PROPOSED SCHEME DAYLIGHT, SUNLIGHT & OVERSHADOWING

Ringers Road

Produced by XCO2 for Ringers Road Properties Ltd

April 2023

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Project reference	9.604	9.604	9.604	9.604			

EXECUTIVE SUMMARY

The daylight, sunlight and overshadowing analysis indicates that the habitable rooms of the proposed development at Ringers Road will achieve adequate levels of daylight and sunlight considering site constrains and the urban context.

Daylight and Sunlight analysis was carried out for the proposed development at Ringers Road, located within the London Borough of Bromley. This report outlines the results of the analysis for the planning application, assessing the daylight and sunlight received by the habitable spaces of the proposed development.

The methodology set out in this report is in accordance with BRE's "Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice" by PJ Littlefair et al. (2022) which is accepted as good practice by Planning Authorities. The BRE report gives numerical guidelines, however, "these should be interpreted flexibly since natural lighting is only one of many factors in site layout design", as stated in the guide.

Computer modelling software was used to carry out the assessments. The model used was based on the drawings by the design team and findings from the overheating risk assessment to balance the two elements in a holistic perspective.

DAYLIGHT ASSESSMENT

A total of 70 no. sample rooms have been included in the assessment. The sample is considered to be the worst-case units in terms of daylight access across the scheme, but also includes for the top floors units of both blocks A and B to understand the extent of impact on internal daylight when balanced with overheating risks. All habitable rooms KLDs (kitchen, living, dining rooms and bedrooms) within the sample dwellings were assessed.

The 27 sample dwellings consist of 70 habitable rooms that encompass 27 KLDs and 43 bedrooms.

The analysis results indicated that 42 out of 70 rooms satisfy the recommendations set out by the BRE's "Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice" by PJ Littlefair et al. (2022), which is accepted as good practice by Planning Authorities.

Of the remaining 28 rooms, 11 are KLDs while the other are bedrooms. 3 of the 10 KLDs rooms meet within 80% or above of the BRE recommendations (sDA of at least 40%) and 3 meet within 60% or above of the BRE recommendations (sDA of at least 30%). The 5 remaining KLDs have greater obstructions and the design has been adjusted as far as feasible to allow maximum daylight access.

5 of the remaining 17 bedrooms meet within approximately 80% or above of the BRE recommendations (sDA of at least ~40%) and 6 meet within approximately 60% or above of the BRE recommendations (sDA of at least ~30%). The remaining 6 bedrooms fall short due to site obstructions as well as the prioritisation of the main living spaces for available daylight in the design process where occupants are expected to spend the majority of time.

Overall, the proposed development as a whole is anticipated to achieve adequate levels of daylighting to all dwellings and habitable spaces, and is therefore considered to provide good quality of accommodation to the future occupants in terms of daylight considering the context and limitations of the site.

SUNLIGHT ASSESSMENT

A total of 27 living spaces were included in the assessment. The sample is considered to be the worst-case units in terms of sunlight access across the scheme, but also includes for the top floors units of both blocks A and B to understand the extent of impact on sunlight levels when balanced with overheating risks.

The analysis has shown that 24 rooms satisfy the BRE criteria for sunlight exposure. The remaining 3 living rooms fall short of the BRE criteria however are located on the north/north-west façades which allows for a reduced amount of sunlight exposure. The number of

dwellings with living rooms facing solely north or northwest has been minimised as far as feasible in this scheme.

Overall, it can be concluded that the proposed design offers adequate accessibility to sunlight in living spaces considering the context and limitations of the site.

OVERSHADOWING ASSESSMENT

A solar access analysis was undertaken for 1 amenity space for the full 24 hours on 21st of March in line with the BRE guidance. The amenity space satisfies the BRE criteria. The amenity space is predicted to achieve at least 2 hours of sunlight for more than 50% of its area on March 21. The open space of the proposed development is therefore considered to be adequately sunlit.

INTRODUCTION

The site is located in a dense urban environment which is currently undergoing a wider regeneration and subsequently the interpretation of the results requires careful consideration of the BRE guidance.

SITE

The site is located between Ringers Road and Ethelbert Road in Bromley and includes the demolition of existing buildings and construction of a mixed-use development comprising residential units, ancillary residents' facilities (including co-working space) and commercial floor space (Use Class E) across two blocks, along with associated hard and soft landscaping, amenity spaces, cycle and refuse storage.

Figure 1 below shows the approximate site location.

Figure 1: Site location of the proposed development.

METHODOLOGY

The assessment is based on guidelines set out in the BRE "Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice" (2022).

The methodology is based on the British Research Establishment's (BRE) publication "Site Layout Planning for Daylight and Sunlight - A Guide to Good Practice," by PJ Littlefair et al. (2022).

The BRE publication Site Layout Planning for Daylight and Sunlight gives advice on site layout planning to achieve good daylighting in buildings. It is important to note that the advice given in the BRE guide is *"not mandatory"* and *"its aim is to help rather than constrain the designer".*

DAYLIGHT

The BRE guidelines refer to the British Standard BS EN 17037 *Daylight in Buildings* recommendations. This stipulates the calculation of the amount of daylight in a space using one of two methods: prediction of illuminance levels using hourly data, or the use of the daylight factor. For this assessment, the method predicting illuminance levels using hourly data is used. For daylight levels in dwellings, BS EN 17037 refers to the UK National Annex which outlines the illuminance level needed in a room according to its occupancy. These are as follows:

- 100 lux for bedrooms
- 150 lux for living rooms and
- 200 lux for kitchens, or rooms with kitchens

The calculation is carried out taking into consideration the relative illuminance values, the amount of daylight hours, and the area of the room. For a room to be compliant with the BRE guidance it must reach the required illuminance levels for at least 50% of the daylight hours across 50% of the room area.

This is measured by the Spatial Daylight Autonomy (sDA) metric. sDA is defined as the percentage area of the analysed space that is above a certain lux level for a certain percentage of time.

In addition to the amount of light hitting the working plane, this assessment takes into consideration surface materials and in particular their reflectance.

These calculations are carried out using Radiance based software approved by the BRE.

SUNLIGHT

Sunlight is valued within a space, and according to the BRE guidance access to sunlight can be quantified. BS EN 17037 recommends that a space should receive a minimum of 1.5 hours of direct sunlight on the 21st of March – the equinox. The guidance rates the amount of access to daylight as below:

- 1.5 hours as the minimum
- 3 hours as a medium level
- 4 hours as a high level

The BRE guidance states that *"in housing, 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."*

The guidance states at least one habitable room is required to meet the criteria per dwelling.

OVERSHADOWING

Open spaces should retain a reasonable amount of sunlight throughout the year. The BRE states that for an amenity space to *"appear adequately sunlit throughout the year, at least half of the area should receive at least two hours of sunlight on 21 March".*

DESIGN DEVELOPMENT

The findings presented in the following sections are the result of an iterative design process in which discussions were held between XCO2 and Hollaway Architects in order to optimise the scheme's performance in terms of daylight and sunlight levels given the context of the site

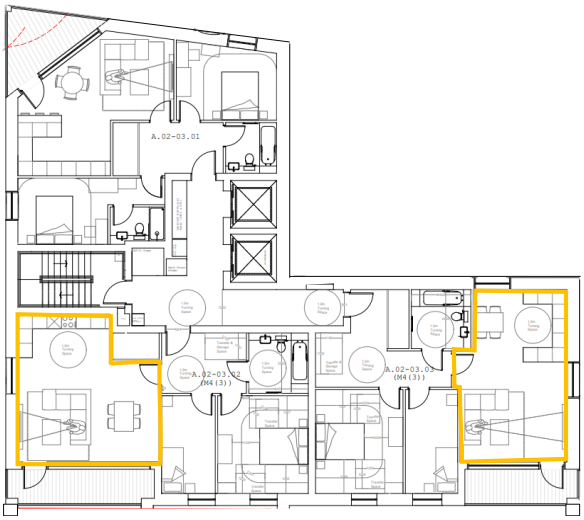
Initial drawings from the architect were received where the original internal room layouts and glazing specifications were outlined. From these, baseline assessments were carried out on a worst-case scenario basis following the methodology highlighted in the previous section. This first stage of assessment allowed underperforming rooms to be identified in order for appropriate mitigation measures to be decided. Mitigation measures for these spaces were then discussed with Hollaway Architects in forms of workshops in order to ensure as many rooms as possible could benefit from daylight and sunlight but also meet the overheating risk requirements which are statutory.

Some examples of measures that have been implemented into the proposal in order to improve the levels of natural daylight within the dwellings are outlined below.

REVISION OF ROOM LAYOUTS

A number of Kitchen/Living/Dining (KLDs) that were performing below recommended lux levels, mainly because of their adjacency to balconies, were reconfigured. The design layout was enhanced by changing room uses, allowing for the KLDs to have more windows flushed with the façade that are not overshadowed by balconies. An example of this is shown in Figure 2.

Original design



Updated design

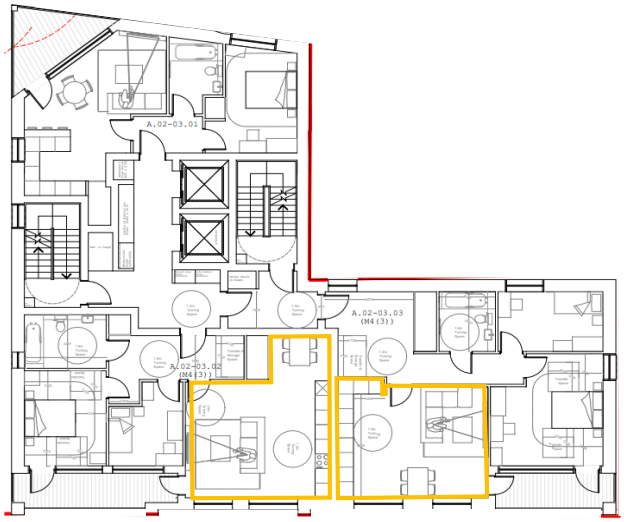


Figure 2: Demonstration of change in layouts to allow for better daylight penetration in KLDs in Block A.

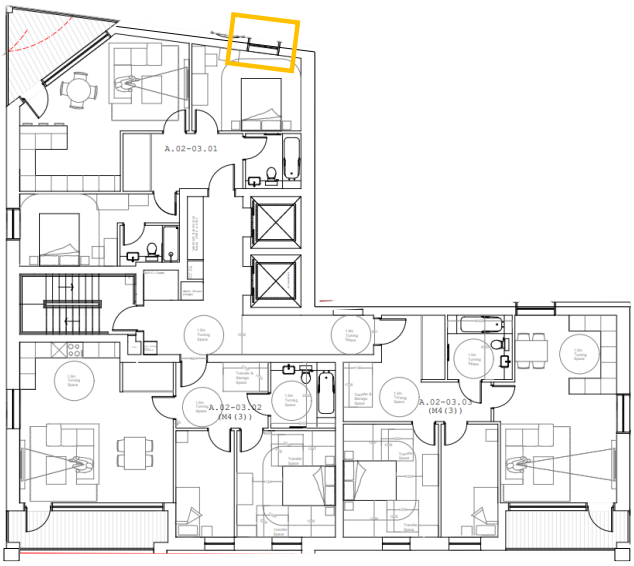
INCREASED GLAZED AREAS

A number of rooms requiring mitigation in the initial drawings were only marginally below their recommended targets and a number of rooms were found to be restricted in their daylight due to constraints occurring from either the density of the proposed scheme or the scale / proximity of the surrounding properties.

Given the nature of these constraints, it is often impractical to remedy the issue through removal or reduction of the obstruction as that would either come at great impact to the scheme or would fall outside of the remit of the scopes of work being undertaken.

It was therefore deemed appropriate for an increase in the glazed area to be used as a means of mitigating the obstruction. This approach was to be taken from a very holistic perspective, as careful consideration towards energy performance and overheating risk has been taken into account within the design. Examples of these are shown in Figure 3 and Figure 4.

Original design



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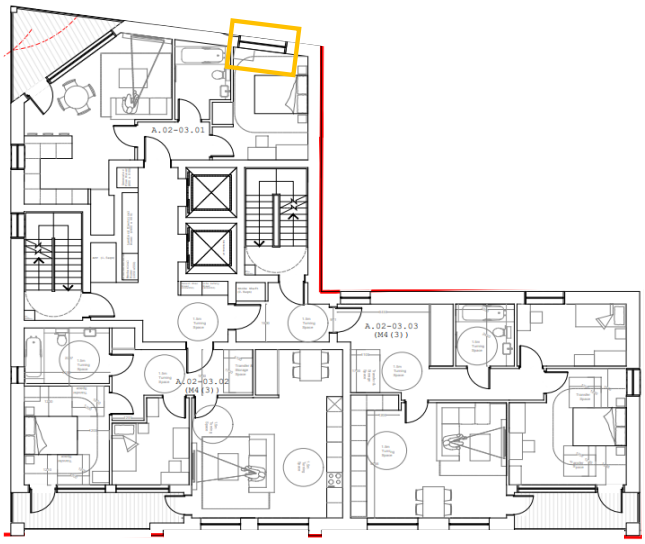
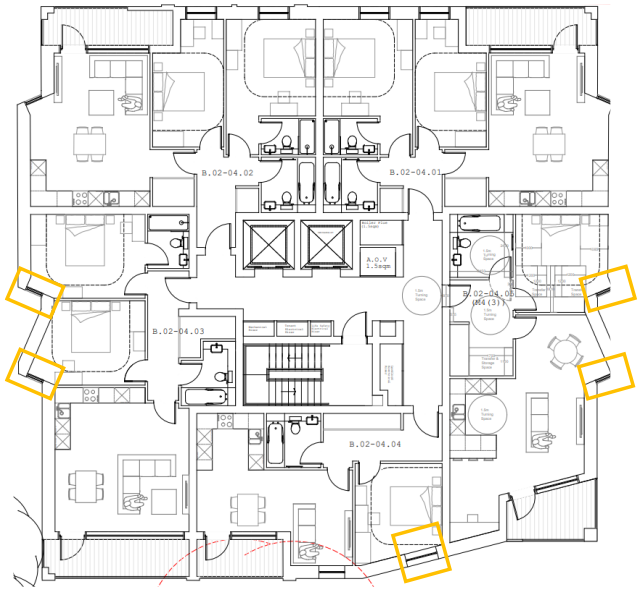


Figure 3: Demonstration of how the glazing area was increased as far as feasible in Block A.

Original design



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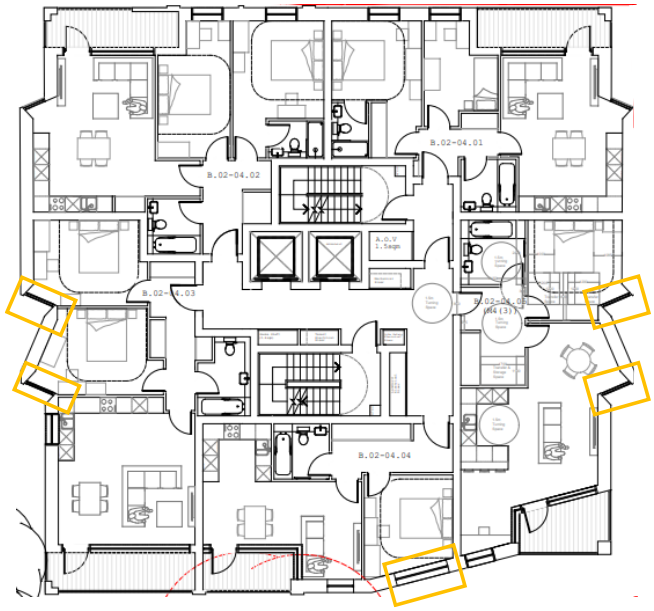
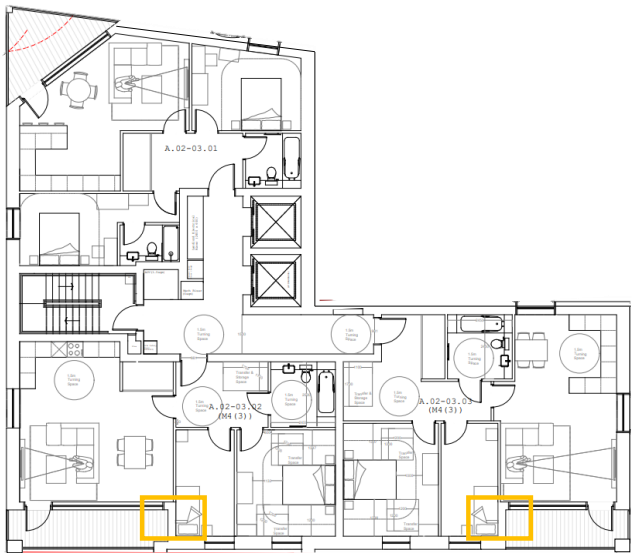


Figure 4: Demonstration of how the glazing area was increased as far as feasible in Block B.

Original design



Updated design

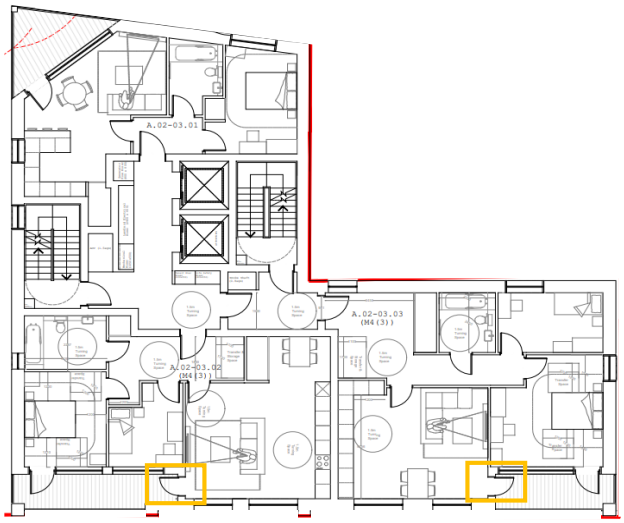
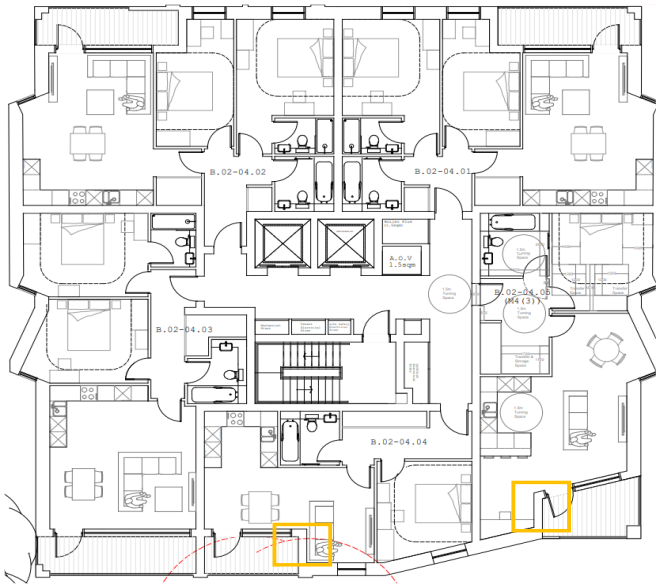


Figure 5: Demonstration of how additional windows were included in Block A.

ADDITION OF WINDOWS

Additional windows were included to mitigate the overshadowing of balconies in instances where the layouts were already optimised. Examples of these are shown in Figure 5 and Figure 6.

Original design



Updated design

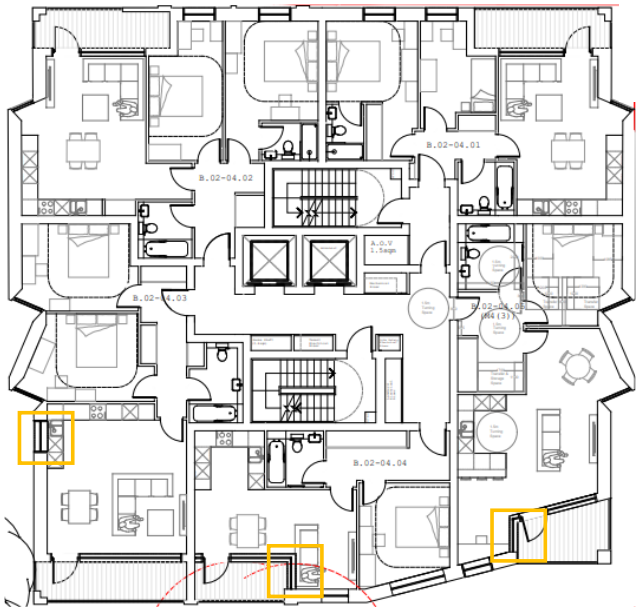


Figure 6: Demonstration of how additional windows were included in Block B.

DAYLIGHT ASSESSMENT

The analysis indicates that habitable spaces of the proposed development will receive good levels of daylighting.

A total of 70 no. sample rooms have been included in the assessment. The sample is considered to be the worst-case units in terms of daylight access across the scheme, but also includes for the top floors units of both blocks A and B to understand the extent of impact on internal daylight when balanced with overheating risks. All habitable rooms KLDs within the sample dwellings were assessed.

The references of the evaluated dwellings and the corresponding habitable rooms can be found in Appendix A – Window and Room Reference. The tables below show a summary of results for the assessed rooms.

For the calculations, the following assumptions have been made:

- 50% interior wall reflectance
- 70% interior ceiling reflectance
- 20% interior floor reflectance
- 20% exterior surface reflectance
- 68% light transmission for vertical glazing

The 27 sample dwellings consist of 70 habitable rooms that encompass 27 KLDs and 43 bedrooms.

The results show that 16 out of 27 KLDs meet the BRE recommendations. Of the remaining 11 rooms, 3 were found to only be marginally short of the criteria meeting within 80% or above of the BRE recommendations (sDA of at least 40%) and 3 within 60% or above of the BRE recommendations (sDA of at least 30%) which is considered to still be an adequate level of daylight.

The remaining 5 have greater obstructions. The glazing belonging to these rooms has been maximised along the façade and the layouts were adjusted as far as feasible. It is worth noting that the rooms are laid out in a way that the living space is placed to the front of the room which will have better daylight access while the rear of the room is reserved for circulation and surface working spaces which are likely to rely on artificial lighting regardless of natural daylight levels.

As for the bedrooms, 26 out of 43 bedrooms meet the BRE recommendations. 5 of the remaining 17 bedrooms were found to only be marginally short of the criteria meeting within approximately 80% of the BRE recommendations (sDA of at least ~40%) and 6 within approximately 60% of the BRE recommendations (sDA of at least ~30%) which is considered to still be an adequate level of daylight.

Of the remaining 6 bedrooms, 4 are limited due to a design constraint being adjacent to a balcony and the main living space of that dwelling being prioritised for available daylight and 2 have greater obstruction from surrounding buildings. It is worth noting that these rooms are located on the first and second floors thus subjected to slightly lower daylight penetration due to larger obstructions.

Overall, the development receives adequate levels of daylight and the design has been optimised as far as feasible to balance the various project requirements as discussed in the Design development section of this report.

Detailed results can be found within Appendix B - Detailed Daylight Results.

Table 1: Daylight Results Summary for Ringers Road.

Number of habitable rooms tested	70
Number of kitchen/living/dining rooms	27
Number of kitchen/living/dining rooms meeting the BRE recommendations	16
Number of kitchen/living/dining meeting within 80% of the BRE recommendations (sDA of at least 40%)	3
Number of kitchen/living/dining meeting within 60% of the BRE recommendations (sDA of at least 30%)	3
Number of kitchen/living/dining not meeting any of the above criteria	5
Number of bedrooms	43
Number of bedrooms meeting the BRE recommendations	27
Number of kitchen/living/dining meeting within approximately 80% of the BRE recommendations (sDA of at least ~40%)	5
Number of kitchen/living/dining meeting within approximately 60% of the BRE recommendations (sDA of at least ~30%)	6
Number of bedrooms not meeting any of the above criteria	6

SUNLIGHT ASSESSMENT

The analysis indicates that living spaces of the proposed development will receive good levels of sunlight.

A total of 27 living spaces were included in the assessment. The sample is considered to be the worst-case units in terms of sunlight access across the scheme, but also includes for the top floors units of both blocks A and B to understand the extent of impact on sunlight levels when balanced with overheating risks. The references of the evaluated living rooms can be found in Appendix A – Window and Room Reference and the detailed sunlight results can be found in Appendix C – Detailed Sunlight Results.

The results show that 18 out of 27 assessed living rooms achieve more than 4 hours of solar access on March 21, and therefore are considered to receive high levels of sunlight. 3 of the remaining 9 living rooms achieve 3 hours of sunlight access on March 21 which is the medium level, and 3 rooms achieve more than 1.5 hours of sunlight access on March 21 which is the minimum recommended level of sunlight.

The remaining 3 living rooms were found to be north/north-west facing which allows for a reduced amount of sunlight exposure. The number of dwellings with living rooms facing solely north or north-west has been minimised as far as feasible in this scheme.

Table 2. Sunlight Results for Ringers Road

Number of living rooms tested	27
Number of living rooms with more than 4 hours of sunlight access	18
Number of living rooms with more than 3 hours of sunlight access	3
Number of living rooms with more than 1.5 hours of sunlight access	3
Number of living rooms with north/north-west facing orientation not meeting any of the above criteria	3

OVERSHADOWING ASSESSMENT

The analysis indicates that the open spaces of the proposed development will receive adequate sunlight.

A review of the site plan showed that there is 1 open space which is part of the proposed development, as shown in the figure below. A Solar Access Analysis was undertaken on this amenity area for the full 24 hours on 21 March as set out by the BRE.

The amenity space taken into account is located on ground floor.

The results show that the amenity space assessed pass the BRE criteria receiving more than 2 hours of sunlight on 21 March on over 50% of its area.

Detailed results are shown in Table 3 below.

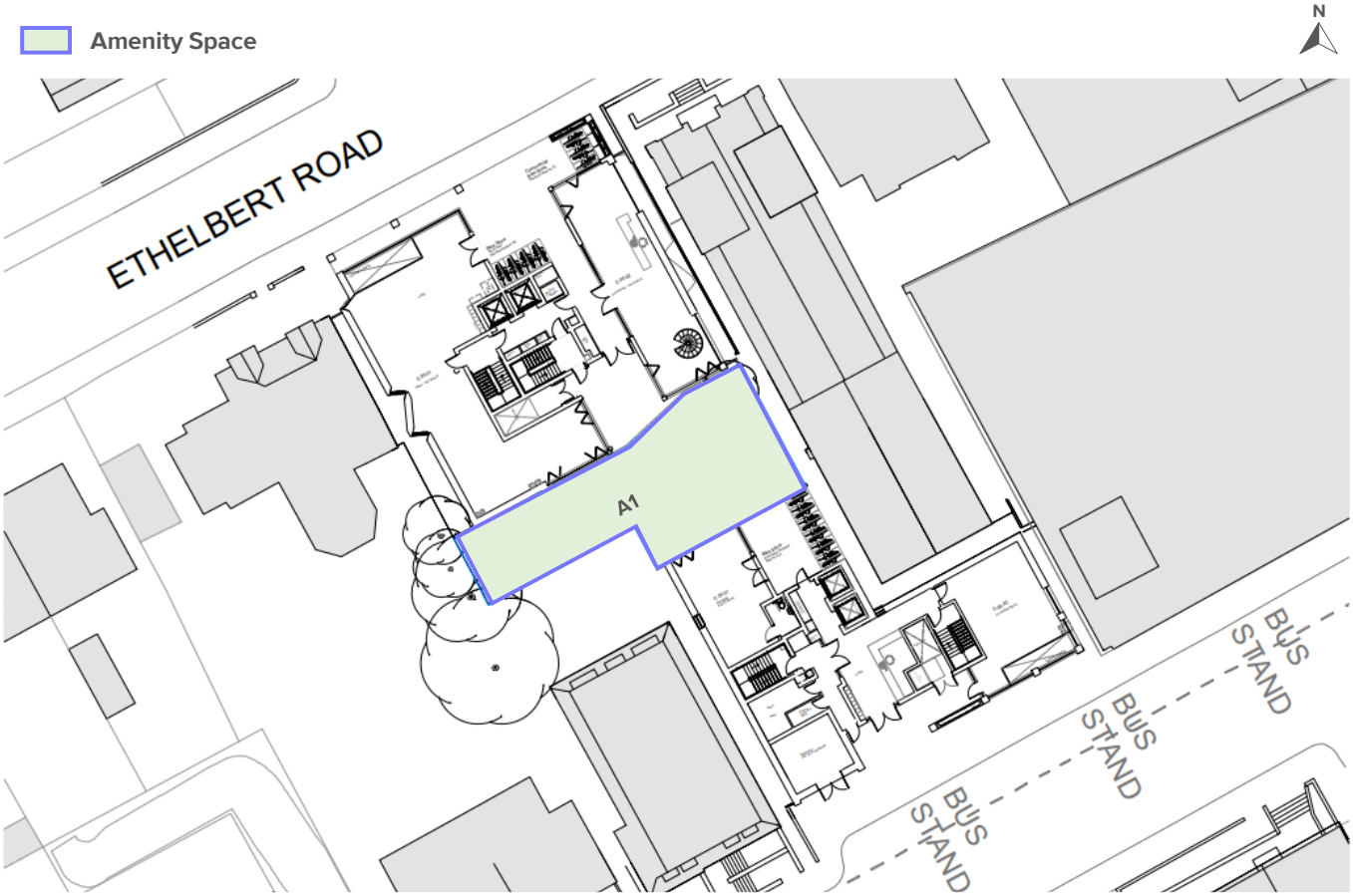


Figure 7: Open space in the development A1.

Area receiving at least 2 hours of sunlight on 21 March in the proposed context

Area receiving less than 2 hours of sunlight on 21 March in the proposed context

Figure 8: Overshadowing results for the open space in the development A1.

Table 3: Overshadowing results summary for Ringers Road

Amenity Reference	Amenity Area (m^2)	Lit Area Proposed (m^2)	Proposed Lit Area (%)	Meets BRE Guidance
A1	176.75	122.93	70	Yes, meets BRE Guidance

CONCLUSION

The daylight, sunlight and overshadowing analysis indicates that the habitable rooms of the proposed development at Ringers Road will achieve adequate levels of daylight and sunlight.

DAYLIGHT ASSESSMENT

Daylight and Sunlight analysis was carried out for the proposed development at Ringers Road, located within the London Borough of Bromley. This report outlines the results of the analysis for the planning application, assessing the daylight and sunlight received by the habitable spaces of the proposed development.

The methodology set out in this report is in accordance with BRE's "Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice" by PJ Littlefair et al. (2022) which is accepted as good practice by Planning Authorities. The BRE report gives numerical guidelines, however, "these should be interpreted flexibly since natural lighting is only one of many factors in site layout design", as stated in the guide.

Computer modelling software was used to carry out the assessments. The model used was based on the drawings by the design team and findings from the overheating risk assessment to balance the two elements in a holistic perspective.

DAYLIGHT ASSESSMENT

A total of 70 no. sample rooms have been included in the assessment. The sample is considered to be the worst-case units in terms of daylight access across the scheme, but also includes for the top floors units of both blocks A and B to understand the extent of impact on internal daylight when balanced with overheating risks. All habitable rooms KLDs (kitchen, living, dining rooms and bedrooms) within the sample dwellings were assessed.

The 27 sample dwellings consist of 70 habitable rooms that encompass 27 KLDs and 43 bedrooms.

The analysis results indicated that 42 out of 70 rooms satisfy the recommendations set out by the BRE's "Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice" by PJ Littlefair et al. (2022), which is accepted as good practice by Planning Authorities.

Of the remaining 28 rooms, 11 are KLDs while the other are bedrooms. 3 of the 10 KLDs rooms meet within 80% or above of the BRE recommendations (Spatial Daylight Autonomy, sDA of at least 40%) and 3 meet within 60% or above of the BRE recommendations (sDA of at least 30%). The 5 remaining KLDs have greater obstructions and the design has been adjusted as far as feasible to allow maximum daylight access.

5 of the remaining 17 bedrooms meet within approximately 80% or above of the BRE recommendations (sDA of at least ~40%) and 6 meet within approximately 60% or above of the BRE recommendations (sDA of at least ~30%). The remaining 6 bedrooms fall short due to site obstructions as well as the prioritisation of the main living spaces for available daylight in the design process where occupants are expected to spend the majority of time.

Overall, the proposed development as a whole is anticipated to achieve adequate levels of daylighting to all dwellings and habitable spaces, and is therefore considered to provide good quality of accommodation to the future occupants in terms of daylight considering the context and limitations of the site.

SUNLIGHT ASSESSMENT

A total of 27 living spaces were included in the assessment. The sample is considered to be the worst-case units in terms of sunlight access across the scheme, but also includes for the top floors units of both blocks A and B to understand the extent of impact on sunlight levels when balanced with overheating risks.

The analysis has shown that 24 rooms satisfy the BRE criteria for sunlight exposure. The remaining 3 living rooms fall short of the BRE criteria however are located on the north/north-west façades which allows for a reduced amount of sunlight exposure. The number of dwellings with living rooms facing solely north, northeast, or northwest has been minimised as far as feasible in this scheme.

Overall, it can be concluded that the proposed design offers adequate accessibility to sunlight in living spaces considering the context and limitations of the site.

OVERSHADOWING ASSESSMENT

A solar access analysis was undertaken for 1 amenity space for the full 24 hours on 21st of March in line with the BRE guidance. The amenity space satisfies the BRE criteria. The amenity space is predicted to achieve at least 2 hours of sunlight for more than 50% of its area on March 21. The open space of the proposed development is therefore considered to be adequately sunlit.

APPENDIX A – WINDOW AND ROOM REFERENCE

N

BACKGROUND DRAWING INFORMATION

FILE NAME	ORIGINATOR NAME	DESCRIPTION NAME	REV	DATE REC'D

Notes

Rev	Date	Description	Chk'd	Appr

Client: Ringers Road Properties Ltd

Architect: Hollaway

Project: Ringers Road

Title: Window and Room Reference First Floor

Scale@A3	Drawn	Checked	Date
N.T.S	LU	FH	12.04.2023

Drawing Number: 9.604_01

Revision: C

N

BACKGROUND DRAWING INFORMATION

FILE NAME	ORIGINATOR NAME	DESCRIPTION NAME	REV	DATE REC'D

Notes

Rev	Date	Description	Chk'd	Appr

Client: Ringers Road Properties Ltd

Architect: Hollaway

Project: Ringers Road

Title: Window and Room Reference Second Floor

Scale@A3	Drawn	Checked	Date
N.T.S	LU	FH	12.04.2023

Drawing Number: 9.604_02

Revision: C

N

BACKGROUND DRAWING INFORMATION

FILE NAME	ORIGINATOR NAME	DESCRIPTION NAME	REV	DATE REC'D

Notes

Rev	Date	Description	Chk'd	Appr

Client: Ringers Road Properties Ltd

Architect: Hollaway

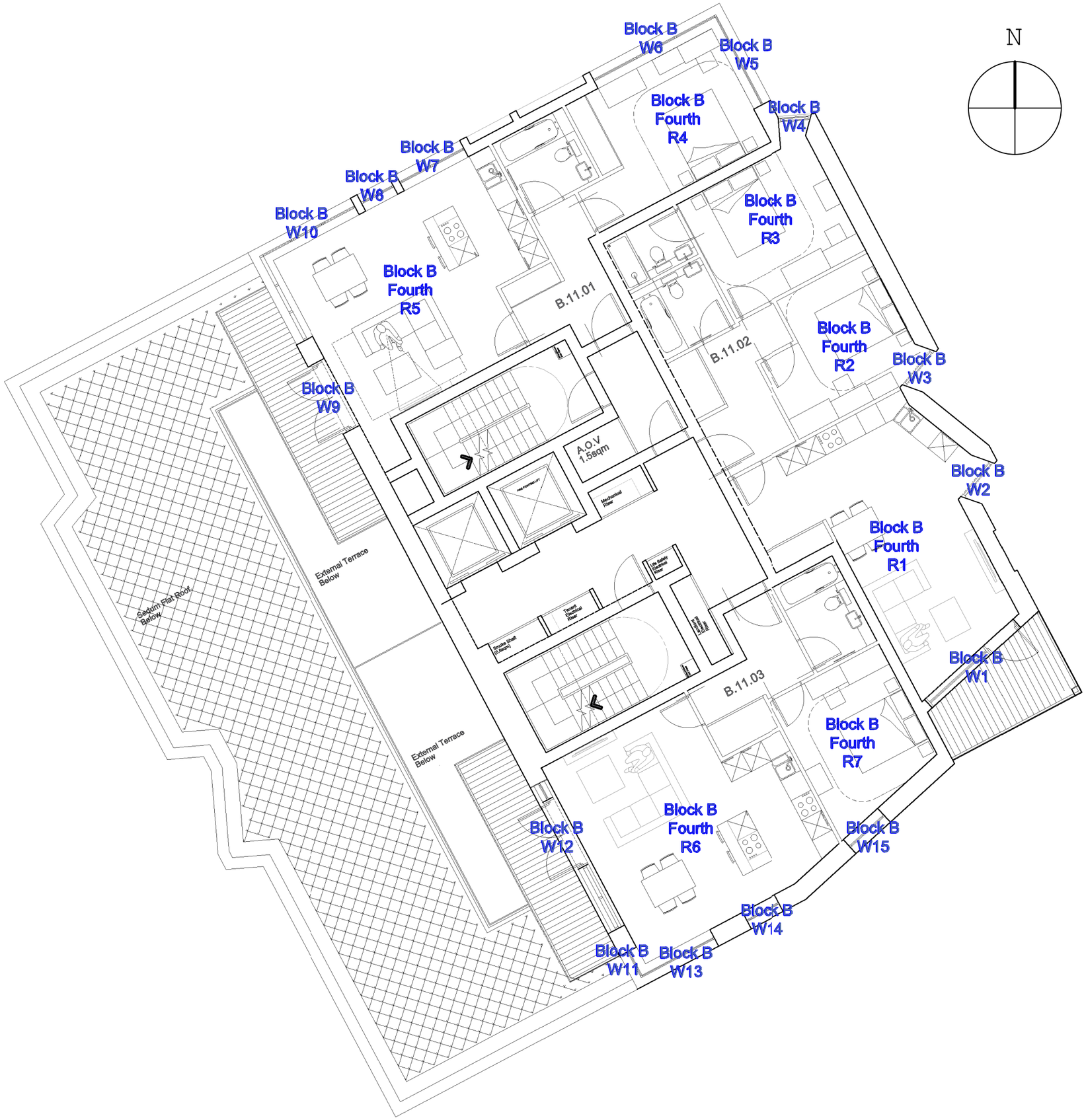
Project: Ringers Road

Title: Window and Room Reference Third Floor

Scale@A3	Drawn	Checked	Date
N.T.S	LU	FH	12.04.2023

Drawing Number: 9.604_03

Revision: C



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BACKGROUND DRAWING INFORMATION

FILE NAME	ORIGINATOR NAME	DESCRIPTION NAME	REV	DATE REC'D

Notes

Rev	Date	Description	Chk'd	Appr

Client
Ringers Road Properties Ltd

Architect
Hollaway

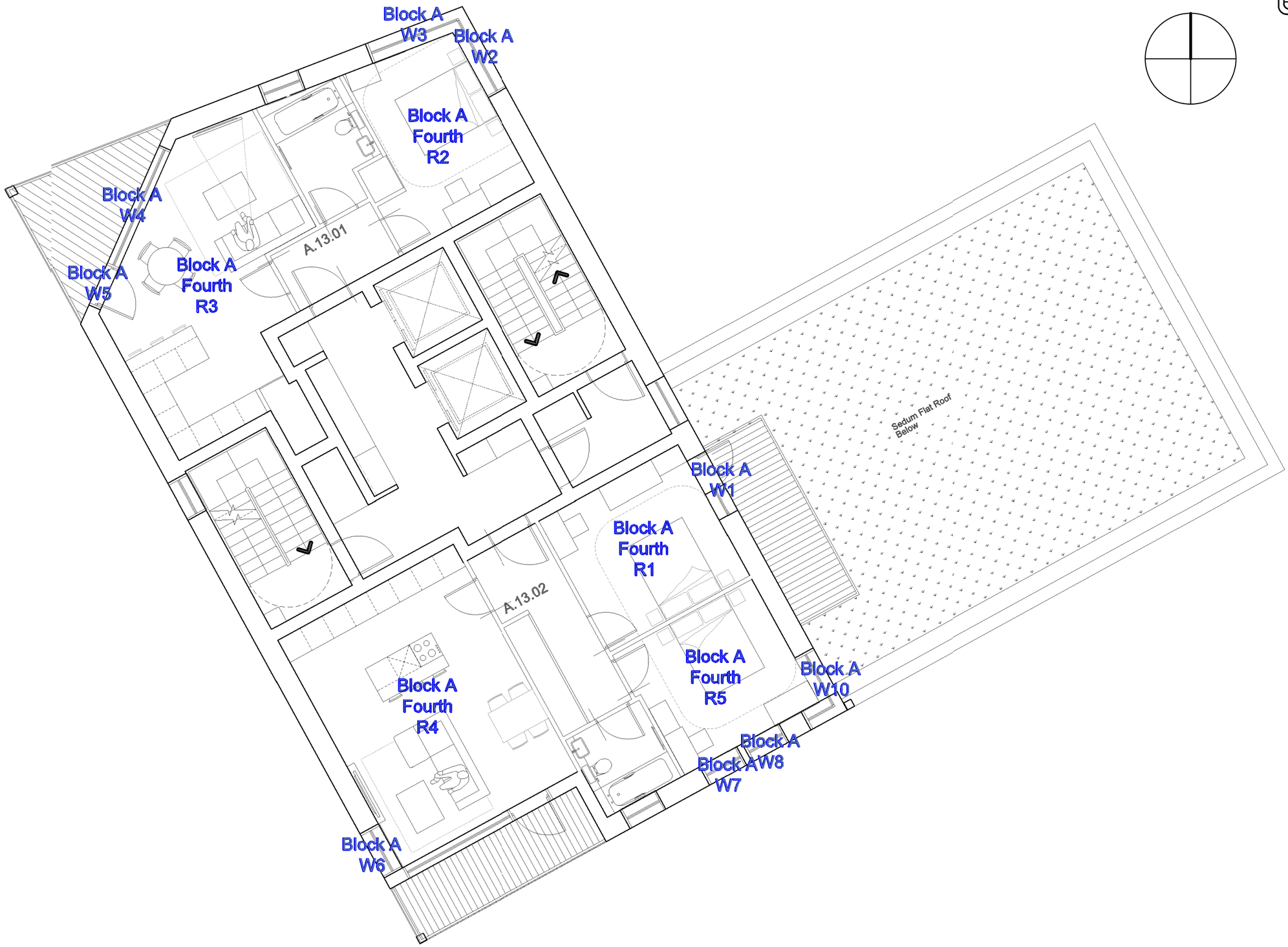
Project
Ringers Road

Title
Window and Room Reference
Block B - Eleventh Floor

Scale@A3	Drawn	Checked	Date
N.T.S	LU	FH	12.04.2023

Drawing Number
9.604_04

Revision
C



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BACKGROUND DRAWING INFORMATION

FILE NAME	ORIGINATOR NAME	DESCRIPTION NAME	REV	DATE REC'D

Notes

Rev	Date	Description	Chk'd	Appr

Client
Ringers Road Properties Ltd

Architect
Hollaway

Project
Ringers Road

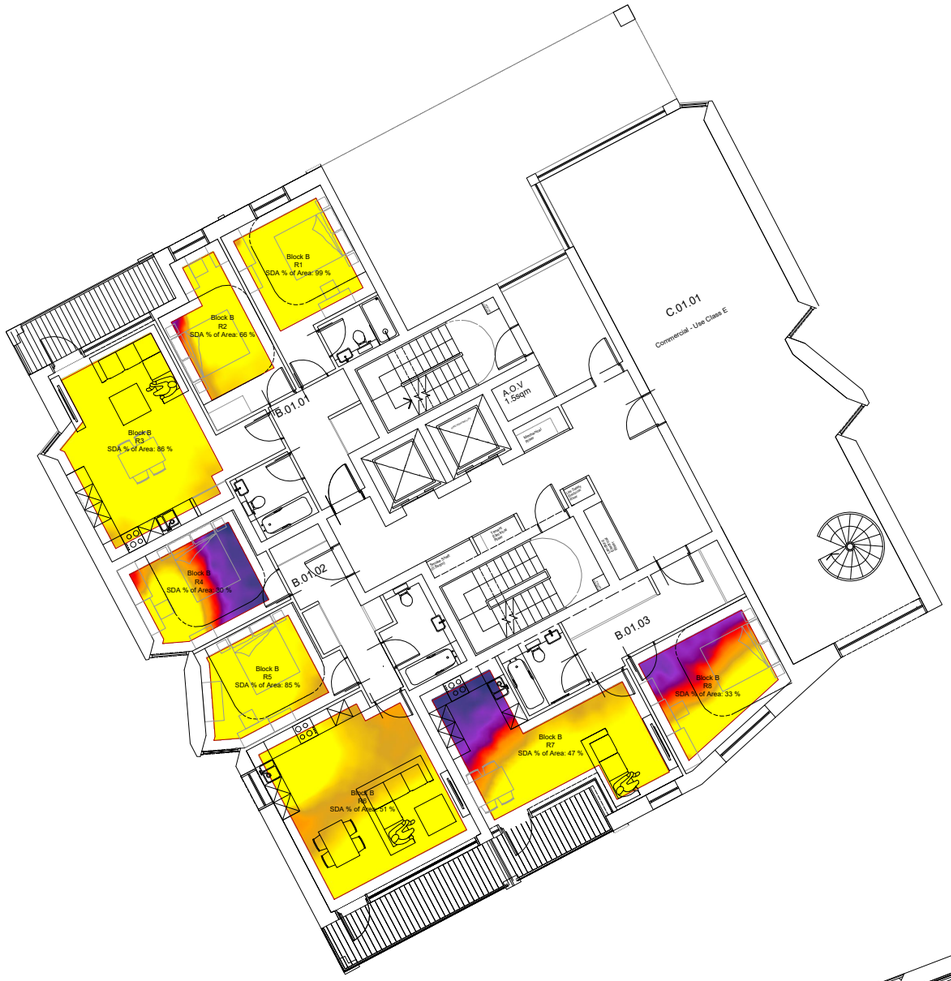
Title
Window and Room Reference
Block A - Thirteenth Floor

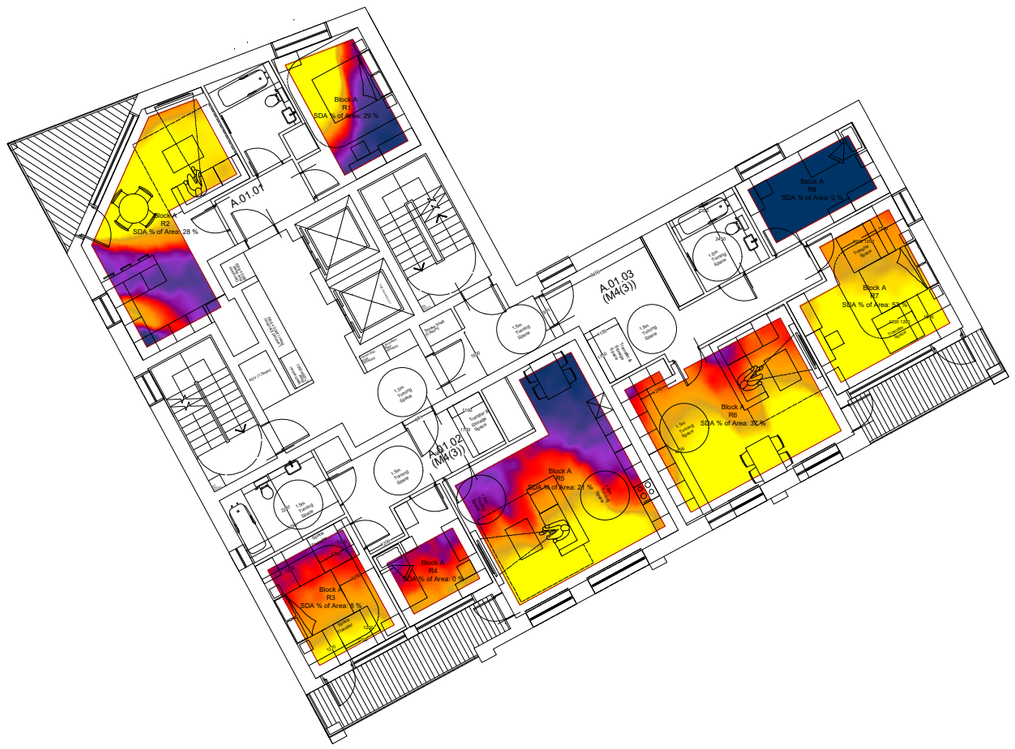
Scale@A3	Drawn	Checked	Date
N.T.S	LU	FH	12.04.2023

Drawing Number	Revision
9.604_05	C

APPENDIX B - DETAILED DAYLIGHT RESULTS

Note: Fourth floor refers to eleventh floor in Block B and thirteenth floor in Block A of the architects drawings. This is due to the technicality of daylight simulation software. The daylight maps correspond to the same naming as the tables below.





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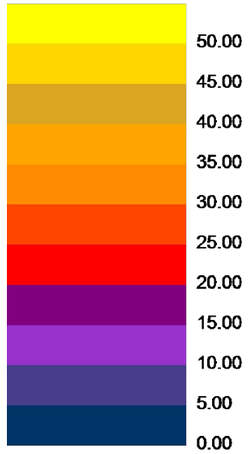
BACKGROUND DRAWING INFORMATION				
FILE NAME	ORIGINATOR NAME	DESCRIPTION NAME	REV	DATE REC'D

Notes



50% Required to meet BRE recomendations

200 lux KLDs
150 lux Living rooms
100 lux Bedrooms

Rev	Date	Description	Chk'd	Appr

Client
Ringers Road Properties Ltd

Architect
Hollaway

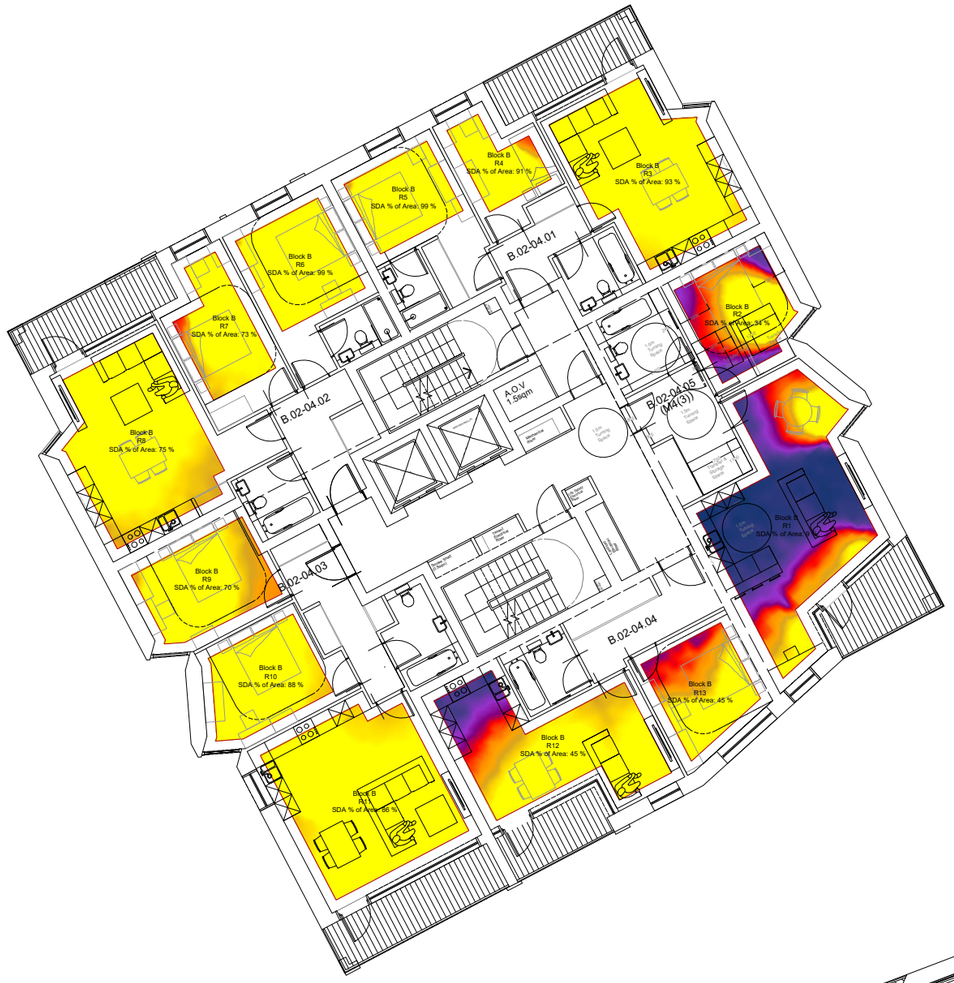
Project
Ringers Road

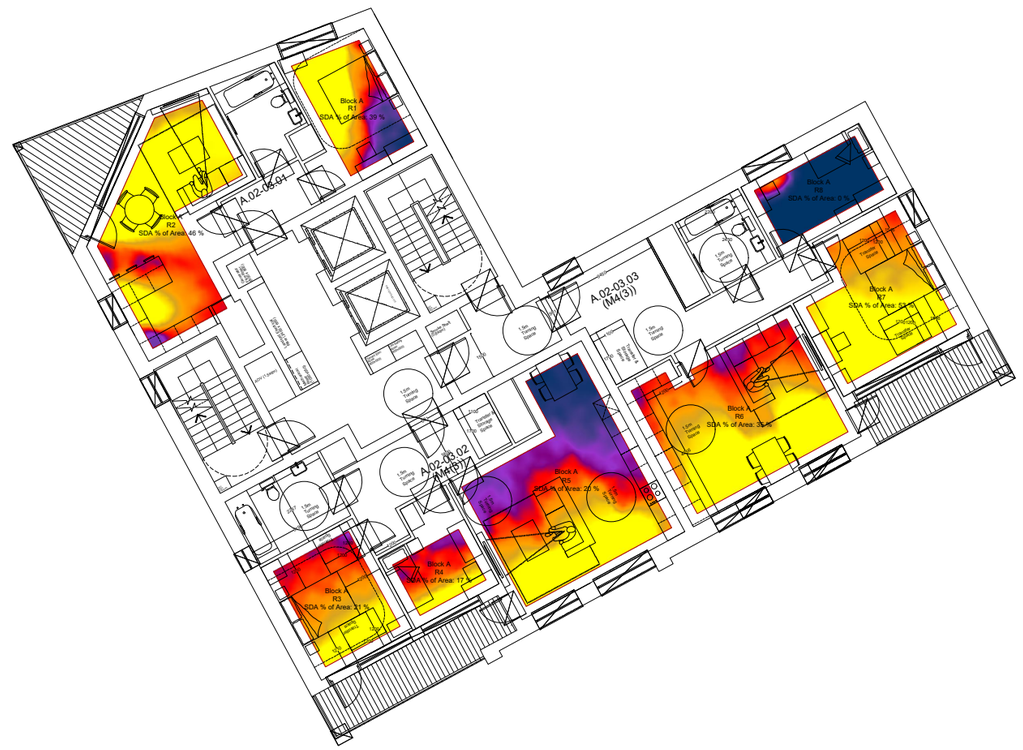
Title
SDA Results
First Floor

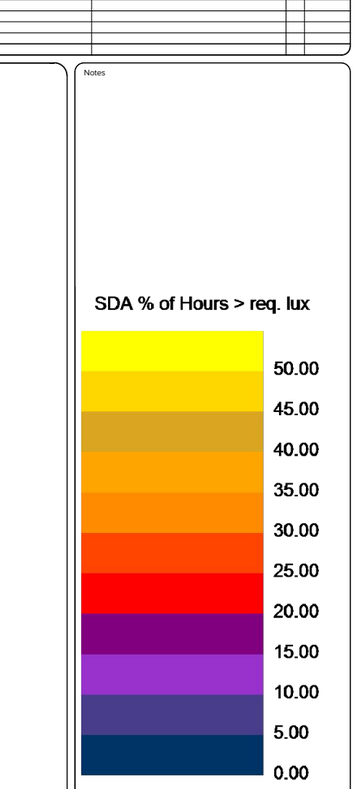
Scale@A3	Drawn	Checked	Date
N.T.S	LU	FH	12.04.2023

Drawing Number	Revision
9.604_01	C

BACKGROUND DRAWING INFORMATION				
FILE NAME	ORIGINATOR NAME	DESCRIPTION NAME	REV	DATE RECD







Notes

SDA % of Hours > req. lux

50% Required to meet BRE recomendations

200 lux KLDs
150 lux Living rooms
100 lux Bedrooms

Rev	Date	Description	Chk'd	Appr

Client
Ringers Road Properties Ltd

Architect
Hollaway

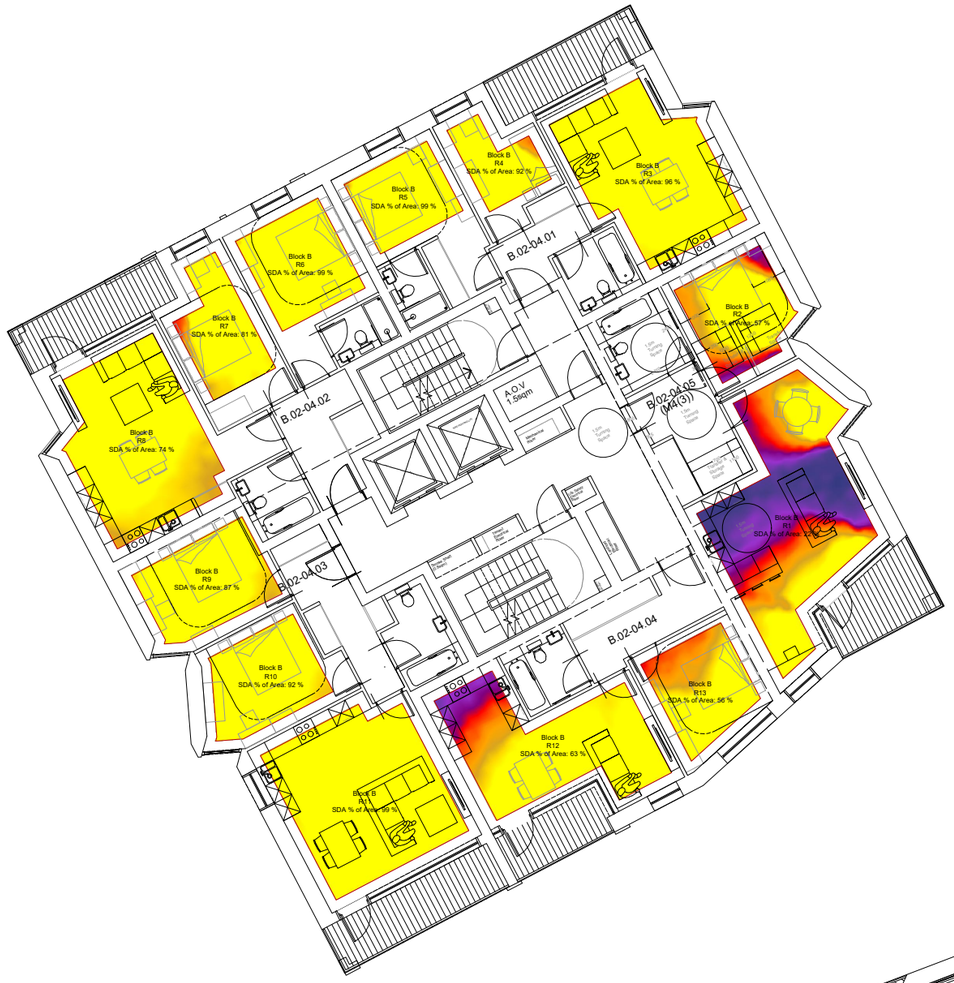
Project
Ringers Road

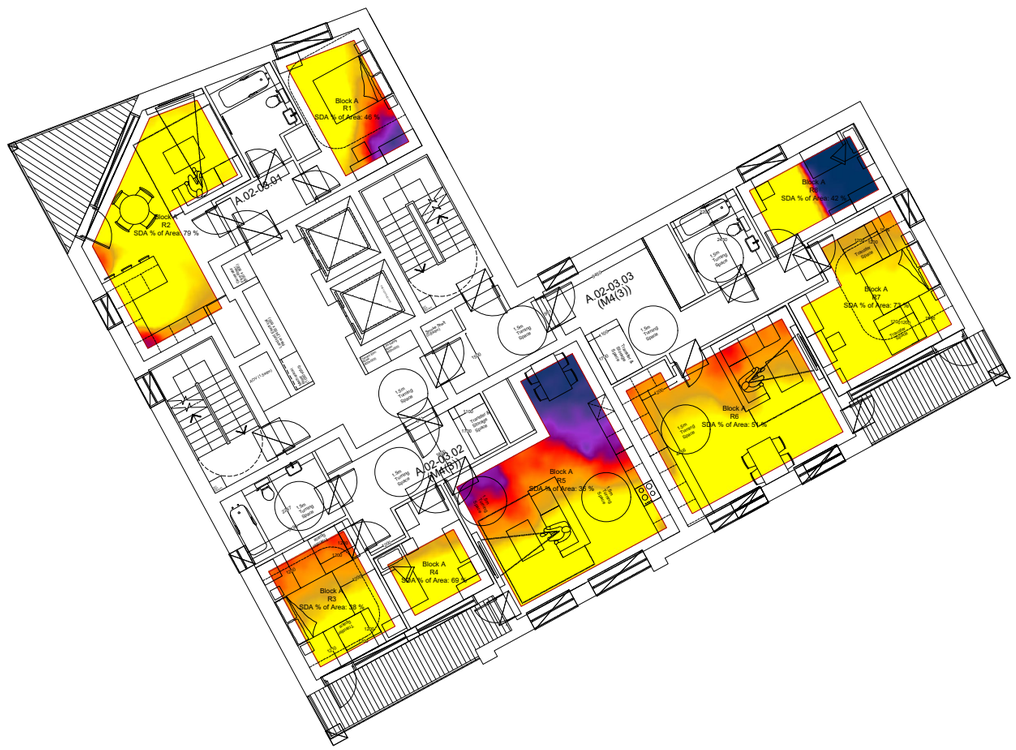
Title
SDA Results
Second Floor

Scale@A3	Drawn	Checked	Date
N.T.S	LU	FH	12.04.2023

Drawing Number
9.604_02

Revision
C





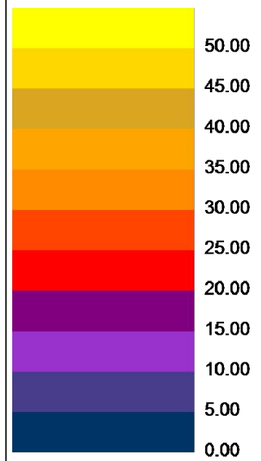
N

BACKGROUND DRAWING INFORMATION

FILE NAME	ORIGINATOR NAME	DESCRIPTION NAME	REV	DATE RECD

Notes

SDA % of Hours > req. lux



50% Required to meet BRE recomendations

200 lux KLDs
150 lux Living rooms
100 lux Bedrooms

Rev	Date	Description	Chk'd	Appr

Client
Ringers Road Properties Ltd

Architect
Hollaway

Project
Ringers Road

Title
SDA Results
Third Floor

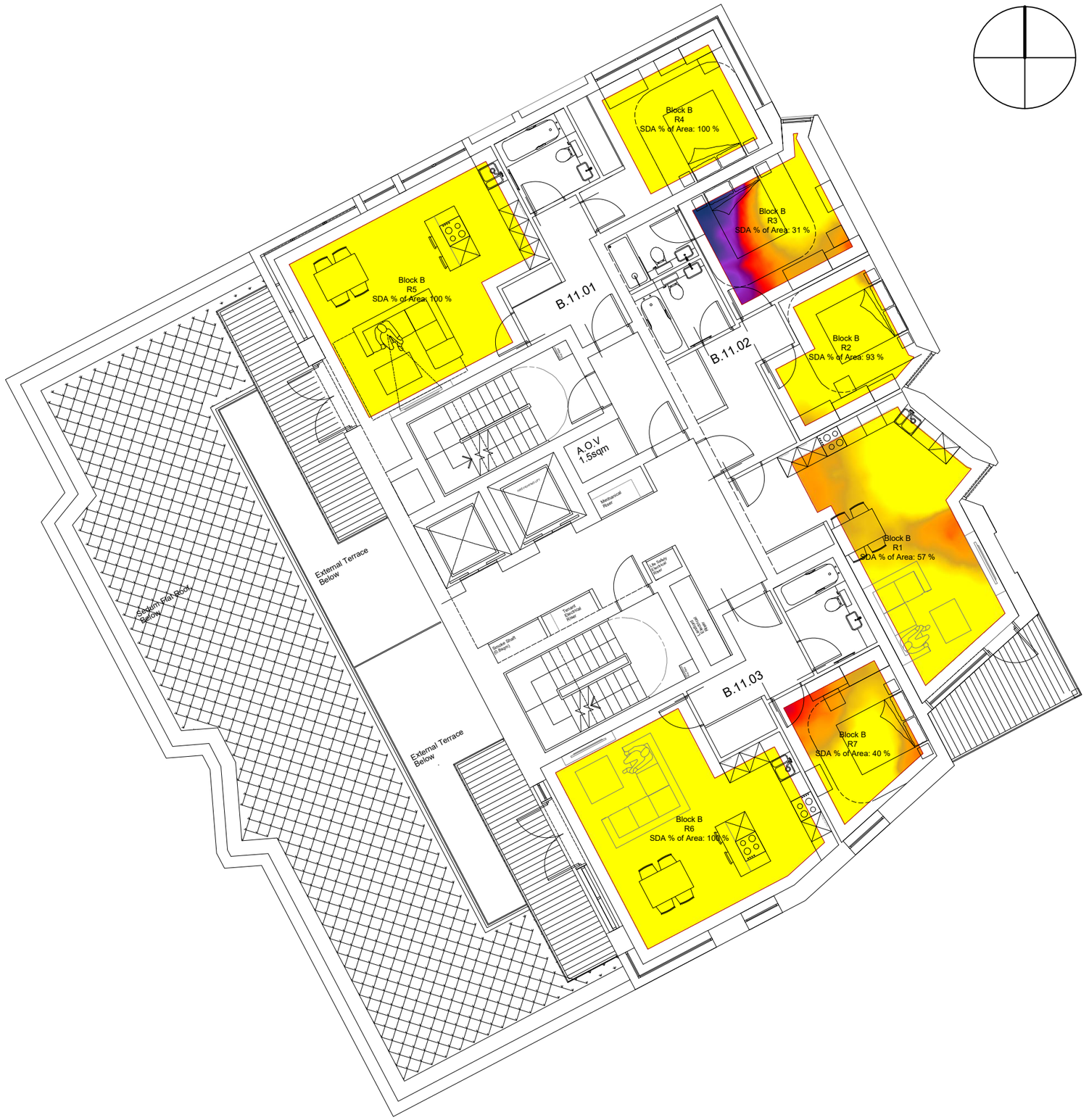
Scale@A3	Drawn	Checked	Date
N.T.S	LU	FH	12.04.2023

Drawing Number
9.604_03

Revision
C

BACKGROUND DRAWING INFORMATION				
FILE NAME	ORIGINATOR NAME	DESCRIPTION NAME	REV	DATE REC'D

N



SDA %

Notes

SDA % of Hours > req. lux

	50.00
	45.00
	40.00
	35.00
	30.00
	25.00
	20.00
	15.00
	10.00
	5.00
	0.00

50% Required to meet BRE recomendations

200 lux KLDs
150 lux Living rooms
100 lux Bedrooms

Rev	Date	Description	Chk'd	Appr

Client
Ringers Road Properties Ltd

Architect
Hollaway

Project
Ringers Road

Title
SDA Results
Block B - Eleventh Floor

Scale@A3	Drawn	Checked	Date
N.T.S	LU	FH	12.04.2023

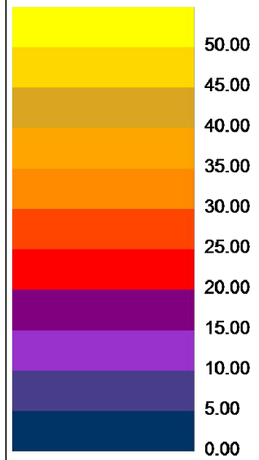
Drawing Number	Revision
9.604_04	C

BACKGROUND DRAWING INFORMATION				
FILE NAME	ORIGINATOR NAME	DESCRIPTION NAME	REV	DATE REC'D

N

Notes

SDA % of Hours > req. lux



50% Required to meet BRE recomendations

200 lux KLDs
150 lux Living rooms
100 lux Bedrooms

Rev	Date	Description	Chk'd	Appr

Client
Ringers Road Properties Ltd

Architect
Hollaway

Project
Ringers Road

Title
SDA Results
Block A - Thirteenth Floor

Scale@A3	Drawn	Checked	Date
N.T.S	LU	FH	12.04.2023

Drawing Number
9.604_05

Revision
C

Project Name: 9_604_Ringers Road
Project No.: 1
Report Title: SDA BS En17037 Analysis - Proposed Scheme
Date of Analysis: 18/04/2023

Floor Ref	Room Ref	Room Attribute	Property Type	Room Use	Room Area m2	Effective Area	Median Lux	Area Meeting Req Lux	% of Area Meeting Req Lux	Criteria: Req Lux	Criteria: Req % of Effective Area	Criteria: Req % of Daylight Hours	Criteria: Daylight Hours	Meets Criteria
Block A														
First	R1		Residential	Bedroom	11.99	8.09	45	2.32	29%	100	50%	50%	4380	Within ~60% of recommendations
	R2		Residential	LKD	24.41	17.97	149	5.09	28%	200	50%	50%	4380	Falls short
	R3		Residential	Bedroom	12.53	8.62	52	0.72	8%	100	50%	50%	4380	Falls short
	R4		Residential	Bedroom	6.83	4.04	45	0.00	0%	100	50%	50%	4380	Falls short
	R5		Residential	LKD	31.52	24.49	85	5.08	21%	200	50%	50%	4380	Falls short
	R6		Residential	LKD	27.10	20.87	151	7.78	37%	200	50%	50%	4380	Within 60% of recommendations
	R7		Residential	Bedroom	18.20	13.19	104	7.00	53%	100	50%	50%	4380	YES
	R8		Residential	Bedroom	10.06	6.48	1	0.00	0%	100	50%	50%	4380	Falls short
Second	R1		Residential	Bedroom	11.99	8.09	71	3.16	39%	100	50%	50%	4380	Within ~80% of recommendations
	R2		Residential	LKD	24.41	17.97	187	8.25	46%	200	50%	50%	4380	Within 80% of recommendations
	R3		Residential	Bedroom	12.53	8.62	56	1.84	21%	100	50%	50%	4380	Falls short
	R4		Residential	Bedroom	6.83	4.04	46	0.67	17%	100	50%	50%	4380	Falls short
	R5		Residential	LKD	31.52	24.49	85	5.08	21%	200	50%	50%	4380	Falls short
	R6		Residential	LKD	27.10	20.87	143	7.28	35%	200	50%	50%	4380	Within 60% of recommendations
	R7		Residential	Bedroom	18.20	13.19	101	6.97	53%	100	50%	50%	4380	YES
	R8		Residential	Bedroom	10.06	6.48	2	0.00	0%	100	50%	50%	4380	Falls short
Third	R1		Residential	Bedroom	11.99	8.09	91	3.74	46%	100	50%	50%	4380	Within 80% of recommendations
	R2		Residential	LKD	24.41	17.97	238	14.24	79%	200	50%	50%	4380	YES
	R3		Residential	Bedroom	12.53	8.62	76	3.27	38%	100	50%	50%	4380	Within 60% of recommendations
	R4		Residential	Bedroom	6.83	4.04	137	2.77	69%	100	50%	50%	4380	YES
	R5		Residential	LKD	31.52	24.49	111	8.78	36%	200	50%	50%	4380	Within 60% of recommendations
	R6		Residential	LKD	27.10	20.87	199	10.59	51%	200	50%	50%	4380	YES
	R7		Residential	Bedroom	18.20	13.19	147	9.66	73%	100	50%	50%	4380	YES
	R8		Residential	Bedroom	10.06	6.48	66	2.70	42%	100	50%	50%	4380	Within 80% of recommendations
Fourth	R1		Residential	Bedroom	13.53	9.47	288	9.47	100%	100	50%	50%	4380	YES
	R2		Residential	Bedroom	12.10	8.19	882	8.19	100%	100	50%	50%	4380	YES
	R3		Residential	LKD	24.43	17.99	400	16.84	94%	200	50%	50%	4380	YES
	R4		Residential	LKD	29.69	23.46	888	23.46	100%	200	50%	50%	4380	YES
	R5		Residential	Bedroom	12.41	8.48	865	8.48	100%	100	50%	50%	4380	YES
Block B														
First	R1		Residential	Bedroom	12.82	8.88	182	8.80	99%	100	50%	50%	4380	YES
	R2		Residential	Bedroom	11.26	7.20	127	4.75	66%	100	50%	50%	4380	YES
	R3		Residential	LKD	25.81	19.85	317	17.01	86%	200	50%	50%	4380	YES
	R4		Residential	Bedroom	13.07	9.07	43	2.67	30%	100	50%	50%	4380	Within 60% of recommendations
	R5		Residential	Bedroom	12.71	8.75	147	7.41	85%	100	50%	50%	4380	YES
	R6		Residential	LKD	28.34	22.22	203	11.38	51%	200	50%	50%	4380	YES
	R7		Residential	LKD	23.82	17.01	188	7.93	47%	200	50%	50%	4380	Within 80% of recommendations
	R8		Residential	Bedroom	14.52	10.26	57	3.38	33%	100	50%	50%	4380	Within 60% of recommendations
Second	R1		Residential	LKD	33.34	25.30	57	2.29	9%	200	50%	50%	4380	Falls short
	R2		Residential	Bedroom	12.96	8.93	61	3.07	34%	100	50%	50%	4380	Within 60% of recommendations
	R3		Residential	LKD	24.62	18.66	335	17.31	93%	200	50%	50%	4380	YES
	R4		Residential	Bedroom	7.95	4.62	196	4.19	91%	100	50%	50%	4380	YES
	R5		Residential	Bedroom	10.39	6.87	226	6.79	99%	100	50%	50%	4380	YES
	R6		Residential	Bedroom	12.83	8.89	193	8.81	99%	100	50%	50%	4380	YES
	R7		Residential	Bedroom	11.25	7.20	130	5.29	73%	100	50%	50%	4380	YES
	R8		Residential	LKD	25.83	19.87	279	14.91	75%	200	50%	50%	4380	YES
	R9		Residential	Bedroom	14.16	9.93	134	6.94	70%	100	50%	50%	4380	YES
	R10		Residential	Bedroom	13.04	9.02	161	7.94	88%	100	50%	50%	4380	YES
	R11		Residential	LKD	28.35	22.24	304	19.15	86%	200	50%	50%	4380	YES
	R12		Residential	LKD	23.82	17.01	189	7.68	45%	200	50%	50%	4380	Within 80% of recommendations
	R13		Residential	Bedroom	12.07	8.24	89	3.69	45%	100	50%	50%	4380	Within 80% of recommendations
Third	R1		Residential	LKD	33.34	25.30	105	5.48	22%	200	50%	50%	4380	Falls short
	R2		Residential	Bedroom	12.96	8.93	101	5.11	57%	100	50%	50%	4380	YES
	R3		Residential	LKD	24.62	18.66	338	17.94	96%	200	50%	50%	4380	YES
	R4		Residential	Bedroom	7.95	4.62	207	4.27	92%	100	50%	50%	4380	YES
	R5		Residential	Bedroom	10.39	6.87	235	6.79	99%	100	50%	50%	4380	YES
	R6		Residential	Bedroom	12.83	8.89	198	8.81	99%	100	50%	50%	4380	YES
	R7		Residential	Bedroom	11.25	7.20	137	5.83	81%	100	50%	50%	4380	YES
	R8		Residential	LKD	25.83	19.87	275	14.79	74%	200	50%	50%	4380	YES
	R9		Residential	Bedroom	14.16	9.93	159	8.67	87%	100	50%	50%	4380	YES
	R10		Residential	Bedroom	13.04	9.02	170	8.31	92%	100	50%	50%	4380	YES
	R11		Residential	LKD	28.35	22.24	365	21.91	99%	200	50%	50%	4380	YES
	R12		Residential	LKD	23.82	17.01	234	10.78	63%	200	50%	50%	4380	YES
	R13		Residential	Bedroom	12.07	8.24	112	4.62	56%	100	50%	50%	4380	YES

Project Name: 9_604_Ringers Road
Project No.: 1
Report Title: SDA BS En17037 Analysis - Proposed Scheme
Date of Analysis: 18/04/2023

										Criteria				
Floor Ref	Room Ref	Room Attribute	Property Type	Room Use	Room Area m2	Effective Area	Median Lux	Area Meeting Req Lux	% of Area Meeting Req Lux	Req Lux	Req % of Effective Area	Req % of Daylight Hours	Daylight Hours	Meets Criteria
Fourth	R1		Residential	LKD	26.65	20.11	208	11.37	57%	200	50%	50%	4380	YES
	R2		Residential	Bedroom	12.37	8.25	174	7.64	93%	100	50%	50%	4380	YES
	R3		Residential	Bedroom	13.96	9.55	76	2.94	31%	100	50%	50%	4380	Within 60% of recommendations
	R4		Residential	Bedroom	12.98	9.01	1218	9.01	100%	100	50%	50%	4380	YES
	R5		Residential	LKD	31.09	24.41	911	24.41	100%	200	50%	50%	4380	YES
	R6		Residential	LKD	31.96	25.21	605	25.21	100%	200	50%	50%	4380	YES
	R7		Residential	Bedroom	12.50	8.58	81	3.43	40%	200	50%	50%	4380	Within 80% of recommendations

APPENDIX C – DETAILED SUNLIGHT RESULTS

Project Name: 9_604_Ringers Road
Project No.: 1
Report Title: Sunlight Exposure Analysis - Proposed Scheme
Date: 18/04/2022

Floor Ref	Room Ref	Property Type	Room Use	Window Ref	Window Orientation	Existing Sunlight Exposure (Hours)	Proposed Sunlight Exposure (Hours)	Rating
Block A								
First	R2	Residential	LKD	W2	294°N	-1	2	
				W3	294°N	-1	1.9	
				W4	242°	-1	1	
						-1	3	Medium
First	R5	Residential	LKD	W7	242°	-1	0.3	
				W8	152°	-1	3.3	
				W9	152°	-1	3.6	
						-1	3.8	Medium
First	R6	Residential	LKD	W10	152°	-1	4	
				W11	152°	-1	4	
				W12	62°N	-1	0.7	
						-1	5.1	High
Second	R2	Residential	LKD	W2	294°N	-1	2	
				W3	294°N	-1	2.7	
				W4	242°	-1	1.8	
						-1	4.5	High
Second	R5	Residential	LKD	W7	242°	-1	0.3	
				W8	152°	-1	4.3	
				W9	152°	-1	4.6	
						-1	4.8	High
Second	R6	Residential	LKD	W10	152°	-1	5.1	
				W11	152°	-1	5.2	
				W12	62°N	-1	1	
						-1	6.1	High
Third	R2	Residential	LKD	W2	294°N	-1	2	
				W3	294°N	-1	3.5	
				W4	242°	-1	6.3	
						-1	6.3	High
Third	R5	Residential	LKD	W7	242°	-1	0.6	
				W8	152°	-1	5.6	
				W9	152°	-1	5.6	
						-1	5.8	High
Third	R6	Residential	LKD	W10	152°	-1	5.5	
				W11	152°	-1	5.2	
				W12	62°N	-1	1	
						-1	6.2	High
Fourth	R3	Residential	LKD	W4	294°N	-1	2.8	
				W5	294°N	-1	3.5	
						-1	3.5	Medium
Fourth	R4	Residential	LKD	W6	242°	-1	6.1	
						-1	6.1	High

Project Name: 9_604_Ringers Road
Project No.: 1
Report Title: Sunlight Exposure Analysis - Proposed Scheme
Date: 18/04/2022

Floor Ref	Room Ref	Property Type	Room Use	Window Ref	Window Orientation	Existing Sunlight Exposure (Hours)	Proposed Sunlight Exposure (Hours)	Rating
				Block B				
First	R3	Residential	LKD	W3	332°N	-1	1.1	
				W4	309°N	-1	0.8	
						-1	1.1	Falls short
First	R6	Residential	LKD	W7	242°	-1	5.8	
				W8	152°	-1	3.8	
						-1	6.9	High
First	R7	Residential	LKD	W9	152°	-1	2.3	
				W10	242°	-1	3.4	
				W11	152°	-1	4.8	
						-1	5.4	High
Second	R1	Residential	LKD	W1	138°	-1	2.4	
				W2	62°N	-1	0	
				W3	138°	-1	0	
				W4	129°	-1	0.3	
						-1	2.7	Minimum
Second	R3	Residential	LKD	W6	356°N	-1	0	
				W7	332°N	-1	0	
						-1	0	Falls short
Second	R8	Residential	LKD	W12	332°N	-1	1.1	
				W13	309°N	-1	2.3	
						-1	2.3	Minimum
Second	R11	Residential	LKD	W16	242°	-1	6.2	
				W17	152°	-1	3.8	
						-1	7.2	High
Second	R12	Residential	LKD	W18	152°	-1	1.9	
				W19	242°	-1	2.1	
				W20	152°	-1	4.8	
						-1	5.3	High
Third	R1	Residential	LKD	W1	138°	-1	2.8	
				W2	62°N	-1	0.7	
				W3	138°	-1	0.2	
				W4	129°	-1	1.4	
						-1	4.1	High
Third	R3	Residential	LKD	W6	356°N	-1	0	
				W7	332°N	-1	0	
						-1	0	Falls short
Third	R8	Residential	LKD	W12	332°N	-1	1.1	
				W13	309°N	-1	2.3	
						-1	2.3	Minimum
Third	R11	Residential	LKD	W16	242°	-1	6.2	
				W17	152°	-1	3.8	
						-1	7.2	High
Third	R12	Residential	LKD	W18	152°	-1	2.2	
				W19	242°	-1	2.3	
				W20	152°	-1	4.8	
						-1	5.3	High
Fourth	R1	Residential	LKD	W1	138°	-1	4.6	
				W2	129°	-1	3.5	
						-1	5.2	High

Project Name: 9_604_Ringers Road
Project No.: 1
Report Title: Sunlight Exposure Analysis - Proposed Scheme
Date: 18/04/2022

Floor Ref	Room Ref	Property Type	Room Use	Window Ref	Window Orientation	Existing Sunlight Exposure (Hours)	Proposed Sunlight Exposure (Hours)	Rating
Fourth	R5	Residential	LKD	W7	332°N	-1	1.1	
				W8	332°N	-1	1.1	
				W9	242°	-1	5.9	
				W10	332°N	-1	1.1	
						-1	5.9	High
Fourth	R6	Residential	LKD	W11	242°	-1	6.2	
				W12	242°	-1	6.2	
				W13	152°	-1	5.8	
				W14	152°	-1	5.1	
						-1	6.9	High

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