert the floors above ground floor to residential use. Each bedroom will benefit from private ensuite facilities and each apartment will benefit from a shared kitchen area.



## Section 4: Assessment Process

The guidance states that rooms to be assessed should be living rooms, kitchens and bedrooms in residential properties. In non-domestic buildings rooms where occupants 'have a reasonable expectation of daylight' should be assessed. This is not defined, however examples are given in the guidance of spaces that this may include schools, hospitals, hotels and hostels, small workshops and *some* offices.

It is important to note that the numerical values in the guidance are purely advisory and different criteria may be used based on the requirements for daylighting in an area viewed against other site layout constraints.

The guidance clearly states that an important issue is whether a neighbouring building "is itself a good neighbour, standing a reasonable distance from the boundary and taking no more than its fair share of light." This is very important when considering development such as this in closely positioned, urban environments.

The two parameters we have assessed are:

- Average Daylight Factor (ADF)
- Daylight Distribution (DD)

## **Section 5: The amount of daylight in the proposed development:**

### **Average Daylight Factors**

The BRE guidance states daylight provision may be checked by using the Average Daylight Factor (ADF). The ADF is a measure of the overall amount of daylight in a space.

BS 8206-2 Code of Practice for Daylighting recommends the following values for residential buildings:

Kitchens	2%
Living Rooms	1.5%
Bedrooms	1%

Other non-habitable rooms need not be assessed.

We have therefore assessed all bedrooms in this building.

The calculation of the average daylight factor takes into account the following variables:

- The diffuse visible transmittance of the glazing (we have assumed a figure of 0.8 for single glazing)
- A maintenance factor, allowing for the effects of dirt
- The net glazed area of the window
- The total area of the room surfaces
- The average reflectance of the rooms (we have assumed a light coloured room with a value of 0.5)
- The angle of the visible sky (taking into account external obstructions). We have allowed for the effects of neighbouring buildings and self shading of the subject building but not for fire escapes and other 'non-building' obstructions.

### **Results**

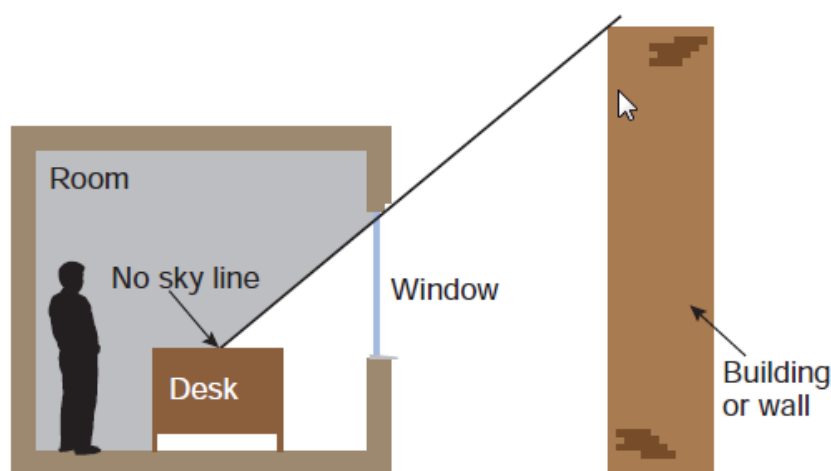
Calculations were undertaken in accordance with the procedures shown in SLPSD. Our results show that most rooms to the front and rear of the building and at the higher levels achieve ADF values above the guidelines. Those rooms at lower levels and overlooking the light wells receive low levels of ADF, as would be expected.



## Daylight Distribution (No sky line)

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

The no sky line effectively divides the points on the working plane (0.85m for residential properties and 0.7m high for offices) that cannot see the sky. Therefore areas beyond the no sky line will receive no direct daylight but will instead be lit from reflected light.



BRE 209

We have shown the position of the no sky line in each of the bedrooms in the Appendix.

## Results

Calculations were undertaken in accordance with the procedures shown in SLPSD. Our results show that most rooms to the front and rear of the building receive an acceptable amount of skylight (the hatched areas). The amount of skylight received by those rooms at a lower level and overlooking the light wells is limited, as would be expected.

## **Section 6: Notes:**

This report has been prepared for the sole use of ZVI Construction Co. LLC. No representation or warranty (expressed or implied) is given to any other parties. Therefore this report should not be relied upon by any third party and we accept no liability from the use of this report by any other party.

Where full access was not available we have made reasonable estimations of internal layouts, floor area's, window sizes and positions etc.

We are not aware of any conflicts of interest between ourselves and any other party concerning this project.

## Appendix

### Average Daylight Factor Results:

MES Calculations (Average Daylight Factor)													
Floor Ref.	Room Ref.	Room Use	Window Ref.	Glass Transmittance	Glazed Area	Clear Sky Angle Existing	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Existing	ADF Proposed	Target Value
Flat 101													
First	R1	Bedroom	W1-L	0.80	0.08	0.00	21.75	69.29	0.50	0.15	0.00	0.00	1.0
			W1-U	0.80	1.12	0.00	21.08	69.29	0.50	1.00	0.00	0.36	
											0.00	0.36	
First	R2	Bedroom	W2-L	0.80	0.08	0.00	21.06	74.19	0.50	0.15	0.00	0.00	1.0
			W2-U	0.80	1.12	0.00	20.39	74.19	0.50	1.00	0.00	0.33	
											0.00	0.33	
First	R3	Bedroom	W3-L	0.80	0.08	0.00	8.18	76.70	0.50	0.15	0.00	0.00	1.0
			W3-U	0.80	1.12	0.00	8.29	76.70	0.50	1.00	N/A	0.13	
											N/A	0.13	
First	R4	Bedroom	W4-L	0.80	0.08	0.00	5.66	60.83	0.50	0.15	0.00	0.00	1.0
			W4-U	0.80	1.12	0.00	5.51	60.83	0.50	1.00	N/A	0.11	
											N/A	0.11	
First	R5	Bedroom	W5-L	0.80	0.06	0.00	49.45	62.30	0.50	0.15	0.00	0.01	1.0
			W5-U	0.80	0.79	0.00	49.51	62.30	0.50	1.00	0.00	0.67	
			W6-L	0.80	0.06	0.00	48.62	62.30	0.50	0.15	0.00	0.01	
			W6-U	0.80	0.79	0.00	48.72	62.30	0.50	1.00	0.00	0.66	
											0.00	1.35	
First	R6	Bedroom	W7-L	0.80	0.06	0.00	48.97	64.00	0.50	0.15	0.00	0.01	1.0
			W7-U	0.80	0.79	0.00	49.03	64.00	0.50	1.00	0.00	0.65	
			W8-L	0.80	0.06	0.00	47.79	64.00	0.50	0.15	0.00	0.01	
			W8-U	0.80	0.79	0.00	46.92	64.00	0.50	1.00	0.00	0.62	
											0.00	1.28	
First	R7	Bedroom	W9-L	0.80	0.06	0.00	46.78	61.22	0.50	0.15	0.00	0.01	1.0
			W9-U	0.80	0.79	0.00	45.30	61.22	0.50	1.00	0.00	0.62	
			W10-L	0.80	0.06	0.00	47.42	61.22	0.50	0.15	0.00	0.01	
			W10-U	0.80	0.79	0.00	46.53	61.22	0.50	1.00	0.00	0.64	
											0.00	1.26	
First	R8	Bedroom	W11-L	0.80	0.06	0.00	46.67	70.26	0.50	0.15	0.00	0.01	1.0
			W11-U	0.80	0.79	0.00	45.73	70.26	0.50	1.00	0.00	0.55	
			W12-L	0.80	0.06	0.00	45.51	70.26	0.50	0.15	0.00	0.01	
			W12-U	0.80	0.79	0.00	43.95	70.26	0.50	1.00	0.00	0.53	
			W13-L	0.80	0.06	0.00	46.04	70.26	0.50	0.15	0.00	0.01	
			W13-U	0.80	0.79	0.00	45.06	70.26	0.50	1.00	0.00	0.54	
											0.00	1.64	

MES Calculations (Average Daylight Factor)													
Floor Ref.	Room Ref.	Room Use	Window Ref.	Glass Transmittance	Glazed Area	Clear Sky Angle Existing	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Existing	ADF Proposed	Target Value
Flat 201													
Second	R1	Bedroom	W1-L	0.80	0.08	0.00	24.97	67.17	0.50	0.15	0.00	0.00	1.0
			W1-U	0.80	1.12	0.00	24.33	67.17	0.50	1.00	0.00	0.43	
											0.00	0.44	
Second	R2	Bedroom	W2-L	0.80	0.08	0.00	24.16	74.15	0.50	0.15	0.00	0.00	1.0
			W2-U	0.80	1.12	0.00	23.59	74.15	0.50	1.00	0.00	0.38	
											0.00	0.38	
Second	R3	Bedroom	W3-L	0.80	0.08	0.00	10.01	74.11	0.50	0.15	0.00	0.00	1.0
			W3-U	0.80	1.12	0.00	10.25	74.11	0.50	1.00	0.00	0.17	
											0.00	0.17	
Second	R4	Bedroom	W4-L	0.80	0.08	0.00	7.07	60.83	0.50	0.15	0.00	0.00	1.0
			W4-U	0.80	1.12	0.00	7.08	60.83	0.50	1.00	0.00	0.14	
											0.00	0.14	
Second	R5	Bedroom	W5	0.80	0.20	0.00	49.52	59.76	0.50	1.00	0.00	0.18	1.0
			W6-L	0.80	0.17	0.00	59.85	59.76	0.50	0.15	0.00	0.03	
			W6-U	0.80	0.54	0.00	59.71	59.76	0.50	1.00	0.00	0.58	
Second	R6	Bedroom	W7	0.80	0.20	0.00	48.95	62.40	0.50	1.00	0.00	0.17	1.0
			W8-L	0.80	0.17	0.00	59.20	62.40	0.50	0.15	0.00	0.03	
			W8-U	0.80	0.54	0.00	59.09	62.40	0.50	1.00	0.00	0.55	
Second	R7	Bedroom	W9	0.80	0.20	0.00	57.57	67.61	0.50	1.00	0.00	0.16	1.0
			W10-L	0.80	0.17	0.00	62.14	67.61	0.50	0.15	0.00	0.03	
			W10-U	0.80	0.54	0.00	62.47	67.61	0.50	1.00	0.00	0.53	
Second	R7	Bedroom	W11	0.80	0.38	0.00	58.72	67.61	0.50	1.00	0.00	0.35	1.0
			W12-L	0.80	0.32	0.00	66.43	67.61	0.50	0.15	0.00	0.05	
			W12-U	0.80	1.01	0.00	66.57	67.61	0.50	1.00	0.00	1.06	
Second	R7	Bedroom	W13	0.80	0.20	0.00	50.56	67.61	0.50	1.00	0.00	0.16	1.0
			W14-L	0.80	0.17	0.00	54.90	67.61	0.50	0.15	0.00	0.02	
			W14-U	0.80	0.54	0.00	55.24	67.61	0.50	1.00	0.00	0.47	
Second	R8	Bedroom	W15	0.80	0.20	0.00	55.38	78.02	0.50	1.00	0.00	0.15	1.0
			W16-L	0.80	0.17	0.00	59.72	78.02	0.50	0.15	0.00	0.02	
			W16-U	0.80	0.54	0.00	60.08	78.02	0.50	1.00	0.00	0.44	
Second	R8	Bedroom	W17	0.80	0.38	0.00	57.20	78.02	0.50	1.00	0.00	0.29	1.0
			W18-L	0.80	0.32	0.00	64.89	78.02	0.50	0.15	0.00	0.04	
			W18-U	0.80	1.01	0.00	65.00	78.02	0.50	1.00	0.00	0.90	
Second	R8	Bedroom	W19	0.80	0.20	0.00	49.61	78.02	0.50	1.00	0.00	0.14	1.0
			W20-L	0.80	0.17	0.00	54.07	78.02	0.50	0.15	0.00	0.02	
			W20-U	0.80	0.54	0.00	54.37	78.02	0.50	1.00	0.00	0.40	
Second	R8	Bedroom									0.00	2.41	1.0

MES Calculations (Average Daylight Factor)													
Floor Ref.	Room Ref.	Room Use	Window Ref.	Glass Transmittance	Glazed Area	Clear Sky Angle Existing	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Existing	ADF Proposed	Target Value
Flat 301													
Third	R1	Bedroom	W1-L	0.80	0.08	0.00	29.75	69.89	0.50	0.15	0.00	0.01	1.0
			W1-U	0.80	1.12	0.00	29.92	69.89	0.50	1.00	0.00	0.51	
											0.00	0.52	
Third	R2	Bedroom	W2-L	0.80	0.08	0.00	28.66	73.55	0.50	0.15	0.00	0.00	1.0
			W2-U	0.80	1.12	0.00	28.94	73.55	0.50	1.00	0.00	0.47	
											0.00	0.48	
Third	R3	Bedroom	W3-L	0.80	0.08	0.00	12.60	74.58	0.50	0.15	0.00	0.00	1.0
			W3-U	0.80	1.12	0.00	13.07	74.58	0.50	1.00	0.00	0.21	
											0.00	0.21	
Third	R4	Bedroom	W4-L	0.80	0.08	0.00	8.74	60.83	0.50	0.15	0.00	0.00	1.0
			W4-U	0.80	1.12	0.00	8.87	60.83	0.50	1.00	0.00	0.17	
											0.00	0.18	
Third	R5	Bedroom	W5	0.80	0.20	0.00	54.36	58.43	0.50	1.00	0.00	0.20	1.0
			W6-L	0.80	0.14	0.00	65.62	58.43	0.50	0.15	0.00	0.03	
			W6-U	0.80	0.52	0.00	64.84	58.43	0.50	1.00	0.00	0.62	
Third	R6	Bedroom	W7	0.80	0.20	0.00	53.94	62.40	0.50	1.00	0.00	0.19	1.0
			W8-L	0.80	0.14	0.00	65.10	62.40	0.50	0.15	0.00	0.02	
			W8-U	0.80	0.52	0.00	64.36	62.40	0.50	1.00	0.00	0.57	
Third	R7	Bedroom	W9	0.80	0.20	0.00	60.67	64.08	0.50	1.00	0.00	0.21	1.0
			W10-L	0.80	0.14	0.00	66.16	64.08	0.50	0.15	0.00	0.02	
			W10-U	0.80	0.52	0.00	65.98	64.08	0.50	1.00	0.00	0.57	
Third	R7	Bedroom	W11	0.80	0.38	0.00	64.04	64.08	0.50	1.00	0.00	0.41	1.0
			W12-L	0.80	0.26	0.00	72.97	64.08	0.50	0.15	0.00	0.05	
			W12-U	0.80	0.97	0.00	72.47	64.08	0.50	1.00	0.00	1.18	
Third	R7	Bedroom	W13	0.80	0.20	0.00	54.64	64.08	0.50	1.00	0.00	0.18	1.0
			W14-L	0.80	0.14	0.00	59.16	64.08	0.50	0.15	0.00	0.02	
			W14-U	0.80	0.52	0.00	59.33	64.08	0.50	1.00	0.00	0.52	
Third	R8	Bedroom	W15	0.80	0.20	0.00	59.30	82.45	0.50	1.00	0.00	0.16	1.0
			W16-L	0.80	0.14	0.00	64.05	82.45	0.50	0.15	0.00	0.02	
			W16-U	0.80	0.52	0.00	64.10	82.45	0.50	1.00	0.00	0.43	
Third	R8	Bedroom	W17	0.80	0.38	0.00	62.69	82.45	0.50	1.00	0.00	0.31	1.0
			W18-L	0.80	0.26	0.00	71.31	82.45	0.50	0.15	0.00	0.04	
			W18-U	0.80	0.97	0.00	70.91	82.45	0.50	1.00	0.00	0.89	
Third	R8	Bedroom	W19	0.80	0.20	0.00	54.25	82.45	0.50	1.00	0.00	0.14	1.0
			W20-L	0.80	0.14	0.00	58.40	82.45	0.50	0.15	0.00	0.02	
			W20-U	0.80	0.52	0.00	58.72	82.45	0.50	1.00	0.00	0.40	
Third	R8	Bedroom									0.00	2.40	1.0

MES Calculations (Average Daylight Factor)													
Floor Ref.	Room Ref.	Room Use	Window Ref.	Glass Transmittance	Glazed Area	Clear Sky Angle Existing	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Existing	ADF Proposed	Target Value
Flat 401													
Fourth	R1	Bedroom	W1-L	0.80	0.08	0.00	35.89	72.35	0.50	0.15	0.00	0.01	1.0
			W1-U	0.80	1.12	0.00	36.81	72.35	0.50	1.00	0.00	0.61	
											0.00	0.61	
Fourth	R2	Bedroom	W2-L	0.80	0.08	0.00	34.46	76.01	0.50	0.15	0.00	0.01	1.0
			W2-U	0.80	1.12	0.00	35.27	76.01	0.50	1.00	0.00	0.55	
											0.00	0.55	
Fourth	R3	Bedroom	W3-L	0.80	0.08	0.00	15.79	76.31	0.50	0.15	0.00	0.00	1.0
			W3-U	0.80	1.12	0.00	15.64	76.31	0.50	1.00	0.00	0.24	
											0.00	0.24	
Fourth	R4	Bedroom	W4-L	0.80	0.08	0.00	9.97	60.83	0.50	0.15	0.00	0.00	1.0
			W4-U	0.80	1.12	0.00	9.24	60.83	0.50	1.00	0.00	0.18	
											0.00	0.18	
Fourth	R5	Bedroom	W5-L	0.80	0.11	0.00	69.85	58.43	0.50	0.15	0.00	0.02	1.0
			W5-U	0.80	0.64	0.00	69.78	58.43	0.50	1.00	0.00	0.82	
											0.00	0.82	
Fourth	R6	Bedroom	W6-L	0.80	0.11	0.00	69.47	63.37	0.50	0.15	0.00	0.02	1.0
			W6-U	0.80	0.64	0.00	69.44	63.37	0.50	1.00	0.00	0.75	
											0.00	0.75	
Fourth	R7	Bedroom	W7-L	0.80	0.46	0.00	79.00	58.57	0.50	0.15	0.00	0.10	1.0
			W7-U	0.80	2.07	0.00	76.81	58.57	0.50	1.00	0.00	2.90	
											0.00	2.90	
Fourth	R8	Bedroom	W8-L	0.80	0.46	0.00	77.74	72.89	0.50	0.15	0.00	0.08	1.0
			W8-U	0.80	2.07	0.00	75.71	72.89	0.50	1.00	0.00	2.30	
											0.00	2.30	
Flat 501													
Fifth	R1	Bedroom	W1-L	0.80	0.08	0.00	42.89	68.57	0.50	0.15	0.00	0.01	1.0
			W1-U	0.80	1.12	0.00	43.61	68.57	0.50	1.00	0.00	0.76	
											0.00	0.76	
Fifth	R2	Bedroom	W2-L	0.80	0.08	0.00	40.46	73.29	0.50	0.15	0.00	0.01	1.0
			W2-U	0.80	1.12	0.00	40.84	73.29	0.50	1.00	0.00	0.67	
											0.00	0.67	
Fifth	R3	Bedroom	W3-L	0.80	0.08	0.00	20.79	73.56	0.50	0.15	0.00	0.00	1.0
			W3-U	0.80	1.12	0.00	21.61	73.56	0.50	1.00	0.00	0.35	
											0.00	0.35	
Fifth	R4	Bedroom	W4-L	0.80	0.08	0.00	13.79	60.45	0.50	0.15	0.00	0.00	1.0
			W4-U	0.80	1.12	0.00	14.28	60.45	0.50	1.00	0.00	0.28	
											0.00	0.28	
Fifth	R5	Bedroom	W5-L	0.80	0.19	0.00	78.38	63.05	0.50	0.15	0.00	0.04	1.0
			W5-U	0.80	0.83	0.00	78.53	63.05	0.50	1.00	0.00	1.10	
											0.00	1.10	
Fifth	R6	Bedroom	W6-L	0.80	0.19	0.00	78.13	58.32	0.50	0.15	0.00	0.04	1.0
			W6-U	0.80	0.83	0.00	78.34	58.32	0.50	1.00	0.00	1.19	
			W7-L	0.80	0.10	0.00	75.35	58.32	0.50	0.15	0.00	0.02	
Fifth	R7	Bedroom	W7-U	0.80	0.41	0.00	75.48	58.32	0.50	1.00	0.00	0.57	1.0
											0.00	1.82	
											0.00	1.82	
Fifth	R8	Bedroom	W8-L	0.80	0.10	0.00	75.42	60.52	0.50	0.15	0.00	0.02	1.0
			W8-U	0.80	0.41	0.00	75.54	60.52	0.50	1.00	0.00	0.55	
			W9-L	0.80	0.19	0.00	77.63	60.52	0.50	0.15	0.00	0.04	
Fifth	R8	Bedroom	W9-U	0.80	0.83	0.00	77.96	60.52	0.50	1.00	0.00	1.14	1.0
											0.00	1.75	
											0.00	1.75	
Fifth	R8	Bedroom	W10-L	0.80	0.19	0.00	77.29	72.87	0.50	0.15	0.00	0.03	1.0
			W10-U	0.80	0.83	0.00	77.71	72.87	0.50	1.00	0.00	0.94	
			W11-L	0.80	0.19	0.00	76.95	72.87	0.50	0.15	0.00	0.03	
Fifth	R8	Bedroom	W11-U	0.80	0.83	0.00	77.45	72.87	0.50	1.00	0.00	0.94	1.0
											0.00	1.94	
											0.00	1.94	

MES Calculations (Average Daylight Factor)													
Floor Ref.	Room Ref.	Room Use	Window Ref.	Glass Transmittance	Glazed Area	Clear Sky Angle Existing	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Existing	ADF Proposed	Target Value
<b>Flat 601</b>													
Sixth	R1	Bedroom	W1-L	0.80	0.08	0.00	52.40	69.94	0.50	0.15	0.00	0.01	1.0
			W1-U	0.80	1.12	0.00	53.85	69.94	0.50	1.00	0.00	0.92	
											0.00	0.93	
Sixth	R2	Bedroom	W2-L	0.80	0.08	0.00	48.09	72.49	0.50	0.15	0.00	0.01	1.0
			W2-U	0.80	1.12	0.00	48.91	72.49	0.50	1.00	0.00	0.81	
											0.00	0.81	
Sixth	R3	Bedroom	W3-L	0.80	0.08	0.00	25.48	72.14	0.50	0.15	0.00	0.00	1.0
			W3-U	0.80	1.12	0.00	26.71	72.14	0.50	1.00	0.00	0.44	
											0.00	0.45	
Sixth	R4	Bedroom	W4-L	0.80	0.08	0.00	17.73	60.83	0.50	0.15	0.00	0.00	1.0
			W4-U	0.80	1.12	0.00	18.95	60.83	0.50	1.00	0.00	0.37	
											0.00	0.38	
Sixth	R5	Bedroom	W5-L	0.80	0.19	0.00	83.60	60.83	0.50	0.15	0.00	0.04	1.0
			W5-U	0.80	0.87	0.00	83.28	60.83	0.50	1.00	0.00	1.28	
											0.00	1.32	
Sixth	R6	Bedroom	W6-L	0.80	0.19	0.00	83.57	58.15	0.50	0.15	0.00	0.04	1.0
			W6-U	0.80	0.87	0.00	83.28	58.15	0.50	1.00	0.00	1.33	
											0.00	1.38	
Sixth	R7	Bedroom	W7-L	0.80	0.19	0.00	83.53	62.06	0.50	0.15	0.00	0.04	1.0
			W7-U	0.80	0.87	0.00	83.28	62.06	0.50	1.00	0.00	1.25	
			W8-L	0.80	0.19	0.00	83.48	62.06	0.50	0.15	0.00	0.04	
			W8-U	0.80	0.87	0.00	83.28	62.06	0.50	1.00	0.00	1.25	
											0.00	2.58	
Sixth	R8	Bedroom	W9-L	0.80	0.19	0.00	83.41	72.54	0.50	0.15	0.00	0.03	1.0
			W9-U	0.80	0.87	0.00	83.28	72.54	0.50	1.00	N/A	1.07	
			W10-L	0.80	0.19	0.00	83.37	72.54	0.50	0.15	0.00	0.03	
			W10-U	0.80	0.87	0.00	83.28	72.54	0.50	1.00	0.00	1.07	
											N/A	2.21	

MES Calculations (Average Daylight Factor)													
Floor Ref.	Room Ref.	Room Use	Window Ref.	Glass Transmittance	Glazed Area	Clear Sky Angle Existing	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Existing	ADF Proposed	Target Value
<b>Flat 701</b>													
Seventh	R1	Bedroom	W1-L	0.80	0.08	0.00	61.19	68.87	0.50	0.15	0.00	0.01	1.0
			W1-U	0.80	1.12	0.00	63.16	68.87	0.50	1.00	0.00	1.10	
											0.00	1.11	
Seventh	R2	Bedroom	W2-L	0.80	0.08	0.00	55.10	71.97	0.50	0.15	0.00	0.01	1.0
			W2-U	0.80	1.12	0.00	57.17	71.97	0.50	1.00	0.00	0.95	
											0.00	0.96	
Seventh	R3	Bedroom	W3-L	0.80	0.08	0.00	34.96	70.90	0.50	0.15	0.00	0.01	1.0
			W3-U	0.80	1.12	0.00	40.38	70.90	0.50	1.00	0.00	0.68	
											0.00	0.69	
Seventh	R4	Bedroom	W4-L	0.80	0.08	0.00	27.44	62.52	0.50	0.15	0.00	0.01	1.0
			W4-U	0.80	1.12	0.00	32.57	62.52	0.50	1.00	0.00	0.62	
											0.00	0.63	
Seventh	R5	Bedroom	W5-L	0.80	0.07	0.00	81.04	52.14	0.50	0.15	0.00	0.02	1.0
			W5-U	0.80	0.71	0.00	80.85	52.14	0.50	1.00	0.00	1.17	
											0.00	1.19	
Seventh	R6	Bedroom	W6-L	0.80	0.07	0.00	83.45	56.81	0.50	0.15	0.00	0.02	1.0
			W6-U	0.80	0.71	0.00	83.14	56.81	0.50	1.00	0.00	1.10	
											0.00	1.12	
Seventh	R7	Bedroom	W7-L	0.80	0.13	0.00	84.77	56.11	0.50	0.15	0.00	0.03	1.0
			W7-U	0.80	1.25	0.00	84.35	56.11	0.50	1.00	0.00	2.01	
											0.00	2.04	
Seventh	R8	Bedroom	W8-L	0.80	0.11	0.00	76.33	66.87	0.50	0.15	0.00	0.02	1.0
			W8-U	0.80	0.63	0.00	75.33	66.87	0.50	1.00	N/A	0.75	
			W9-L	0.80	0.23	0.00	85.08	66.87	0.50	0.15	0.00	0.05	
			W9-U	0.80	1.28	0.00	83.17	66.87	0.50	1.00	N/A	1.70	
			W10-L	0.80	0.11	0.00	76.33	66.87	0.50	0.15	0.00	0.02	
			W10-U	0.80	0.63	0.00	75.33	66.87	0.50	1.00	N/A	0.75	
											N/A	3.30	



MES Calculations (Average Daylight Factor)													
Floor Ref.	Room Ref.	Room Use	Window Ref.	Glass Transmittance	Glazed Area	Clear Sky Angle Existing	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Existing	ADF Proposed	Target Value
Flat 801													
Eighth	R1	Bedroom	W1-L	0.80	0.08	0.00	84.35	80.44	0.50	0.15	0.00	0.01	1.0
			W1-U	0.80	1.12	0.00	86.15	80.44	0.50	1.00	0.00	1.28	
										0.00	1.29		
Eighth	R2	Bedroom	W2-L	0.80	0.08	0.00	83.17	64.59	0.50	0.15	0.00	0.02	1.0
			W2-U	0.80	1.12	0.00	85.92	64.59	0.50	1.00	0.00	1.59	
										0.00	1.61		
Eighth	R3	Bedroom	W3-L	0.80	0.08	0.00	77.76	63.97	0.50	0.15	0.00	0.02	1.0
			W3-U	0.80	1.12	0.00	84.07	63.97	0.50	1.00	0.00	1.57	
										0.00	1.59		
Eighth	R4	Bedroom	W4-L	0.80	0.08	0.00	63.21	60.72	0.50	0.15	0.00	0.01	1.0
			W4-U	0.80	1.12	0.00	69.87	60.72	0.50	1.00	0.00	1.37	
										0.00	1.39		
Eighth	R5	Bedroom	W5	0.80	0.81	0.00	84.35	55.89	0.50	1.00	0.00	1.30	1.0
											0.00	1.30	
Flat 102													
First	R1	Bedroom	W1-L	0.80	0.08	0.00	1.77	52.57	0.50	0.15	0.00	0.00	1.0
			W1-U	0.80	1.12	0.00	0.56	52.57	0.50	1.00	0.00	0.01	
										0.00	0.01		
First	R2	Bedroom	W2-L	0.80	0.08	0.00	2.37	52.57	0.50	0.15	0.00	0.00	1.0
			W2-U	0.80	1.12	0.00	1.80	52.57	0.50	1.00	0.00	0.04	
										0.00	0.04		
First	R3	Bedroom	W3-L	0.80	0.08	0.00	3.04	51.33	0.50	0.15	0.00	0.00	1.0
			W3-U	0.80	1.12	0.00	2.68	51.33	0.50	1.00	0.00	0.06	
										0.00	0.06		
First	R4	Bedroom	W4-L	0.80	0.05	0.00	2.65	53.18	0.50	0.15	0.00	0.00	1.0
			W4-U	0.80	0.67	0.00	1.43	53.18	0.50	1.00	0.00	0.02	
										0.00	0.02		
First	R5	Bedroom	W5-L	0.80	0.06	0.00	44.67	61.29	0.50	0.15	0.00	0.01	1.0
			W5-U	0.80	0.79	0.00	43.59	61.29	0.50	1.00	N/A	0.60	
			W6-L	0.80	0.06	0.00	43.56	61.29	0.50	0.15	0.00	0.01	
			W6-U	0.80	0.79	0.00	41.86	61.29	0.50	1.00	N/A	0.58	
									N/A	1.19			
First	R6	Bedroom	W7-L	0.80	0.06	0.00	44.06	62.69	0.50	0.15	0.00	0.01	1.0
			W7-U	0.80	0.79	0.00	42.95	62.69	0.50	1.00	N/A	0.58	
			W8-L	0.80	0.06	0.00	44.01	62.69	0.50	0.15	0.00	0.01	
			W8-U	0.80	0.79	0.00	43.73	62.69	0.50	1.00	N/A	0.59	
									N/A	1.18			
First	R7	Bedroom	W9-L	0.80	0.06	0.00	43.23	71.72	0.50	0.15	0.00	0.01	1.0
			W9-U	0.80	0.79	0.00	42.99	71.72	0.50	1.00	N/A	0.51	
			W10-L	0.80	0.06	0.00	43.83	71.72	0.50	0.15	0.00	0.01	
			W10-U	0.80	0.79	0.00	43.53	71.72	0.50	1.00	N/A	0.51	
									N/A	1.03			

MES Calculations (Average Daylight Factor)													
Floor Ref.	Room Ref.	Room Use	Window Ref.	Glass Transmittance	Glazed Area	Clear Sky Angle Existing	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Existing	ADF Proposed	Target Value
Flat 202													
Second	R1	Bedroom	W1-L	0.80	0.08	0.00	2.27	52.57	0.50	0.15	0.00	0.00	1.0
			W1-U	0.80	1.12	0.00	1.24	52.57	0.50	1.00	0.00	0.03	
										0.00	0.03		
Second	R2	Bedroom	W2-L	0.80	0.08	0.00	2.94	52.57	0.50	0.15	0.00	0.00	1.0
			W2-U	0.80	1.12	0.00	2.25	52.57	0.50	1.00	0.00	0.05	
										0.00	0.05		
Second	R3	Bedroom	W3-L	0.80	0.08	0.00	3.70	51.33	0.50	0.15	0.00	0.00	1.0
			W3-U	0.80	1.12	0.00	3.37	51.33	0.50	1.00	0.00	0.08	
										0.00	0.08		
Second	R4	Bedroom	W4-L	0.80	0.05	0.00	3.81	52.86	0.50	0.15	0.00	0.00	1.0
			W4-U	0.80	0.67	0.00	3.37	52.86	0.50	1.00	0.00	0.05	
										0.00	0.05		
Second	R5	Bedroom	W5	0.80	0.20	0.00	53.74	69.12	0.50	1.00	0.00	0.17	1.0
			W6-L	0.80	0.17	0.00	58.09	69.12	0.50	0.15	0.00	0.02	
			W6-U	0.80	0.54	0.00	58.45	69.12	0.50	1.00	0.00	0.49	
			W7	0.80	0.38	0.00	55.61	69.12	0.50	1.00	0.00	0.32	
			W8-L	0.80	0.32	0.00	63.32	69.12	0.50	0.15	0.00	0.05	
			W8-U	0.80	1.01	0.00	63.38	69.12	0.50	1.00	0.00	0.99	
			W9	0.80	0.20	0.00	50.30	69.12	0.50	1.00	0.00	0.16	
			W10-L	0.80	0.17	0.00	54.99	69.12	0.50	0.15	0.00	0.02	
			W10-U	0.80	0.54	0.00	55.23	69.12	0.50	1.00	0.00	0.46	
										0.00	2.58		
Second	R6	Bedroom	W11	0.80	0.20	0.00	44.05	61.32	0.50	1.00	0.00	0.15	1.0
			W12-L	0.80	0.17	0.00	54.63	61.32	0.50	0.15	0.00	0.02	
			W12-U	0.80	0.54	0.00	54.41	61.32	0.50	1.00	0.00	0.51	
									0.00	0.69			
Second	R7	Bedroom	W13	0.80	0.20	0.00	44.16	68.90	0.50	1.00	0.00	0.14	1.0
			W14-L	0.80	0.17	0.00	54.81	68.90	0.50	0.15	0.00	0.02	
			W14-U	0.80	0.54	0.00	54.56	68.90	0.50	1.00	0.00	0.46	
									0.00	0.62			

MES Calculations (Average Daylight Factor)													
Floor Ref.	Room Ref.	Room Use	Window Ref.	Glass Transmittance	Glazed Area	Clear Sky Angle Existing	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Existing	ADF Proposed	Target Value
Flat 302													
Third	R1	Bedroom	W1-L	0.80	0.08	0.00	3.06	52.57	0.50	0.15	0.00	0.00	1.0
			W1-U	0.80	1.12	0.00	2.43	52.57	0.50	1.00	0.00	0.06	
											0.00	0.06	
Third	R2	Bedroom	W2-L	0.80	0.08	0.00	3.62	52.57	0.50	0.15	0.00	0.00	1.0
			W2-U	0.80	1.12	0.00	3.23	52.57	0.50	1.00	0.00	0.07	
											0.00	0.07	
Third	R3	Bedroom	W3-L	0.80	0.08	0.00	5.09	51.33	0.50	0.15	0.00	0.00	1.0
			W3-U	0.80	1.12	0.00	4.68	51.33	0.50	1.00	0.00	0.11	
											0.00	0.11	
Third	R4	Bedroom	W4-L	0.80	0.05	0.00	5.81	53.38	0.50	0.15	0.00	0.00	1.0
			W4-U	0.80	0.67	0.00	5.60	53.38	0.50	1.00	0.00	0.08	
											0.00	0.08	
Third	R5	Bedroom	W5	0.80	0.20	0.00	57.95	65.00	0.50	1.00	0.00	0.19	1.0
			W6-L	0.80	0.14	0.00	62.45	65.00	0.50	0.15	0.00	0.02	
			W6-U	0.80	0.52	0.00	62.59	65.00	0.50	1.00	0.00	0.54	
			W7	0.80	0.38	0.00	61.33	65.00	0.50	1.00	0.00	0.38	
			W8-L	0.80	0.26	0.00	69.62	65.00	0.50	0.15	0.00	0.04	
			W8-U	0.80	0.97	0.00	69.31	65.00	0.50	1.00	0.00	1.11	
			W9	0.80	0.20	0.00	54.32	65.00	0.50	1.00	0.00	0.18	
			W10-L	0.80	0.14	0.00	58.95	65.00	0.50	0.15	0.00	0.02	
			W10-U	0.80	0.52	0.00	59.12	65.00	0.50	1.00	0.00	0.51	
											0.00	3.00	
Third	R6	Bedroom	W11	0.80	0.20	0.00	49.80	61.32	0.50	1.00	0.00	0.18	1.0
			W12-L	0.80	0.14	0.00	60.31	61.32	0.50	0.15	0.00	0.02	
			W12-U	0.80	0.52	0.00	59.82	61.32	0.50	1.00	0.00	0.54	
Third	R7	Bedroom									0.00	0.74	1.0
			W13	0.80	0.20	0.00	49.79	71.85	0.50	1.00	0.00	0.15	
			W14-L	0.80	0.14	0.00	60.35	71.85	0.50	0.15	0.00	0.02	
			W14-U	0.80	0.52	0.00	59.84	71.85	0.50	1.00	0.00	0.46	
											0.00	0.63	1.0

MES Calculations (Average Daylight Factor)													
Floor Ref.	Room Ref.	Room Use	Window Ref.	Glass Transmittance	Glazed Area	Clear Sky Angle Existing	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Existing	ADF Proposed	Target Value
Flat 402													
Fourth	R1	Bedroom	W1-L	0.80	0.08	0.00	4.47	52.57	0.50	0.15	0.00	0.00	1.0
			W1-U	0.80	1.12	0.00	4.06	52.57	0.50	1.00	0.00	0.09	
Fourth	R2	Bedroom	W2-L	0.80	0.08	0.00	5.68	52.57	0.50	0.15	0.00	0.00	1.0
			W2-U	0.80	1.12	0.00	5.35	52.57	0.50	1.00	0.00	0.12	
Fourth	R3	Bedroom	W3-L	0.80	0.08	0.00	7.29	51.33	0.50	0.15	0.00	0.00	1.0
			W3-U	0.80	1.12	0.00	7.34	51.33	0.50	1.00	0.00	0.17	
Fourth	R4	Bedroom	W4-L	0.80	0.05	0.00	8.29	53.13	0.50	0.15	0.00	0.00	1.0
			W4-U	0.80	0.67	0.00	8.52	53.13	0.50	1.00	0.00	0.11	
Fourth	R5	Bedroom	W5-L	0.80	0.46	0.00	76.50	63.46	0.50	0.15	0.00	0.09	1.0
			W5-U	0.80	2.07	0.00	74.63	63.46	0.50	1.00	0.00	2.60	
Fourth	R6	Bedroom	W6-L	0.80	0.11	0.00	65.74	62.29	0.50	0.15	0.00	0.02	1.0
			W6-U	0.80	0.64	0.00	66.04	62.29	0.50	1.00	0.00	0.72	
Fourth	R7	Bedroom	W7-L	0.80	0.11	0.00	65.68	72.04	0.50	0.15	0.00	0.02	1.0
			W7-U	0.80	0.64	0.00	65.96	72.04	0.50	1.00	0.00	0.63	
Flat 502													
Fifth	R1	Bedroom	W1-L	0.80	0.08	0.00	8.01	52.57	0.50	0.15	0.00	0.00	1.0
			W1-U	0.80	1.12	0.00	8.35	52.57	0.50	1.00	0.00	0.19	
Fifth	R2	Bedroom	W2-L	0.80	0.08	0.00	9.05	52.57	0.50	0.15	0.00	0.00	1.0
			W2-U	0.80	1.12	0.00	9.46	52.57	0.50	1.00	0.00	0.22	
Fifth	R3	Bedroom	W3-L	0.80	0.08	0.00	10.99	51.33	0.50	0.15	0.00	0.00	1.0
			W3-U	0.80	1.12	0.00	11.78	51.33	0.50	1.00	0.00	0.27	
Fifth	R4	Bedroom	W4-L	0.80	0.05	0.00	12.36	53.37	0.50	0.15	0.00	0.00	1.0
			W4-U	0.80	0.67	0.00	13.67	53.37	0.50	1.00	0.00	0.18	
Fifth	R5	Bedroom	W5-L	0.80	0.19	0.00	76.61	64.91	0.50	0.15	0.00	0.04	1.0
			W5-U	0.80	0.83	0.00	77.20	64.91	0.50	1.00	0.00	1.06	
			W6-L	0.80	0.10	0.00	73.87	64.91	0.50	0.15	0.00	0.02	
			W6-U	0.80	0.41	0.00	74.37	64.91	0.50	1.00	0.00	0.51	
Fifth	R6	Bedroom	W7-L	0.80	0.10	0.00	73.81	60.75	0.50	0.15	0.00	0.02	1.0
			W7-U	0.80	0.41	0.00	74.33	60.75	0.50	1.00	0.00	0.54	
			W8-L	0.80	0.19	0.00	76.11	60.75	0.50	0.15	0.00	0.04	
			W8-U	0.80	0.83	0.00	76.82	60.75	0.50	1.00	0.00	1.12	
Fifth	R7	Bedroom	W9-L	0.80	0.19	0.00	75.92	70.86	0.50	0.15	0.00	0.03	1.0
			W9-U	0.80	0.83	0.00	76.68	70.86	0.50	1.00	0.00	0.95	

MES Calculations (Average Daylight Factor)													
Floor Ref.	Room Ref.	Room Use	Window Ref.	Glass Transmittance	Glazed Area	Clear Sky Angle Existing	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Existing	ADF Proposed	Target Value
<b>Flat 602</b>													
Sixth	R1	Bedroom	W1-L W1-U	0.80 0.80	0.08 1.12	0.00 0.00	13.74 16.32	52.57 52.57	0.50 0.50	0.15 1.00	0.00 0.00 0.00	0.00 0.37 0.37	1.0
Sixth	R2	Bedroom	W2-L W2-U	0.80 0.80	0.08 1.12	0.00 0.00	15.30 17.96	52.57 52.57	0.50 0.50	0.15 1.00	0.00 0.00 0.00	0.00 0.41 0.41	1.0
Sixth	R3	Bedroom	W3-L W3-U	0.80 0.80	0.08 1.12	0.00 0.00	18.32 20.99	51.33 51.33	0.50 0.50	0.15 1.00	0.00 0.00 0.00	0.00 0.49 0.49	1.0
Sixth	R4	Bedroom	W4-L W4-U	0.80 0.80	0.05 0.67	0.00 0.00	21.85 25.49	52.49 52.49	0.50 0.50	0.15 1.00	0.00 0.00 0.00	0.00 0.35 0.35	1.0
Sixth	R5	Bedroom	W5-L W5-U W6-L W6-U	0.80 0.80 0.80 0.80	0.19 0.87 0.19 0.87	0.00 0.00 0.00 0.00	83.34 83.28 83.31 83.28	64.35 64.35 64.35 64.35	0.50 0.50 0.50 0.50	0.15 1.00 0.15 1.00	0.00 0.00 0.00 0.00	0.04 1.21 0.04 1.21	1.0
Sixth	R6	Bedroom	W7-L W7-U	0.80 0.80	0.19 0.87	0.00 0.00	83.27 83.28	60.57 60.57	0.50 0.50	0.15 1.00	0.00 0.00 0.00	0.04 1.28 1.32	1.0
Sixth	R7	Bedroom	W8-L W8-U	0.80 0.80	0.19 0.87	0.00 0.00	83.25 83.28	71.93 71.93	0.50 0.50	0.15 1.00	0.00 0.00 0.00	0.03 1.08 1.11	1.0
<b>Flat 702</b>													
Seventh	R1	Bedroom	W1-L W1-U	0.80 0.80	0.08 1.12	0.00 0.00	37.53 53.15	52.57 52.57	0.50 0.50	0.15 1.00	0.00 0.00 0.00	0.01 1.21 1.22	1.0
Seventh	R2	Bedroom	W2-L W2-U	0.80 0.80	0.08 1.12	0.00 0.00	39.48 55.11	52.57 52.57	0.50 0.50	0.15 1.00	0.00 0.00 0.00	0.01 1.25 1.26	1.0
Seventh	R3	Bedroom	W3-L W3-U	0.80 0.80	0.08 1.12	0.00 0.00	39.96 53.78	51.33 51.33	0.50 0.50	0.15 1.00	0.00 0.00 0.00	0.01 1.25 1.26	1.0
Seventh	R4	Bedroom	W4-L W4-U	0.80 0.80	0.05 0.67	0.00 0.00	45.98 55.82	52.41 52.41	0.50 0.50	0.15 1.00	0.00 0.00 0.00	0.01 0.76 0.77	1.0
Seventh	R5	Bedroom	W5-L W5-U	0.80 0.80	0.13 1.28	0.00 0.00	84.50 84.12	54.93 54.93	0.50 0.50	0.15 1.00	0.00 0.00 0.00	0.03 2.09 2.12	1.0
Seventh	R6	Bedroom	W6-L W6-U	0.80 0.80	0.07 0.71	0.00 0.00	82.95 82.68	47.51 47.51	0.50 0.50	0.15 1.00	0.00 0.00 0.00	0.02 1.31 1.33	1.0
Seventh	R7	Bedroom	W7-L W7-U	0.80 0.80	0.07 0.71	0.00 0.00	80.12 79.95	58.72 58.72	0.50 0.50	0.15 1.00	0.00 0.00 0.00	0.02 1.03 1.04	1.0

MES Calculations (Average Daylight Factor)														
Floor Ref.	Room Ref.	Room Use	Window Ref.	Glass Transmittance	Glazed Area	Clear Sky Angle Existing	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Existing	ADF Proposed	Target Value	
Flat 802														
Eighth	R1	Bedroom	W1-L	0.80	0.08	0.00	85.04	52.57	0.50	0.15	0.00	0.02	1.0	
			W1-U	0.80	1.12	0.00	86.81	52.57	0.50	1.00	0.00	1.97		
										0.00	1.99			
Eighth	R2	Bedroom	W2-L	0.80	0.08	0.00	83.87	52.57	0.50	0.15	0.00	0.02	1.0	
			W2-U	0.80	1.12	0.00	85.82	52.57	0.50	1.00	0.00	1.95		
										0.00	1.97			
Eighth	R3	Bedroom	W3-L	0.80	0.08	0.00	81.72	51.33	0.50	0.15	0.00	0.02	1.0	
			W3-U	0.80	1.12	0.00	84.55	51.33	0.50	1.00	0.00	1.97		
										0.00	1.99			
Eighth	R4	Bedroom	W4-L	0.80	0.05	0.00	75.46	52.32	0.50	0.15	0.00	0.01	1.0	
			W4-U	0.80	0.67	0.00	80.05	52.32	0.50	1.00	0.00	1.10		
										0.00	1.11			
Eighth	R5	Bedroom	W5-L	0.80	0.08	0.00	59.33	73.66	0.50	0.15	0.00	0.01	1.0	
			W5-U	0.80	1.12	0.00	62.42	73.66	0.50	1.00	0.00	1.01		
			W6	0.80	0.81	0.00	84.68	73.66	0.50	1.00	0.00	0.99		
										0.00	2.01			
										0.00	2.01			
Flat 103														
First	R1	Bedroom	W1-L	0.80	0.09	0.00	42.14	77.11	0.50	0.15	0.00	0.01	1.0	
			W1-U	0.80	0.88	0.00	43.21	77.11	0.50	1.00	0.00	0.53		
										0.00	0.54			
First	R2	Bedroom	W2-L	0.80	0.09	0.00	43.65	69.49	0.50	0.15	0.00	0.01	1.0	
			W2-U	0.80	0.88	0.00	45.05	69.49	0.50	1.00	0.00	0.61		
										0.00	0.62			
First	R3	Bedroom	W3-L	0.80	0.14	0.00	52.06	66.49	0.50	0.15	0.00	0.02	1.0	
			W3-U	0.80	1.42	0.00	53.69	66.49	0.50	1.00	N/A	1.22		
										N/A	1.24			
First	R4	Bedroom	W4-L	0.80	0.14	0.00	52.91	75.32	0.50	0.15	0.00	0.02	1.0	
			W4-U	0.80	1.42	0.00	54.73	75.32	0.50	1.00	N/A	1.10		
										N/A	1.12			
First	R5	Bedroom	W5-L	0.80	0.07	0.00	32.94	68.04	0.50	0.15	0.00	0.01	1.0	
			W5-U	0.80	1.02	0.00	33.41	68.04	0.50	1.00	N/A	0.54		
			W6-L	0.80	0.10	0.00	1.42	68.04	0.50	0.15	0.00	0.00		
			W6-U	0.80	1.34	0.00	0.00	68.04	0.50	1.00	N/A	0.00		
										N/A	0.54			
First	R6	Bedroom	W7-L	0.80	0.10	0.00	0.00	54.58	0.50	0.15	0.00	0.00	1.0	
			W7-U	0.80	1.34	0.00	0.00	54.58	0.50	1.00	N/A	0.00		
										N/A	0.00			

MES Calculations (Average Daylight Factor)														
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Flat 203														
Second	R1	Bedroom	W1-L	0.80	0.03	0.00	55.47	71.42	0.50	0.15	0.00	0.00	1.0	
			W1-U	0.80	0.94	0.00	56.75	71.42	0.50	1.00	0.00	0.79		
										0.00	0.80			
Second	R2	Bedroom	W2-L	0.80	0.03	0.00	56.46	69.43	0.50	0.15	0.00	0.00	1.0	
			W2-U	0.80	0.94	0.00	57.68	69.43	0.50	1.00	0.00	0.83		
										0.00	0.83			
Second	R3	Bedroom	W3-L	0.80	0.06	0.00	63.47	66.59	0.50	0.15	0.00	0.01	1.0	
			W3-U	0.80	1.51	0.00	64.46	66.59	0.50	1.00	0.00	1.56		
										0.00	1.56			
Second	R4	Bedroom	W4-L	0.80	0.06	0.00	64.38	64.31	0.50	0.15	0.00	0.01	1.0	
			W4-U	0.80	1.51	0.00	65.30	64.31	0.50	1.00	0.00	1.63		
										0.00	1.64			
Second	R5	Bedroom	W6-L	0.80	0.10	0.00	0.00	66.70	0.50	0.15	0.00	0.00	1.0	
			W6-U	0.80	1.34	0.00	0.00	66.70	0.50	1.00	N/A	0.00		
										N/A	0.00			
Second	R6	Bedroom	W5-L	0.80	0.08	0.00	36.91	61.35	0.50	0.15	0.00	0.01	1.0	
			W5-U	0.80	1.12	0.00	37.01	61.35	0.50	1.00	0.00	0.72		
			W7-L	0.80	0.10	0.00	2.61	61.35	0.50	0.15	0.00	0.00		
			W7-U	0.80	1.34	0.00	1.24	61.35	0.50	1.00	0.00	0.03		
										0.00	0.03			
										0.00	0.76			
Flat 303														
Third	R1	Bedroom	W1-L	0.80	0.68	0.00	68.36	54.03	0.50	0.15	0.00	0.14	1.0	
			W1-U	0.80	1.42	0.00	69.53	54.03	0.50	1.00	N/A	1.95		
										N/A	2.09			
Third	R2	Bedroom	W2-L	0.80	1.34	0.00	72.47	65.86	0.50	0.15	0.00	0.24	1.0	
			W2-U	0.80	2.80	0.00	73.12	65.86	0.50	1.00	0.00	3.32		
										0.00	3.55			
Third	R3	Bedroom	W3-L	0.80	0.08	0.00	38.55	57.75	0.50	0.15	0.00	0.01	1.0	
			W3-U	0.80	1.12	0.00	38.71	57.75	0.50	1.00	0.00	0.80		
										0.00	0.81			
Third	R4	Bedroom	W4-L	0.80	0.10	0.00	0.00	47.05	0.50	0.15	0.00	0.00	1.0	
			W4-U	0.80	1.34	0.00	0.00	47.05	0.50	1.00	0.00	0.00		
										0.00	0.00			
Third	R5	Bedroom	W5-L	0.80	0.10	0.00	3.38	96.50	0.50	0.15	0.00	0.00	1.0	
			W5-U	0.80	1.34	0.00	2.37	96.50	0.50	1.00	0.00	0.04		
										0.00	0.04			

MES Calculations (Average Daylight Factor)													
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Flat 403													
Fourth	R1	Bedroom	W1-L	0.80	0.68	0.00	73.05	59.23	0.50	0.15	0.00	0.13	1.0
			W1-U	0.80	1.29	0.00	73.66	59.23	0.50	1.00	0.00	1.72	
Fourth	R2	Bedroom	W2-L	0.80	0.67	0.00	74.12	61.88	0.50	0.15	0.00	0.13	1.0
			W2-U	0.80	1.27	0.00	74.54	61.88	0.50	1.00	0.00	1.64	
Fourth	R3	Bedroom	W3-L	0.80	0.67	0.00	74.70	53.80	0.50	0.15	0.00	0.15	1.0
			W3-U	0.80	1.27	0.00	75.04	53.80	0.50	1.00	0.00	1.90	
Fourth	R4	Bedroom	W5-L	0.80	0.10	0.00	1.93	49.51	0.50	0.15	0.00	0.00	1.0
			W5-U	0.80	1.34	0.00	0.00	49.51	0.50	1.00	0.00	0.00	
Fourth	R5	Bedroom	W4-L	0.80	0.08	0.00	41.19	67.76	0.50	0.15	0.00	0.01	1.0
			W4-U	0.80	1.12	0.00	41.80	67.76	0.50	1.00	0.00	0.74	
			W6-L	0.80	0.10	0.00	5.03	67.76	0.50	0.15	0.00	0.00	
			W6-U	0.80	1.34	0.00	4.17	67.76	0.50	1.00	0.00	0.09	
											0.00	0.93	
Flat 503													
Fifth	R1	Bedroom	W1-L	0.80	0.54	0.00	53.12	56.76	0.50	0.15	0.00	0.08	1.0
			W1-U	0.80	1.03	0.00	58.63	56.76	0.50	1.00	0.00	1.13	
			W2-L	0.80	0.54	0.00	69.02	56.76	0.50	0.15	0.00	0.11	
			W2-U	0.80	1.03	0.00	71.70	56.76	0.50	1.00	0.00	1.39	
											0.00	2.71	
Fifth	R2	Bedroom	W3-L	0.80	0.54	0.00	70.95	61.09	0.50	0.15	0.00	0.10	1.0
			W3-U	0.80	1.03	0.00	73.41	61.09	0.50	1.00	0.00	1.32	
			W4-L	0.80	0.54	0.00	74.52	61.09	0.50	0.15	0.00	0.11	
			W4-U	0.80	1.03	0.00	75.71	61.09	0.50	1.00	0.00	1.36	
											0.00	2.89	
Fifth	R3	Bedroom	W5-L	0.80	1.09	0.00	75.46	52.01	0.50	0.15	0.00	0.25	1.0
			W5-U	0.80	2.06	0.00	76.85	52.01	0.50	1.00	0.00	3.24	
											0.00	3.49	
Fifth	R4	Bedroom	W6-L	0.80	1.09	0.00	78.06	61.73	0.50	0.15	0.00	0.22	1.0
			W6-U	0.80	2.06	0.00	78.76	61.73	0.50	1.00	0.00	2.80	
											0.00	3.02	
Fifth	R5	Bedroom	W7-L	0.80	0.54	0.00	69.36	66.94	0.50	0.15	0.00	0.09	1.0
			W7-U	0.80	1.03	0.00	72.11	66.94	0.50	1.00	0.00	1.18	
			W8-L	0.80	1.09	0.00	81.81	66.94	0.50	0.15	0.00	0.21	
			W8-U	0.80	2.06	0.00	82.43	66.94	0.50	1.00	0.00	2.70	
			W9-L	0.80	0.54	0.00	75.87	66.94	0.50	0.15	0.00	0.10	
											0.00	1.25	
											0.00	5.54	
Fifth	R6	Bedroom	W10-L	0.80	0.17	0.00	6.71	47.43	0.50	0.15	0.00	0.00	1.0
			W10-U	0.80	2.42	0.00	0.00	47.43	0.50	1.00	0.00	0.00	
											0.00	0.00	
Fifth	R7	Bedroom	W11-L	0.80	0.06	0.00	4.67	47.00	0.50	0.15	0.00	0.00	1.0
			W11-U	0.80	0.82	0.00	0.00	47.00	0.50	1.00	0.00	0.00	
											0.00	0.00	
Fifth	R8	Bedroom	W12-L	0.80	0.10	0.00	2.68	48.20	0.50	0.15	0.00	0.00	1.0
			W12-U	0.80	1.34	0.00	1.01	48.20	0.50	1.00	0.00	0.03	
											0.00	0.03	
Fifth	R9	Bedroom	W13-L	0.80	0.10	0.00	7.92	72.68	0.50	0.15	0.00	0.00	1.0
			W13-U	0.80	1.34	0.00	7.72	72.68	0.50	1.00	0.00	0.15	
											0.00	0.15	



MES Calculations (Average Daylight Factor)													
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Flat 603													
Sixth	R1	Bedroom	W1-L	0.80	1.09	0.00	79.66	61.28	0.50	0.15	0.00	0.23	1.0
			W1-U	0.80	2.06	0.00	83.26	61.28	0.50	1.00	0.00	2.98	
											0.00	3.21	
Sixth	R2	Bedroom	W2-L	0.80	1.09	0.00	81.01	52.78	0.50	0.15	0.00	0.27	1.0
			W2-U	0.80	2.06	0.00	83.73	52.78	0.50	1.00	0.00	3.49	
											0.00	3.75	
Sixth	R3	Bedroom	W3-L	0.80	1.09	0.00	82.91	51.43	0.50	0.15	0.00	0.28	1.0
			W3-U	0.80	2.05	0.00	84.56	51.43	0.50	1.00	0.00	3.60	
											0.00	3.88	
Sixth	R4	Bedroom	W4-L	0.80	1.09	0.00	81.36	51.32	0.50	0.15	0.00	0.28	1.0
			W4-U	0.80	2.05	0.00	83.38	51.32	0.50	1.00	0.00	3.56	
											0.00	3.83	
Sixth	R5	Bedroom	W5-L	0.80	1.09	0.00	84.83	50.30	0.50	0.15	0.00	0.29	1.0
			W5-U	0.80	2.03	0.00	85.46	50.30	0.50	1.00	0.00	3.68	
											0.00	3.97	
Sixth	R6	Bedroom	W6-L	0.80	1.09	0.00	85.10	68.12	0.50	0.15	0.00	0.22	1.0
			W6-U	0.80	2.03	0.00	85.62	68.12	0.50	1.00	0.00	2.72	
			W7-L	0.80	0.08	0.00	45.28	68.12	0.50	0.15	0.00	0.01	
			W7-U	0.80	1.12	0.00	45.25	68.12	0.50	1.00	0.00	0.79	
											0.00	3.74	
Sixth	R7	Bedroom	W8-L	0.80	0.23	0.00	11.18	45.43	0.50	0.15	0.00	0.01	1.0
			W8-U	0.80	3.24	0.00	8.89	45.43	0.50	1.00	0.00	0.68	
											0.00	0.68	
Sixth	R8	Bedroom	W9-L	0.80	0.10	0.00	5.10	52.13	0.50	0.15	0.00	0.00	1.0
			W9-U	0.80	1.34	0.00	3.53	52.13	0.50	1.00	0.00	0.10	
			W10-L	0.80	0.10	0.00	13.86	52.13	0.50	0.15	0.00	0.00	
			W10-U	0.80	1.34	0.00	14.77	52.13	0.50	1.00	0.00	0.41	
											0.00	0.91	
Flat 703													
Seventh	R1	Bedroom	W1-L	0.80	0.72	0.00	86.33	61.15	0.50	0.15	0.00	0.16	1.0
			W1-U	0.80	2.18	0.00	86.36	61.15	0.50	1.00	0.00	3.29	
											0.00	3.45	
Seventh	R2	Bedroom	W2-L	0.80	0.72	0.00	86.38	52.75	0.50	0.15	0.00	0.19	1.0
			W2-U	0.80	2.18	0.00	86.38	52.75	0.50	1.00	0.00	3.82	
											0.00	4.00	
Seventh	R3	Bedroom	W3-L	0.80	0.72	0.00	86.62	50.17	0.50	0.15	0.00	0.20	1.0
			W3-U	0.80	2.18	0.00	86.55	50.17	0.50	1.00	0.00	4.02	
											0.00	4.22	
Seventh	R4	Bedroom	W4-L	0.80	0.72	0.00	86.75	50.11	0.50	0.15	0.00	0.20	1.0
			W4-U	0.80	2.18	0.00	86.61	50.11	0.50	1.00	0.00	4.03	
											0.00	4.23	
Seventh	R5	Bedroom	W5-L	0.80	1.08	0.00	87.56	47.19	0.50	0.15	0.00	0.32	1.0
			W5-U	0.80	3.29	0.00	87.18	47.19	0.50	1.00	0.00	6.49	
											0.00	6.81	
Seventh	R6	Bedroom	W6-L	0.80	0.36	0.00	83.17	53.27	0.50	0.15	0.00	0.09	1.0
			W6-U	0.80	1.08	0.00	83.22	53.27	0.50	1.00	0.00	1.79	
			W7-L	0.80	0.08	0.00	47.02	53.27	0.50	0.15	0.00	0.01	
			W7-U	0.80	1.12	0.00	50.28	53.27	0.50	1.00	0.00	1.13	
											0.00	3.02	
Seventh	R7	Bedroom	W8-L	0.80	0.23	0.00	20.17	45.80	0.50	0.15	0.00	0.02	1.0
			W8-U	0.80	3.24	0.00	21.37	45.80	0.50	1.00	0.00	1.61	
											0.00	1.63	
Seventh	R8	Bedroom	W9-L	0.80	0.10	0.00	10.58	52.13	0.50	0.15	0.00	0.00	1.0
			W9-U	0.80	1.34	0.00	9.62	52.13	0.50	1.00	0.00	0.26	
			W10-L	0.80	0.10	0.00	29.22	52.13	0.50	0.15	0.00	0.01	
			W10-U	0.80	1.34	0.00	32.84	52.13	0.50	1.00	0.00	0.90	
											0.00	1.18	

MES Calculations (Average Daylight Factor)													
Floor Ref.	Room Ref.	Room Use	Window Ref.	Glass Transmittance	Glazed Area	Clear Sky Angle Existing	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Existing	ADF Proposed	Target Value
Flat 104													
First	R1	Bedroom	W1-L	0.80	0.14	0.00	39.92	67.73	0.50	0.15	0.00	0.01	1.0
			W1-U	0.80	1.41	0.00	40.24	67.73	0.50	1.00	N/A	0.89	
											N/A	0.91	
First	R2	Bedroom	W2-L	0.80	0.14	0.00	42.34	64.72	0.50	0.15	0.00	0.01	1.0
			W2-U	0.80	1.41	0.00	42.72	64.72	0.50	1.00	N/A	0.99	
											N/A	1.01	
First	R3	Bedroom	W3-L	0.80	0.09	0.00	37.59	67.59	0.50	0.15	0.00	0.01	1.0
			W3-U	0.80	0.87	0.00	37.95	67.59	0.50	1.00	N/A	0.52	
											N/A	0.53	
First	R4	Bedroom	W4-L	0.80	0.09	0.00	38.90	64.95	0.50	0.15	0.00	0.01	1.0
			W4-U	0.80	0.87	0.00	39.56	64.95	0.50	1.00	N/A	0.57	
											N/A	0.58	
First	R5	Bedroom	W5-L	0.80	0.12	0.00	0.00	49.11	0.50	0.15	0.00	0.00	1.0
			W5-U	0.80	1.62	0.00	0.00	49.11	0.50	1.00	N/A	0.00	
											N/A	0.00	
First	R6	Bedroom	W6-L	0.80	0.12	0.00	0.00	51.20	0.50	0.15	0.00	0.00	1.0
			W6-U	0.80	1.62	0.00	0.00	51.20	0.50	1.00	N/A	0.00	
											N/A	0.00	
Flat 204													
Second	R1	Bedroom	W1-L	0.80	0.06	0.00	48.26	67.69	0.50	0.15	0.00	0.01	1.0
			W1-U	0.80	1.50	0.00	49.58	67.69	0.50	1.00	0.00	1.17	
											0.00	1.18	
Second	R2	Bedroom	W2-L	0.80	0.06	0.00	50.95	65.42	0.50	0.15	0.00	0.01	1.0
			W2-U	0.80	1.50	0.00	52.31	65.42	0.50	1.00	0.00	1.28	
											0.00	1.28	
Second	R3	Bedroom	W3-L	0.80	0.03	0.00	51.01	68.34	0.50	0.15	0.00	0.00	1.0
			W3-U	0.80	0.93	0.00	52.48	68.34	0.50	1.00	0.00	0.76	
											0.00	0.76	
Second	R4	Bedroom	W4-L	0.80	0.03	0.00	52.23	68.86	0.50	0.15	0.00	0.00	1.0
			W4-U	0.80	0.93	0.00	53.66	68.86	0.50	1.00	0.00	0.77	
											0.00	0.78	
Second	R5	Bedroom	W5-L	0.80	0.12	0.00	2.06	52.54	0.50	0.15	0.00	0.00	1.0
			W5-U	0.80	1.62	0.00	0.00	52.54	0.50	1.00	0.00	0.00	
											0.00	0.00	
Second	R6	Bedroom	W6-L	0.80	0.12	0.00	2.16	53.08	0.50	0.15	0.00	0.00	1.0
			W6-U	0.80	1.62	0.00	0.00	53.08	0.50	1.00	0.00	0.00	
											0.00	0.00	

MES Calculations (Average Daylight Factor)														
Floor Ref.	Room Ref.	Room Use	Window Ref.	Glass Transmittance	Glazed Area	Clear Sky Angle Existing	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Existing	ADF Proposed	Target Value	
Flat 304														
Third	R1	Bedroom	W1-L	0.80	0.67	0.00	56.04	54.31	0.50	0.15	0.00	0.11	1.0	
			W1-U	0.80	1.40	0.00	57.38	54.31	0.50	1.00	0.00	1.58		
											0.00	1.69		
Third	R2	Bedroom	W2-L	0.80	0.67	0.00	58.52	59.67	0.50	0.15	0.00	0.11	1.0	
			W2-U	0.80	1.40	0.00	59.91	59.67	0.50	1.00	0.00	1.50		
											0.00	1.60		
Third	R3	Bedroom	W3-L	0.80	0.68	0.00	63.96	51.07	0.50	0.15	0.00	0.14	1.0	
			W3-U	0.80	1.42	0.00	65.37	51.07	0.50	1.00	0.00	1.94		
											0.00	2.08		
Third	R4	Bedroom	W4-L	0.80	0.12	0.00	1.20	63.21	0.50	0.15	0.00	0.00	1.0	
			W4-U	0.80	1.62	0.00	0.00	63.21	0.50	1.00	0.00	0.00		
											0.00	0.00		
Third	R5	Bedroom	W5-L	0.80	0.12	0.00	1.27	63.74	0.50	0.15	0.00	0.00	1.0	
			W5-U	0.80	1.62	0.00	0.00	63.74	0.50	1.00	0.00	0.00		
											0.00	0.00		
Flat 404														
Fourth	R1	Bedroom	W1-L	0.80	0.67	0.00	60.67	53.15	0.50	0.15	0.00	0.12	1.0	
			W1-U	0.80	1.27	0.00	61.80	53.15	0.50	1.00	0.00	1.58		
											0.00	1.70		
Fourth	R2	Bedroom	W2-L	0.80	0.67	0.00	63.35	55.56	0.50	0.15	0.00	0.12	1.0	
			W2-U	0.80	1.27	0.00	64.49	55.56	0.50	1.00	0.00	1.58		
											0.00	1.70		
Fourth	R3	Bedroom	W3-L	0.80	0.68	0.00	69.21	51.30	0.50	0.15	0.00	0.15	1.0	
			W3-U	0.80	1.29	0.00	70.19	51.30	0.50	1.00	0.00	1.89		
											0.00	2.04		
Fourth	R4	Bedroom	W4-L	0.80	0.12	0.00	3.92	53.19	0.50	0.15	0.00	0.00	1.0	
			W4-U	0.80	1.62	0.00	0.00	53.19	0.50	1.00	0.00	0.00		
											0.00	0.00		
Fourth	R5	Bedroom	W5-L	0.80	0.12	0.00	3.58	52.32	0.50	0.15	0.00	0.00	1.0	
			W5-U	0.80	1.62	0.00	0.00	52.32	0.50	1.00	0.00	0.00		
											0.00	0.00		

# Daylight Distribution (no sky line) contours:



First Floor



Second Floor





Third Floor

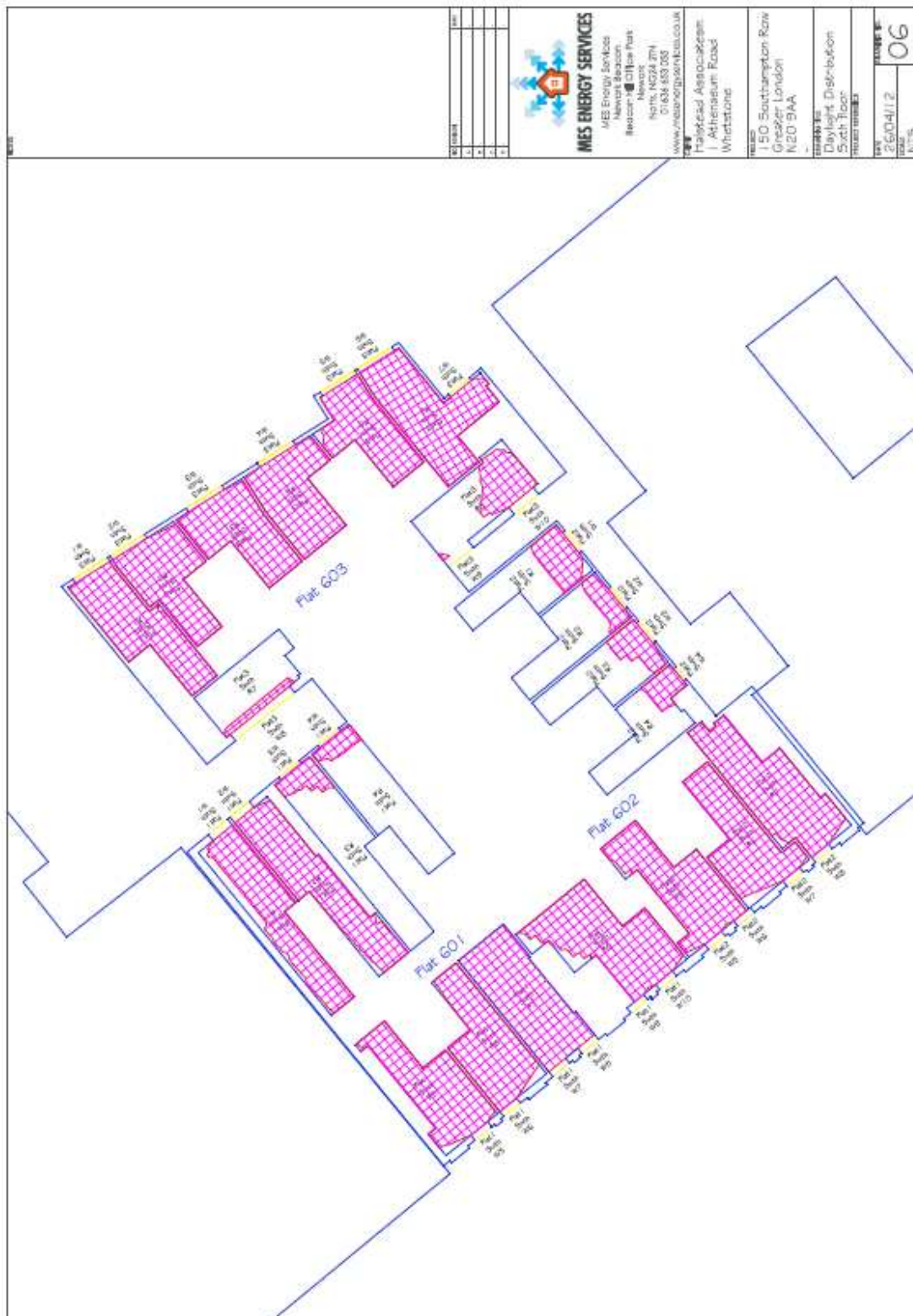


Fourth Floor



## Fifth Floor

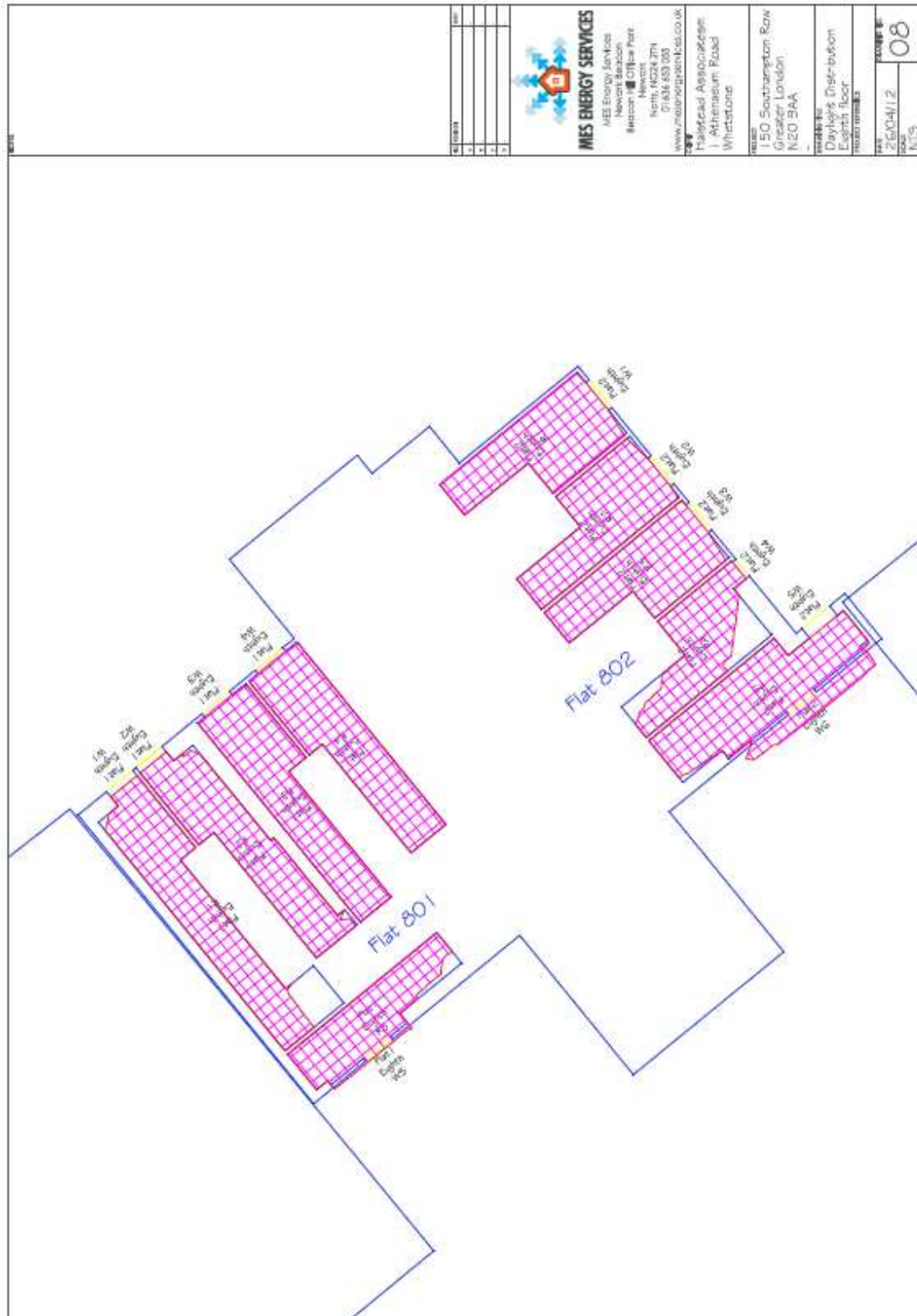




## Sixth Floor



Seventh Floor



Eight Floor