

PROPOSED SCHEME DAYLIGHT, SUNLIGHT & OVERSHADOWING

Ringers Road

Produced by XCO2 for Ringers Road Properties Ltd

May 2024



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PROPOSED SCHEME DAYLIGHT, SUNLIGHT & OVERSHADOWING

| | 1.0 | 2.0 | 03 | 04 | 05 | | |
|-------------------|------------|------------|--------------|---|------------|--|--|
| Remarks | Draft | Revision | For planning | Updated with new architectural layouts with additional stairs | Revised | | |
| Prepared by | AM | AM | LU | LU | TK | | |
| Checked by | HP | HP | FH | FH | EC | | |
| Authorised by | KM | KM | RM | RM | RM | | |
| Date | 20/10/2021 | 10/11/2021 | 03/11/2022 | 21/04/2022 | 28/05/2024 | | |
| Project reference | 9.604 | 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 constraints 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 120 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 49 sample dwellings consist of 120 habitable rooms that encompass 49 KLDs and 71 bedrooms.

The analysis results indicated that 91 out of 120 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 29 rooms, 12 are KLDs while the other are bedrooms. Of the 12 KLDs, 5 meet within 80% or above of the BRE recommendations (sDA of at least 40%). The 7 remaining KLDs have greater obstructions and the design has been adjusted as far as feasible to allow maximum daylight access.

Of the remaining 17 bedrooms, 5 meet within approximately 80% or above of the BRE recommendations (sDA of at least ~40%) and 5 meet within approximately 60% or above of the BRE recommendations (sDA of at least ~30%). The remaining 7 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 49 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 44 rooms satisfy the BRE criteria for sunlight exposure. The remaining 5 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.

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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.

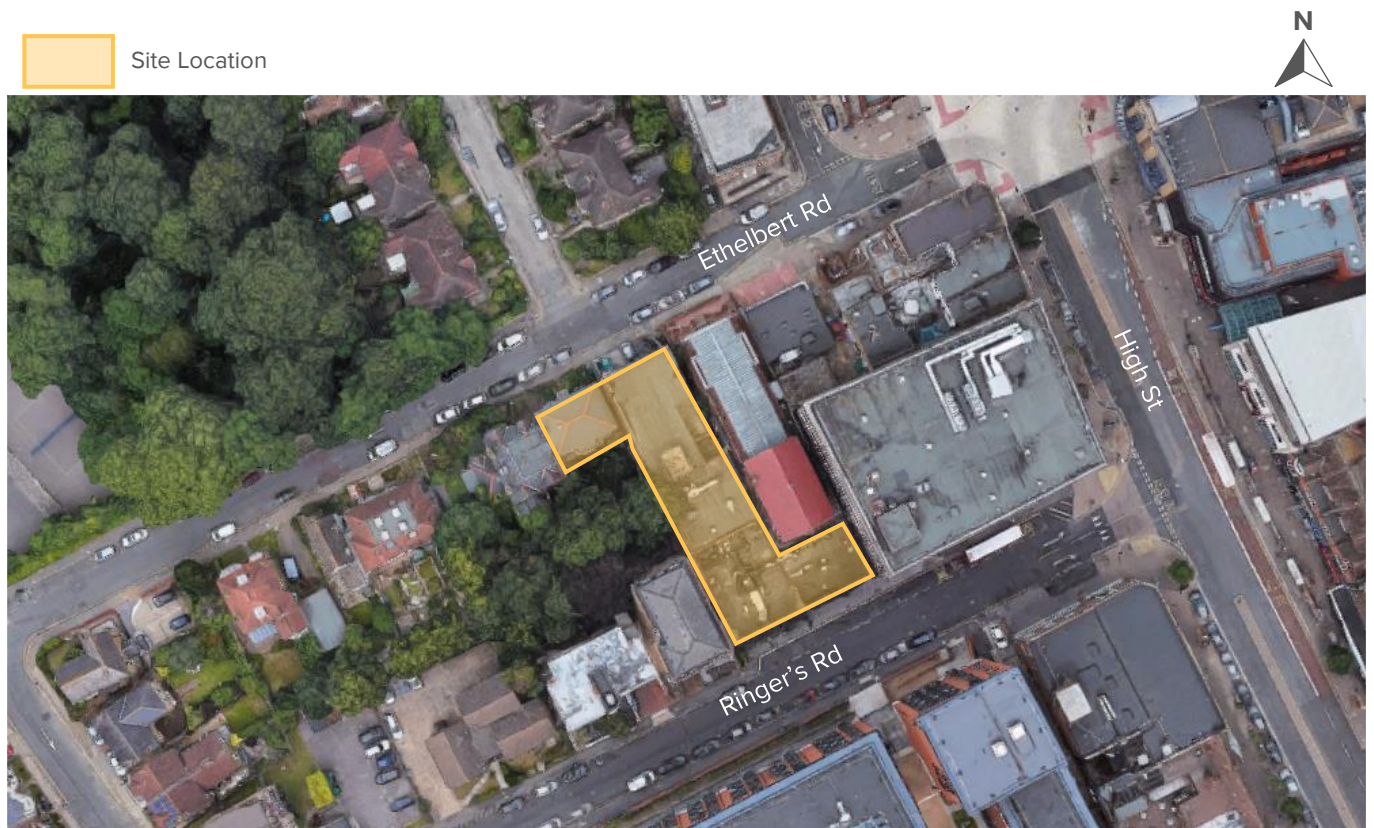


Figure 1: Site location of the proposed development.

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 reaching the working plane, this assessment takes into consideration surface materials and in particular their reflectance.

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.

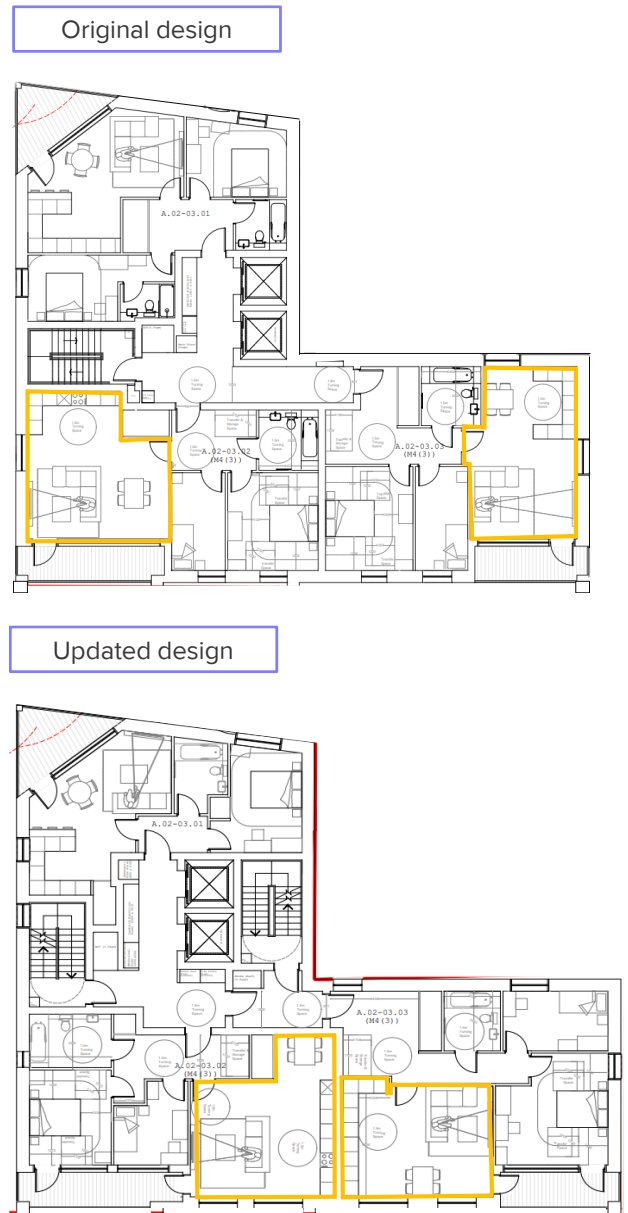


Figure 2: Demonstration of change in layouts to allow for better daylight penetration in KLDs in Block A.

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.

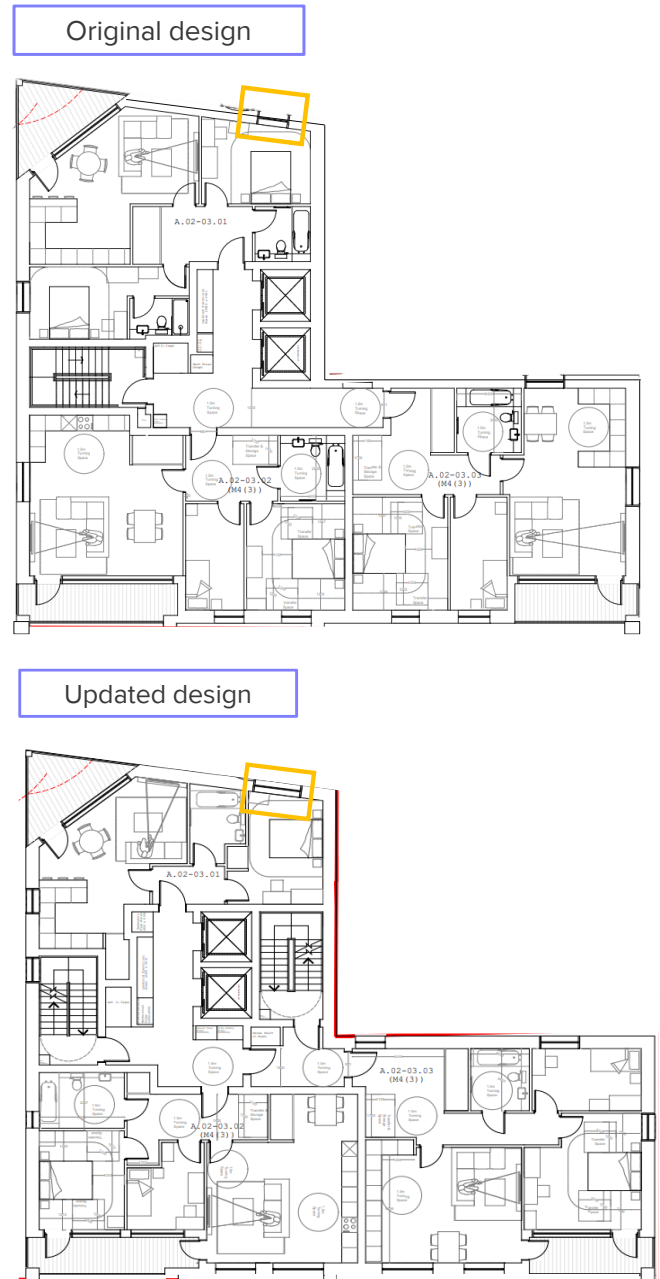


Figure 3: Demonstration of how the glazing area was increased as far as feasible in Block A.

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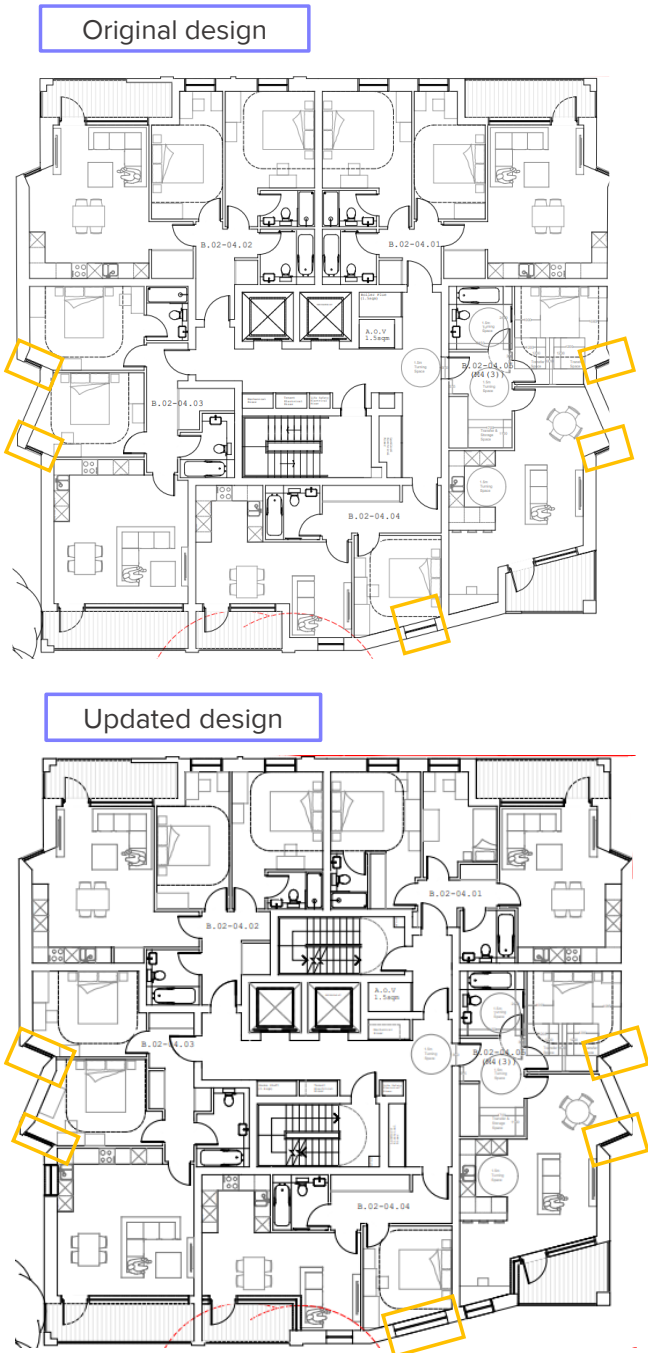


Figure 4: Demonstration of how the glazing area was increased as far as feasible in Block B.

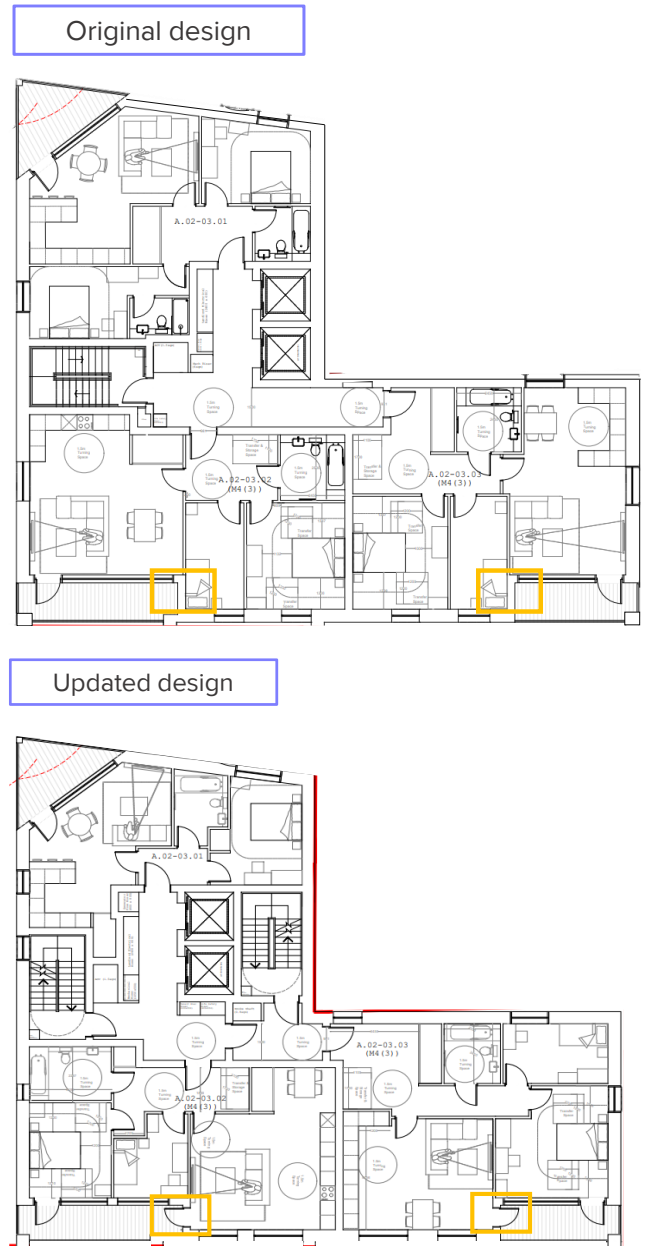


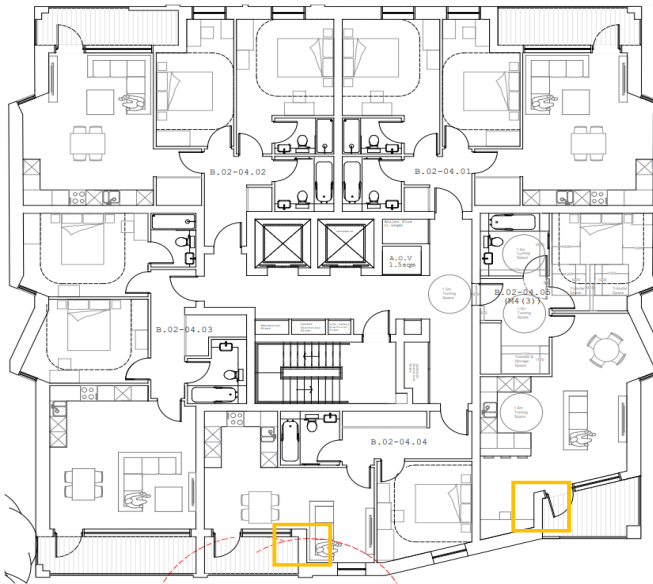
Figure 5: Demonstration of how additional windows were included in Block A.

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.

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Original design



Updated design

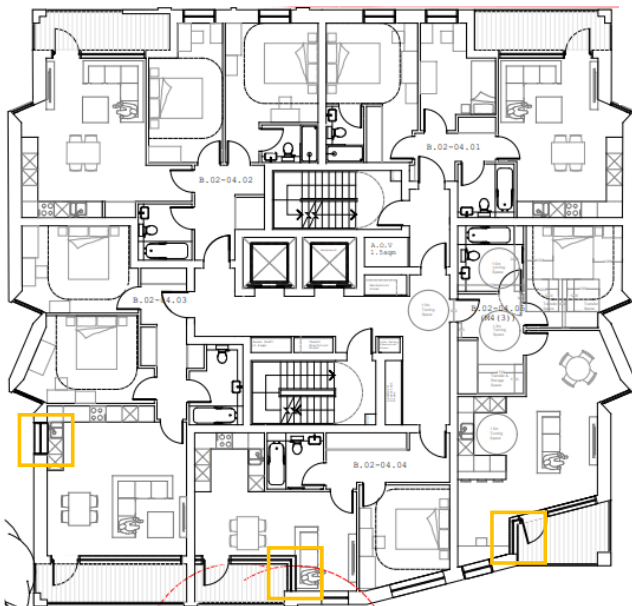


Figure 6: Demonstration of how additional windows were included in Block B.

DAYLIGHT ASSESSMENT

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

A total of 120 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 floor 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:

- 60% interior wall reflectance
- 80% interior ceiling reflectance
- 30% interior floor reflectance
- 20% exterior surface reflectance
- 68% light transmission for vertical glazing

The 49 sample dwellings consist of 120 habitable rooms that encompass 49 KLDs and 71 bedrooms.

The results show that 37 out of 49 KLDs meet the BRE recommendations. Of the remaining 12 rooms, 5 were found to only be marginally short of the criteria meeting within 80% or above of the BRE recommendations (sDA of at least 40%).

The remaining 7 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, 54 out of 71 bedrooms assessed meet the BRE recommendations. 5 of the remaining 18 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 5 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 7 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 3 have greater obstruction from surrounding buildings.

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.

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Table 1: Daylight Results Summary for Ringers Road.

| | |
|--|------------|
| Number of habitable rooms tested | 120 |
| Number of kitchen/living/dining rooms | 49 |
| Number of kitchen/living/dining rooms meeting the BRE recommendations | 37 |
| Number of kitchen/living/dining meeting within 80% of the BRE recommendations (sDA of at least 40%) | 5 |
| Number of kitchen/living/dining not meeting any of the above criteria | 7 |
| Number of bedrooms | 71 |
| Number of bedrooms meeting the BRE recommendations | 54 |
| 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%) | 5 |
| Number of bedrooms not meeting any of the above criteria | 7 |

SUNLIGHT ASSESSMENT

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

A total of 49 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 28 out of 49 assessed living rooms achieve more than 4 hours of solar access on March 21, and therefore are considered to receive high

levels of sunlight. 9 of the remaining 21 living rooms achieve 3 hours of sunlight access on March 21 which is the medium level, and 7 rooms achieve more than 1.5 hours of sunlight access on March 21 which is the minimum recommended level of sunlight.

The remaining 5 living rooms were found to be north/north-west facing which allows for a reduced amount of sunlight exposure. All units have private balcony access to maximise their level of amenity and also residents will have access to the central courtyard space which meets the BRE criteria for sunlight.

Table 2. Sunlight Results for Ringers Road

| Number of living rooms tested | 49 |
|---|----|
| Number of living rooms with more than 4 hours of sunlight access | 28 |
| Number of living rooms with more than 3 hours of sunlight access | 9 |
| Number of living rooms with more than 1.5 hours of sunlight access | 7 |
| Number of living rooms with north/north-west facing orientation not meeting any of the above criteria | 5 |

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 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.

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

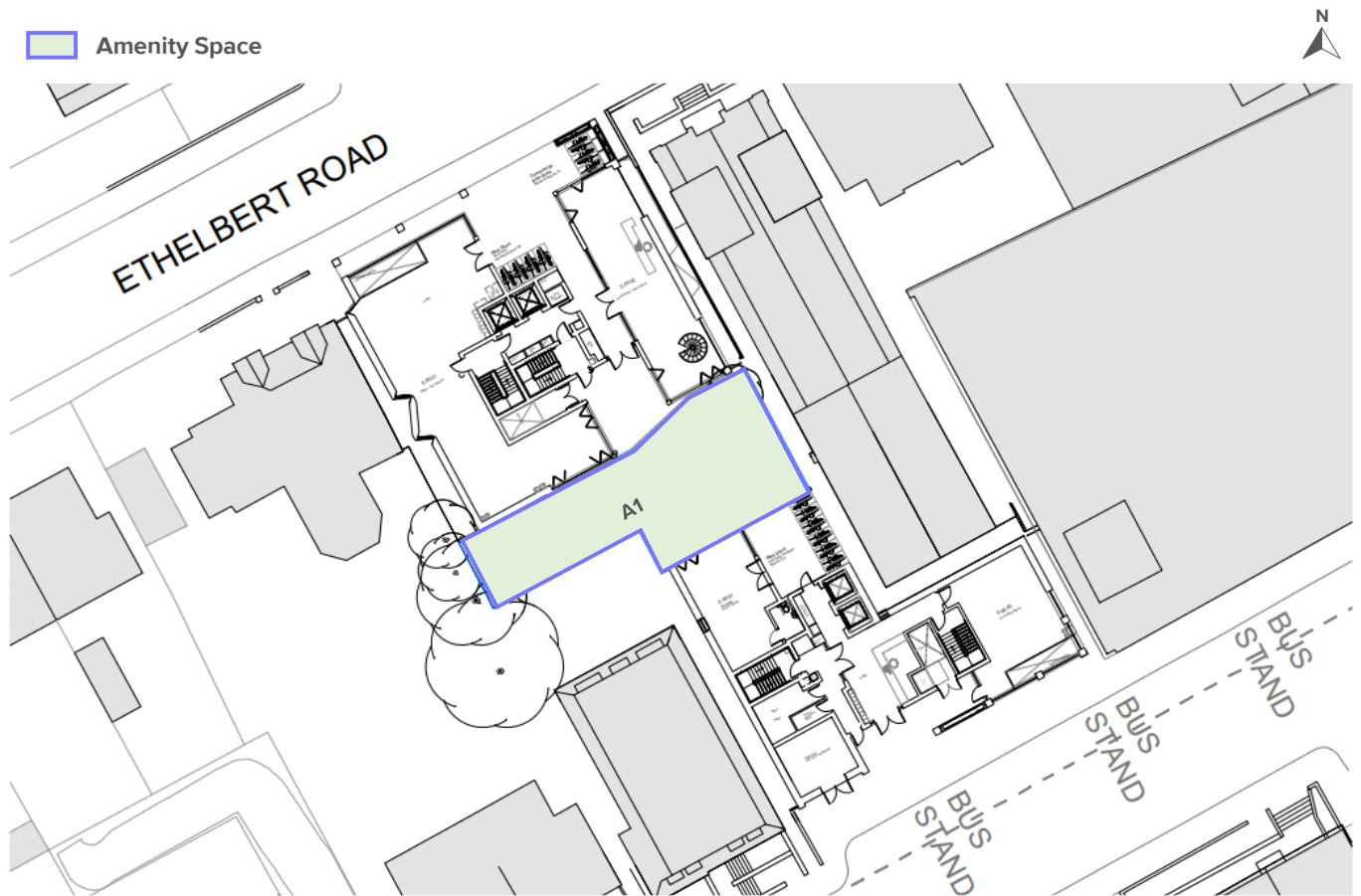


Figure 7: Open space in the development A1.

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- 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 120 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 and bedrooms) within the sample dwellings were assessed.

The 49 sample dwellings consist of 120 habitable rooms that encompass 49 KLDs and 71 bedrooms.

The analysis results indicated that 91 out of 120 rooms assessed 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 29 rooms, 12 are KLDs while the other are bedrooms. Of the 12 KLDs, 5 meet within 80% or above of the BRE recommendations (Spatial Daylight Autonomy, sDA of at least 40%). The 7 remaining KLDs have greater obstructions and the design has been adjusted as far as feasible to allow maximum daylight access.

Of the remaining 17 bedrooms, 5 meet within approximately 80% or above of the BRE recommendations (sDA of at least ~40%) and 5 meet within approximately 60% or above of the BRE recommendations (sDA of at least ~30%). The remaining 7 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 49 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 44 rooms satisfy the BRE criteria for sunlight exposure. The remaining 5 living

PROPOSED SCHEME DAYLIGHT, SUNLIGHT & OVERSHADOWING

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. All units have private balcony access to maximise their level of amenity and also residents will have access to the central courtyard space which meets the BRE criteria for sunlight.

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

DO NOT SCALE

BACKGROUND DRAWING INFORMATION

| FILE NAME | ORIGINATOR NAME | DESCRIPTION NAME | REV | DATE RECD |
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Client
Ringers Road Properties Ltd

Architect
Hollaway

Project
Ringers Road

Title
Window and Room Reference
First Floor

| Scale | Drawn | Checked | Date |
|-------|-------|---------|----------|
| N.T.S | TK | EC | 24.05.24 |

| Drawing Number | Revision |
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Client
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Architect
Hollaway

Project
Ringers Road

Title
Window and Room Reference
Second Floor

| Scale | Drawn | Checked | Date |
|-------|-------|---------|----------|
| N.T.S | TK | EC | 24.05.24 |

| Drawing Number | Revision |
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| 9.604_2 | D |



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Client
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Architect
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Project
Ringers Road

Title
**Window and Room Reference
Third Floor**

| Scale | Drawn | Checked | Date |
|-------|-------|---------|----------|
| N.T.S | TK | EC | 24.05.24 |

| Drawing Number | Revision |
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| 9.604_3 | D |

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Client
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Architect
Hollaway

Project
Ringers Road

Title
**Window and Room Reference
Fourth Floor**

| Scale | Drawn | Checked | Date |
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| N.T.S | TK | EC | 24.05.24 |

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Client
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Architect
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Project
Ringers Road

Title
**Window and Room Reference
 5th Floor**

| Scale | Drawn | Checked | Date |
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| N.T.S | TK | EC | 24.05.24 |

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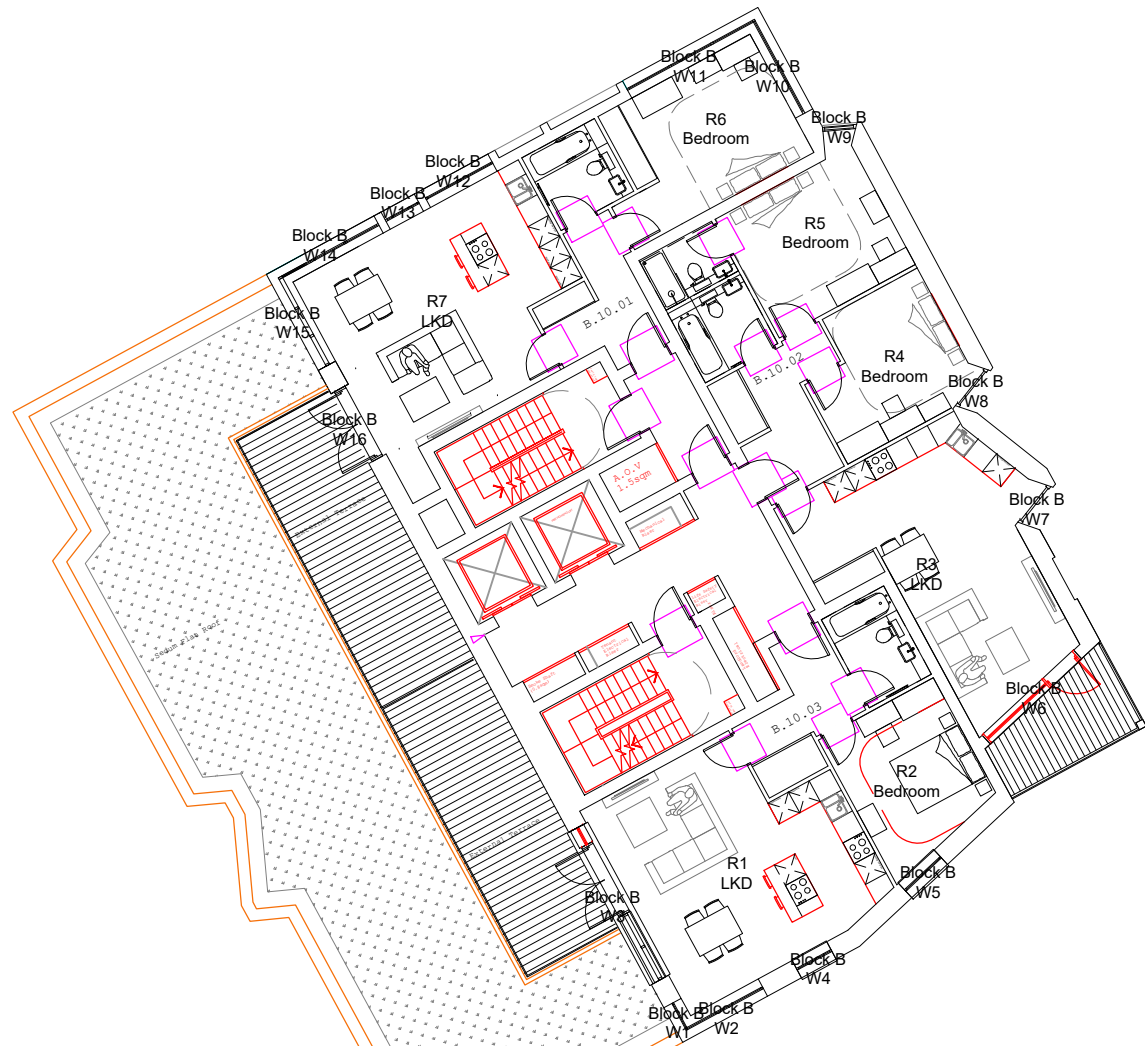
Architect
Hollaway

Project
Ringers Road

Title
**Window and Room Reference
 Seventh Floor**

| Scale | Drawn | Checked | Date |
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 mail@xco2.com
 www.xco2.com

Client
Ringers Road Properties Ltd

Architect
Hollaway

Project
Ringers Road

Title
**Window and Room Reference
 Tenth Floor**

| Scale | Drawn | Checked | Date |
|-------|-------|---------|----------|
| N.T.S | TK | EC | 24.05.24 |

| Drawing Number | Revision |
|----------------|----------|
| 9.604_9 | A |



| DO NOT SCALE | | | | |
|--------------------------------|-----------------|------------------|-----|-----------|
| BACKGROUND DRAWING INFORMATION | | | | |
| FILE NAME | ORIGINATOR NAME | DESCRIPTION NAME | REV | DATE RECD |
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Notes

| Rev | Date | Description | Chk'd | Appr |
|-----|------|-------------|-------|------|
| | | | | |
| | | | | |

ISSUE TYPE

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Architect
Hollaway

Project
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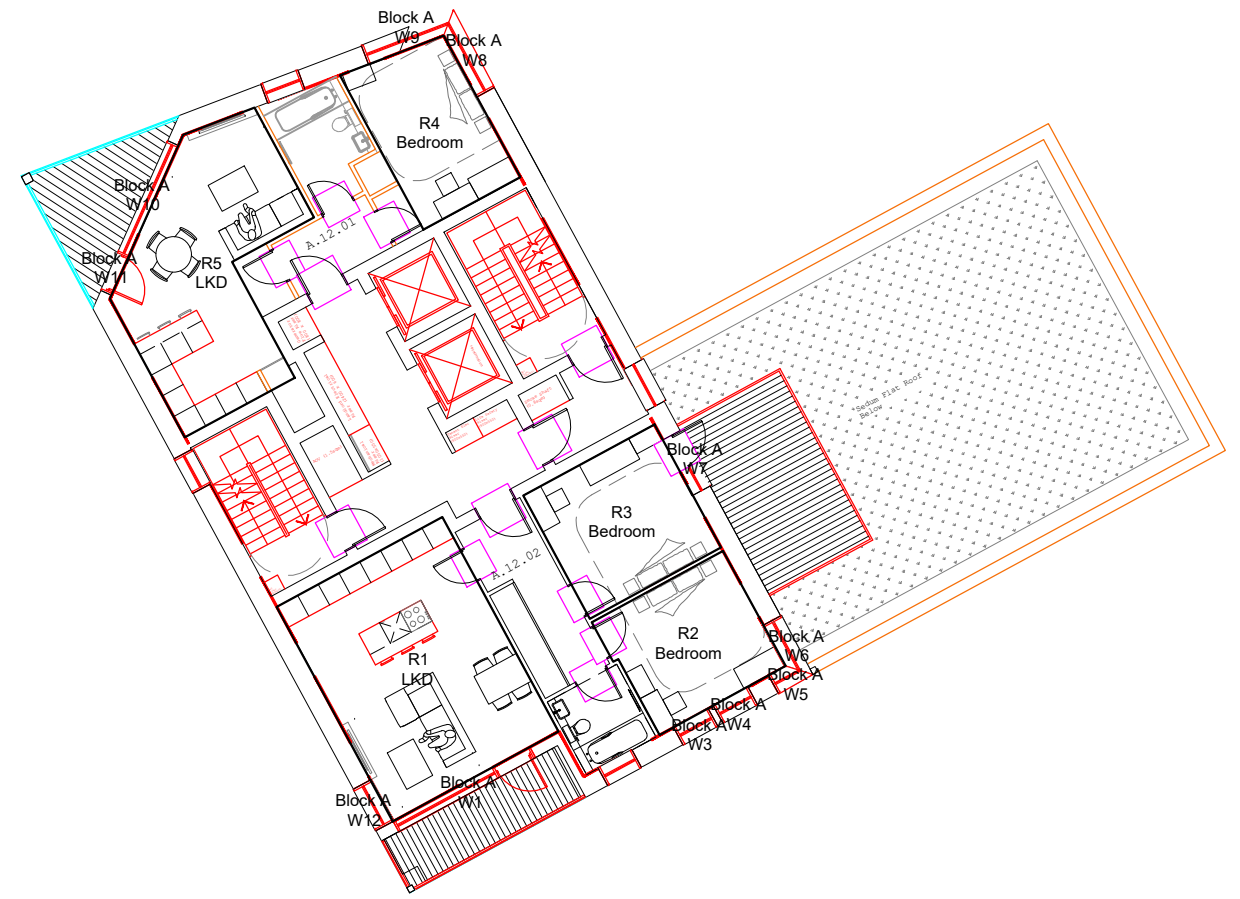
Title
**Window and Room Reference
 Eleventh Floor**

| Scale | Drawn | Checked | Date |
|-------|-------|---------|----------|
| N.T.S | TK | EC | 24.05.24 |

| Drawing Number | Revision |
|----------------|----------|
| 9.604_4 | D |

| DO NOT SCALE | | | | |
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| BACKGROUND DRAWING INFORMATION | | | | |
| FILE NAME | ORIGINATOR NAME | DESCRIPTION NAME | REV | DATE RECD |
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Notes



| Rev | Date | Description | Chk'd | Appr |
|-----|------|-------------|-------|------|
| | | | | |

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Title
**Window and Room Reference
 Twelfth Floor**

| Scale | Drawn | Checked | Date |
|-------|-------|---------|----------|
| N.T.S | TK | EC | 24.05.24 |

| Drawing Number | Revision |
|----------------|----------|
| 9.604_10 | A |

| DO NOT SCALE | | | | |
|--------------------------------|-----------------|------------------|-----|-----------|
| BACKGROUND DRAWING INFORMATION | | | | |
| FILE NAME | ORIGINATOR NAME | DESCRIPTION NAME | REV | DATE RECD |
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Notes



| Rev | Date | Description | Chk'd | Appr |
|-----|------|-------------|-------|------|
| | | | | |

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Architect
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Project
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Title
**Window and Room Reference
Thirteenth Floor**

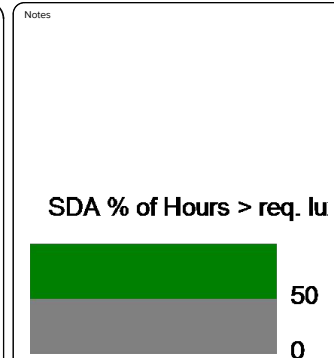
| Scale | Drawn | Checked | Date |
|-------|-------|---------|----------|
| N.T.S | TK | EC | 24.05.24 |

| Drawing Number | Revision |
|----------------|----------|
| 9.604_5 | D |

APPENDIX B - DETAILED DAYLIGHT RESULTS



| BACKGROUND DRAWING INFORMATION | | | | |
|--------------------------------|-----------------|------------------|-----|-----------|
| FILE NAME | ORIGINATOR NAME | DESCRIPTION NAME | REV | DATE RECD |
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| Rev | Date | Description | Chk'd | Appr |
|-----|------|-------------|-------|------|
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Architect
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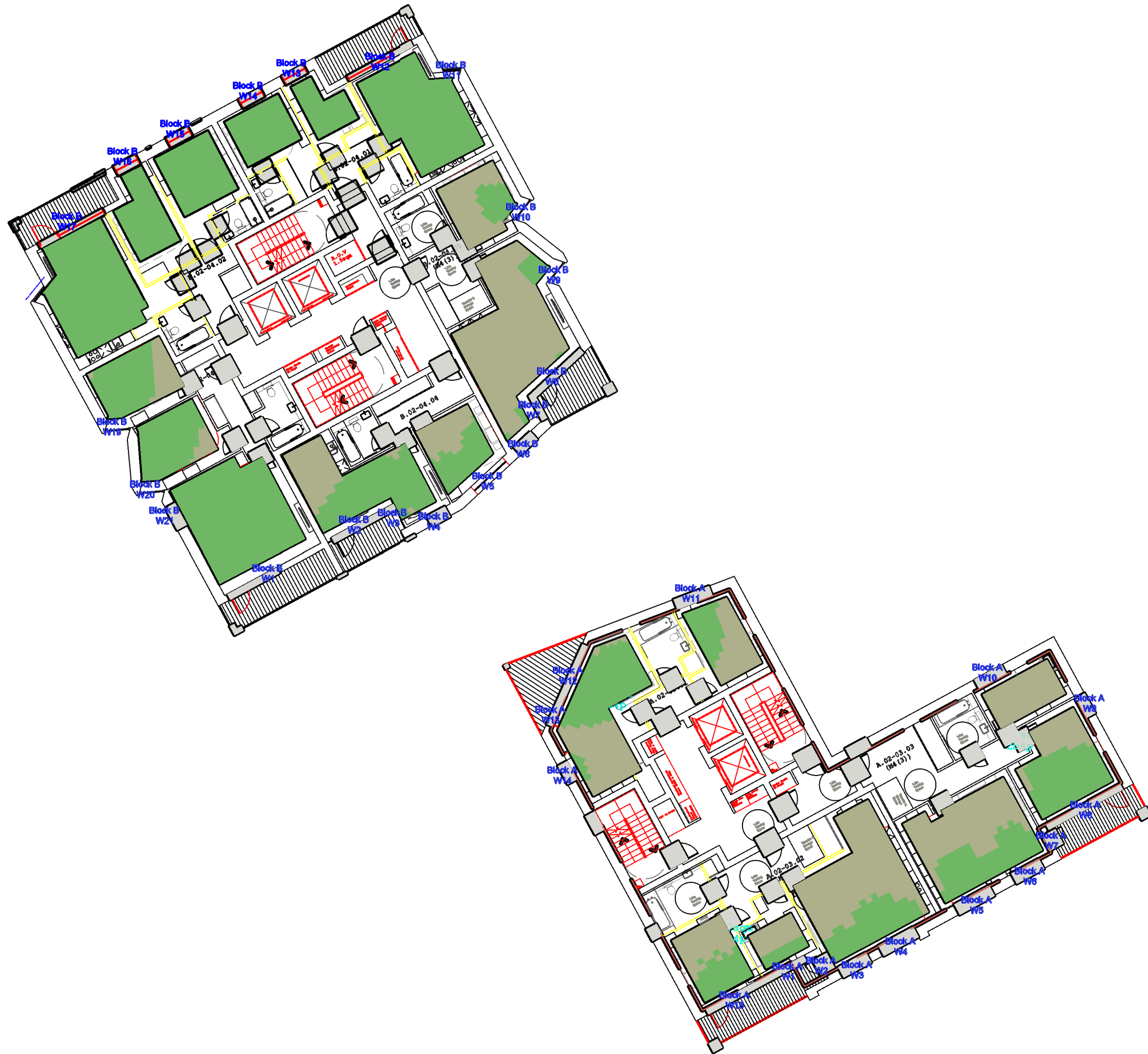
Project
Ringers Road

Title
**sDA Results
First Floor**

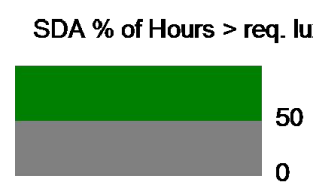
| Scale | Drawn | Checked | Date |
|-------|-------|---------|----------|
| N.T.S | TK | EC | 24.05.24 |

Drawing Number
9.604_1_R

Revision
D



| DO NOT SCALE | | | |
|--------------------------------|-----------------|------------------|------------------|
| BACKGROUND DRAWING INFORMATION | | | |
| FILE NAME | ORIGINATOR NAME | DESCRIPTION NAME | REV / DATE REC'D |
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| Rev | Date | Description | Chk'd | Appr |
|-----|------|-------------|-------|------|
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Client
Ringers Road Properties Ltd

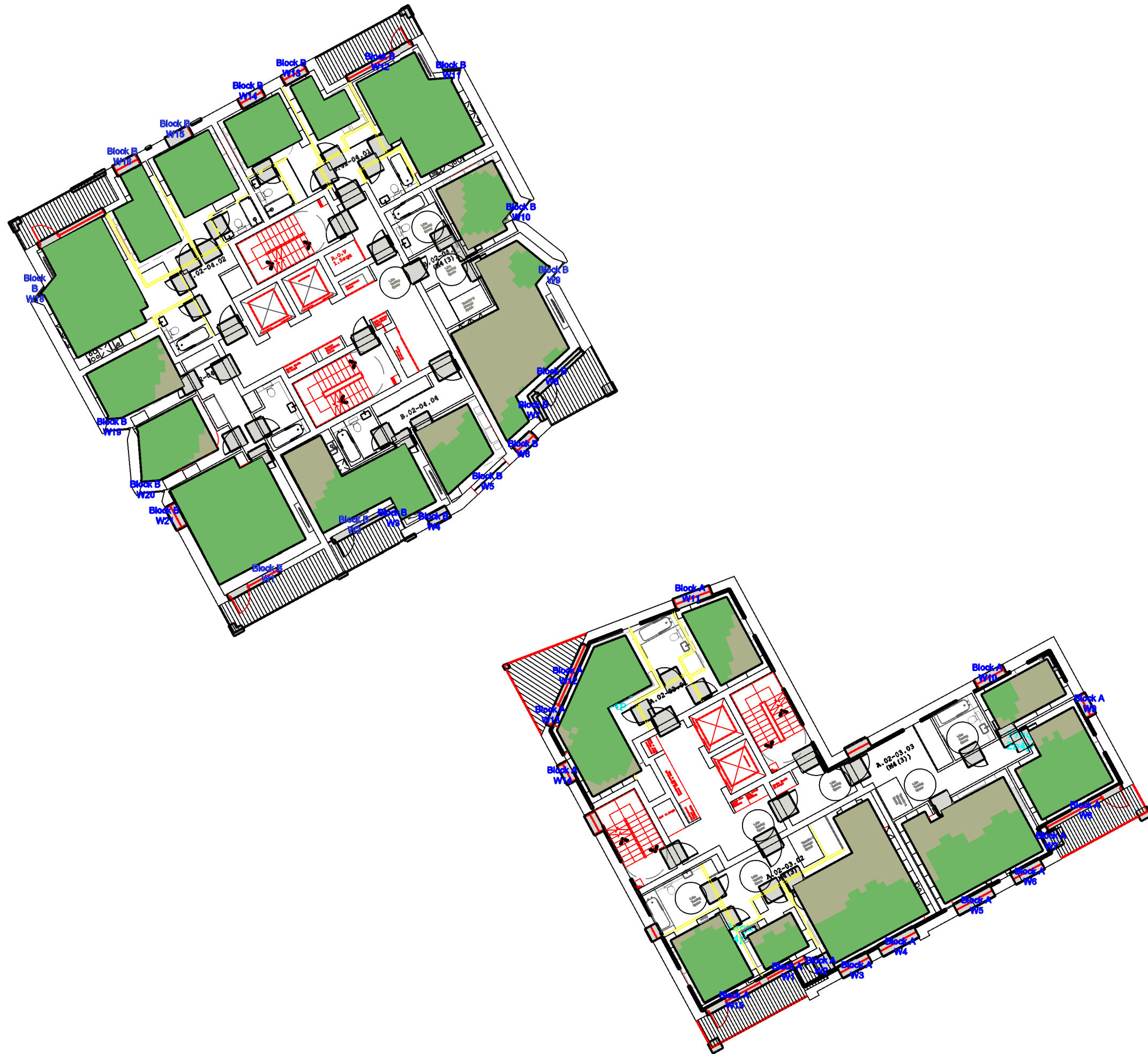
Architect
Hollaway

Project
Ringers Road

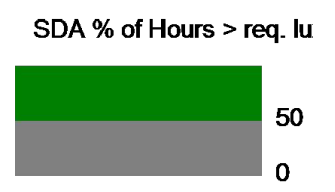
Title
sDA Results
Second Floor

| Scale | Drawn | Checked | Date |
|-------|-------|---------|----------|
| N.T.S | TK | EC | 24.05.24 |

| Drawing Number | Revision |
|----------------|----------|
| 9.604_2_R | D |



| DO NOT SCALE | | | | |
|--------------------------------|-----------------|------------------|-----|-----------|
| BACKGROUND DRAWING INFORMATION | | | | |
| FILE NAME | ORIGINATOR NAME | DESCRIPTION NAME | REV | DATE RECD |
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| Rev | Date | Description | Chk'd | Appr |
|-----|------|-------------|-------|------|
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Architect
Hollaway

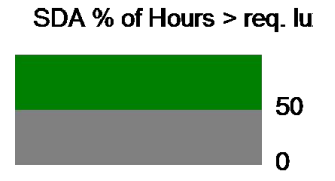
Project
Ringers Road

Title
sDA Results
Third Floor

| Scale/BA3 | Drawn | Checked | Date |
|-----------|-------|---------|----------|
| N.T.S | TK | EC | 24.05.24 |

| Drawing Number | Revision |
|----------------|----------|
| 9.604_3_R | D |

| DO NOT SCALE | | | | |
|--------------------------------|-----------------|------------------|-----|-----------|
| BACKGROUND DRAWING INFORMATION | | | | |
| FILE NAME | ORIGINATOR NAME | DESCRIPTION NAME | REV | DATE RECD |
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| Rev | Date | Description | Chk'd | Appr |
|-----|------|-------------|-------|------|
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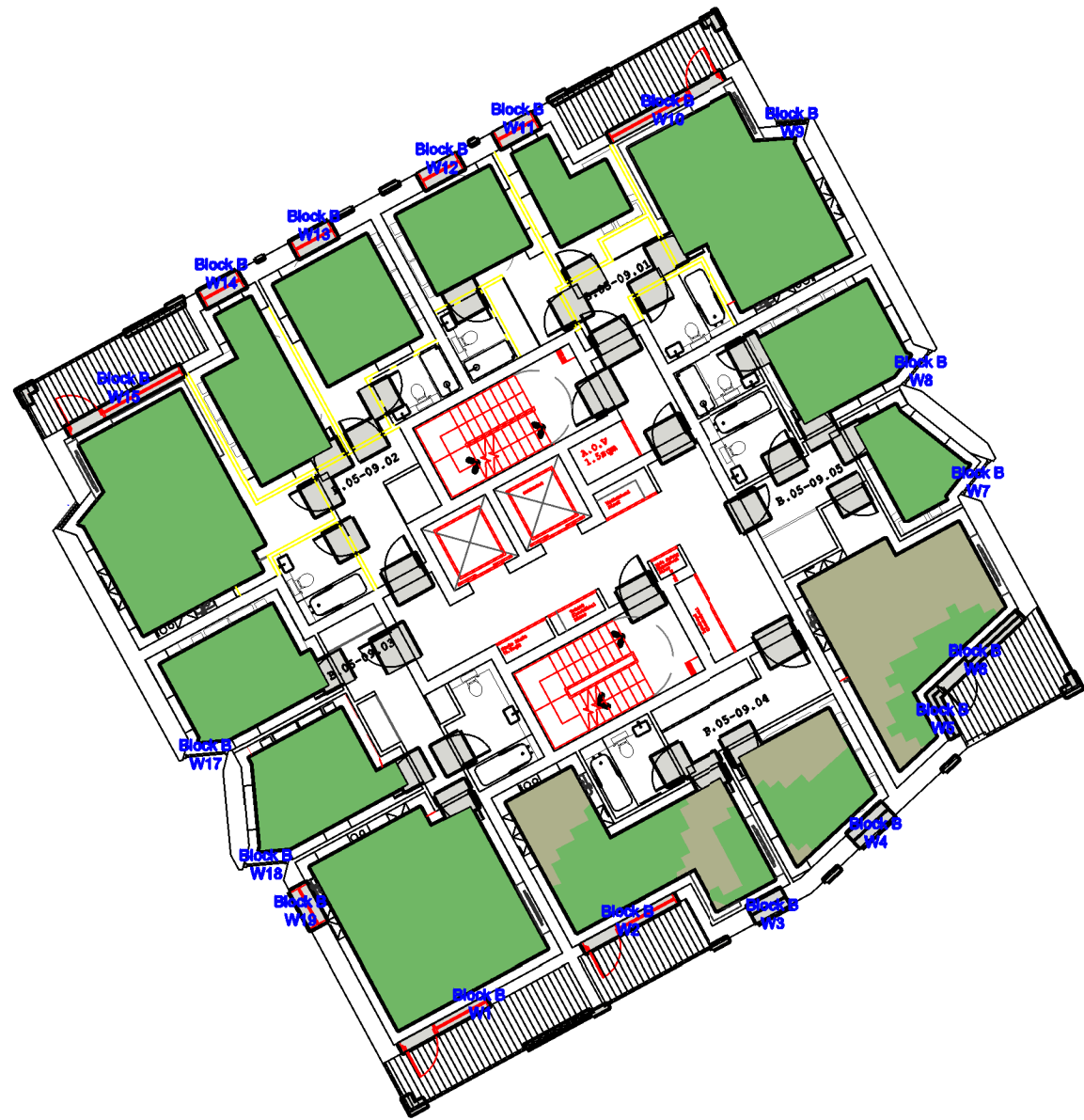
Architect
Hollaway

Project
Ringers Road

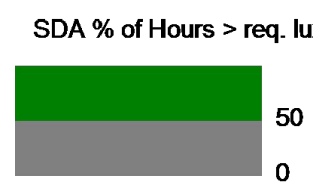
Title
sDA Results
Fourth Floor

| Scale | Drawn | Checked | Date |
|-------|-------|---------|----------|
| N.T.S | TK | EC | 24.05.24 |

| Drawing Number | Revision |
|----------------|----------|
| 9.604_6_R | A |



| DO NOT SCALE | | | | |
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| BACKGROUND DRAWING INFORMATION | | | | |
| FILE NAME | ORIGINATOR NAME | DESCRIPTION NAME | REV | DATE RECD |
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| Rev | Date | Description | Chk'd | Appr |
|-----|------|-------------|-------|------|
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Architect
Hollaway

Project
Ringers Road

Title
**sDA Results
Fifth Floor**

| Scale | Drawn | Checked | Date |
|-------|-------|---------|----------|
| N.T.S | TK | EC | 24.05.24 |

Drawing Number
9.604_7_R

Revision
A

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

SDA % of Hours > req. lu



| Rev | Date | Description | Chk'd | Appr |
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Architect
Hollaway

Project
Ringers Road

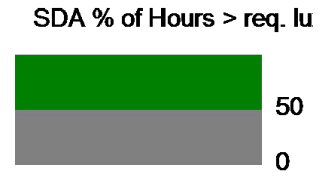
Title
**sDA Results
Seventh Floor**

| | | | |
|-----------|-------|---------|----------|
| Scale: A3 | Drawn | Checked | Date |
| N.T.S | TK | EC | 24.05.24 |

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| Drawing Number | Revision |
| 9.604_8_R | A |



| DO NOT SCALE | | | | |
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| BACKGROUND DRAWING INFORMATION | | | | |
| FILE NAME | ORIGINATOR NAME | DESCRIPTION NAME | REV | DATE RECD |
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| Rev | Date | Description | Chk'd | Appr |
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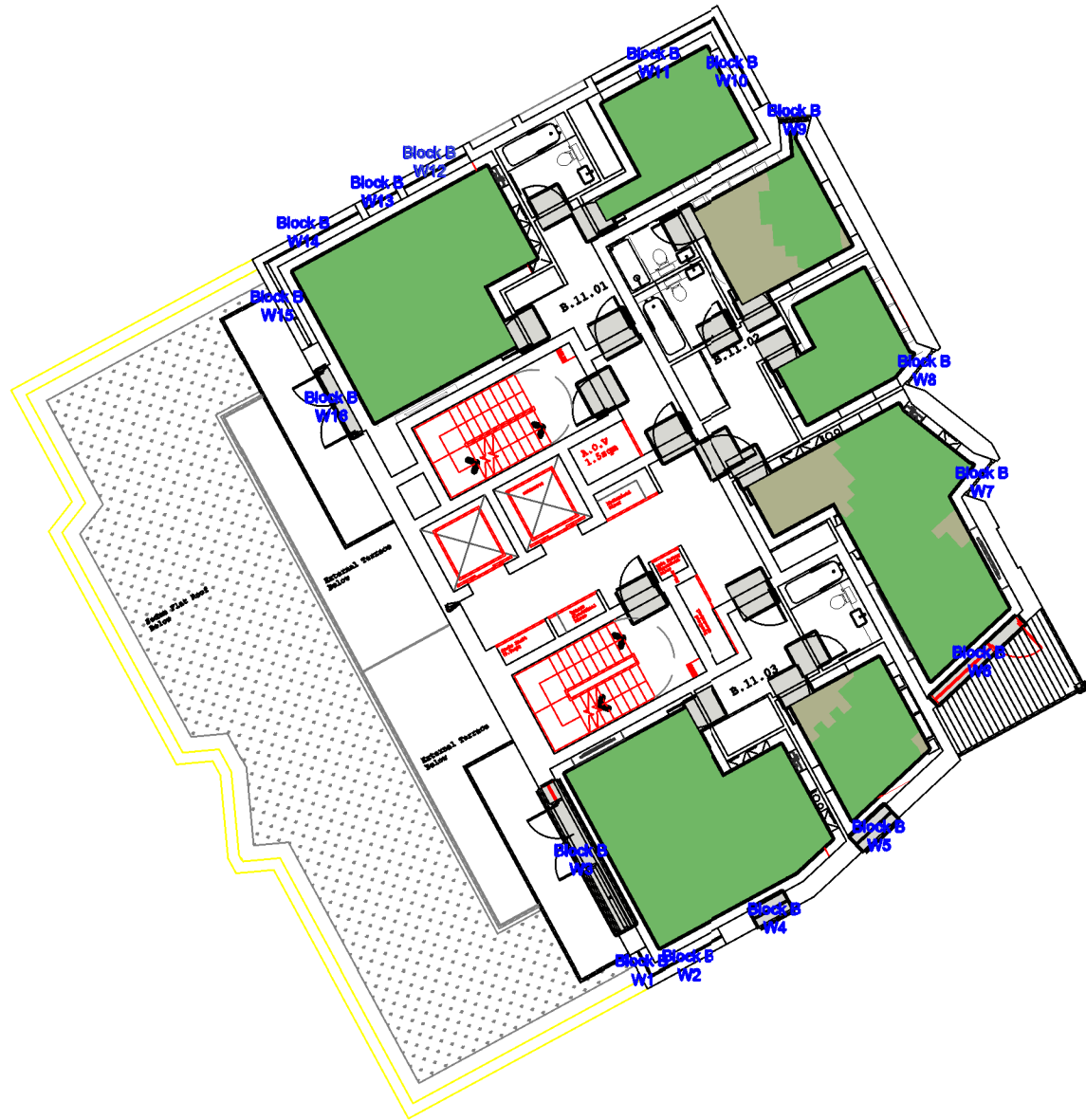
Architect
Hollaway

Project
Ringers Road

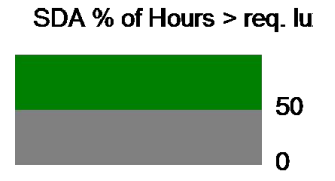
Title
**sDA Results
Tenth Floor**

| | | | |
|-----------|-------|---------|----------|
| Scale: A3 | Drawn | Checked | Date |
| N.T.S | TK | EC | 24.05.24 |

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| Drawing Number | Revision |
| 9.604_9_R | D |



| DO NOT SCALE | | | | |
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| BACKGROUND DRAWING INFORMATION | | | | |
| FILE NAME | ORIGINATOR NAME | DESCRIPTION NAME | REV | DATE RECD |
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| Rev | Date | Description | Chk'd | Appr |
|-----|------|-------------|-------|------|
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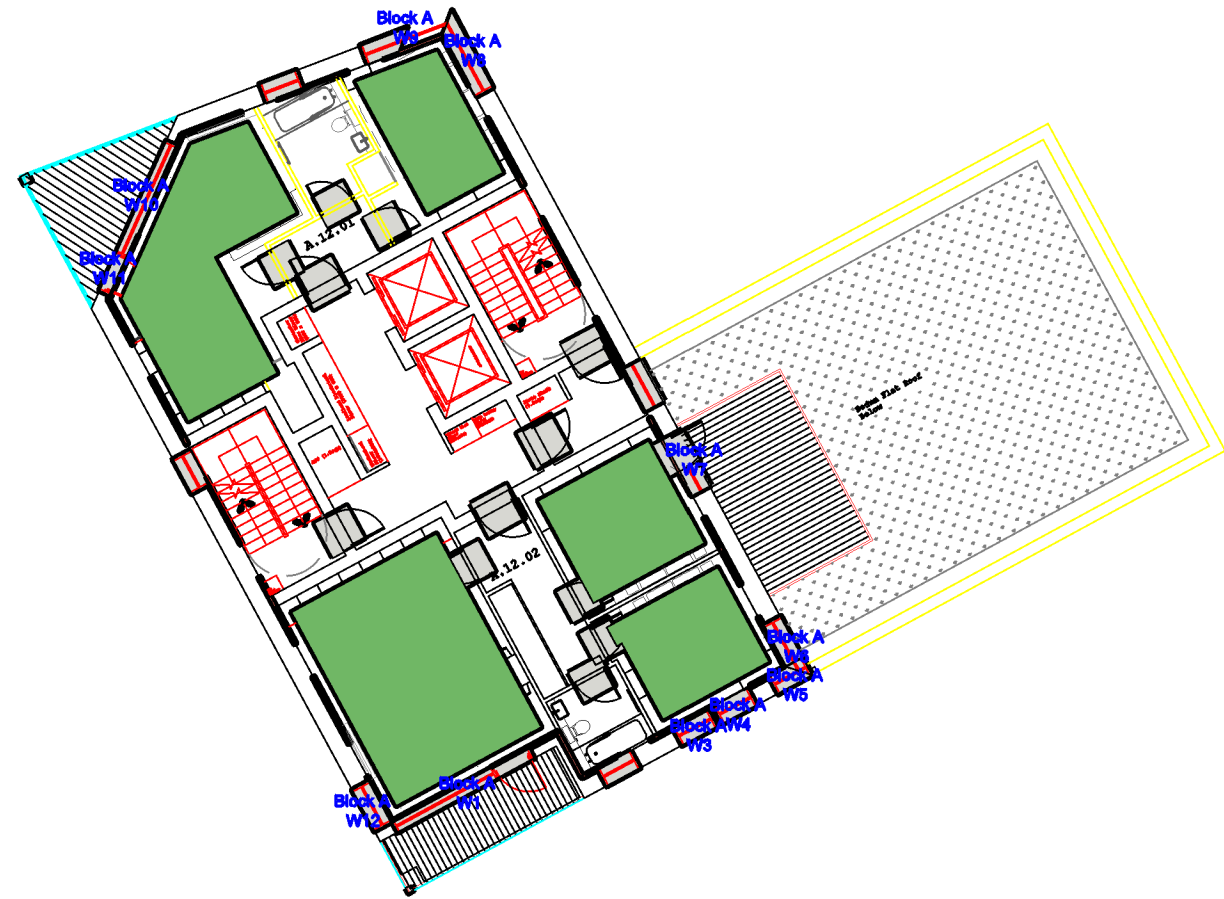
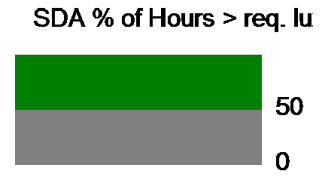
Project
Ringers Road

Title
**sDA Results
Eleventh Floor**

| | | | |
|-----------|-------|---------|----------|
| Scale:BA3 | Drawn | Checked | Date |
| N.T.S | TK | EC | 24.05.24 |

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| Drawing Number | Revision |
| 9.604_4_R | D |

| DO NOT SCALE | | | | |
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| BACKGROUND DRAWING INFORMATION | | | | |
| FILE NAME | ORIGINATOR NAME | DESCRIPTION NAME | REV | DATE RECD |
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| Rev | Date | Description | Chk'd | Appr |
|-----|------|-------------|-------|------|
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Architect
Hollaway

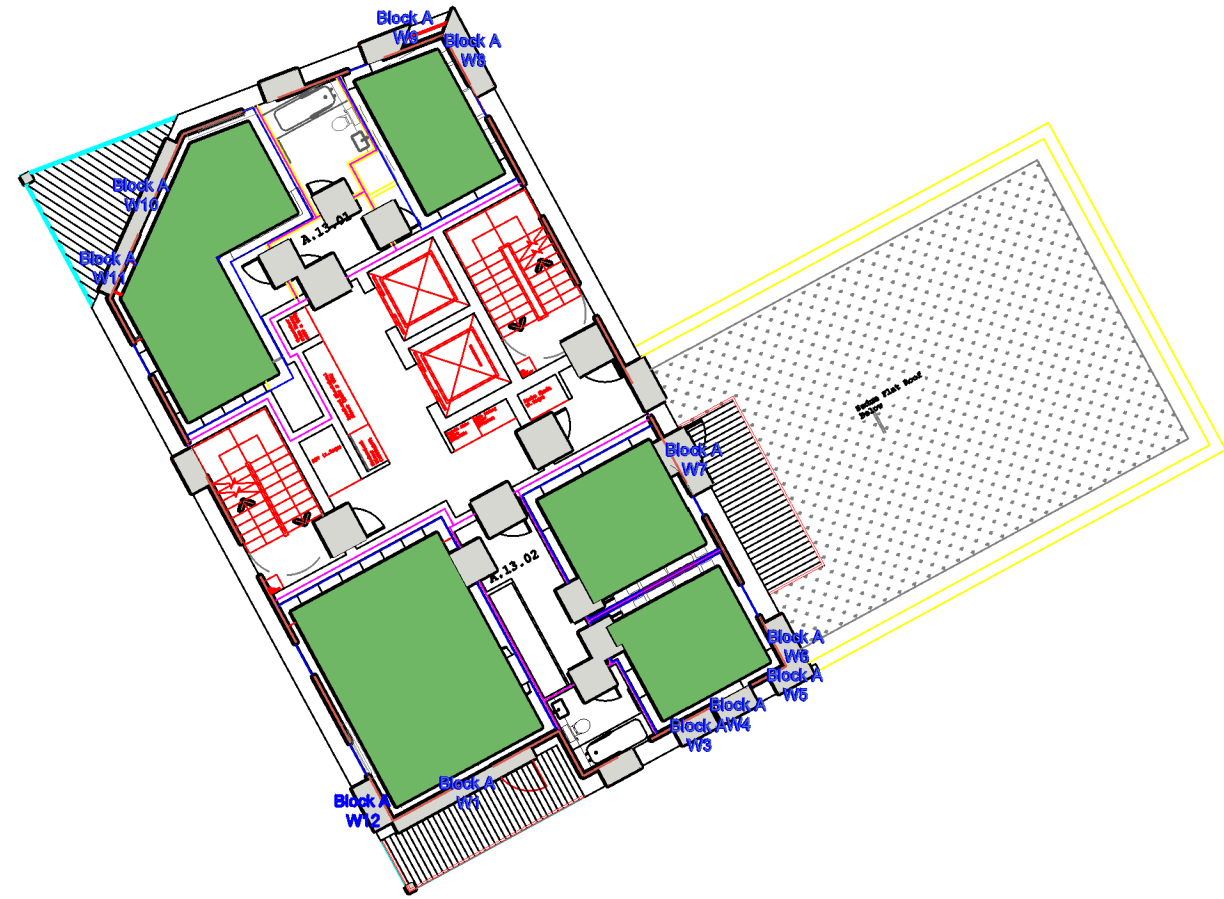
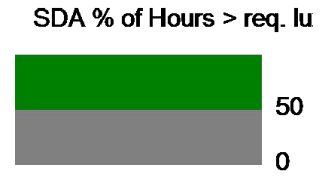
Project
Ringers Road

Title
sDA Results
Twelfth Floor

| Scale | Drawn | Checked | Date |
|-------|-------|---------|----------|
| N.T.S | TK | EC | 24.05.24 |

| Drawing Number | Revision |
|----------------|----------|
| 9.604_10_R | D |

| DO NOT SCALE | | | | |
|--------------------------------|-----------------|------------------|-----|-----------|
| BACKGROUND DRAWING INFORMATION | | | | |
| FILE NAME | ORIGINATOR NAME | DESCRIPTION NAME | REV | DATE RECD |
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| Rev | Date | Description | Chk'd | Appr |
|-----|------|-------------|-------|------|
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Architect
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Project
Ringers Road

Title
**sDA Results
Thirteenth Floor**

| | | | |
|-----------|-------|---------|----------|
| Scale:BA3 | Drawn | Checked | Date |
| N.T.S | TK | EC | 24.05.24 |

| | |
|------------------|----------|
| Drawing Number | Revision |
| 9.604_5_R | D |

Project Name: 9604_IDL_exp_240524
 Project No.: 1
 Report Title: SDA BS En17037 Analysis - Proposed Scheme
 Date of Analysis: 24/05/2024



| Floor Ref | Room Ref | Room Use | Room Area m2 | Effective Area | Median Lux | Area Meeting Req Lux | % of Area Meeting Req Lux | Criteria | | | | Meets Criteria |
|----------------|----------|----------|--------------|----------------|------------|----------------------|---------------------------|----------|-------------------------|-------------------------|----------------|----------------|
| | | | | | | | | Req Lux | Req % of Effective Area | Req % of Daylight Hours | Daylight Hours | |
| Block B | | | | | | | | | | | | |
| First | R1 | LKD | 28.34 | 22.22 | 269 | 19.72 | 89% | 200 | 50% | 50% | 4380 | YES |
| | R2 | LKD | 23.82 | 17.01 | 195 | 8.18 | 48% | 200 | 50% | 50% | 4380 | NO |
| | R3 | Bedroom | 14.52 | 10.26 | 78 | 4.22 | 41% | 100 | 50% | 50% | 4380 | NO |
| | R4 | Bedroom | 12.82 | 8.88 | 291 | 8.88 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R5 | Bedroom | 11.26 | 7.20 | 200 | 7.18 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R6 | LKD | 25.81 | 19.85 | 486 | 19.85 | 100% | 200 | 50% | 50% | 4380 | YES |
| | R7 | Bedroom | 13.07 | 9.07 | 62 | 3.41 | 38% | 100 | 50% | 50% | 4380 | NO |
| | R8 | Bedroom | 12.71 | 8.75 | 152 | 7.36 | 84% | 100 | 50% | 50% | 4380 | YES |
| Second | R1 | LKD | 28.35 | 22.24 | 369 | 22.24 | 100% | 200 | 50% | 50% | 4380 | YES |
| | R2 | LKD | 23.82 | 17.01 | 236 | 11.23 | 66% | 200 | 50% | 50% | 4380 | YES |
| | R3 | Bedroom | 12.07 | 8.24 | 114 | 4.47 | 54% | 100 | 50% | 50% | 4380 | YES |
| | R4 | LKD | 33.34 | 25.30 | 57 | 1.60 | 6% | 200 | 50% | 50% | 4380 | NO |
| | R5 | Bedroom | 12.96 | 8.93 | 45 | 2.50 | 28% | 100 | 50% | 50% | 4380 | NO |
| | R6 | LKD | 24.62 | 18.66 | 392 | 18.66 | 100% | 200 | 50% | 50% | 4380 | YES |
| | R7 | Bedroom | 7.95 | 4.62 | 274 | 4.62 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R8 | Bedroom | 10.39 | 6.87 | 343 | 6.87 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R9 | Bedroom | 12.83 | 8.89 | 319 | 8.89 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R10 | Bedroom | 11.25 | 7.20 | 220 | 7.20 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R11 | LKD | 25.83 | 19.87 | 476 | 19.87 | 100% | 200 | 50% | 50% | 4380 | YES |
| | R12 | Bedroom | 14.16 | 9.93 | 141 | 7.22 | 73% | 100 | 50% | 50% | 4380 | YES |
| | R13 | Bedroom | 13.04 | 9.02 | 159 | 7.96 | 88% | 100 | 50% | 50% | 4380 | YES |
| Third | R1 | LKD | 28.35 | 22.24 | 431 | 22.24 | 100% | 200 | 50% | 50% | 4380 | YES |
| | R2 | LKD | 23.82 | 17.01 | 284 | 12.31 | 72% | 200 | 50% | 50% | 4380 | YES |
| | R3 | Bedroom | 12.07 | 8.24 | 136 | 5.75 | 70% | 100 | 50% | 50% | 4380 | YES |
| | R4 | LKD | 33.34 | 25.30 | 103 | 4.39 | 17% | 200 | 50% | 50% | 4380 | NO |
| | R5 | Bedroom | 12.96 | 8.93 | 114 | 5.83 | 65% | 100 | 50% | 50% | 4380 | YES |
| | R6 | LKD | 24.62 | 18.66 | 463 | 18.66 | 100% | 200 | 50% | 50% | 4380 | YES |
| | R7 | Bedroom | 7.95 | 4.62 | 297 | 4.62 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R8 | Bedroom | 10.39 | 6.87 | 370 | 6.87 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R9 | Bedroom | 12.83 | 8.89 | 335 | 8.89 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R10 | Bedroom | 11.25 | 7.20 | 237 | 7.20 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R11 | LKD | 25.83 | 19.87 | 503 | 19.87 | 100% | 200 | 50% | 50% | 4380 | YES |
| | R12 | Bedroom | 14.16 | 9.93 | 156 | 8.24 | 83% | 100 | 50% | 50% | 4380 | YES |
| | R13 | Bedroom | 13.04 | 9.02 | 164 | 8.14 | 90% | 100 | 50% | 50% | 4380 | YES |
| Fifth | R1 | LKD | 28.32 | 22.22 | 584 | 22.22 | 100% | 200 | 50% | 50% | 4380 | YES |
| | R2 | LKD | 23.34 | 16.53 | 224 | 9.86 | 60% | 200 | 50% | 50% | 4380 | YES |
| | R3 | Bedroom | 12.08 | 8.24 | 109 | 4.65 | 56% | 100 | 50% | 50% | 4380 | YES |
| | R4 | LKD | 24.16 | 17.93 | 137 | 3.96 | 22% | 200 | 50% | 50% | 4380 | NO |

Project Name: 9604_IDL_exp_240524
 Project No.: 1
 Report Title: SDA BS En17037 Analysis - Proposed Scheme
 Date of Analysis: 24/05/2024



| Floor Ref | Room Ref | Room Use | Room Area m2 | Effective Area | Median Lux | Area Meeting Req Lux | % of Area Meeting Req Lux | Criteria | | | | Meets Criteria |
|----------------|----------|----------|--------------|----------------|------------|----------------------|---------------------------|----------|-------------------------|-------------------------|----------------|----------------|
| | | | | | | | | Req Lux | Req % of Effective Area | Req % of Daylight Hours | Daylight Hours | |
| | R5 | Bedroom | 8.05 | 4.90 | 243 | 4.90 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R6 | Bedroom | 12.57 | 8.66 | 177 | 8.65 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R7 | LKD | 24.62 | 18.66 | 447 | 18.66 | 100% | 200 | 50% | 50% | 4380 | YES |
| | R8 | Bedroom | 7.95 | 4.62 | 297 | 4.62 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R9 | Bedroom | 10.39 | 6.87 | 325 | 6.87 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R10 | Bedroom | 12.82 | 8.88 | 277 | 8.88 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R11 | Bedroom | 12.90 | 8.49 | 223 | 8.49 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R12 | LKD | 25.87 | 19.89 | 423 | 19.89 | 100% | 200 | 50% | 50% | 4380 | YES |
| | R13 | Bedroom | 13.52 | 9.34 | 246 | 9.34 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R14 | Bedroom | 13.50 | 9.18 | 231 | 9.18 | 100% | 100 | 50% | 50% | 4380 | YES |
| Tenth | R1 | LKD | 31.96 | 25.20 | 990 | 25.20 | 100% | 200 | 50% | 50% | 4380 | YES |
| | R2 | Bedroom | 12.49 | 8.58 | 118 | 6.39 | 75% | 100 | 50% | 50% | 4380 | YES |
| | R3 | LKD | 29.65 | 22.25 | 68 | 3.96 | 18% | 200 | 50% | 50% | 4380 | NO |
| | R4 | Bedroom | 12.40 | 8.29 | 236 | 8.29 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R5 | Bedroom | 13.93 | 9.52 | 92 | 4.19 | 44% | 100 | 50% | 50% | 4380 | NO |
| | R6 | Bedroom | 12.99 | 9.02 | 1598 | 9.02 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R7 | LKD | 31.10 | 24.42 | 1366 | 24.42 | 100% | 200 | 50% | 50% | 4380 | YES |
| Eleventh | R1 | LKD | 31.98 | 25.23 | 1223 | 25.23 | 100% | 200 | 50% | 50% | 4380 | YES |
| | R2 | Bedroom | 12.49 | 8.58 | 133 | 7.13 | 83% | 100 | 50% | 50% | 4380 | YES |
| | R3 | LKD | 29.65 | 22.25 | 264 | 17.78 | 80% | 200 | 50% | 50% | 4380 | YES |
| | R4 | Bedroom | 12.34 | 8.23 | 258 | 8.23 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R5 | Bedroom | 13.97 | 9.56 | 97 | 4.50 | 47% | 100 | 50% | 50% | 4380 | NO |
| | R6 | Bedroom | 14.69 | 9.88 | 1460 | 9.88 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R7 | LKD | 31.10 | 24.42 | 1260 | 24.42 | 100% | 200 | 50% | 50% | 4380 | YES |
| Block A | | | | | | | | | | | | |
| First | R1 | Bedroom | 6.83 | 4.04 | 64 | 0.00 | 0% | 100 | 50% | 50% | 4380 | NO |
| | R2 | LKD | 31.51 | 24.48 | 125 | 6.71 | 27% | 200 | 50% | 50% | 4380 | NO |
| | R3 | LKD | 27.10 | 20.87 | 166 | 8.44 | 40% | 200 | 50% | 50% | 4380 | NO |
| | R4 | Bedroom | 18.20 | 13.19 | 110 | 7.99 | 61% | 100 | 50% | 50% | 4380 | YES |
| | R5 | Bedroom | 10.06 | 6.48 | 1 | 0.00 | 0% | 100 | 50% | 50% | 4380 | NO |
| | R6 | Bedroom | 11.99 | 8.09 | 53 | 2.49 | 31% | 100 | 50% | 50% | 4380 | NO |
| | R7 | LKD | 24.41 | 17.97 | 194 | 9.36 | 52% | 200 | 50% | 50% | 4380 | YES |
| | R8 | Bedroom | 12.53 | 8.62 | 84 | 3.03 | 35% | 100 | 50% | 50% | 4380 | NO |
| Second | R1 | Bedroom | 6.83 | 4.04 | 70 | 1.34 | 33% | 100 | 50% | 50% | 4380 | NO |
| | R2 | LKD | 31.52 | 24.48 | 124 | 6.97 | 28% | 200 | 50% | 50% | 4380 | NO |
| | R3 | LKD | 27.10 | 20.87 | 166 | 8.44 | 40% | 200 | 50% | 50% | 4380 | NO |
| | R4 | Bedroom | 18.20 | 13.19 | 117 | 9.01 | 68% | 100 | 50% | 50% | 4380 | YES |
| | R5 | Bedroom | 10.06 | 6.48 | 3 | 0.00 | 0% | 100 | 50% | 50% | 4380 | NO |
| | R6 | Bedroom | 11.99 | 8.09 | 81 | 3.25 | 40% | 100 | 50% | 50% | 4380 | NO |

Project Name: 9604_IDL_exp_240524
 Project No.: 1
 Report Title: SDA BS En17037 Analysis - Proposed Scheme
 Date of Analysis: 24/05/2024



| Floor Ref | Room Ref | Room Use | Room Area m2 | Effective Area | Median Lux | Area Meeting Req Lux | % of Area Meeting Req Lux | Criteria | | | | Meets Criteria |
|------------|----------|----------|--------------|----------------|------------|----------------------|---------------------------|----------|-------------------------|-------------------------|----------------|----------------|
| | | | | | | | | Req Lux | Req % of Effective Area | Req % of Daylight Hours | Daylight Hours | |
| | R7 | LKD | 24.41 | 17.97 | 225 | 10.05 | 56% | 200 | 50% | 50% | 4380 | YES |
| | R8 | Bedroom | 12.53 | 8.62 | 95 | 3.99 | 46% | 100 | 50% | 50% | 4380 | NO |
| Third | R1 | Bedroom | 6.83 | 4.04 | 150 | 2.94 | 73% | 100 | 50% | 50% | 4380 | YES |
| | R2 | LKD | 31.52 | 24.49 | 165 | 11.10 | 45% | 200 | 50% | 50% | 4380 | NO |
| | R3 | LKD | 27.10 | 20.87 | 235 | 12.33 | 59% | 200 | 50% | 50% | 4380 | YES |
| | R4 | Bedroom | 18.20 | 13.19 | 150 | 10.92 | 83% | 100 | 50% | 50% | 4380 | YES |
| | R5 | Bedroom | 10.06 | 6.48 | 41 | 2.16 | 33% | 100 | 50% | 50% | 4380 | NO |
| | R6 | Bedroom | 11.99 | 8.09 | 119 | 5.48 | 68% | 100 | 50% | 50% | 4380 | YES |
| | R7 | LKD | 24.41 | 17.97 | 296 | 16.51 | 92% | 200 | 50% | 50% | 4380 | YES |
| | R8 | Bedroom | 12.53 | 8.62 | 144 | 7.74 | 90% | 100 | 50% | 50% | 4380 | YES |
| Fourth | R1 | Bedroom | 11.64 | 7.58 | 83 | 2.14 | 28% | 100 | 50% | 50% | 4380 | NO |
| | R2 | Bedroom | 13.92 | 9.47 | 139 | 6.38 | 67% | 100 | 50% | 50% | 4380 | YES |
| | R3 | LKD | 25.81 | 19.33 | 190 | 9.50 | 49% | 200 | 50% | 50% | 4380 | NO |
| | R4 | LKD | 22.84 | 16.91 | 146 | 4.45 | 26% | 200 | 50% | 50% | 4380 | NO |
| | R5 | Bedroom | 10.39 | 6.85 | 143 | 5.14 | 75% | 100 | 50% | 50% | 4380 | YES |
| | R6 | Bedroom | 11.99 | 8.09 | 310 | 7.61 | 94% | 100 | 50% | 50% | 4380 | YES |
| | R7 | LKD | 24.41 | 17.97 | 242 | 10.18 | 57% | 200 | 50% | 50% | 4380 | YES |
| | R8 | LKD | 25.79 | 19.93 | 469 | 19.49 | 98% | 200 | 50% | 50% | 4380 | YES |
| Seventh | R1 | Bedroom | 11.64 | 7.58 | 76 | 1.84 | 24% | 100 | 50% | 50% | 4380 | NO |
| | R2 | Bedroom | 13.92 | 9.47 | 190 | 9.10 | 96% | 100 | 50% | 50% | 4380 | YES |
| | R3 | LKD | 25.81 | 19.33 | 215 | 10.56 | 55% | 200 | 50% | 50% | 4380 | YES |
| | R4 | LKD | 22.84 | 16.91 | 383 | 16.91 | 100% | 200 | 50% | 50% | 4380 | YES |
| | R5 | Bedroom | 10.39 | 6.85 | 540 | 6.85 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R6 | Bedroom | 11.99 | 8.09 | 489 | 8.09 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R7 | LKD | 24.41 | 17.97 | 260 | 10.43 | 58% | 200 | 50% | 50% | 4380 | YES |
| | R8 | LKD | 25.79 | 19.93 | 655 | 19.93 | 100% | 200 | 50% | 50% | 4380 | YES |
| Tenth | R1 | Bedroom | 11.64 | 7.58 | 84 | 2.22 | 29% | 100 | 50% | 50% | 4380 | NO |
| | R2 | Bedroom | 13.92 | 9.47 | 234 | 9.47 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R3 | LKD | 25.81 | 19.33 | 259 | 15.09 | 78% | 200 | 50% | 50% | 4380 | YES |
| | R4 | LKD | 22.84 | 16.91 | 514 | 16.91 | 100% | 200 | 50% | 50% | 4380 | YES |
| | R5 | Bedroom | 10.39 | 6.85 | 643 | 6.85 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R6 | Bedroom | 11.99 | 8.09 | 1023 | 8.09 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R7 | LKD | 24.41 | 17.97 | 350 | 12.60 | 70% | 200 | 50% | 50% | 4380 | YES |
| | R8 | LKD | 25.79 | 19.93 | 412 | 19.93 | 100% | 200 | 50% | 50% | 4380 | YES |
| Twelfth | R1 | LKD | 29.74 | 23.51 | 567 | 23.51 | 100% | 200 | 50% | 50% | 4380 | YES |
| | R2 | Bedroom | 12.37 | 8.45 | 938 | 8.45 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R3 | Bedroom | 13.52 | 9.47 | 287 | 9.47 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R4 | Bedroom | 11.99 | 8.09 | 1109 | 8.09 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R5 | LKD | 24.41 | 17.97 | 472 | 17.97 | 100% | 200 | 50% | 50% | 4380 | YES |
| Thirteenth | R1 | LKD | 29.74 | 23.51 | 571 | 23.51 | 100% | 200 | 50% | 50% | 4380 | YES |
| | R2 | Bedroom | 12.37 | 8.45 | 947 | 8.45 | 100% | 100 | 50% | 50% | 4380 | YES |

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 Project No.: 1
 Report Title: SDA BS En17037 Analysis - Proposed Scheme
 Date of Analysis: 24/05/2024



| Floor Ref | Room Ref | Room Use | Room Area m2 | Effective Area | Median Lux | Area Meeting Req Lux | % of Area Meeting Req Lux | Criteria | | | | Meets Criteria |
|-----------|----------|----------|--------------|----------------|------------|----------------------|---------------------------|----------|-------------------------|-------------------------|----------------|----------------|
| | | | | | | | | Req Lux | Req % of Effective Area | Req % of Daylight Hours | Daylight Hours | |
| | R3 | Bedroom | 13.52 | 9.47 | 384 | 9.47 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R4 | Bedroom | 11.99 | 8.09 | 1125 | 8.09 | 100% | 100 | 50% | 50% | 4380 | YES |
| | R5 | LKD | 24.41 | 17.97 | 487 | 17.97 | 100% | 200 | 50% | 50% | 4380 | YES |

APPENDIX C – DETAILED SUNLIGHT RESULTS

Project Name: 9604_IDL_exp_240524

Project No.: 1

Report Title: Sunlight Exposure Analysis - Proposed Scheme

Date: 24/05/2024



| Floor Ref | Room Ref | Room Use | Window Ref | Window Orientation | Proposed Sunlight Exposure (Hours) | Rating |
|----------------|----------|----------|------------|--------------------|------------------------------------|--------|
| Block B | | | | | | |
| First | R1 | LKD | W1 | 152° Inc | 2.4 | |
| | | | W12 | 242° | 5.8 | |
| | | | | | 6.9 | High |
| First | R2 | LKD | W2 | 152° Inc | 1.7 | |
| | | | W3 | 242° | 2.9 | |
| | | | W4 | 152° Inc | 4 | |
| | | | | | 4.5 | High |
| First | R3 | Bedroom | W5 | 138° Inc | 2.6 | |
| | | | | | | |
| First | R4 | Bedroom | W6 | 332°N Inc | 1.1 | |
| | | | | | | |
| First | R5 | Bedroom | W7 | 332°N Inc | 1.1 | |
| | | | | | | |
| First | R6 | LKD | W8 | 332°N Inc | 1.1 | |
| | | | W9 | 309°N Inc | 0 | |
| | | | | | | |
| First | R7 | Bedroom | W10 | 176° Inc | 1.6 | |
| | | | | | | |
| First | R8 | Bedroom | W11 | 176° Inc | 4.6 | |
| | | | | | | |
| Second | R1 | LKD | W1 | 152° Inc | 2.4 | |
| | | | W21 | 242° | 6 | |

Project Name: 9604_IDL_exp_240524

Project No.: 1

Report Title: Sunlight Exposure Analysis - Proposed Scheme

Date: 24/05/2024



| Floor Ref | Room Ref | Room Use | Window Ref | Window Orientation | Proposed Sunlight Exposure (Hours) | Rating |
|-----------|----------|----------|------------|--------------------|------------------------------------|---------|
| | | | | | 7.2 | High |
| Second | R2 | LKD | W2 | 152° Inc | 1.3 | |
| | | | W3 | 242° | 1.7 | |
| | | | W4 | 152° Inc | 4 | |
| | | | | | 4.5 | High |
| Second | R3 | Bedroom | W5 | 138° Inc | 2.6 | |
| | | | | | 2.6 | |
| Second | R4 | LKD | W6 | 138° Inc | 2 | |
| | | | W7 | 62°N | 0 | |
| | | | W8 | 138° Inc | 0 | |
| | | | W9 | 129° Inc | 0 | |
| | | | | | 2 | Minimum |
| Second | R5 | Bedroom | W10 | 129° Inc | 0.3 | |
| | | | | | 0.3 | |
| Second | R6 | LKD | W11 | 356°N Inc | 0 | |
| | | | W12 | 332°N Inc | 0 | |
| | | | | | 0 | |
| Second | R7 | Bedroom | W13 | 332°N Inc | 1.1 | |
| | | | | | 1.1 | |
| Second | R8 | Bedroom | W14 | 332°N Inc | 1.1 | |
| | | | | | 1.1 | |
| Second | R9 | Bedroom | W15 | 332°N Inc | 1.1 | |
| | | | | | 1.1 | |
| Second | R10 | Bedroom | W16 | 332°N Inc | 1.1 | |
| | | | | | 1.1 | |

Project Name: 9604_IDL_exp_240524

Project No.: 1

Report Title: Sunlight Exposure Analysis - Proposed Scheme

Date: 24/05/2024



| Floor Ref | Room Ref | Room Use | Window Ref | Window Orientation | Proposed Sunlight Exposure (Hours) | Rating |
|-----------|----------|----------|------------|--------------------|------------------------------------|---------|
| Second | R11 | LKD | W17 | 332°N Inc | 1.1 | Minimum |
| | | | W18 | 309°N Inc | 2.6 | |
| | | | | | 2.6 | |
| Second | R12 | Bedroom | W19 | 176° Inc | 3.6 | Medium |
| | | | | | 3.6 | |
| Second | R13 | Bedroom | W20 | 176° Inc | 4.6 | High |
| | | | | | 4.6 | |
| Third | R1 | LKD | W1 | 152° Inc | 2.4 | High |
| | | | W21 | 242° | 6 | |
| | | | | | 7.2 | |
| Third | R2 | LKD | W2 | 152° Inc | 1.3 | High |
| | | | W3 | 242° | 1.7 | |
| | | | W4 | 152° Inc | 4 | |
| | | | | | 4.5 | |
| Third | R3 | Bedroom | W5 | 138° Inc | 2.6 | Minimum |
| | | | | | 2.6 | |
| Third | R4 | LKD | W6 | 138° Inc | 2 | Minimum |
| | | | W7 | 62°N | 0 | |
| | | | W8 | 138° Inc | 0 | |
| | | | W9 | 129° Inc | 0.6 | |
| | | | | | 2.6 | |
| Third | R5 | Bedroom | W10 | 129° Inc | 0.8 | Failed |
| | | | | | 0.8 | |
| Third | R6 | LKD | W11 | 356°N Inc | 0 | |
| | | | W12 | 332°N Inc | 0 | |

Project Name: 9604_IDL_exp_240524

Project No.: 1

Report Title: Sunlight Exposure Analysis - Proposed Scheme

Date: 24/05/2024



| Floor Ref | Room Ref | Room Use | Window Ref | Window Orientation | Proposed Sunlight Exposure (Hours) | Rating |
|-----------|----------|----------|------------|--------------------|------------------------------------|---------|
| | | | | | 0 | Failed |
| Third | R7 | Bedroom | W13 | 332°N Inc | 1.1 | |
| | | | | | 1.1 | Failed |
| Third | R8 | Bedroom | W14 | 332°N Inc | 1.1 | |
| | | | | | 1.1 | Failed |
| Third | R9 | Bedroom | W15 | 332°N Inc | 1.1 | |
| | | | | | 1.1 | Failed |
| Third | R10 | Bedroom | W16 | 332°N Inc | 1.1 | |
| | | | | | 1.1 | Failed |
| Third | R11 | LKD | W17 | 332°N Inc | 1.1 | |
| | | | W18 | 309°N Inc | 2.6 | |
| | | | | | 2.6 | Minimum |
| Third | R12 | Bedroom | W19 | 176° Inc | 3.6 | |
| | | | | | 3.6 | Medium |
| Third | R13 | Bedroom | W20 | 176° Inc | 4.6 | |
| | | | | | 4.6 | High |
| Fifth | R1 | LKD | W1 | 152° Inc | 2.8 | |
| | | | W19 | 242° | 6 | |
| | | | | | 7.2 | High |
| Fifth | R2 | LKD | W2 | 152° Inc | 1.5 | |
| | | | W3 | 152° Inc | 4.5 | |
| | | | | | 5 | High |
| Fifth | R3 | Bedroom | W4 | 138° Inc | 2.9 | |
| | | | | | 2.9 | Minimum |
| Fifth | R4 | LKD | W5 | 62°N | 0 | |

Project Name: 9604_IDL_exp_240524

Project No.: 1

Report Title: Sunlight Exposure Analysis - Proposed Scheme

Date: 24/05/2024



| Floor Ref | Room Ref | Room Use | Window Ref | Window Orientation | Proposed Sunlight Exposure (Hours) | Rating |
|-----------|----------|----------|------------|--------------------|------------------------------------|---------|
| | | | W6 | 138° Inc | 0.4 | |
| | | | | | 0.4 | Failed |
| Fifth | R5 | Bedroom | W7 | 129° Inc | 1.6 | |
| | | | | | 1.6 | Minimum |
| Fifth | R6 | Bedroom | W8 | 129° Inc | 1.8 | |
| | | | | | 1.8 | Minimum |
| Fifth | R7 | LKD | W9 | 356°N Inc | 0 | |
| | | | W10 | 332°N Inc | 0 | |
| | | | | | 0 | Failed |
| Fifth | R8 | Bedroom | W11 | 332°N Inc | 1 | |
| | | | | | 1 | Failed |
| Fifth | R9 | Bedroom | W12 | 332°N Inc | 1.1 | |
| | | | | | 1.1 | Failed |
| Fifth | R10 | Bedroom | W13 | 332°N Inc | 1.1 | |
| | | | | | 1.1 | Failed |
| Fifth | R11 | Bedroom | W14 | 332°N Inc | 1.1 | |
| | | | | | 1.1 | Failed |
| Fifth | R12 | LKD | W15 | 332°N Inc | 1.1 | |
| | | | W16 | 309°N Inc | 2.6 | |
| | | | | | 2.6 | Minimum |
| Fifth | R13 | Bedroom | W17 | 176° Inc | 5.4 | |
| | | | | | 5.4 | High |
| Fifth | R14 | Bedroom | W18 | 176° Inc | 6.4 | |
| | | | | | 6.4 | High |
| Tenth | R1 | LKD | W1 | 242° | 5.6 | |

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Project No.: 1

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Date: 24/05/2024



| Floor Ref | Room Ref | Room Use | Window Ref | Window Orientation | Proposed Sunlight Exposure (Hours) | Rating |
|-----------|----------|----------|------------|--------------------|------------------------------------|---------|
| | | | W2 | 152° Inc | 5.5 | |
| | | | W3 | 242° | 3.7 | |
| | | | W4 | 152° Inc | 5.1 | |
| | | | | | 6.8 | High |
| Tenth | R2 | Bedroom | W5 | 138° Inc | 3.6 | |
| | | | | | 3.6 | Medium |
| Tenth | R3 | LKD | W6 | 138° Inc | 0 | |
| | | | W7 | 129° Inc | 3.4 | |
| | | | | | 3.4 | Medium |
| Tenth | R4 | Bedroom | W8 | 129° Inc | 2.4 | |
| | | | | | 2.4 | Minimum |
| Tenth | R5 | Bedroom | W9 | 356°N Inc | 0 | |
| | | | | | 0 | Failed |
| Tenth | R6 | Bedroom | W10 | 62°N Inc | 1 | |
| | | | W11 | 332°N Inc | 0 | |
| | | | | | 1 | Failed |
| Tenth | R7 | LKD | W12 | 332°N Inc | 1.1 | |
| | | | W13 | 332°N Inc | 1.1 | |
| | | | W14 | 332°N Inc | 1.1 | |
| | | | W15 | 242° Inc | 4.1 | |
| | | | W16 | 242° Inc | 4 | |
| | | | | | 4.1 | High |
| Eleventh | R1 | LKD | W1 | 242° | 5.6 | |
| | | | W2 | 152° Inc | 5.7 | |
| | | | W3 | 242° | 6 | |

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Project No.: 1

Report Title: Sunlight Exposure Analysis - Proposed Scheme

Date: 24/05/2024



| Floor Ref | Room Ref | Room Use | Window Ref | Window Orientation | Proposed Sunlight Exposure (Hours) | Rating |
|----------------|----------|----------|------------|--------------------|------------------------------------|---------|
| | | | W4 | 152° Inc | 5 | |
| | | | | | 6.9 | High |
| Eleventh | R2 | Bedroom | W5 | 138° Inc | 3.4 | |
| | | | | | 3.4 | Medium |
| Eleventh | R3 | LKD | W6 | 138° Inc | 3.1 | |
| | | | W7 | 129° Inc | 3.5 | |
| | | | | | 4 | Medium |
| Eleventh | R4 | Bedroom | W8 | 129° Inc | 2.4 | |
| | | | | | 2.4 | Minimum |
| Eleventh | R5 | Bedroom | W9 | 356°N Inc | 0 | |
| | | | | | 0 | Failed |
| Eleventh | R6 | Bedroom | W10 | 62°N Inc | 1 | |
| | | | W11 | 332°N Inc | 0 | |
| | | | | | 1 | Failed |
| Eleventh | R7 | LKD | W12 | 332°N Inc | 1.1 | |
| | | | W13 | 332°N Inc | 1.1 | |
| | | | W14 | 332°N Inc | 1.1 | |
| | | | W15 | 242° Inc | 6.3 | |
| | | | W16 | 242° Inc | 6.3 | |
| | | | | | 6.3 | High |
| Block A | | | | | | |
| First | R1 | Bedroom | W1 | 152° | 0.9 | |
| | | | | | 0.9 | Failed |

Project Name: 9604_IDL_exp_240524

Project No.: 1

Report Title: Sunlight Exposure Analysis - Proposed Scheme

Date: 24/05/2024



| Floor Ref | Room Ref | Room Use | Window Ref | Window Orientation | Proposed Sunlight Exposure (Hours) | Rating |
|-----------|----------|----------|------------|--------------------|------------------------------------|---------|
| First | R2 | LKD | W2 | 242° | 0.3 | Medium |
| | | | W3 | 152° | 3.4 | |
| | | | W4 | 152° | 3.6 | |
| | | | | | | |
| First | R3 | LKD | W5 | 152° | 4.1 | High |
| | | | W6 | 152° | 3.6 | |
| | | | W7 | 62°N | 0 | |
| | | | | | | |
| First | R4 | Bedroom | W8 | 152° | 1.6 | Minimum |
| | | | W9 | 62°N | 0 | |
| | | | | | | |
| First | R5 | Bedroom | W10 | 332°N | 0 | Failed |
| First | R6 | Bedroom | W11 | 339°N | 0.5 | Failed |
| First | R7 | LKD | W12 | 294°N | 2 | Minimum |
| | | | W13 | 294°N | 1.5 | |
| | | | W14 | 242° | 0.5 | |
| | | | | | | |
| First | R8 | Bedroom | W15 | 152° | 1.1 | Failed |
| | | | | | 1.1 | |
| Second | R1 | Bedroom | W1 | 152° | 2 | Minimum |
| Second | R2 | LKD | W2 | 242° | 0.3 | |
| | | | W3 | 152° | 4.4 | |

Project Name: 9604_IDL_exp_240524

Project No.: 1

Report Title: Sunlight Exposure Analysis - Proposed Scheme

Date: 24/05/2024



| Floor Ref | Room Ref | Room Use | Window Ref | Window Orientation | Proposed Sunlight Exposure (Hours) | Rating |
|-----------|----------|----------|------------|--------------------|------------------------------------|---------|
| | | | W4 | 152° | 4.7 | |
| | | | | | 4.9 | High |
| Second | R3 | LKD | W5 | 152° | 5.2 | |
| | | | W6 | 152° | 4.6 | |
| | | | W7 | 62°N | 0 | |
| | | | | | 5.5 | High |
| Second | R4 | Bedroom | W8 | 152° | 1.6 | |
| | | | W9 | 62°N | 0 | |
| | | | | | 1.6 | Minimum |
| Second | R5 | Bedroom | W10 | 332°N | 0 | |
| | | | | | 0 | Failed |
| Second | R6 | Bedroom | W11 | 339°N | 0.5 | |
| | | | | | 0.5 | Failed |
| Second | R7 | LKD | W12 | 294°N | 2.2 | |
| | | | W13 | 294°N | 1.9 | |
| | | | W14 | 242° | 1.6 | |
| | | | | | 3.8 | Medium |
| Second | R8 | Bedroom | W15 | 152° | 2.2 | |
| | | | | | 2.2 | Minimum |
| Third | R1 | Bedroom | W1 | 152° | 2.6 | |
| | | | | | 2.6 | Minimum |
| Third | R2 | LKD | W2 | 242° | 0.3 | |
| | | | W3 | 152° | 5.7 | |
| | | | W4 | 152° | 5.6 | |
| | | | | | 5.8 | High |

Project Name: 9604_IDL_exp_240524

Project No.: 1

Report Title: Sunlight Exposure Analysis - Proposed Scheme

Date: 24/05/2024



| Floor Ref | Room Ref | Room Use | Window Ref | Window Orientation | Proposed Sunlight Exposure (Hours) | Rating |
|-----------|----------|----------|------------|--------------------|------------------------------------|---------|
| Third | R3 | LKD | W5 | 152° | 5.5 | High |
| | | | W6 | 152° | 4.6 | |
| | | | W7 | 62°N | 0.1 | |
| | | | | | | |
| Third | R4 | Bedroom | W8 | 152° | 1.9 | Minimum |
| | | | W9 | 62°N | 0 | |
| | | | | | | |
| Third | R5 | Bedroom | W10 | 332°N | 0 | Failed |
| Third | R6 | Bedroom | W11 | 339°N | 0.5 | Failed |
| Third | R7 | LKD | W12 | 294°N | 2.2 | High |
| | | | W13 | 294°N | 3.5 | |
| | | | W14 | 242° | 6.1 | |
| | | | | | | |
| Third | R8 | Bedroom | W15 | 152° | 5.1 | High |
| Fourth | R1 | Bedroom | W1 | 242° | 4.2 | High |
| | | | W2 | 152° | 6.4 | |
| | | | | | | |
| Fourth | R2 | Bedroom | W3 | 152° | 6.1 | High |
| | | | W4 | 62°N | 0 | |
| | | | | | | |
| Fourth | R3 | LKD | W5 | 152° | 2.7 | |
| | | | W6 | 152° | 5.5 | |

Project Name: 9604_IDL_exp_240524

Project No.: 1

Report Title: Sunlight Exposure Analysis - Proposed Scheme

Date: 24/05/2024



| Floor Ref | Room Ref | Room Use | Window Ref | Window Orientation | Proposed Sunlight Exposure (Hours) | Rating |
|-----------|----------|----------|------------|--------------------|------------------------------------|---------|
| | | | | | 5.8 | High |
| Fourth | R4 | LKD | W7 | 62°N | 0.5 | |
| | | | W8 | 152° | 2.5 | |
| | | | | | 2.5 | Minimum |
| Fourth | R5 | Bedroom | W9 | 62°N | 0 | |
| | | | W10 | 332°N | 0 | |
| | | | | | 0 | Failed |
| Fourth | R6 | Bedroom | W11 | 62°N | 0 | |
| | | | W12 | 339°N | 0.5 | |
| | | | | | 0.5 | Failed |
| Fourth | R7 | LKD | W13 | 294°N | 2.2 | |
| | | | W14 | 294°N | 3.5 | |
| | | | | | 3.5 | Medium |
| Fourth | R8 | LKD | W15 | 242° | 6.3 | |
| | | | W16 | 152° | 5.4 | |
| | | | | | 7.8 | High |
| Seventh | R1 | Bedroom | W1 | 242° | 4.2 | |
| | | | W2 | 152° | 7.3 | |
| | | | | | 7.9 | High |
| Seventh | R2 | Bedroom | W1 | 242° | 4.2 | |
| | | | W2 | 152° | 7.3 | |
| | | | | | 7.9 | High |
| Seventh | R3 | Bedroom | W3 | 152° | 7.3 | |
| | | | W4 | 62°N | 1.4 | |
| | | | | | 7.5 | High |

Project Name: 9604_IDL_exp_240524

Project No.: 1

Report Title: Sunlight Exposure Analysis - Proposed Scheme

Date: 24/05/2024



| Floor Ref | Room Ref | Room Use | Window Ref | Window Orientation | Proposed Sunlight Exposure (Hours) | Rating |
|-----------|----------|----------|------------|--------------------|------------------------------------|--------|
| Seventh | R4 | LKD | W5 | 152° | 4.5 | High |
| | | | W6 | 242° | 3 | |
| | | | | | 5.7 | |
| Seventh | R5 | LKD | W7 | 152° | 7.9 | High |
| | | | W8 | 62°N | 1.6 | |
| | | | W9 | 152° | 5.2 | |
| | | | | | 8.4 | |
| Seventh | R6 | Bedroom | W10 | 62°N | 3.2 | Medium |
| | | | W11 | 332°N | 0 | |
| | | | | | 3.2 | |
| Seventh | R7 | Bedroom | W12 | 62°N | 0 | Failed |
| | | | W13 | 339°N | 0.5 | |
| | | | | | 0.5 | |
| Seventh | R8 | LKD | W14 | 294°N | 2 | Medium |
| | | | W15 | 294°N | 3.5 | |
| | | | | | 3.5 | |
| Seventh | R9 | LKD | W16 | 242° | 6.3 | High |
| | | | W17 | 152° | 6.3 | |
| | | | | | 8.7 | |
| Tenth | R1 | Bedroom | W1 | 242° | 4.1 | High |
| | | | W2 | 152° | 8.4 | |
| | | | | | 9 | |
| Tenth | R2 | Bedroom | W3 | 152° | 8.4 | High |
| | | | W4 | 62°N | 2.4 | |
| | | | | | 8.4 | |

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Project No.: 1

Report Title: Sunlight Exposure Analysis - Proposed Scheme

Date: 24/05/2024



| Floor Ref | Room Ref | Room Use | Window Ref | Window Orientation | Proposed Sunlight Exposure (Hours) | Rating |
|-----------|----------|----------|------------|--------------------|------------------------------------|--------|
| Tenth | R3 | LKD | W5 | 152° | 4.7 | High |
| | | | W6 | 242° | 3 | |
| | | | | | 5.8 | |
| Tenth | R4 | LKD | W7 | 152° | 8.4 | High |
| | | | W8 | 62°N | 1.7 | |
| | | | W9 | 152° | 5.2 | |
| | | | | 8.4 | | |
| Tenth | R5 | Bedroom | W10 | 62°N | 3.2 | Medium |
| | | | W11 | 332°N | 0 | |
| | | | | 3.2 | | |
| Tenth | R6 | Bedroom | W12 | 62°N | 0.6 | Failed |
| | | | W13 | 339°N | 0.5 | |
| | | | | 1.2 | | |
| Tenth | R7 | LKD | W14 | 294°N | 2 | Medium |
| | | | W15 | 294°N | 3.5 | |
| | | | | 3.5 | | |
| Tenth | R8 | LKD | W16 | 152° | 7.1 | High |
| | | | W17 | 242° | 6.3 | |
| | | | | 9.5 | | |
| Twelfth | R1 | LKD | W1 | 152° | 6.5 | High |
| | | | W12 | 242° | 6.3 | |
| | | | | 9.5 | | |
| Twelfth | R2 | Bedroom | W3 | 152° | 8.1 | |
| | | | W4 | 152° | 8.1 | |
| | | | W5 | 152° | 8.4 | |

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Project No.: 1

Report Title: Sunlight Exposure Analysis - Proposed Scheme

Date: 24/05/2024



| Floor Ref | Room Ref | Room Use | Window Ref | Window Orientation | Proposed Sunlight Exposure (Hours) | Rating |
|------------|----------|----------|------------|--------------------|------------------------------------|---------|
| | | | W6 | 62°N | 3.2 | |
| | | | | | 8.4 | High |
| Twelfth | R3 | Bedroom | W7 | 62°N | 1.5 | |
| | | | | | 1.5 | Minimum |
| Twelfth | R4 | Bedroom | W8 | 62°N | 3.2 | |
| | | | W9 | 339°N | 0.5 | |
| | | | | | 3.8 | Medium |
| Twelfth | R5 | LKD | W10 | 294°N | 2 | |
| | | | W11 | 294°N | 3.5 | |
| | | | | | 3.5 | Medium |
| Thirteenth | R1 | LKD | W1 | 152° | 6.5 | |
| | | | W12 | 242° | 6.3 | |
| | | | | | 9.5 | High |
| Thirteenth | R2 | Bedroom | W3 | 152° | 8.1 | |
| | | | W4 | 152° | 8.1 | |
| | | | W5 | 152° | 8.4 | |
| | | | W6 | 62°N | 3.2 | |
| | | | | | 8.4 | High |
| Thirteenth | R3 | Bedroom | W7 | 62°N | 3.2 | |
| | | | | | 3.2 | Medium |
| Thirteenth | R4 | Bedroom | W8 | 62°N | 3.2 | |
| | | | W9 | 339°N | 0.5 | |
| | | | | | 3.8 | Medium |
| Thirteenth | R5 | LKD | W10 | 294°N | 2 | |
| | | | W11 | 294°N | 3.5 | |

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| Floor Ref | Room Ref | Room Use | Window Ref | Window Orientation | Proposed Sunlight Exposure (Hours) | Rating |
|-----------|----------|----------|------------|--------------------|------------------------------------|--------|
| | | | | | 3.5 | Medium |

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