

Sunlight
Assessments UK

Sunlight & Daylight Assessment

Internal Scheme Performance

Project address: 24A Baron St, Rochdale OL16 1SJ, UK

Designer/Architects **Norden Quantity Surveying and Construction Services LTD**

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1. Introduction

- 1.1 Sunlight Assessments UK have been instructed to assess the daylight and sunlight of the proposed conversion of 24A Baron St, Rochdale OL16 1SJ, UK.
- 1.2 The report relates to the proposed Scheme and provides detailed technical support regarding the potential internal Scheme Performance of the daylight and sunlight.
- 1.3 The Local Authority will be informed of this by the BRE document entitled 'Site layout planning for daylight and sunlight: a guide to good practice' (BR209 2022). This document is the principal guidance in this area and sets out the methodology for measuring light and recommends what it considers to be permitted or unobtrusive levels of change.
- 1.4 The BRE guidelines are not mandatory, though local planning authorities and planning inspectors will consider the suitability of a proposed scheme for a site within the context of BRE guidance. Consideration will be given to the urban context within which a scheme is located, and the daylight and sunlight will be one of several planning considerations which the local authority will weigh.

Sources of Information

- 1.5 In the process of compiling this report, the following sources of information have been used:
 - Ordnance Survey Data
 - OS Map
 - Proposed drawings in Appendix 1



2. Methodology

- 2.1 This Daylight and Sunlight Assessments report focuses on the internal scheme performance, of which there are several different metrics to assess:

Interior Daylighting (Spatial Daylight Autonomy SDA)

- 2.2 The BRE guide recommends that interior daylighting is checked using the daylight provision test set out in BS EN 17037. The test measures both the amount of daylight, as well as the distribution of daylight within a room. The 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. The assessment is carried out using a grid of points on a horizontal reference plane in each room. In accordance with the BRE recommendations, we have set the reference plane at 850mm above the floor and have excluded assessment points from a 0.3m wide band around the perimeter of each room.
- 2.3 The UK National Annex to BS EN 17037 gives UK-specific minimum illuminance recommendations which we have set as the targets for this project. The target comprises of 100 lux in bedrooms, 150 lux in living rooms and 200 lux in kitchens to be exceeded over at least 50% of the reference plane. Where a room has a shared use, the highest target should apply. However, the guide states that local authorities could use discretion here. For example, the target for a living room could be used for a combined living/dining/kitchen area if the kitchens are not treated as habitable spaces, as it may avoid small separate kitchens in a design.
- 2.4 The data in Appendix 2 sets out the percentage of the reference plane that meets the relevant lux target for the given room use the median illuminance (lux) achieved for each room is also presented. Where the median illuminance exceeds the lux target, this means the lux target has been achieved over at least 50% of the assessment grid. The daylight provision test may be carried out using either the daylight factor method or the interior illuminance method. For this assessment, we have adopted the daylight factor method. Using the conversion table set out in the BRE guide, we have expressed the results in terms of lux.



2.5 Since the assessment is based on a computer simulation, it is necessary to set various surface reflectance values. By example, a 0.6 reflectance means that 60% of the light hitting the surface will be reflected. Maximum reflectance for white painted surfaces in the calculations should not exceed 0.8 indoors, and 0.7 outdoors, maximum reflectance for light wood floors should not exceed 0.4. For the purpose of this assessment, we have assumed the following reflectance.

Surface	Reflectance
Interior walls	0.8
Window reveals	0.8
Ceilings	0.8
Floors	0.4
Exterior walls and obstructions	0.2
Exterior ground	0.2
Exterior glazing	0.68

In response to concerns raised by the Planning Officer regarding the close proximity of habitable room windows between Apartments 1, 2, 4 and 5, and the potential non-compliance with minimum separation distances, an alternative glazing scenario has also been tested for these apartments. This assumes frosted / obscure double glazing with a reduced light transmittance of 0.55, in order to reflect a potential design mitigation to address privacy and overlooking considerations.

All other apartments have been assessed using the standard clear double-glazed window assumption with a transmittance of 0.68.

Exposure to Sunlight

- 2.6 The BRE guide states that the main requirement for sunlight is in living rooms, where it is valued at any time of day but especially in the afternoon. Sunlight is also required in conservatories. It is viewed as less important in bedrooms and in kitchens, where people prefer it in the morning rather than the afternoon.
- 2.7 The BRE guide states that, in general, a dwelling will appear reasonably sunlit provided:
- at least one main window wall faces within 90 degrees of due south,



- preferably a main living room, can receive a total of at least 1.5 hours of sunlight on 21 March.

2.8 Scheme Performance tests in this report:

Interior Daylighting

Spatial Daylight Autonomy (SDA)

within all habitable rooms of a proposed development.

Exposure to Sunlight

Sunlight Exposure (SE) for the same rooms tested for daylight access.

For Apartments 1, 2, 4 and 5, sunlight and daylight performance have been reviewed under both the standard glazing scenario and the alternative frosted glazing scenario, to understand the implications of potential design mitigation measures associated with close window proximity and privacy requirements.



3. Standard Survey Limitations

- 3.1 Although we have undertaken as detailed an inspection as possible, we are required by our professional indemnity insurers to notify you that our report is based upon the Standard Terms and Conditions. Our understanding of the proposed development is informed in the drawings in Appendix 1 and information supplied by Norden Quantity Surveying and Construction Services LTD.



4. The Site

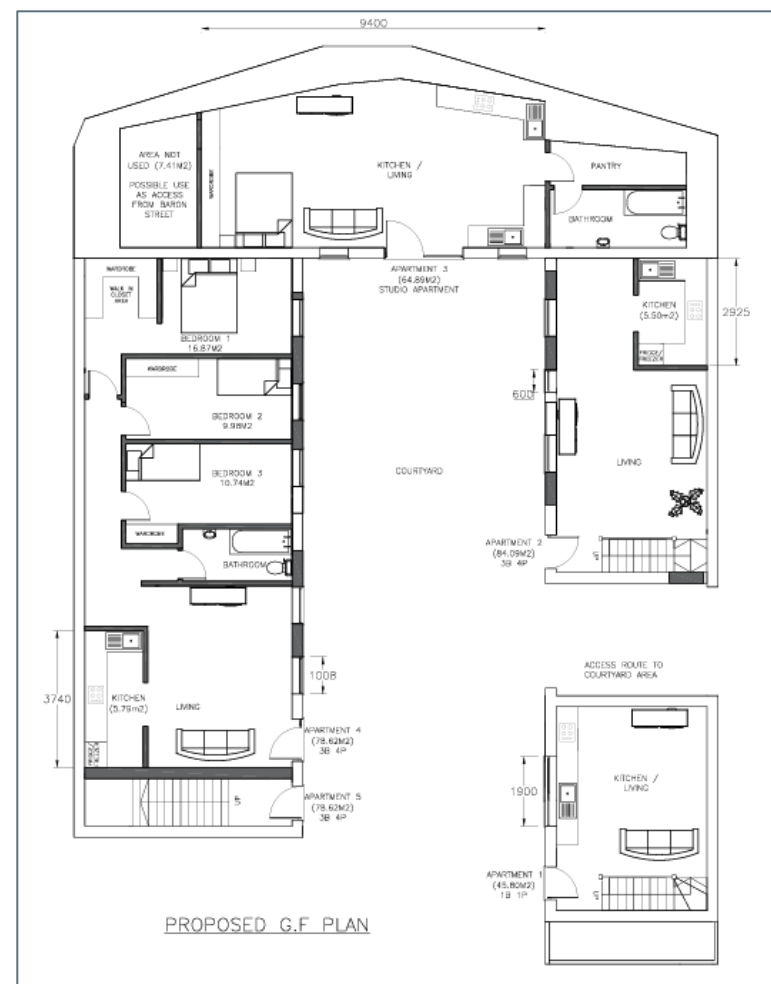
4.1 The site is located at 24A Baron St, Rochdale OL16 1SJ, UK.





5. The Proposal

- 5.1 Our understanding of the proposed development is illustrated in drawings, located within Appendix 1.
- 5.2 Norden Quantity Surveying and Construction Services LTD has provided floorplans and elevations.





6. Assessment Results

- 6.1 The proposed development has been internally assessed for SDA and SE

All apartments have been assessed under a standard glazing scenario assuming clear double glazing with a light transmittance of 68%. In addition, Apartments 1, 2, 4 and 5 have been assessed under an alternative glazing scenario assuming frosted / obscure double glazing with a reduced light transmittance of 55%, in response to the Planning Officer's advice regarding the close proximity of habitable room windows and potential non-compliance with minimum separation distances.

Interior Daylighting, Spatial Daylight Autonomy (SDA)

- 6.2 The results show that all rooms comply and are within the BRE (BR209 2022).

For Apartments 1, 2, 4 and 5, the alternative assessment incorporating frosted glazing indicates that acceptable levels of daylight provision can still be achieved, confirming that the proposed mitigation to address

privacy and overlooking considerations does not result in an unacceptable loss of internal daylighting performance.

Sunlight Exposure (SE)

- 6.3 Requirements within BRE (BR209 2022) recommend that at least one habitable room (living room, bedroom, nursery or kitchen) in a whole dwelling should comply with the guidance.
- 6.4 The results show that at least one habitable room in each dwelling receives the required level of sunlight exposure and therefore complies with the BRE (BR209 2022) guidance.

For Apartments 1, 2, 4 and 5, the alternative scenario with frosted glazing has also been reviewed and confirms that the minimum sunlight exposure requirement continues to be satisfied and is in overall compliance with BRE BR209 (2022).

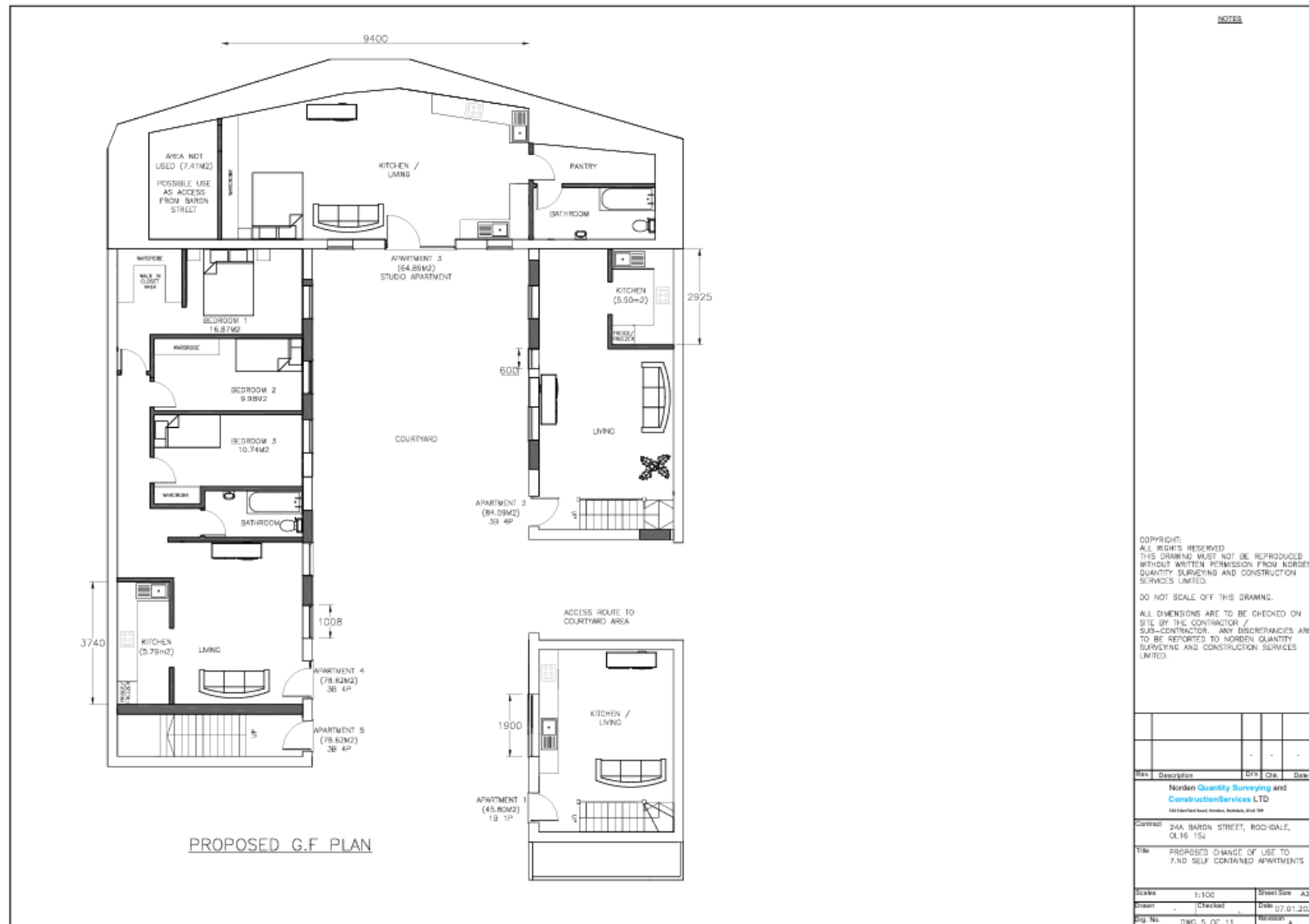


7. Conclusion

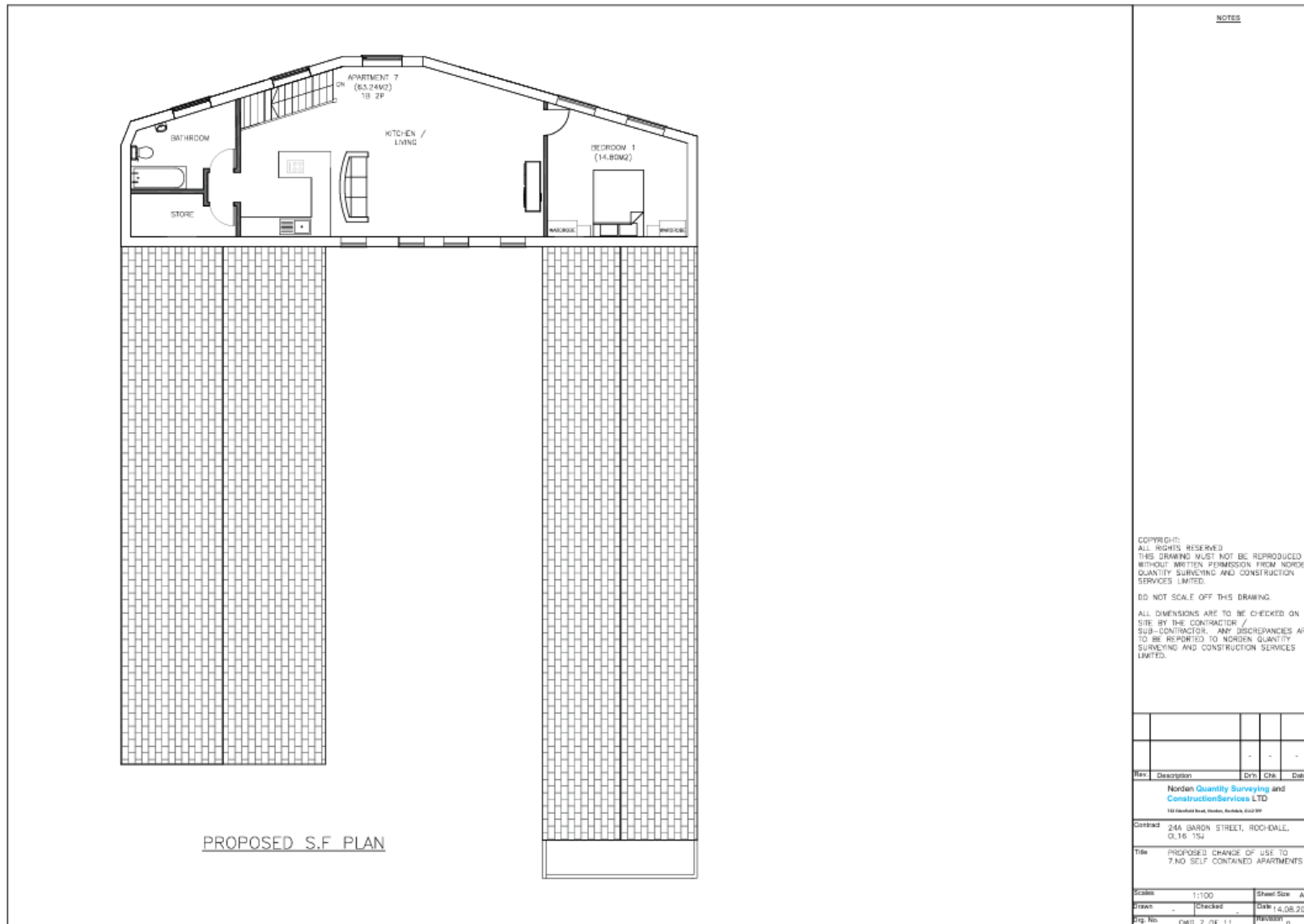
- 7.1 The assessment demonstrates that the daylight and sunlight provision to the internal habitable rooms of the proposed design is compliant with the guidance set out in BRE BR209 (2022). This applies both to the standard glazing scenario (clear double glazing with a light transmittance of 68%) assessed for all apartments, and to the alternative glazing scenario (frosted / obscure glazing with a reduced transmittance of 55%) assessed for Apartments 1, 2, 4 and 5 in response to the close proximity of habitable room windows.
- 7.2 We, therefore, conclude that the Proposed Development in relation to daylight and sunlight is BRE (BR209 2022) compliant, and we have identified no grounds for rejection of this application in terms of daylight and sunlight.

Appendix 1:

Drawings















Appendix 2:

Technical Analysis



Interior Daylighting, Spatial Daylight Autonomy (SDA) – Standard Glazing Transmittance – Clear Glass Windows 68%

Floor Ref	Room Ref	Room Use	Room Area	Effective Area	Median Lux	Area Meeting Req Lux	% of Area Meeting Req Lux	Req Lux	Req % of Space	Req % of Hours	Occupied Hours	Test
Apartment 1												
Ground	R1	LKD	19.34	13.93	213	7.75	56%	200	50%	50%	4380	YES
First	R2	Bedroom	11.06	7.17	219	7.17	100%	100	50%	50%	4380	YES
Apartment 2												
Ground	R1	Living Room	25.16	17.95	164	10.59	59%	150	50%	50%	4380	YES
First	R2	Bedroom	11.07	7.15	139	5.59	78%	100	50%	50%	4380	YES
First	R3	Bedroom	7.94	4.76	211	4.76	100%	100	50%	50%	4380	YES
First	R4	Bedroom	10.50	6.53	221	6.35	97%	100	50%	50%	4380	YES
Apartment 3												
Ground	R1	Studio	37.91	30.57	77	19.31	63%	200	50%	50%	4380	YES
Apartment 4												
Ground	R1	Bedroom	8.98	5.71	109	3.17	56%	100	50%	50%	4380	YES
Ground	R2	Bedroom	8.83	5.13	130	3.12	61%	100	50%	50%	4380	YES
Ground	R3	Bedroom	10.03	6.33	105	3.41	54%	100	50%	50%	4380	YES
Ground	R4	Living Room	21.49	15.46	181	10.40	67%	150	50%	50%	4380	YES
Apartment 5												
First	R1	Bedroom	13.35	8.66	143	6.80	79%	100	50%	50%	4380	YES
First	R2	Bedroom	9.02	5.32	149	5.32	100%	100	50%	50%	4380	YES



First	R3	Bedroom	10.03	6.33	235	6.33	100%	100	50%	50%	4380	YES
First	R4	LKD	26.94	21.06	278	15.09	72%	200	50%	50%	4380	YES
Apartment 6												
First	R1	Bedroom	12.77	8.43	696	8.43	100%	100	50%	50%	4380	YES
First	R2	LKD	38.77	31.27	1032	31.27	100%	200	50%	50%	4380	YES
Apartment 7												
First	R1	Bedroom	12.77	8.43	696	8.43	100%	100	50%	50%	4380	YES
First	R2	LKD	38.77	31.27	1032	31.27	100%	200	50%	50%	4380	YES



Interior Daylighting, Spatial Daylight Autonomy (SDA) – Frosted Glass Glazing Transmittance – Windows 55%

Floor Ref	Room Ref	Room Use	Room Area	Effective Area	Median Lux	Area Meeting Req Lux	% of Area Meeting Req Lux	Req Lux	Req % of Space	Req % of Hours	Occupied Hours	Test
Apartment 1												
Ground	R1	LKD	19.34	13.93	199	6.92	50%	200	50%	50%	4380	YES
First	R2	Bedroom	11.06	7.17	212	7.17	100%	100	50%	50%	4380	YES
Apartment 2												
Ground	R1	Living Room	25.16	17.95	155	9.57	53%	150	50%	50%	4380	YES
First	R2	Bedroom	11.07	7.15	133	5.23	73%	100	50%	50%	4380	YES
First	R3	Bedroom	7.94	4.76	208	4.76	100%	100	50%	50%	4380	YES
First	R4	Bedroom	10.50	6.53	210	6.35	97%	100	50%	50%	4380	YES
Apartment 4												
Ground	R1	Bedroom	8.98	5.71	105	2.99	52%	100	50%	50%	4380	YES
Ground	R2	Bedroom	8.83	5.13	119	2.92	57%	100	50%	50%	4380	YES
Ground	R3	Bedroom	10.03	6.33	112	3.41	54%	100	50%	50%	4380	YES
Ground	R4	Living Room	21.49	15.46	165	8.82	57%	150	50%	50%	4380	YES
Apartment 5												
First	R1	Bedroom	13.35	8.66	141	6.19	71%	100	50%	50%	4380	YES
First	R2	Bedroom	9.02	5.32	111	3.55	67%	100	50%	50%	4380	YES
First	R3	Bedroom	10.03	6.33	170	5.16	82%	100	50%	50%	4380	YES
First	R4	LKD	26.94	21.06	207	10.97	52%	200	50%	50%	4380	YES



Sunlight Exposure (SE) - Standard Glazing Transmittance – Clear Glass Windows 68%

Building Ref	Floor Ref	Room Ref	Room Use	Window Ref	Window Orientation	Proposed SE (Hours)	Rating
Apartment 1	Ground	R1	LKD	24a Baron Street_Ground_W11	319°N	0.5	
Apartment 1	Ground	R1	LKD	24a Baron Street_Ground_W10	319°N	0	
						0.5	
Apartment 1	First	R2	Bedroom	24a Baron Street_First_W1	319°N	1	
						1	
Apartment 1							PASS
Apartment 2	Ground	R1	Living Room	24a Baron Street_Ground_W12	319°N	0.4	
Apartment 2	Ground	R1	Living Room	24a Baron Street_Ground_W13	319°N	0.7	
Apartment 2	Ground	R1	Living Room	24a Baron Street_Ground_W15	319°N	1.6	
Apartment 2	Ground	R1	Living Room	24a Baron Street_Ground_W14	319°N	1.6	
						1.6	
Apartment 2	First	R2	Bedroom	24a Baron Street_First_W4	319°N	1.7	
						1.7	
Apartment 2	First	R3	Bedroom	24a Baron Street_First_W3	319°N	1.7	
						1.7	
Apartment 2	First	R4	Bedroom	24a Baron Street_First_W2	319°N	1.1	
						1.1	
Apartment 2							PASS



Apartment 3	Ground	R1	Studio	24a Baron Street_Ground_W2	228°	3.3	
Apartment 3	Ground	R1	Studio	24a Baron Street_Ground_W1	228°	4	
Apartment 3	Ground	R1	Studio	24a Baron Street_Ground_W3	228°	2	
						5.2	
Apartment 3							PASS
Apartment 4	Ground	R1	Living Room	24a Baron Street_Ground_W6	138°	4.7	
Apartment 4	Ground	R1	Living Room	24a Baron Street_Ground_W5	139°	3.5	
Apartment 4	Ground	R1	Living Room	24a Baron Street_Ground_W4	139°	3.3	
Apartment 4	Ground	R1	Living Room	24a Baron Street_Ground_W18	138°	4.7	
						4.7	
Apartment 4	Ground	R2	Bedroom	24a Baron Street_Ground_W7	139°	4.7	
						4.7	
Apartment 4	Ground	R3	Bedroom	24a Baron Street_Ground_W8	139°	4.6	
						4.6	
Apartment 4							PASS
Apartment 5	First	R1	LKD	24a Baron Street_First_W13	138°	6.3	
Apartment 5	First	R1	LKD	24a Baron Street_First_W12	138°	5.9	
						6.3	
Apartment 5	First	R2	Bedroom	24a Baron Street_First_W11	138°	5.2	



						5.2	
Apartment 5	First	R3	Bedroom	24a Baron Street_First_W10	138°	4.8	
						4.8	
Apartment 5	First	R4	Bedroom	24a Baron Street_First_W9	138°	4.4	
						4.4	
Apartment 5							PASS
Apartment 6	First	R1	LKD	24a Baron Street_First_W5	228°	4.6	
Apartment 6	First	R1	LKD	24a Baron Street_First_W7	229°	5.9	
Apartment 6	First	R1	LKD	24a Baron Street_First_W6	228°	5.5	
Apartment 6	First	R1	LKD	24a Baron Street_First_W8	229°	5.5	
Apartment 6	First	R1	LKD	24a Baron Street_First_W16	65°N	3.4	
Apartment 6	First	R1	LKD	24a Baron Street_First_W14	49°N	2.4	
Apartment 6	First	R1	LKD	24a Baron Street_First_W15	65°N	3.4	
						9.4	
Apartment 6	First	R2	Bedroom	24a Baron Street_First_W17	65°N	3.4	
Apartment 6	First	R2	Bedroom	24a Baron Street_First_W16	65°N	3.4	
						3.4	
Apartment 6							PASS
Apartment 7	Second	R1	LKD	24a Baron Street_Second_W1	228°	6.6	



Apartment 7	Second	R1	LKD	24a Baron Street_Second_W3	228°	6.6	
Apartment 7	Second	R1	LKD	24a Baron Street_Second_W2	228°	6.6	
Apartment 7	Second	R1	LKD	24a Baron Street_Second_W4	229°	5.8	
Apartment 7	Second	R1	LKD	24a Baron Street_Second_W8	65°N	3.4	
Apartment 7	Second	R1	LKD	24a Baron Street_Second_W7	65°N	3.4	
Apartment 7	Second	R1	LKD	24a Baron Street_Second_W6	48°N	2.4	
Apartment 7	Second	R1	LKD	24a Baron Street_Second_W5	31°N	1.3	
						9.4	
Apartment 7	Second	R2	Bedroom	24a Baron Street_Second_W9	65°N	3.4	
Apartment 7	Second	R2	Bedroom	24a Baron Street_Second_W8	65°N	3.4	
						3.4	
Apartment 5							PASS



Sunlight Exposure (SE) - Frosted Glass Glazing Transmittance – Windows 55%

Building Ref	Floor Ref	Room Ref	Room Use	Window Ref	Window Orientation	Proposed SE (Hours)	Rating
Apartment 1	Ground	R1	LKD	24a Baron Street_Ground_W11	319°N	0.5	
Apartment 1	Ground	R1	LKD	24a Baron Street_Ground_W10	319°N	0	
						0.5	
Apartment 1	First	R2	Bedroom	24a Baron Street_First_W1	319°N	1	
						1	
Apartment 1							PASS
Apartment 2	Ground	R1	Living Room	24a Baron Street_Ground_W12	319°N	0.4	
Apartment 2	Ground	R1	Living Room	24a Baron Street_Ground_W13	319°N	0.7	
Apartment 2	Ground	R1	Living Room	24a Baron Street_Ground_W15	319°N	1.6	
Apartment 2	Ground	R1	Living Room	24a Baron Street_Ground_W14	319°N	1.6	
						1.6	
Apartment 2	First	R2	Bedroom	24a Baron Street_First_W4	319°N	1.7	
						1.7	
Apartment 2	First	R3	Bedroom	24a Baron Street_First_W3	319°N	1.7	
						1.7	
Apartment 2	First	R4	Bedroom	24a Baron Street_First_W2	319°N	1.1	
						1.1	
Apartment 2							PASS



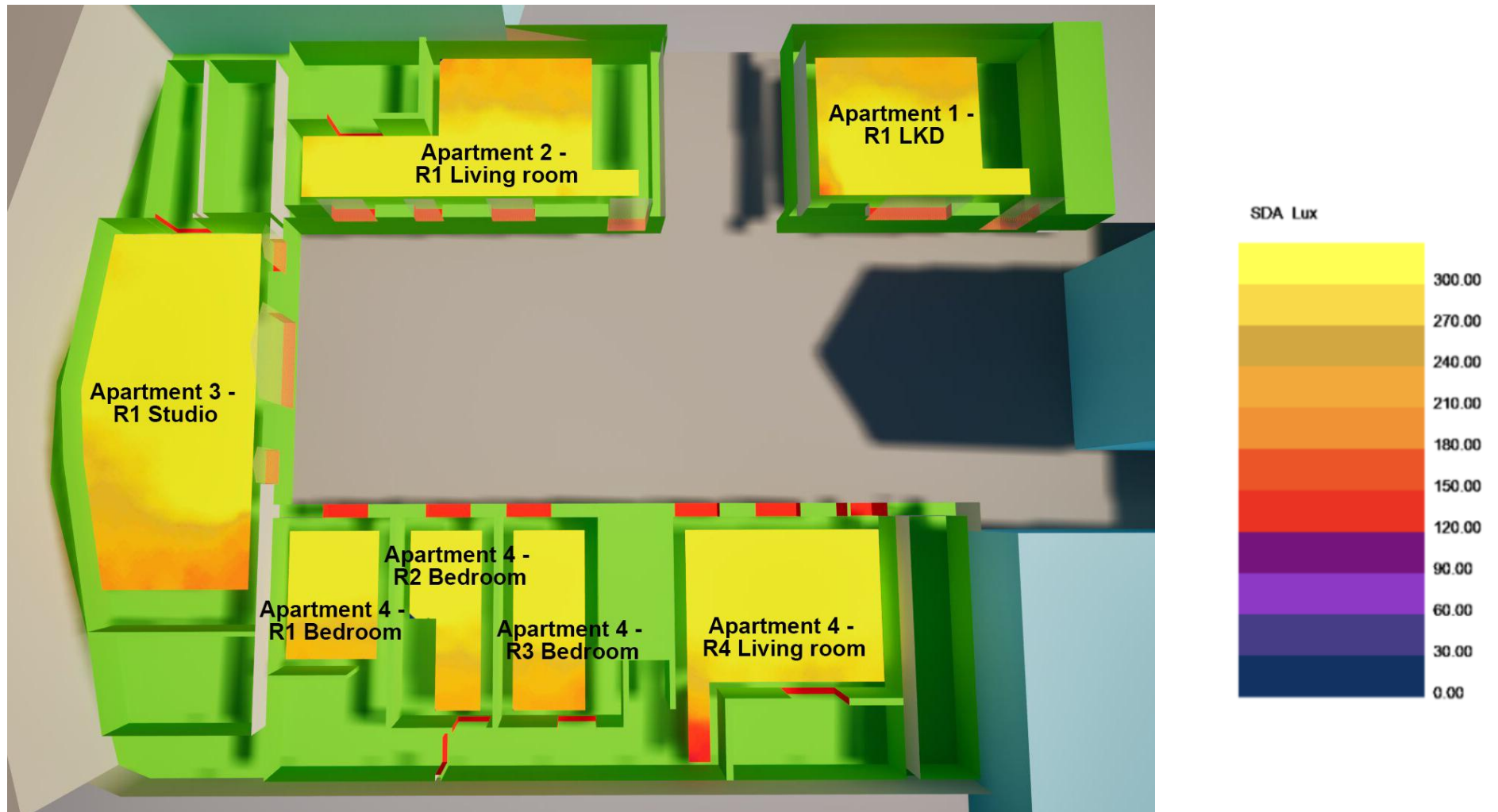
Apartment 4	Ground	R1	Living Room	24a Baron Street_Ground_W6	138°	4.7	
Apartment 4	Ground	R1	Living Room	24a Baron Street_Ground_W5	139°	3.5	
Apartment 4	Ground	R1	Living Room	24a Baron Street_Ground_W4	139°	3.3	
Apartment 4	Ground	R1	Living Room	24a Baron Street_Ground_W18	138°	4.7	
						4.7	
Apartment 4	Ground	R2	Bedroom	24a Baron Street_Ground_W7	139°	4.7	
						4.7	
Apartment 4	Ground	R3	Bedroom	24a Baron Street_Ground_W8	139°	4.6	
						4.6	
Apartment 4							PASS
Apartment 5	First	R1	LKD	24a Baron Street_First_W13	138°	6.3	
Apartment 5	First	R1	LKD	24a Baron Street_First_W12	138°	5.9	
						6.3	
Apartment 5	First	R2	Bedroom	24a Baron Street_First_W11	138°	5.2	
						5.2	
Apartment 5	First	R3	Bedroom	24a Baron Street_First_W10	138°	4.8	
						4.8	
Apartment 5	First	R4	Bedroom	24a Baron Street_First_W9	138°	4.4	
						4.4	



Apartment 5							PASS
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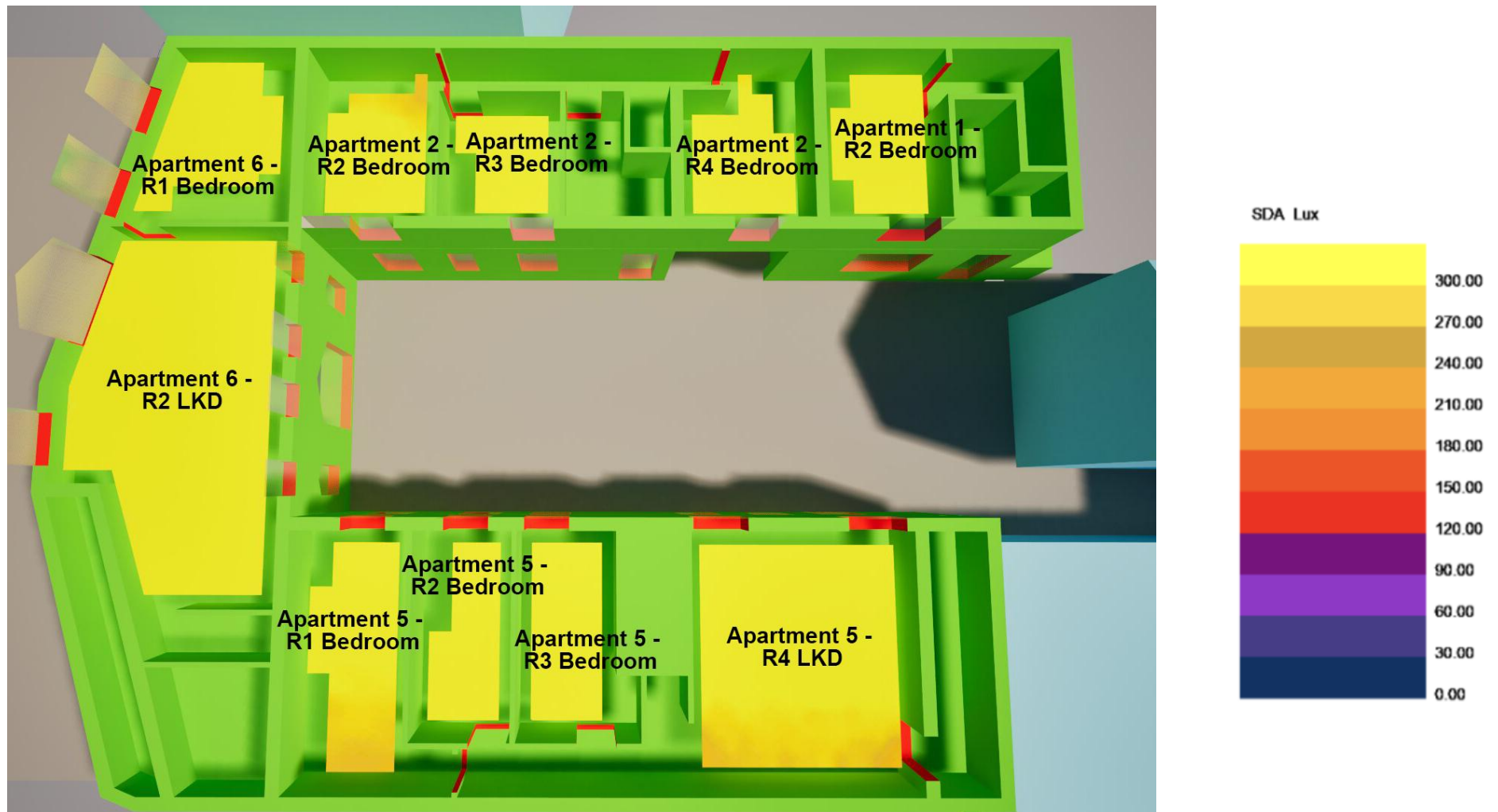


Proposed internal LUX levels – Ground Floor - Standard Glazing Transmittance – Clear Glass Windows 68%



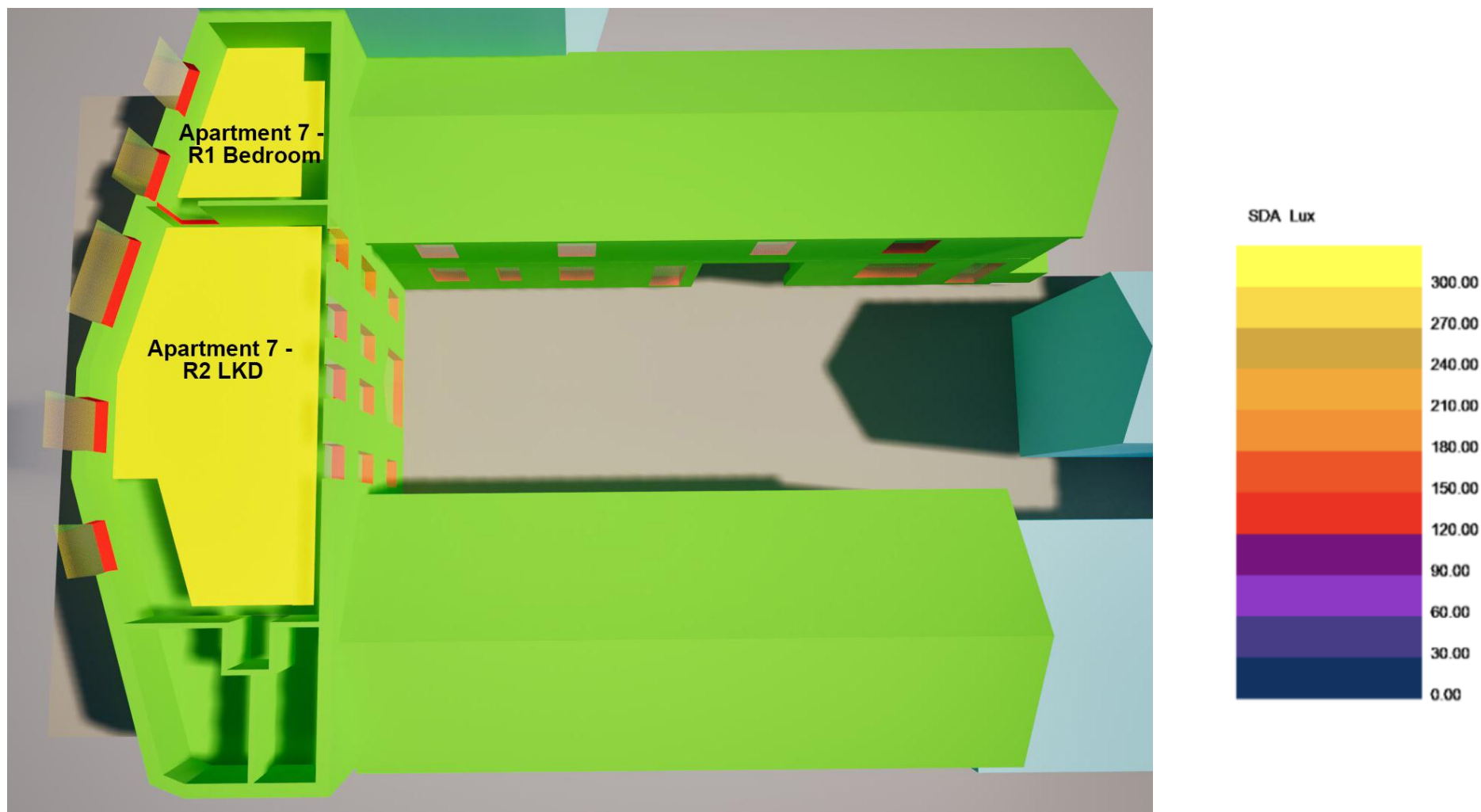


Proposed internal LUX levels – First Floor - Standard Glazing Transmittance – Clear Glass Windows 68%



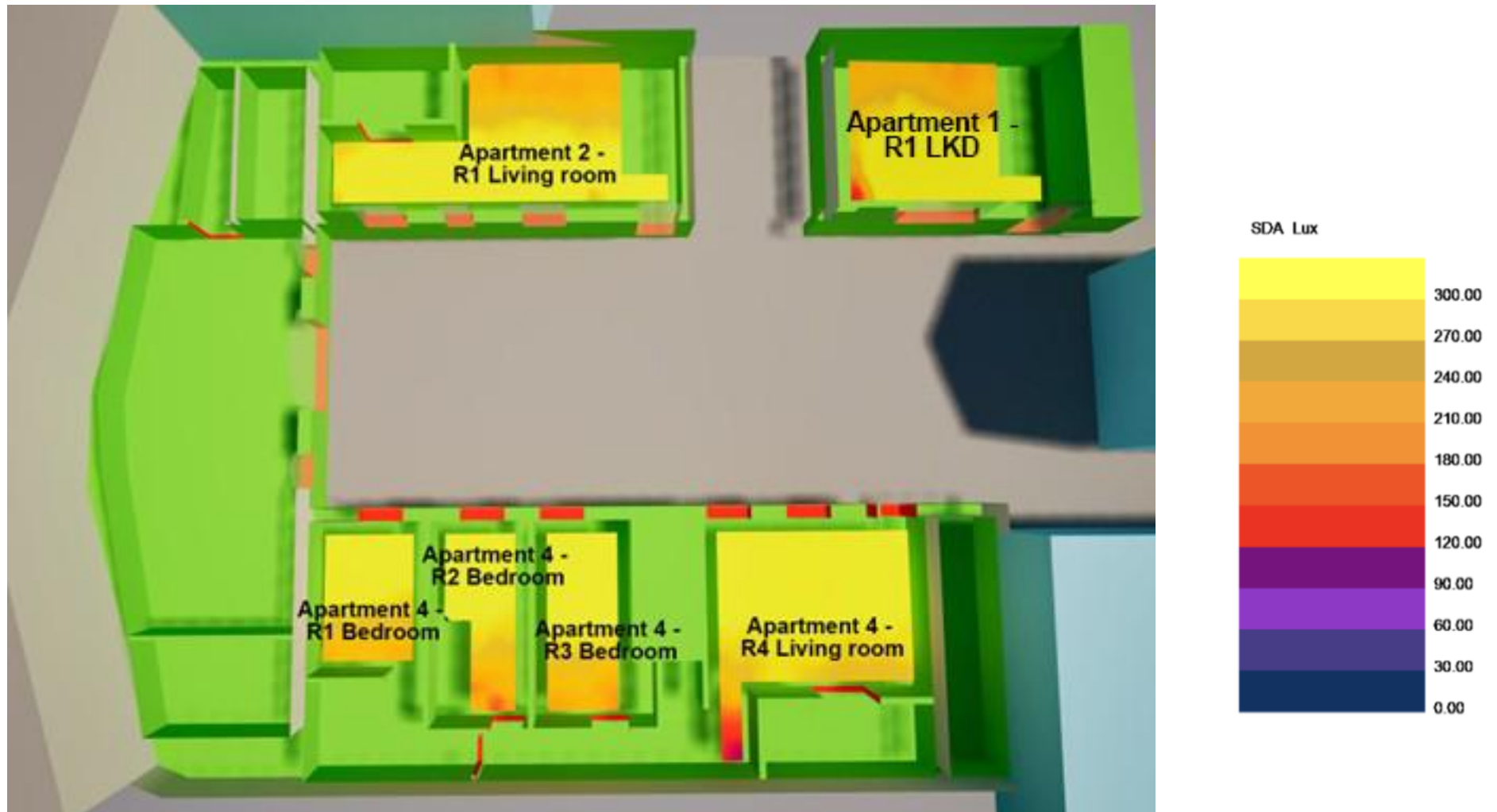


Proposed internal LUX levels – Second Floor - Standard Glazing Transmittance – Clear Glass Windows 68%



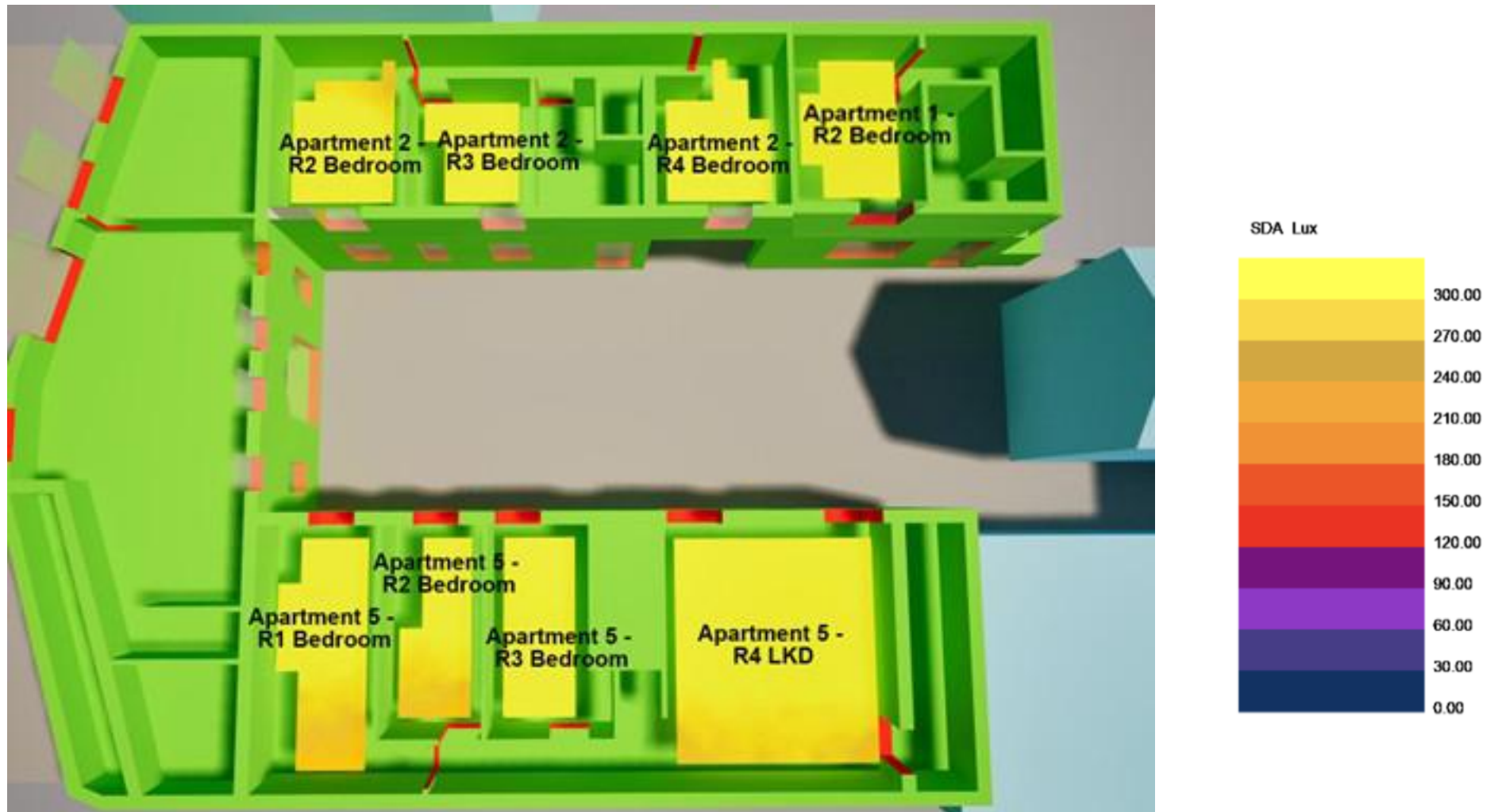


Proposed internal LUX levels – Ground Floor - Frosted Glass Glazing Transmittance – Windows 55%





Proposed internal LUX levels – First Floor - Frosted Glass Glazing Transmittance – Windows 55%



End of report

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