SYNTEGRA CONSULTING

Lief House, 3 Sumpter Close, London NW3 5HR

Internal Daylight and Sunlight Report

April 2025

Ref: 23-12201

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Revision	*Initial*	*Rev 1*	*Rev 2*	*Rev 3*
Date	29/04/2025			
Prepared by	D. Mistry			
Checked by	W. Delos Angeles			
Authorised by	M. Standen			

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1. Executive Summary

This report has been prepared to support a Prior Approval Application under Class MA at **Lief House, 3 Sumpter Close, London NW3 5HR.**

The report assesses the internal daylight and sunlight within the proposed accommodation. The assessment is undertaken in accordance with ***"BRE 209 Digest: Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice".***

The following can be concluded based on the studies undertaken:

- Internal daylight: All habitable rooms will see levels of daylight above the recommended thresholds set out by the BRE. Therefore, it can be concluded that all future occupants will have access to very good levels of daylight.
- Internal sunlight: All the living areas will see levels of sunlight far above the suggested threshold, this is mainly due to the rooflights. Therefore, it can be concluded that all units will see excellent levels of sunlight.

Therefore, it can be concluded that the proposed residential units will perform well in terms of daylight and sunlight and are compliant with the internal daylight and sunlight standards outlined in the (BRE) Guide 'Site Layout Planning for Sunlight and Daylight: A Guide to Good Practice' by P J Littlefair (2022).

2. Introduction

This report has been prepared to support the Prior Approval Application under Class MA at **Lief House, 3 Sumpter Close, London NW3 5HR** and to examine the levels of daylight and sunlight received in all habitable rooms within the proposed residential units.

The report assesses the internal daylight effect on the proposed rooms. The assessment is undertaken in accordance with ***"BRE 209 Digest: Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice".***

The proposed drawings (in .dwg format - Images 2-5 of this document) of the project were provided by **Groupwork** in **April 2025** and have been used in preparing this report.

3. Assessment Methodology

This study is based on guidelines set out in the *BRE Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice, 2022*. The assessment has been conducted using Radiance software through MBS AutoCAD. A 3D model has been built based on the latest architectural drawings.

The simulations assess the Annual Illuminance Target (ET), DA and sDA. Key points of the simulation include:

- Tested on a horizontal plane at 0.85 m above the floor
- Grid size of 0.25m
- Margin of 0.30m from the internal walls
- Glass surface maintenance factor of 0.95
- Hourly weather file for a whole year from London Heathrow TRY2016
- Windows frames based on drawings received
- Assessment grid for usable space in a room

Internal Daylight Assessment

British Standard "Daylight in buildings" (BS EN 17037)

The British Standard "Daylight in buildings" (BS EN 17037) contains advice and guidance on interior daylighting. The guidance contained in the BRE publication (BR 209, 2022) is intended to be used with BS EN 17037 and its UK National Annex.
BS EN 17037 supersedes BS 8206 Part 2 "Code of practice for daylighting" [C2], which contained a method of assessment based on Average Daylight Factor, which is now no longer recommended. For daylight provision in buildings, BS EN 17037 provides a methodology based on target illuminances from daylight to be achieved over specified fractions of the reference plane for at least half of the daylight hours in a typical year.
BS EN 17037 gives three levels of recommendation for daylight provision in interior spaces: minimum, medium and high. For compliance with the standard, a daylit space should achieve the minimum level of recommendation.
The National Annex A of BS EN 17037 also gives minimum values for housing, in living rooms, kitchens, and bedrooms. Achieving higher daylight factor values will give improved daylight provision. This would be particularly appropriate in housing for the elderly because they require more light and are more likely to be at home during the day.
However, interiors with very high daylight levels (for example where a daylight illuminance of 500 lux is exceeded over half the room for more than half of the daylight hours) sometimes have problems with summertime overheating or excessive heat loss in winter.

Annual Daylight Metrics

The annual daylight method involves using climatic data for the location of the site (via the use of an appropriate, typical or average year, weather file) to calculate the illuminance from daylight at each point on an assessment grid on the reference plane at an at least hourly interval for a typical year.
A target illuminance (ET) is the Illuminance from daylight that should be achieved for at least half of annual daylight hours across a specified fraction of the reference plane in a daylit space.
Daylight Autonomy (DA) is the percentage of occupied hours that each sensor receives more than the illuminance threshold, and Spatial Daylight Autonomy (sDA) is an annual daylighting metric that quantifies the fraction of the area within a space for which the daylight autonomy exceeds a specified value.

Specific recommendations for daylight provision in UK dwellings

The UK National Annex gives specific minimum recommendations for habitable rooms in dwellings in the United Kingdom. These are intended for 'hard to light' dwellings, for example in basements or with significant external obstructions or with tall trees outside, or for existing buildings being refurbished or converted into dwellings. The National Annex, therefore, provides the UK guidance on minimum daylight provision in all UK dwellings.
The UK National Annex gives illuminance recommendations of:

- 100 lux in bedrooms,
- 150 lux in living rooms and
- 200 lux in LKD
- 200 lux in Studio.

These are the median illuminances, to be exceeded over at least 50% of the assessment points in the room for at least half of the daylight hours.

Annual Sunlight Metrics

In terms of Sunlight the BRE states that it is generally more important for residential properties. Within section 3.1 of it states *"in housing, the main requirement for sunlight is in living rooms, where it is valued at any time of the 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 I the morning rather than the afternoon."*

The guide suggests that designers minimise the number of units/dwellings with living areas windows facing solely north. This is unless there are other factors steering the design such as views and privacy.

The BRE refers to the BS EN 17037 criterion to establish sunlight targets for dwellings. It states that each dwelling should have at least one habitable room receiving 1.5 hours of exposer on the 21st of March. There are also medium and high sunlight targets (3 and 4 hours respectively). That being said it must be taken flexibly when considering the sites existing environment, as it may have constraints that determine the orientation of the proposed.

This is tested by taking the centre point of the inner surface of the window and assesses the amount of sunlight hours it would receive on the 21st of March.

Below is a summary of section 3.1 of the guidance:

"In general, a dwelling or non-domestic building which has a particular requirement for sunlight, will appear reasonably sunlit provided that:

- *At least one main window faces within 90 degrees of due south, and*
- *A habitable room, preferably a main living room, can receive a total of at least 1.5 hours of sunlight on 21 March. This is assessed at the inside centre of the window(s); sunlight received by different windows cand be added provided the occur at different times and sunlight hours are not double counted..."*

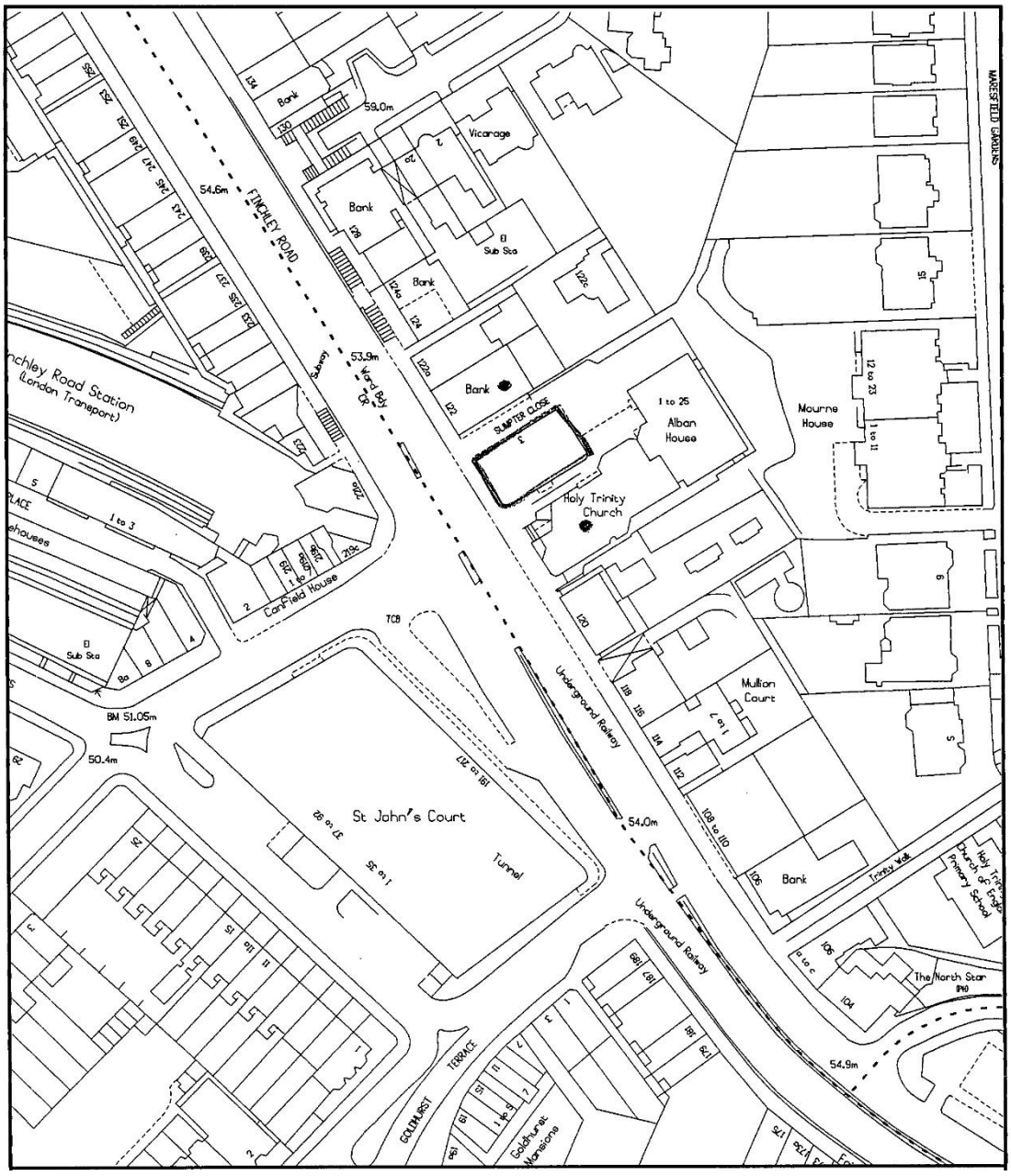

Image 1 – Location Plan

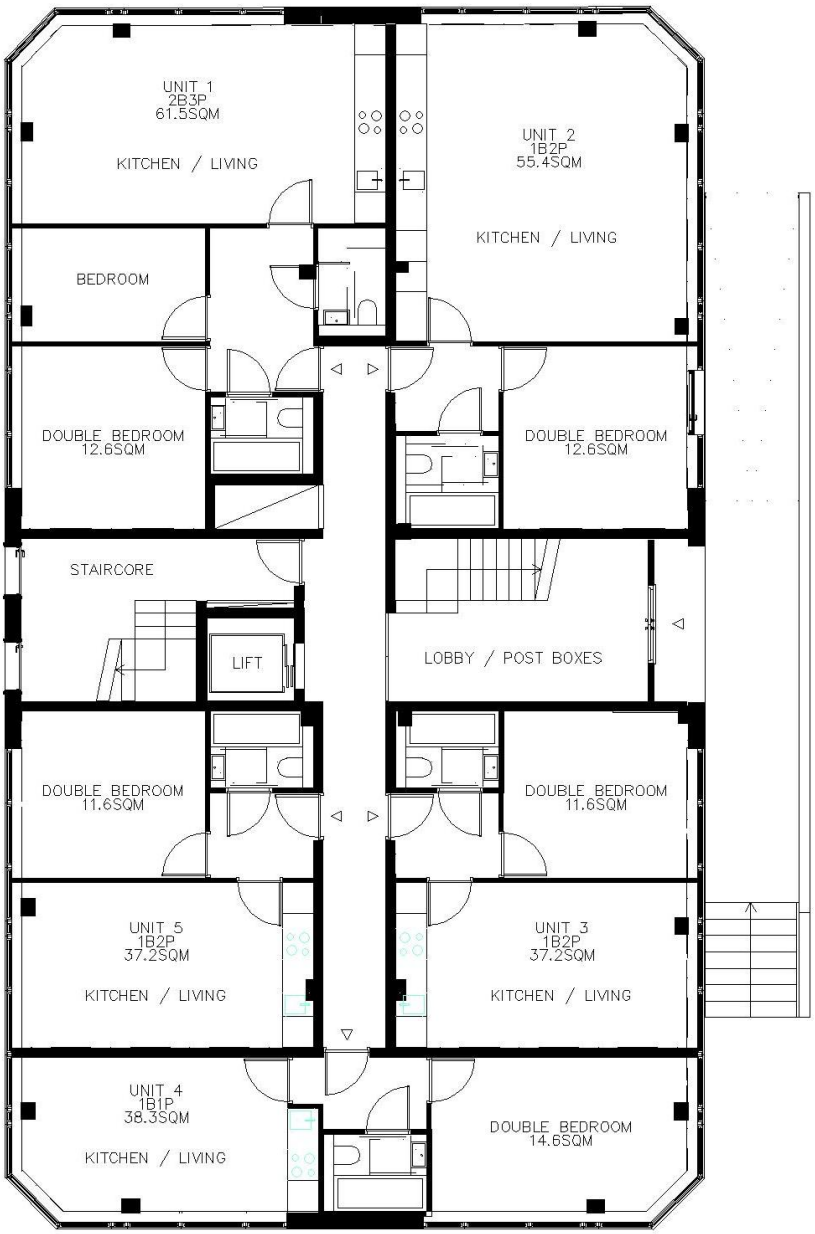

Image 2 – Architectural Ground floor plan

Image 3 – Architectural First floor plan

Image 4 – Architectural Second floor plan

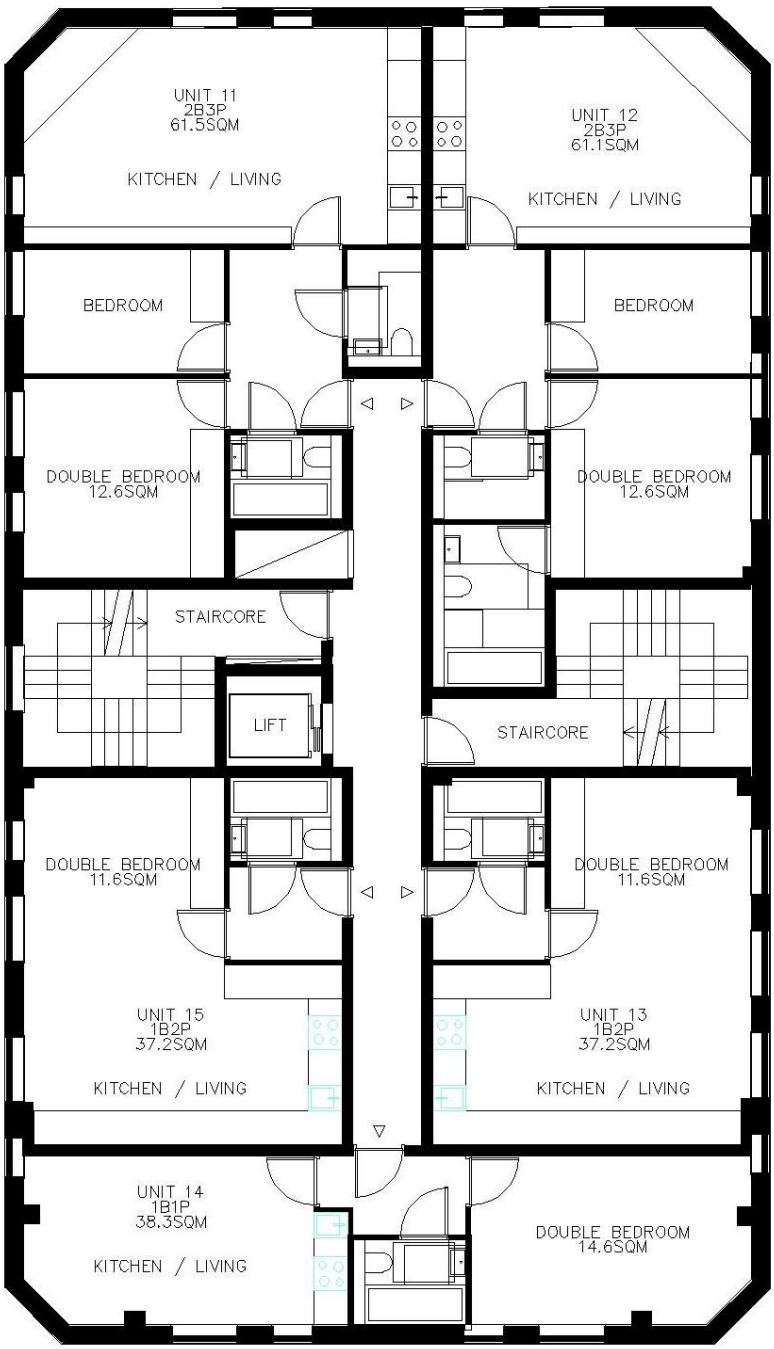

Image 5 – Architectural Third floor plan

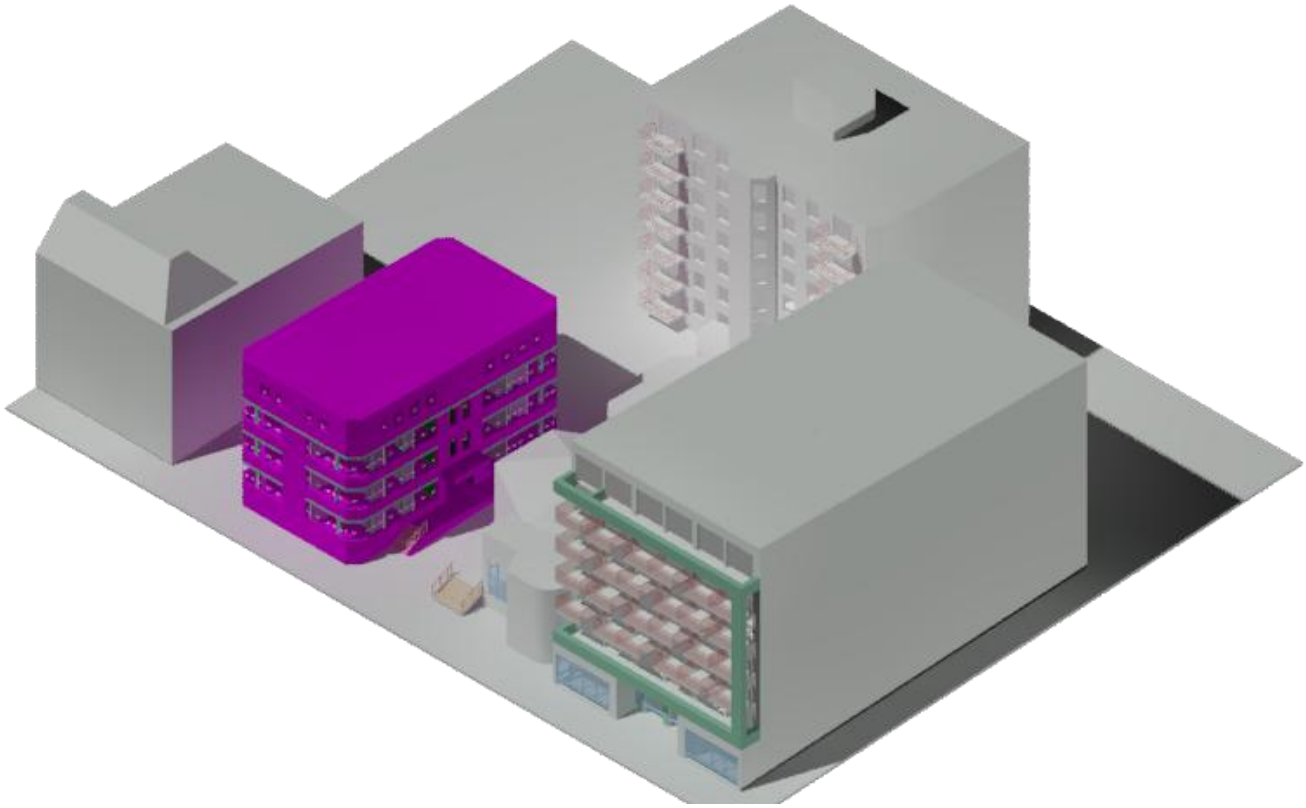

Image 6 – 3D model representation of Proposed

4. Results

Annual Daylight Results

The annual daylight method involves using climatic data for the location of the site (via the use of an appropriate, typical or average year, weather file) to calculate the illuminance from daylight at each point on an assessment grid on the reference plane at an at least hourly interval for a typical year.
A target illuminance (ET) is the Illuminance from daylight that should be achieved for at least half of annual daylight hours across a specified fraction of the reference plane in a daylit space.
Daylight Autonomy (DA) is the percentage of occupied hours that each sensor receives more than the illuminance threshold, and Spatial Daylight Autonomy (sDA) is an annual daylighting metric that quantifies the fraction of the area within a space for which the daylight autonomy exceeds a specified value.

Internal Daylight Assessment						
Floor	Room No	Room Use	Median Lux	SDA Target	% of Area Meeting Req Lux	Result
Ground	R1	LK	1151	200	100%	PASS
	R2	Bedroom	1040	100	100%	PASS
	R3	LK	350	200	74%	PASS
	R4	Bedroom	530	100	100%	PASS
	R5	Bedroom	238	100	94%	PASS
	R6	LK	658	200	99%	PASS
	R7	LK	982	200	98%	PASS
	R8	Bedroom	308	100	100%	PASS
	R9	Bedroom	212	100	98%	PASS
	R10	Bedroom	269	100	100%	PASS
	R11	LK	194	200	50%	PASS
First	R1	LK	1070	200	100%	PASS
	R2	Bedroom	1023	100	100%	PASS
	R3	LK	380	200	82%	PASS
	R4	Bedroom	609	100	100%	PASS
	R5	Bedroom	457	100	100%	PASS
	R6	Bedroom	384	100	100%	PASS
	R7	LK	949	200	100%	PASS
	R8	LK	999	200	98%	PASS
	R9	Bedroom	319	100	98%	PASS
	R10	Bedroom	342	100	100%	PASS
	R11	Bedroom	285	100	100%	PASS
	R12	LK	217	200	54%	PASS
Second	R1	LK	848	200	100%	PASS
	R2	Bedroom	982	100	100%	PASS

	R3	LK	363	200	80%	PASS
	R4	Bedroom	644	100	100%	PASS
	R5	Bedroom	571	100	100%	PASS
	R6	Bedroom	437	100	100%	PASS
	R7	LK	1027	200	100%	PASS
	R8	LK	1017	200	98%	PASS
	R9	Bedroom	424	100	100%	PASS
	R10	Bedroom	482	100	99%	PASS
	R11	Bedroom	460	100	100%	PASS
	R12	LK	240	200	57%	PASS
Third	R1	LK	361	200	87%	PASS
	R2	Bedroom	340	100	96%	PASS
	R3	Studio	251	200	65%	PASS
	R4	Bedroom	226	100	100%	PASS
	R5	Bedroom	223	100	100%	PASS
	R6	LK	200	200	50%	PASS
	R7	LK	216	200	61%	PASS
	R8	Bedroom	235	100	100%	PASS
	R9	Bedroom	277	100	100%	PASS
	R10	Studio	218	200	55%	PASS

Table 1 – Internal Daylight Assessment results

As shown in the table above, all habitable rooms will exceed the suggested levels of daylight in accordance with the BRE. **Therefore, it can be concluded that the proposed accommodation will provide very good levels of daylight for all future occupants.**

Annual Sunlight Results

The BRE refers to the BS EN 17037 criterion to establish sunlight targets for dwellings. It states that each dwelling should have at least one habitable room receiving 1.5 hours of exposure on the 21st March. There are also medium and high sunlight targets (3 and 4 hours respectively). It must be taken flexibly when considering the sites existing environment, as it may have constraints that determine the orientation of the proposed.

Internal Sunlight Assessment					
Floor Ref	Room No.	Room Use	Window Ref	No. of Hours	Result
Ground	R1	LK	W1	9.4	Pass
			W2	7.6	
			W3	9.5	
			W4	9.5	
			W5	7.5	
			W57	3.1	
			W58	0	
			W59	4.8	
			W60	7.3	
				9.5	
	R2	Bedroom	W6	7.5	Pass
			W7	9.5	
			W8	9.5	
			W9	0	
			W10	9.5	
			W11	7.3	
			W12	4.7	
			W13	0	
			W14	3.8	
				9.5	
	R3	LK	W15	3.5	N/A
			W16	3.8	
			W17	0	
			W18	3.6	
				3.8	
	R4	Bedroom	W19	3.4	N/A
			W20	3	
				3.4	
	R5	Bedroom	W21	0	N/A

			W22	0.4	
			W23	0	
				0.4	
	R6	LK	W24	1.6	Pass
			W25	1.6	
			W26	1.6	
			W27	1.6	
			W28	1.1	
			W29	1.6	
			W30	0.1	
			W31	0	
			W32	0	
			W33	0	
			W34	0	
			W35	0	
				1.7	
	R7	LK	W36	0	N/A
			W37	0	
			W38	0	
			W39	0	
			W40	0	
			W41	0	
			W42	0.7	
			W43	0	
			W44	0.7	
			W45	0	
				0.7	
	R8	Bedroom	W46	0.7	N/A
			W47	0	
			W48	0	
				0.7	
	R9	Bedroom	W49	0.7	N/A
			W50	0	
				0.7	
	R10	Bedroom	W51	1.1	N/A
			W52	1.4	
				1.4	
	R11	LK	W53	1.6	Pass
			W54	1.9	
			W55	2.1	

			W56	2.3	
				2.6	
First	R1	LK	W1	9.3	Pass
			W2	0	
			W3	9.5	
			W4	9.5	
			W5	7.5	
			W57	3.1	
			W58	0	
			W59	1.2	
			W60	7.3	
				9.5	
	R2	Bedroom	W6	7.5	Pass
			W7	9.5	
			W8	8.8	
			W9	0	
			W10	8	
			W11	7.3	
			W12	4.7	
			W13	0	
			W14	3.8	
				9.5	
	R3	LK	W15	3.5	Pass
			W16	3.8	
			W17	2.9	
			W18	3.8	
				3.8	
	R4	Bedroom	W19	3.8	Pass
			W20	3.3	
				3.8	
	R5	Bedroom	W21	1.7	Pass
			W22	2.2	
				2.6	
	R6	Bedroom	W23	0	Pass
			W24	0	
			W25	2.2	
			W26	0	
				2.2	
	R7	LK	W27	1.9	Pass
			W28	1.6	

			W29	1.8	
			W30	0.2	
			W31	0	
			W32	0	
			W33	0	
			W34	0	
			W35	0	
				1.9	
	R8	LK	W36	0	N/A
			W37	0	
			W38	0	
			W39	0	
			W40	0	
			W41	0	
			W42	1.3	
			W43	1.3	
			W44	1.3	
			W45	0	
				1.3	
	R9	Bedroom	W46	1.3	N/A
			W47	0.7	
			W48	0	
				1.3	
	R10	Bedroom	W49	1.3	N/A
			W50	0.4	
				1.3	
	R11	Bedroom	W51	1.3	N/A
			W52	1.4	
				1.4	
	R12	LK	W53	1.7	Pass
			W54	2.1	
			W55	0.9	
			W56	2.3	
				2.6	
Second	R1	LK	W27	2.3	Pass
			W28	0	
			W29	4.8	
			W30	7.3	
			W31	9.3	
			W32	0	

			W33	9.5	
			W34	9.5	
			W35	7.5	
				9.5	
	R2	Bedroom	W36	7.5	Pass
			W37	9.5	
			W38	9.5	
			W39	0	
			W40	9.4	
			W41	7.2	
			W42	4.8	
			W43	0	
			W44	3.8	
				9.5	
	R3	LK	W45	3.5	Pass
			W46	3.8	
			W47	0	
			W48	3.8	
				3.8	
	R4	Bedroom	W49	3.8	Pass
			W50	3.3	
				3.8	
	R5	Bedroom	W51	1.8	Pass
			W52	2.5	
			W53	0	
				2.6	
	R6	Bedroom	W54	0	Pass
			W55	2.2	
			W56	0	
				2.2	
	R7	LK	W1	0	Pass
			W2	0	
			W3	0	
			W4	0	
			W5	0	
			W57	2.2	
			W58	0	
			W59	2.2	
			W60	0.6	
				2.2	

	R8	LK	W6	0	Pass
			W7	0	
			W8	0	
			W9	0	
			W10	0	
			W11	1	
			W12	1.5	
			W13	2.4	
			W14	0	
			W15	0.2	
				2.5	
	R9	Bedroom	W16	2.4	Pass
			W17	0	
			W18	0	
				2.4	
	R10	Bedroom	W19	2.4	Pass
			W20	1.5	
				2.4	
	R11	Bedroom	W21	2.1	Pass
			W22	2.2	
				2.2	
	R12	LK	W23	2.3	Pass
			W24	0	
			W25	2.4	
			W26	2.3	
				2.6	
Third	R1	LK	W1	6.9	Pass
			W2	5	
				6.9	
	R2	Bedroom	W3	5	Pass
			W4	6.9	
				6.9	
	R3	Studio	W5	0	Pass
			W6	3.1	
			W7	3.1	
			W8	2.6	
				3.1	
	R4	Bedroom	W9	2	Pass
			W10	2	
				2	

	R5	Bedroom	W11	2	Pass
				2	
	R6	LK	W12	1.1	N/A
			W13	0	
			W14	0	
				1.1	
	R7	LK	W15	0	Pass
			W16	0	
			W17	2.2	
				2.2	
	R8	Bedroom	W18	3.1	Pass
				3.1	
	R9	Bedroom	W19	3.1	Pass
			W20	2.2	
				3.1	
	R10	Studio	W21	1.3	Pass
			W22	2.3	
			W23	2.7	
			W24	2.2	
				3	

Table 2 – Internal Sunlight Assessment results

NOTE: N/A - Not applicable. This is because the sunlight is directional, and the North-facing windows will only receive sunlight at the height of summer at occasional times. As such, pursuant to the BRE guide, North-facing windows are not considered to have a reasonable expectation of sunlight and do not require assessment.

As shown in the table above, all the main living area windows have been assessed to ascertain the levels of sunlight they will see on the 21st of March. This shows that every living space will see more than the suggested levels of sunlight. **Therefore, it can be concluded that the proposed accommodation will prove excellent levels of sunlight for all future occupants.**

5. Conclusion

This report has been prepared to support the Prior Approval Application under Class MA at **Lief House, 3 Sumpter Close, London NW3 5HR.**

The report assesses the internal daylight and sunlight within the proposed accommodation. The assessment is undertaken in accordance with ***"BRE 209 Digest: Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice".***

The following can be concluded based on the studies undertaken:

- Internal daylight: All habitable rooms will see levels of daylight above the recommended thresholds set out by the BRE. Therefore, it can be concluded that all future occupants will have access to very good levels of daylight.
- Internal sunlight: All the living areas will see levels of sunlight far above the suggested threshold, this is mainly due to the rooflights and dormer windows. Therefore, it can be concluded that all units will see excellent levels of sunlight.

Therefore, it can be concluded that the proposed residential units will perform well in terms of daylight and sunlight and are compliant with the internal daylight and sunlight standards outlined in the (BRE) Guide 'Site Layout Planning for Sunlight and Daylight: A Guide to Good Practice' by P J Littlefair (2022).

5. Appendix

Floor plans showing Internal Daylight Results

Image 7 – sDA Ground floor plan

	Area seeing required LUX for 50% of the occupied time
	Area NOT seeing required LUX for 50% of the occupied time

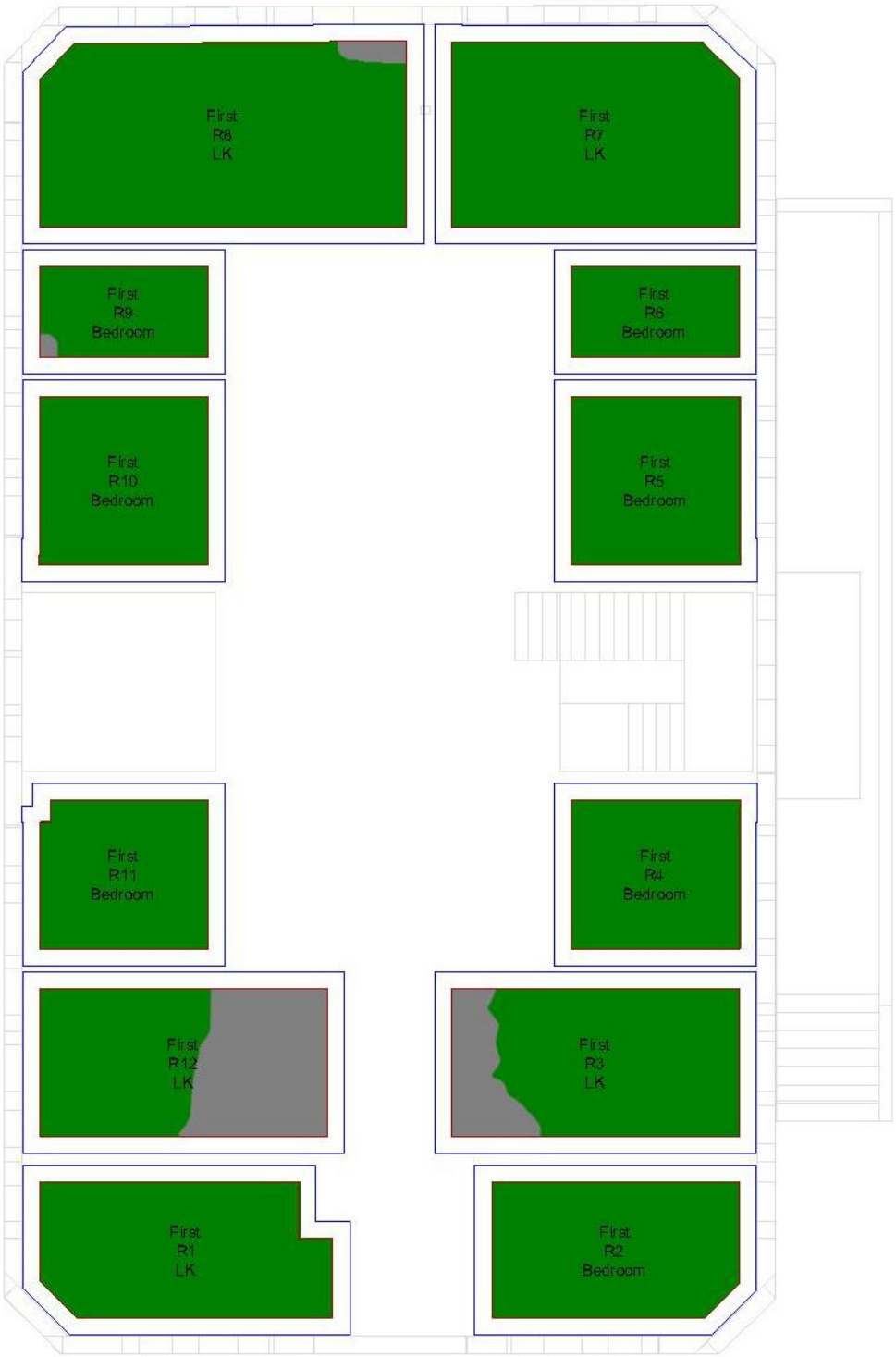

Image 8 – sDA First floor plan

	Area seeing required LUX for 50% of the occupied time
	Area NOT seeing required LUX for 50% of the occupied time

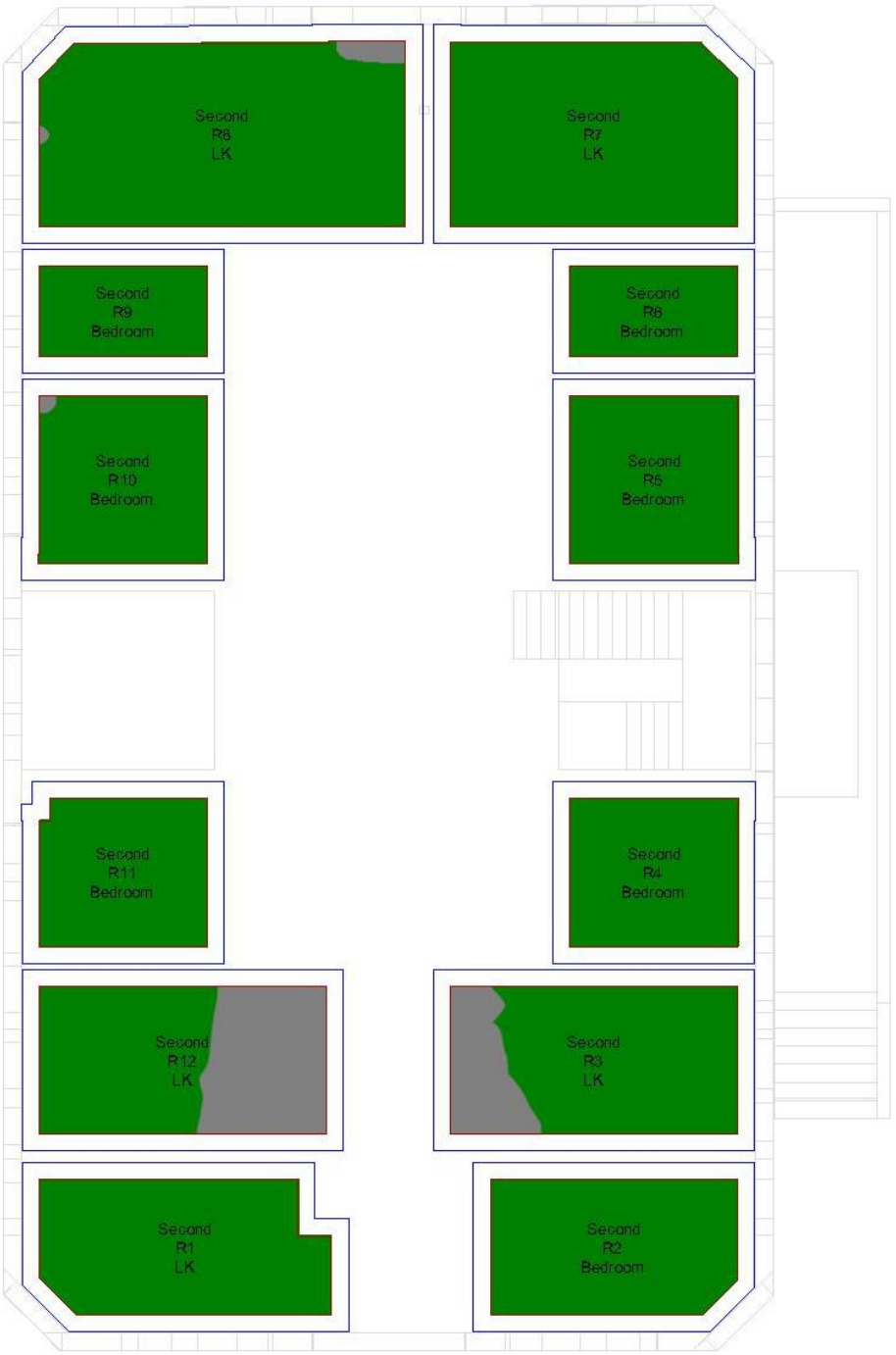

Image 9 – sDA Second floor plan

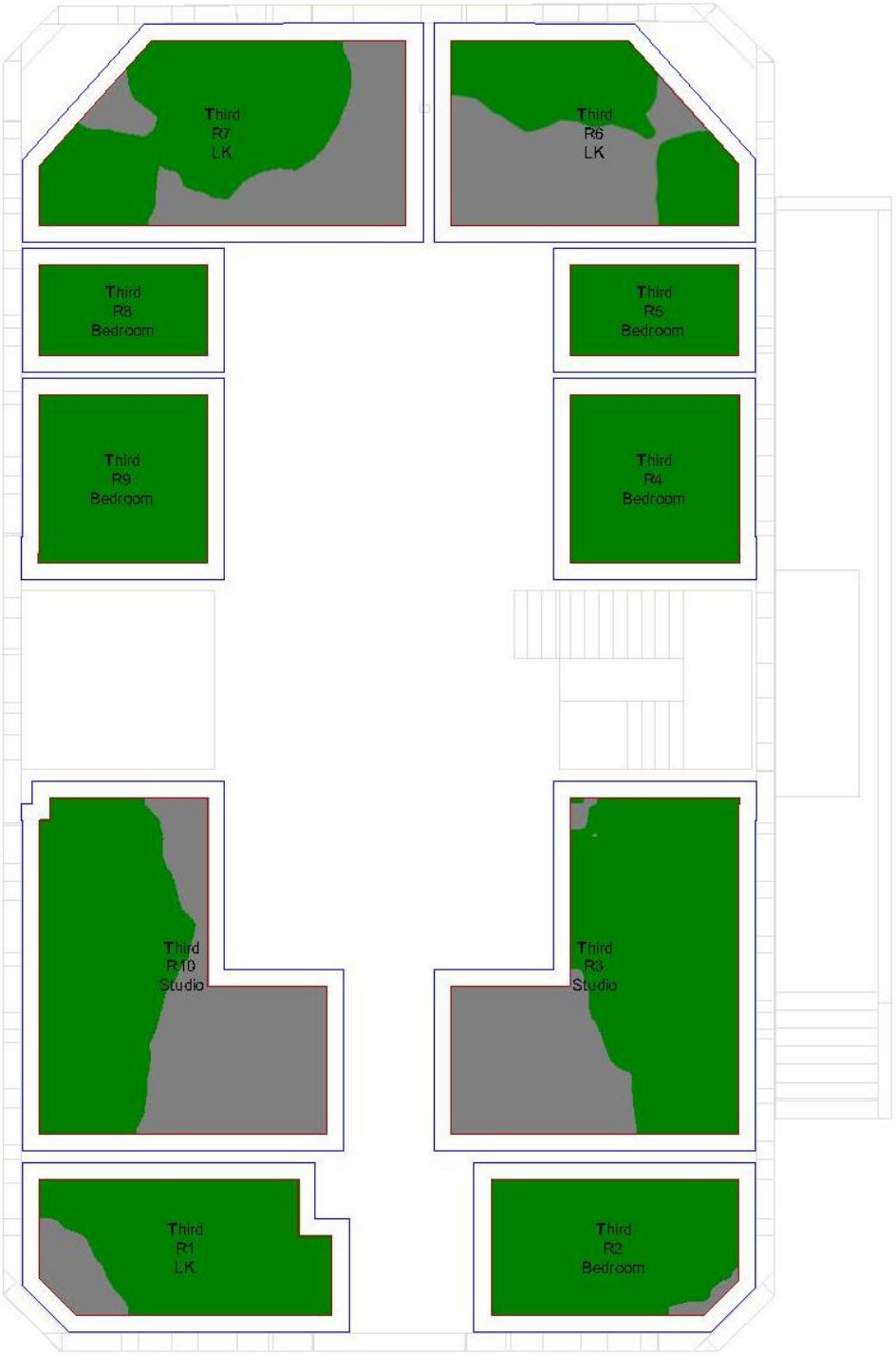

Image 10 – sDA Third floor plan

	Area seeing required LUX for 50% of the occupied time
	Area NOT seeing required LUX for 50% of the occupied time