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DAYLIGHT & SUNLIGHT

INTERNAL DAYLIGHT, SUNLIGHT
AND OVERSHADOWING REPORT

Thamesfield Retirement Village

Retirement Villages Group (RVG)

04 September 2025

GIA No: **19134**

PROJECT DATA:

Client **Retirement Villages Group (RVG)**
Architect **Design Engine**
Project Title **Thamesfield Retirement Village**
Project Number **19134**

REPORT DATA:

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1 EXECUTIVE SUMMARY

This report has been prepared to accompany the revised application for the proposed extension to Thamesfield Retirement Village, Henley-upon-Thames (*Planning Ref: 243125*). Its purpose is to assess whether the amendments to the development continue to deliver acceptable levels of natural light, consistent with the findings of the previously submitted Internal Daylight and Sunlight Report (November 2024).

The proposed amendments relevant for daylight and sunlight include:

- Removal of projecting balconies and the secondary windows in the living/kitchen/dining (LKD) spaces on the second floor giving access to them.
- Small internal layout adjustments, including the removal of two bedrooms from the second floor.
- Minor roof alterations.

This report contains the final assessments undertaken for all proposed habitable rooms, in accordance with the methodology and criteria set out in the BRE guidelines Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice (2022) and EN 17037:2018, including the relevant UK National Annex. The technical assessments are included in Section 5.3.

For daylight, 36/47 (77%) proposed habitable rooms would meet the BRE's recommendations. A further eight rooms would fall only marginally below the guideline, meaning that 44 rooms (94%) in total can be considered to provide good or adequate daylight. These results represent an improvement on the previously assessed scheme (November 2024), where 67% of rooms met BRE's recommendations and 78% were deemed to offer good or adequate daylight.

For sunlight, 12 (71%) out of all 17 homes would have at least a south-facing window, and would achieve at least 1.5 hours of sunlight at the equinox. This is a slight reduction compared with the previously assessed scheme (14 homes, or 82%), reflecting the removal of secondary windows to LKDs that had previously satisfied the orientation guideline.

For overshadowing, the assessment shows that 84% of the proposed communal open space would see two or more hours of direct sunlight on 21st March, far exceeding BRE's guidelines. This result is slightly higher than the previously assessed scheme due to a small adjustment to the area assessed, however the results are in practice the same.

Overall, the assessments have demonstrated that the majority of the proposed rooms and units would provide good daylight and sunlight amenity overall, as well as the communal open space. The results are broadly in line or slightly higher than with those of the previously assessed scheme.

2 INTRODUCTION

GIA has been instructed to provide a report upon the potential availability of Daylight and Sunlight to the proposed accommodation within the residential scheme prepared by Design Engine. GIA was specifically instructed to carry out the following:

- To create a 3D computer model of the proposal based upon drawings prepared by Design Engine;
- Carry out a Median Daylight Illuminance assessment as recommended by BRE;
- Carry out an assessment of sunlight exposure as recommended within the BRE guidance;
- Carry out an overshadowing assessment of communal open spaces using the methodology set out in the BRE guidance for Sun Hours On Ground (SHOG) for all relevant amenity areas; and
- Prepare a report setting out the analysis and our findings, comparing the findings of the assessments with those of the consented scheme.

3 BRE GUIDELINES

The Building Research Establishment (BRE) have set out in their handbook 'Site Layout Planning for Daylight and Sunlight a Guide to Good Practice (BR 209 2022)', guidelines and methodology for the measurement and assessment of daylight and sunlight within proposed buildings.

3.1 INTRODUCTION

The BRE published the latest edition of 'Site layout planning for daylight and sunlight: a guide to good practice' in June 2022 (BR 209). This is to be read in conjunction with BS EN 17037:2018 "Daylight in buildings", the UK National Annex of the British Standard and the CIBSE publication LG 10 'Daylighting – a guide for designers'.

BR 209 contains methodologies for appraising the daylight and sunlight quality within new developments. Nonetheless, the main aim of the guidance is maintained: *"to help rather than constrain the designer"* as stated in Paragraph 1.5 of the new guidance.

The report provides advice, but also clearly states that it *"is not mandatory and the guide should not be seen as an instrument of planning policy."* The guidance also acknowledges in its introduction that *"Although it gives numerical guidelines, these should be interpreted flexibly since natural lighting is only one of many factors in site layout design (see Section 5). In special circumstances the developer or planning authority may wish to use different target values. For example, in a historic city centre, or in an area with modern high-rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings."* (Paragraph 1.6)

3.2 BS EN 17037:2018 AND THE UK ANNEX

The latest European Standard on daylight is BS EN 17037:2018 "Daylight in buildings". Following a review of this by a dedicated commission of UK experts, however, the British Standard Institution appended a UK National Annex which noted that the new recommendations "may not be achievable for some buildings, particularly dwellings" and specifically mentions dwellings in a dense urban area or with tall trees outside. The annex goes on to suggest lower recommended light levels for dwellings, in line with those of the previous version of the British Standard, BS8206-2:2008.

BS EN 17037 includes four criteria: daylighting, views, sunlight access and glare. Daylighting and sunlight access are considered relevant for residential buildings and therefore discussed within this report.

View out and Glare are not solely but mostly relevant in offices and schools, where occupants are more fixed to a certain location within a room. In residential habitable rooms, occupants tend to move more freely and therefore view out and glare are not assessed within residential buildings.

In relation to sunlight access, BS EN 17037:2018 suggests that the hours of sunlight reaching a window is considered "on a selected date between February 1st and March 21st". BR209 recommends that this date is preferably the equinox (see section 3.4).

3.3 DAYLIGHT

The BRE set out the methods for assessing daylight within a proposed building within section 2.1 and Appendix C of the handbook. This is based on the methods detailed in the BS EN 17037.

BS EN 17037 suggests two possible methodologies for appraising daylight:

- Illuminance Method
- Daylight Factor Method

These methodologies are discussed in more detail below.

Whilst Vertical Sky Component (VSC) is no longer directly used to calculate the levels of daylight indoors, this is still referenced within the BRE guidance as a metric to appraise the level of obstruction faced by a building and the potential for good daylight indoors.

This method of assessment may also be used to appraise the daylight quality in the early stages of the design, when room layouts or window locations are still undecided.

Vertical Sky Component (VSC)

This method of assessment can be undertaken using a skylight indicator or a Waldram diagram manually or most commonly through the use of specialist daylighting software. It measures from a single point, at the centre of the window (if known at the early design stage), the quantum of sky visible taking into account all external obstructions. Whilst these obstructions can be either other buildings or the general landscape, trees are usually ignored unless they form a continuous or dense belt of obstruction.

The VSC method is a useful 'rule of thumb' but has some significant limitations in determining the true quality of daylight within a proposed building. It does not take into account the size of the window, any reflected light off external obstructions, any reflected light within the room, or the use to which that room is put.

Illuminance method

Climate Based Daylight Modelling (CBDM) is used to predict daylight illuminance using sun and sky conditions derived from standard meteorological data (often referred to as climate or weather data). This analytical method allows the prediction of absolute daylight illuminance based on the location and building orientation, in addition to the building's daylight systems (shading systems, for example). Annex A within the BS EN 17037 proposes values of target illuminances and minimum target illuminances to exceed 50 % of daylight hours over 50% or more of the assessment area.

BS EN 17037 sets out minimum illuminance levels (300 lux) that should be exceeded over 50% of the space for more than half of the daylight hours in the year. It also includes recommendations for medium and high daylighting levels within a space (500 lux and 700 lux respectively). It should be noted here, however, that these targets are specified irrespective of a space's use or design.

The National Annex suggests that these targets can be challenging to achieve within residential settings, particularly in areas of higher density and so suggests lower targets can be considered in this situation. It should be noted here that the reduced targets suggested within the BS EN 17037:2018 National Annex are provided so as to be comparable with the previous BR209's recommendations for ADF. These targets are:

- 100 lux for bedrooms
- 150 lux for living rooms
- 200 lux for living/kitchen/diners, kitchens, and studios.

It is however stated in paragraph C17 of the BRE that: *"Where a room has a shared use, the highest target should apply. For example in a bed sitting room in student accommodation, the value for a living room should be used if students would often spend time in their rooms during the day. 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".*

Daylight Factor method

This method involves calculating the median daylight factor on a reference plane (assessment grid).

“The daylight factor is the illuminance at a point on the reference plane in a space, divided by the illuminance on an unobstructed horizontal surface outdoors. The CIE standard overcast sky is used, and the ratio is usually expressed as a percentage.”

This method of assessments considers an overcast sky, and therefore the orientation and location of buildings is not relevant. In order to account for different climatic conditions, Annex A within the BS EN 17037 sets equivalent daylight factor targets (D) for various locations in Europe.

The median daylight factor (MDF) should meet or exceed the target daylight factor relative to a given illuminance for more than half of daylight hours, over 50% of the reference plane.

3.4 SUNLIGHT

The BRE provide guidance in respect of sunlight quality for new developments within section 3.1 of the handbook. It is generally acknowledged that the presence of sunlight is more significant in residential accommodation than it is in commercial properties, and this is reflected in the BRE document.

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 in the morning rather than the afternoon.”*

The BRE guide considers the critical aspects of orientation and overshadowing in determining the availability of sunlight at a proposed development site.

The guide proposes minimising the number of dwellings whose living room face solely north unless there is some compensating factor such as an appealing view to the north, and it suggests a number of techniques to do so. Furthermore, it discusses massing solutions with a sensitive approach to overshadowing, so as to maximize access to sunlight.

At the same time, it acknowledges that the site's existing urban environment may impose orientation or overshadowing constraints which may not be possible to overcome.

To quantify sunlight access for interiors where sunlight is expected, it refers to the BS EN 17037 criterion that the minimum duration of sunlight exposure in at least one habitable room of a dwelling should be 1.5 h on March 21st. Table A.5 also establishes medium and high sunlight targets (3 and 4 hours).

This is to be checked at a reference point located centrally to the window's width and at the inner surface of the aperture (façade and/or roof). For multiple apertures in different façades it is possible to cumulate the time of sunlight availability if not occurring at the same time. The reference point is minimum 1.2 m above the floor and 0.3 m above the window sill if present.

The summary of section 3.1 of the guide states as follows:

"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 can be added provided they occur at different times and sunlight hours are not double counted.. "*

3.5 OVERSHADOWING

The BRE guidance in respect of overshadowing of amenity spaces is set out in section 3.3 of the handbook. Here it states as follows:

"Sunlight in the spaces between and around buildings has an important impact on the overall appearance and ambience of a development. It is valuable for a number of reasons, to:

- *provide attractive sunlit views (all year)*
- *make outdoor activities like sitting out and children's play more pleasant (mainly warmer months)*
- *encourage plant growth (mainly spring and summer)*
- *dry out the ground, reducing moss and slime (mainly in colder months)*
- *melt frost, ice and snow (in winter)*
- *dry clothes (all year).*

Again, it must be acknowledged that in urban areas the availability of sunlight on the ground is a factor which is significantly controlled by the existing urban fabric around the site in question and so may have very little to do with the form of the development itself. Likewise, there may be many other urban design, planning and site constraints which determine and run contrary to the best form, siting and location of a proposed development in terms of availability of sun on the ground.

The summary of section 3.3 of the guide states as follows:

"3.3.17 It is recommended that for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on 21 March. If as a result of new development an existing garden or amenity area does not meet the above, and the area that can receive two hours of sun on 21 March is less than 0.80 times its former value, then the loss of sunlight is likely to be noticeable. If a detailed calculation cannot be carried out, it is recommended that the centre of the area should receive at least two hours of sunlight on 21 March.."

3.6 FURTHER RELEVANT INFORMATION

CIBSE LG 10 'Daylighting – a guide for designers'.

This guide details the process of designing for daylighting. It outlines considerations of form, orientation, and other aspects involved in designing the building envelope to optimise natural light.

The guidance in this document is written primarily for buildings located within the UK, and will be most applicable to projects in northern hemisphere. However, the principles are universal, and can be applied to other locations if the appropriate weather data is used and local standards and regulations are respected

4 SIMULATION ASSUMPTIONS

In order to undertake the daylight and sunlight assessments set out in the previous pages, we have prepared a three dimensional computer model and used specialist lighting simulation software.

Calculation model

The three dimensional representation of the proposed development has been modelled using the drawings prepared by Design Engine, received by GIA in August 2025. These have been placed in the context of their surrounding buildings which have been modelled from survey information, photogrammetry, OS and site photographs. This allows for a precise model, which in turn ensures that analysis accurately represents the amount of daylight and sunlight available to the building façades, internal and external spaces, considering all of the surrounding obstructions and orientation.

The weather file recorded at Gatwick Airport was considered the most relevant for this assessment.

Surfaces reflectance

In general, the reflectance value to be applied to surfaces in the computational modelling follows the BR 209 Annex C, unless specified by the design team. Assumptions applied are:

- Interior walls - 0.7
- Ceilings - 0.8
- Floors - 0.4
- Exterior ground and external obstructions - 0.2

Assessment Grids

For the daylight assessments, an analysis 'grid' is located within each room at working plane height (850 mm from FFL) and offset by 0.3m from the walls as recommended by BR 209.

Grid points are spaced by 0.2m .

Assessment Resolution

The climate-based daylight assessments have been undertaken on an hourly basis whilst the sunlight exposure assessment has been undertaken for every minute on the relevant days.

Glazing transmittance

A glazing visible light transmittance (VLT) of 65% has been used as in agreement with the wider design team. A framing factor has been taken from the elevations supplied. Maintenance factors have been applied as per BR209 with 0.92 for windows not beneath an overhang and 0.76 for windows beneath an overhang.

The final transmittance values are shown in the table below.

BS EN 17037:2018						
Glazing Type	TV Normal	Building Type & Atmosphere (NA.2)	Glazing Exposure (NA.3)	Glazing Dirt/Weathering (NA.4)	Framing Factor	TV Total
Type 1	0.65	Urban (8)	Vertical (x1)	Not Sheltered (x1)	Modelled (1)	0.60

Table 01: Transmittance and maintenance factors

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5 CONCLUSIONS

5.1 CONCLUSIONS ON DAYLIGHT

To ascertain the levels of daylight within the Thamesfield Retirement Village, technical assessments have been carried out for all proposed habitable rooms.

All proposed habitable rooms have been tested based on the Illuminance Method set out in BRE guidelines BR 209 and the UK National Annex of BS EN 17037:2018. Results are presented in two ways:

- Spatial Daylight Autonomy (ENSDA), which represents the percentage of the room area achieving a recommended illuminance target for each room use for at least half the daylight hours of the year. This metric was assessed in the November 2024 report and is presented to allow a direct comparison with the previous results;
- Median Daylight Illuminance (MDI), which represents the amount of light (measured in lux) achieved in each room for over 50% of its space and for more than half of the daylight hours in the year, irrespective of room use. This metric is considered to better describe the quantum of light available in a room and has de facto been adopted as the default metric for the vast majority of planning applications.

It should be noted that whilst the results within this report are discussed in terms of MDI, the dataset for ENSDA is the same and so the discussion is also valid for ENSDA.

Overall, 36 (77%) out of the 47 proposed habitable rooms would achieve the minimum levels of MDI recommended by the BRE. This figure considers the higher threshold of 200 lux for combined Living/Kitchen/Dining spaces (LKDs),

In addition, eight (17%) LKDs would meet the recommendation of 150 lux for living rooms, which BRE recognise may be used as an alternative target for living spaces where kitchens are not treated as habitable spaces (to avoid small separate kitchens in the design).

A further two LKDs would fall slightly below guidelines (i.e. achieving an MDI of at least 120 lux, which is less than 20% the recommendation for living room). Therefore, total of 46 (97.8%) out of the 47 proposed habitable rooms are considered to offer acceptable daylight levels overall.

The only room receiving lower levels of daylight is an LKD located on the lowest floor, where a higher level of obstruction naturally occurs. Glazing areas on the southern façade also had to be reduced to mitigate overheating risk, however this room is generously sized and is laid out with the kitchen at the rear (given that in modern accommodation it tends to rely on supplementary artificial lighting), while the living portion of the room has been located closer to the window where higher levels of light would be available. As such, while the levels of light for the room as a whole would be below guidelines, good levels of light could still be enjoyed in the living area.

The results above are higher than those of the previously assessed (November 2024) scheme, where 67% of rooms met the guidelines and 78% of rooms were considered to be acceptably daylight overall.

To conclude, the design has sought to balance daylight provision with overheating mitigation whilst optimising internal layouts. Overall, the Proposed Development is considered to provide good or adequate daylight amenity to all future residents. These proposed amendments would result in an improvement over the previously assessed scheme.

5.2 CONCLUSIONS ON SUNLIGHT

All rooms within the proposed homes have been assessed for orientation and solar exposure. BRE guidelines recommend that at least one main window should face within 90° of due south and that at least one room in each home should receive 1.5 hours of sunlight on 21st March. Accordingly, once the assessments were carried out per room, the results were analysed per home.

Overall, 12 (71%) out of all 17 units would have a south facing window and would achieve 1.5 hours of sunlight on 21st March. The remaining five dwellings are north facing due to the site's orientation and so naturally see lower levels of sunlight, however they would benefit from good daylight levels and so overall they would still have access to adequate natural light amenity.

The results above are slightly below those of the previously assessed scheme due to the removal of the secondary south-facing windows in two LKDs on the second floor which previously provided access to balconies. However, the design has retained the same unit arrangements within the building to minimise the number north-facing dwellings.

Overall, the proposed development makes the most of the available sunlight, similar to the previously assessed scheme.

5.3 CONCLUSIONS ON OVERSHADOWING

The proposed communal open space has been assessed for overshadowing according to BRE's criterion of receiving at least two hours of sunlight on more than 50% of the area on 21st March (equinox). In addition, sun exposure diagrams showing the number of sunlight hours available on 21st March and 21st June have also been provided. The results of these assessments are shown on pages 20–23 of this report.

The vast majority (84%) of the communal open space would exceed guidelines and would offer future residents and visitors a well-sunlit space to enjoy during spring. In the summer months, the space would receive even more sunlight, with most of the area receiving over six hours.

The result above is slightly higher than that of the previously assessed scheme (81%) due to a small adjustment to the assessment area.

To conclude, the proposed communal open space will receive excellent sunlight throughout the year, similar to the previously assessed scheme.

6 SITE OVERVIEW



Fig. 01: Top view

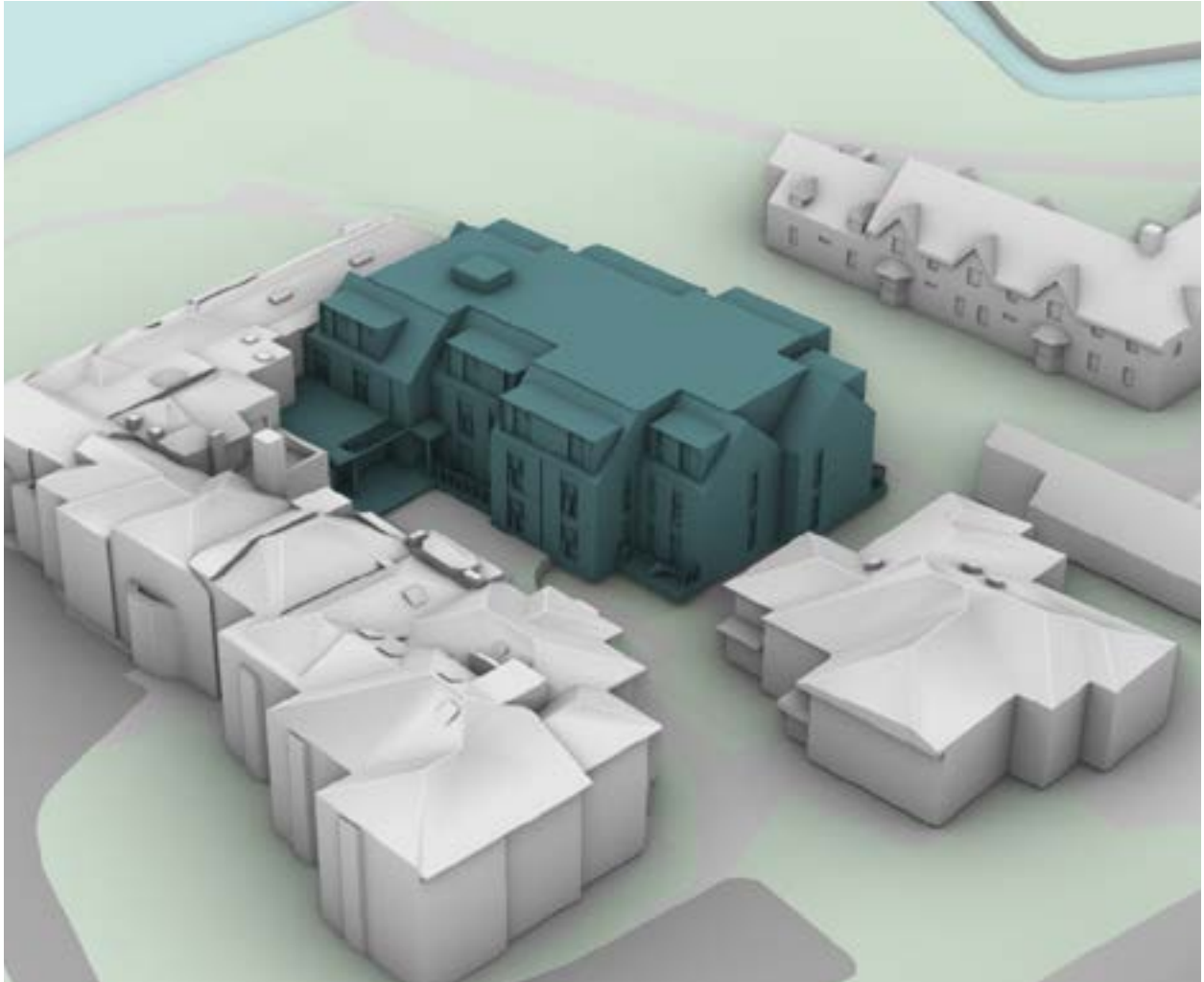


Fig. 02: Perspective view

7 INTERNAL DAYLIGHT AND SUNLIGHT ASSESSMENTS

Ground Floor

			DAYLIGHT			SUNLIGHT	
ROOM REF.	FLAT	ROOM USE	ENSDA (% Space seeing target)	MEDIAN DAYLIGHT ILLUMINANCE (lux)	TARGET (lux)	BY ROOM	
						WINDOW WITHIN 90° DUE SOUTH	21 MAR
BLOCK - LEVEL 00							
1	A	BEDROOM	100	306	100	NO	00:00
2	A	L/K/D	49.1	195	200	YES	03:05
3	B	BEDROOM	100	322	100	NO	00:00
4	B	BEDROOM	100	315	100	NO	00:00
5	B	L/K/D	40	148	200	YES	03:29
6	C	L/K/D	59.4	239	200	NO	00:00
7	C	BEDROOM	99.6	204	100	NO	00:00
8	C	BEDROOM	72	133	100	NO	00:00
9	D	BEDROOM	62.4	115	100	NO	00:00
10	D	BEDROOM	77.4	152	100	YES	04:26
11	D	L/K/D	47.7	189	200	YES	03:54
12	E	L/K/D	31.6	98	200	YES	05:43
13	E	BEDROOM	100	244	100	YES	03:56
14	E	BEDROOM	80.9	184	100	YES	03:50
15	A	BEDROOM	100	367	100	YES	03:28

Table 01: Assessment Data



Fig. 03: Floor Plan



First Floor

			DAYLIGHT			SUNLIGHT	
ROOM REF.	FLAT	ROOM USE	ENSDA (% Space seeing target)	MEDIAN DAYLIGHT ILLUMINANCE (lux)	TARGET (lux)	BY ROOM	
						WINDOW WITHIN 90° DUE SOUTH	21 MAR
BLOCK - LEVEL 01							
16	F	BEDROOM	100	411	100	YES	04:14
17	F	BEDROOM	100	355	100	NO	00:00
18	F	L/K/D	56.4	231	200	YES	03:45
19	G	BEDROOM	100	347	100	NO	00:00
20	G	BEDROOM	100	367	100	NO	00:00
21	G	L/K/D	45.8	177	200	YES	03:42
22	H	L/K/D	70.3	282	200	NO	00:00
23	H	BEDROOM	100	248	100	NO	00:00
24	H	BEDROOM	100	237	100	NO	00:07
25	I	BEDROOM	99.4	193	100	NO	00:27
26	I	BEDROOM	98.6	200	100	YES	05:26
27	I	L/K/D	63	280	200	YES	05:19
28	J	L/K/D	44.3	167	200	YES	07:49
29	J	BEDROOM	100	338	100	YES	04:45
30	J	BEDROOM	100	277	100	YES	04:51
31	K	L/K/D	35.4	135	200	YES	04:53
32	K	BEDROOM	84.9	178	100	YES	05:18

Table 01: Assessment Data



Fig. 04: Floor Plan



Second Floor

			DAYLIGHT			SUNLIGHT	
ROOM REF.	FLAT	ROOM USE	ENSDA (% Space seeing target)	MEDIAN DAYLIGHT ILLUMINANCE (lux)	TARGET (lux)	BY ROOM	
						WINDOW WITHIN 90° DUE SOUTH	21 MAR
BLOCK - LEVEL 02							
33	L	BEDROOM	100	395	100	NO	00:00
34	L	BEDROOM	100	201	100	NO	00:00
35	L	L/K/D	47	189	200	NO	00:00
36	M	BEDROOM	100	289	100	NO	00:00
37	M	BEDROOM	100	195	100	NO	00:00
38	M	L/K/D	38.7	154	200	NO	00:00
39	N	L/K/D	58.9	220	200	NO	00:00
40	N	BEDROOM	100	240	100	NO	00:00
41	O	BEDROOM	100	215	100	YES	06:08
42	O	L/K/D	49.1	197	200	YES	06:41
43	P	L/K/D	38.4	156	200	YES	06:31
44	P	BEDROOM	82.5	145	100	YES	04:19
45	P	BEDROOM	100	439	100	YES	06:10
46	Q	BEDROOM	100	557	100	YES	06:36
47	Q	L/K/D	100	522	200	YES	06:13

Table 01: Assessment Data

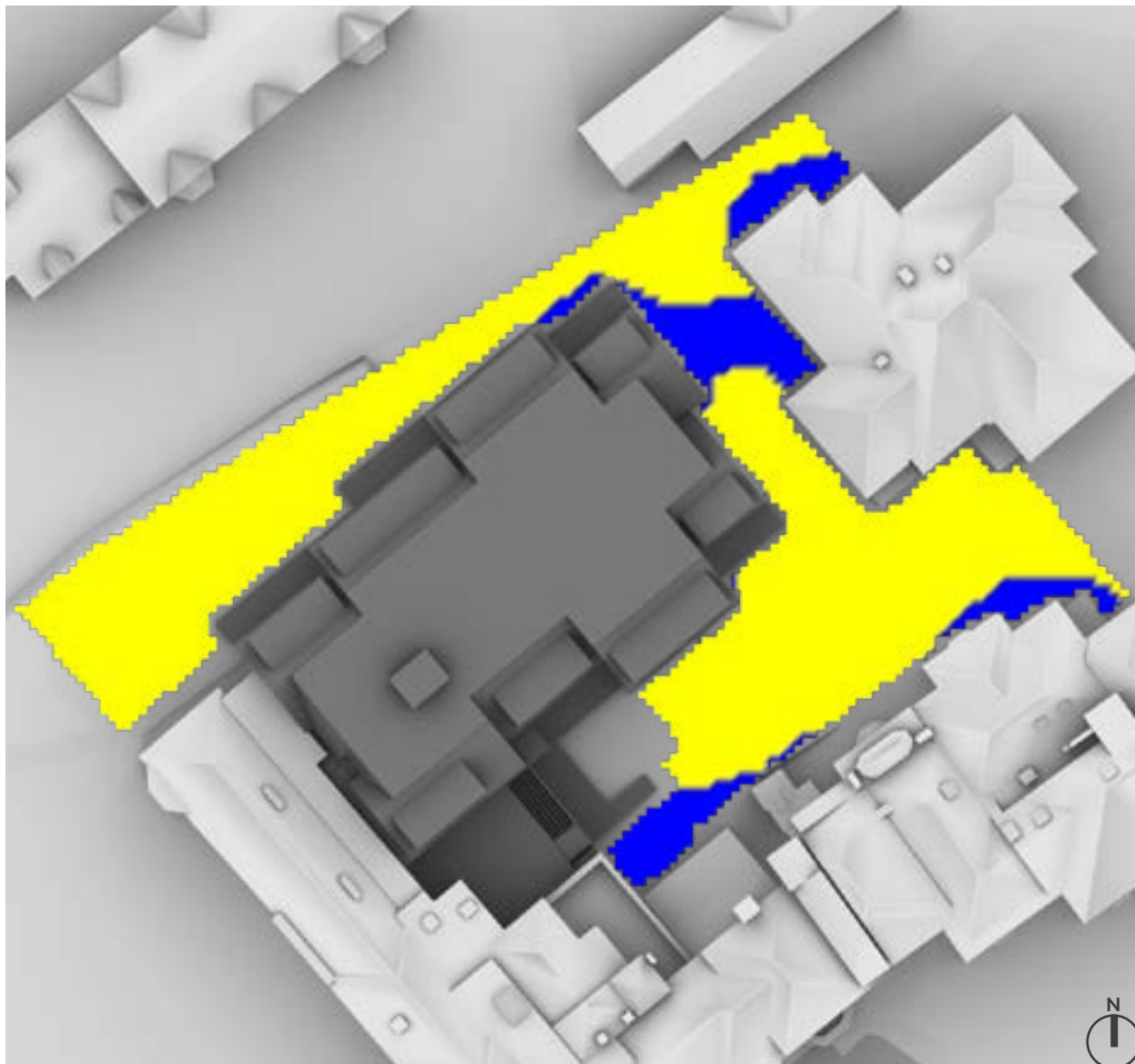


Fig. 05: Floor Plan



8 OVERSHADOWING ASSESSMENTS

OPEN SPACE BRE TEST



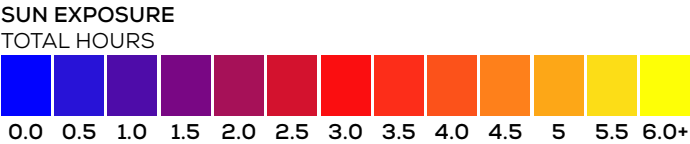
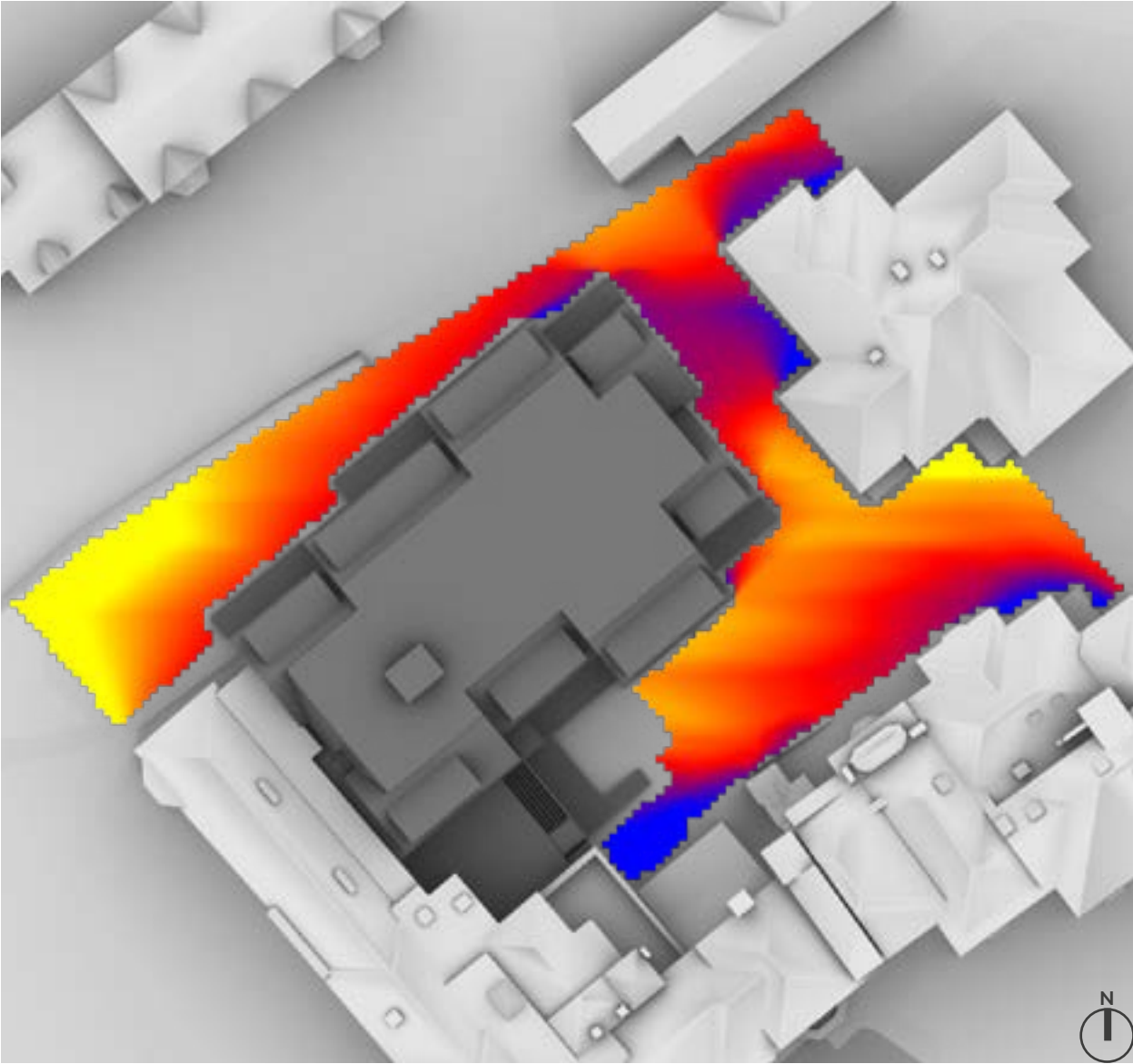
(BRE RECOMMENDS 2+ HOURS OF SUNLIGHT ON 21ST MARCH FOR AT LEAST 50% OF THE OPEN SPACE)

AREA: 84%

SUN HOURS ON GROUND BRE TEST - 21ST MARCH



OPEN SPACE
SUN EXPOSURE - 21ST MARCH (SPRING EQUINOX)

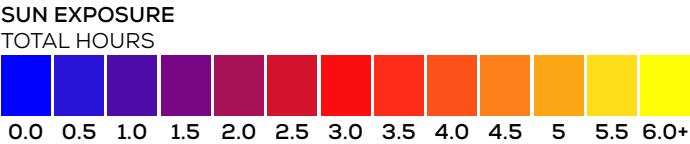
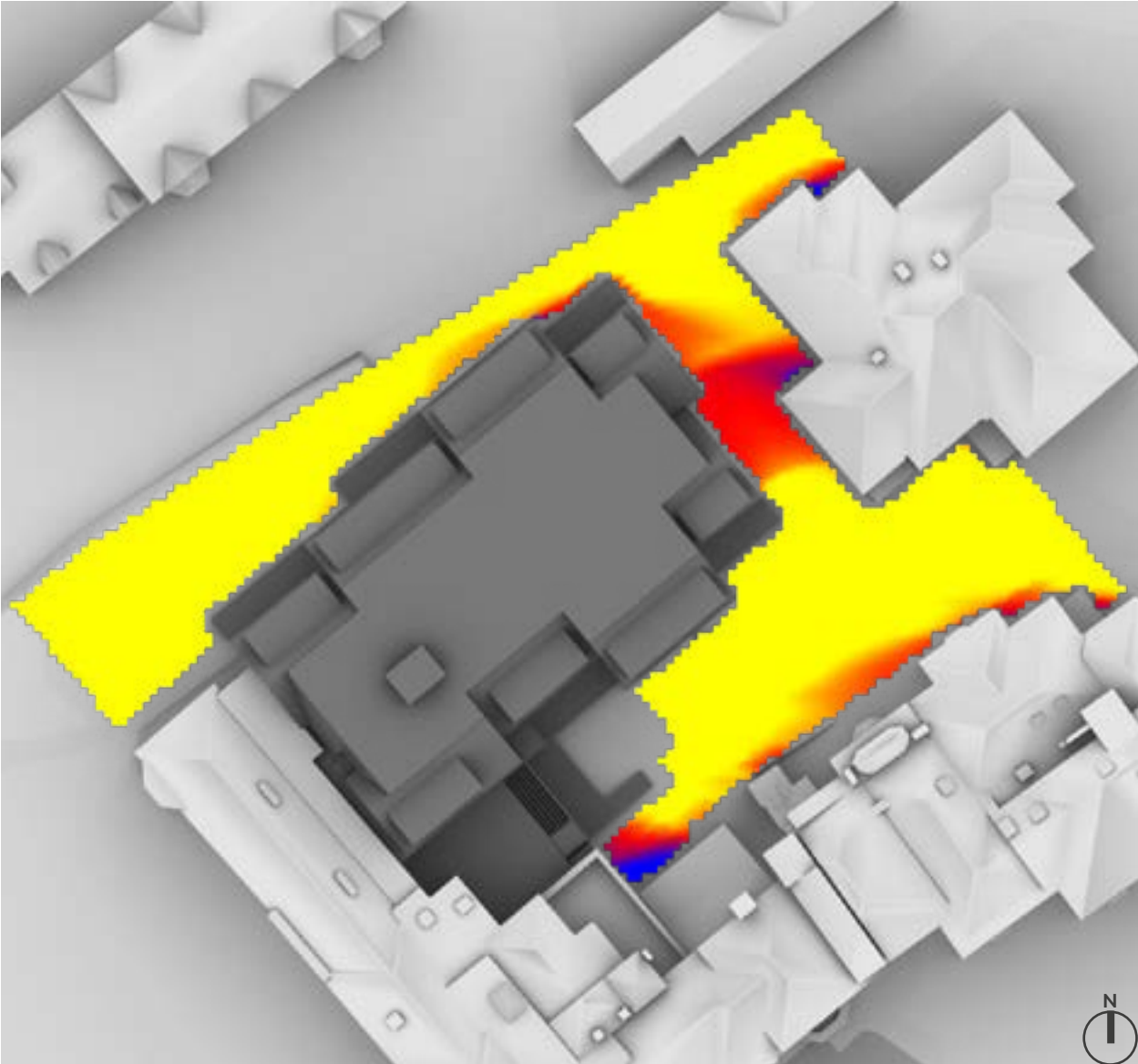


21st March
(SPRING EQUINOX)

LONDON
Latitude: 51.15
Longitude: 0.0
Sunrise: 06:02 GMT
Sunset: 18:14 GMT

Total Available Sunlight:
12hrs 12mins

OPEN SPACE
 SUN EXPOSURE - 21ST JUNE (SUMMER SOLSTICE)



21st June
(SUMMER SOLSTICE)

LONDON
 Latitude: 51.15
 Longitude: 0.0
 Sunrise: 04:43 GMT
 Sunset: 21:21 GMT

Total Available Sunlight:
 16hrs 38mins

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What we do:

Building Surveying
Daylight & Sunlight
Light Obstruction Notices
Measured Surveys
Party Wall & Neighbourly Matters
Rights of Light
Solar PV
Wind Analysis

Where we are:

Belfast
Birmingham
Bristol
Dublin
London
Manchester