SYNTEGRA CONSULTING

Internal Daylight Analysis Report

REVB

28 Redington Road, London, NW3 7RB

May. 2016

Ref: 15-1601

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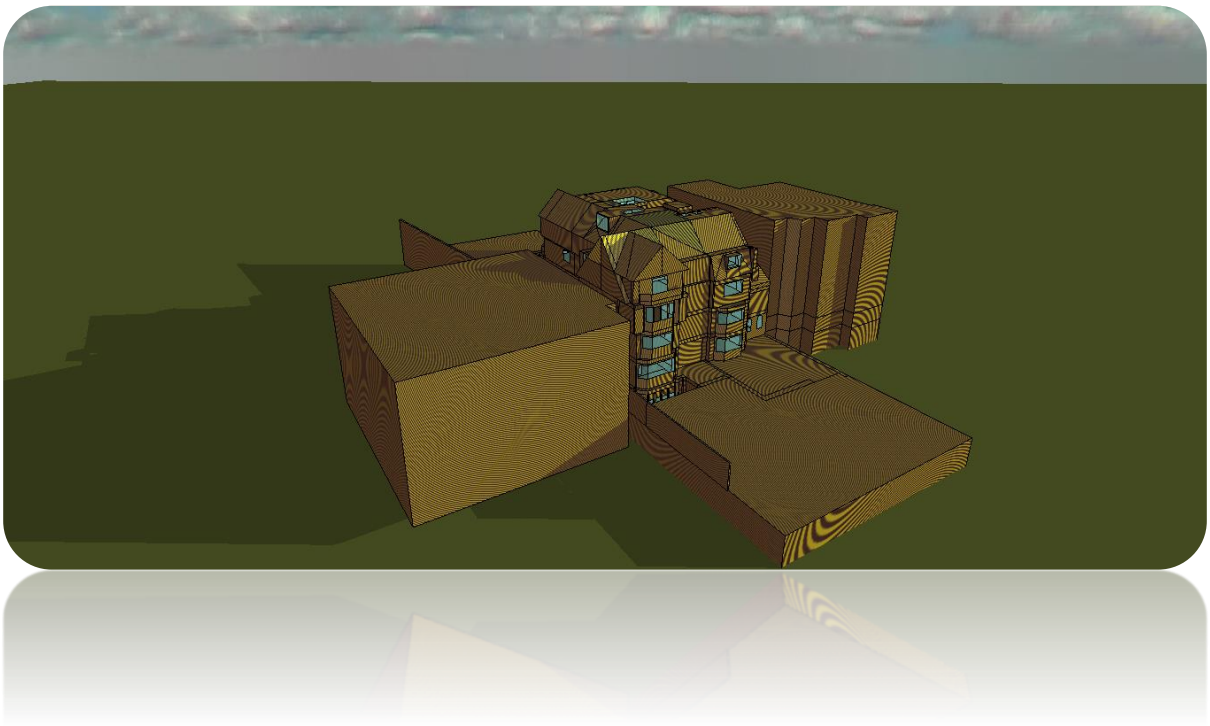
DATE	PRODUCED BY	CHECKED BY	APPROVED BY
17.05.2016	DC	DC	AWK



Revision	*Rev A*	*Rev B*
Date	28.04.2016	17.05.2016
Prepared by	DC	DC
Checked by	DC	DC
Authorised by	AWK	AWK

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1. Executive summary

This report demonstrates that adequate levels of internal daylight are met on 95% of the habitable rooms.

The minimum daylighting levels is defined as follow:

- Minimum daylight factor of at least 2.0% for kitchens/dining room;
- Minimum daylight factor of at least 1.5% for living room;
- Minimum daylight factor of at least 1.0% for bedrooms;
- 80% of the working plane in each new space receive direct light from the sky

This report demonstrates that the No-Sky Line criteria is met on 100% of the habitable rooms.

→ **The proposed development will provide good residential accommodations**

2. Introduction

This report has been prepared to support the planning application for the proposed development at 28 Redington Road, Hampstead, London, NW3 7RB. The proposed scheme involves the demolition of the existing building on site and a redevelopment to provide a new residential building to house 8 flats with basement level for on-site car parking and residential courtyard and accommodation.

The report assesses the internal daylight within the residential flats of the proposed development and specifically focuses on the kitchens, living/dining rooms and bedrooms. The assessment is undertaken in accordance with ***"BRE 209 Digest: Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice".*** This document states that it is also intended to be used in conjunction with the interior daylight recommendations found within the British Standard BS8206-2:2008 and The Application Manual on Window Design of the Chartered Institution of Building Services Engineers (CIBSE).

The existing & proposed drawings (in AutoCAD format) of the project were provided by **Jo Cowen Architects** on the **22th April 2016** and have been used in preparing this report.

The study has been undertaken by constructing a 3D IES model of the proposed site and surrounding buildings in order to analyse the internal daylight within the apartments. The assessment is based on the 2D AutoCAD drawings (floor plans, sections and elevations) available at the time.

3. Planning policy

There are no national or local policies specifically relating to daylight, sunlight and overshadowing.

4. Guidance document

4.1. Building Research Establishment (BRE) report (BRE 209): "Site layout planning for daylight and sunlight: A guide to good practice" Second Edition (2011)

The Second Edition of the report replaces the 1991 document of the same name and came into effect from October 2011.

It is important to note that the introduction to the report stresses that the document is provided for guidance purposes only and it is not intended to be interpreted as a strict and rigid set of rules. It also recommends that it may be appropriate to adopt a flexible approach and alternative target values in dealing with *"special circumstances"* for example *"in a historic city centre, or in an area with modern high-rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings".* This is amplified by the following extracts from the introduction (p1, para. 6) and Section 2.2:

"The advice given here is not mandatory and this document should not be seen as an instrument of planning policy; its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of many factors in site layout design". (p1, para. 1.6)

"In special circumstances the Developer or Planning Authority may wish to use different target values". (p1, para. 1.6)

"Note that numerical values given here are purely advisory. Different criteria may be used, based upon the requirements for daylight in an area viewed against other site layout constraints. Another important issue is whether the existing building is itself a good neighbour, standing a reasonable distance from the boundary and taking no more than its fair share of light". (p7 para. 2.2.3)

The examples given in the report can be applied to any part of the country: suburban, urban and rural areas. The inflexible application of the target values given in the report may make reaching the BRE criteria difficult in a tight, urban environment where there is unlikely to be the same expectation of daylight and sunlight amenity as in a suburban or rural environment.

5. Assessment methodology

5.1. General

This report analyse the levels of internal daylight at the following flats:

- Lower Ground floor:
  - R22 – Flat 01 – Study/Library – LGF

- Ground Floor:
  - R01 - Flat 01 - Kitchen/Living room - GF
  - R02 - Flat 01 - Bedroom - GF
  - R03 - Flat 02 - Living/Dining room - GF
  - R04 – Fla02 – bedroom - GF
  - R05 – Flat02 – K/L/D - GF
  - R06 - Flat 02 - Bedroom - GF
  - R07 - Flat 03 - Kitchen/dining room - GF

- First Floor:
  - R08 - Flat 03 - Living room - 1F
  - R09 - Flat 03 - Master bedroom - 1F
  - R10 - Flat 04 - Dining/living/kitchen room - 1F
  - R11 - Flat 04 - Master bedroom - 1F

- Second floor:
  - R12 – Flat 05 – K/L/D – 2F
  - R13 – Flat 05 – Master bedroom – 2F
  - R14 – Flat 06 – K/L/D – 2F
  - R15 – Flat 06 – Master bedroom – 2F

- Third Floor:
  - R16 – Flat 07 – K/L/D – 3F
  - R17 – Flat 07 – Master bedroom – 3F
  - R18 – Flat 07 – Second bedroom – 3F

- Fourth Floor
  - R19 – Flat 08 – K/L/D – 4F
  - R20 – Flat 08 – Master bedroom – 4F
  - R21 – Flat 08 – Second bedroom – 4F

Specifically, it takes into consideration the Average Daylight Factor (ADF) in kitchens, living/dining rooms and bedrooms (habitable rooms only).

22 target rooms (R1 to R22) as shown in section 9.4 in Appendix, have been identified on the proposed drawings following guidance within the BRE guidelines *"Site layout planning for daylight and sunlight".*

The IES Virtual Environment modelling software utilised for the compilation of this report has been accredited by CIBSE and acknowledged by the BRE as a suitable software tool for undertaking internal daylight assessments in accordance with the BRE Good Practice guidelines. The specific IES software modules utilised for this assessment are the following:

- ☐ ModelIT: enables you to create a 3D "Virtual Environment" model without CAD data, or alternatively allows you to create a 3D model from 2D CAD data. Interfaces with AutoCAD and Google Sketchup.

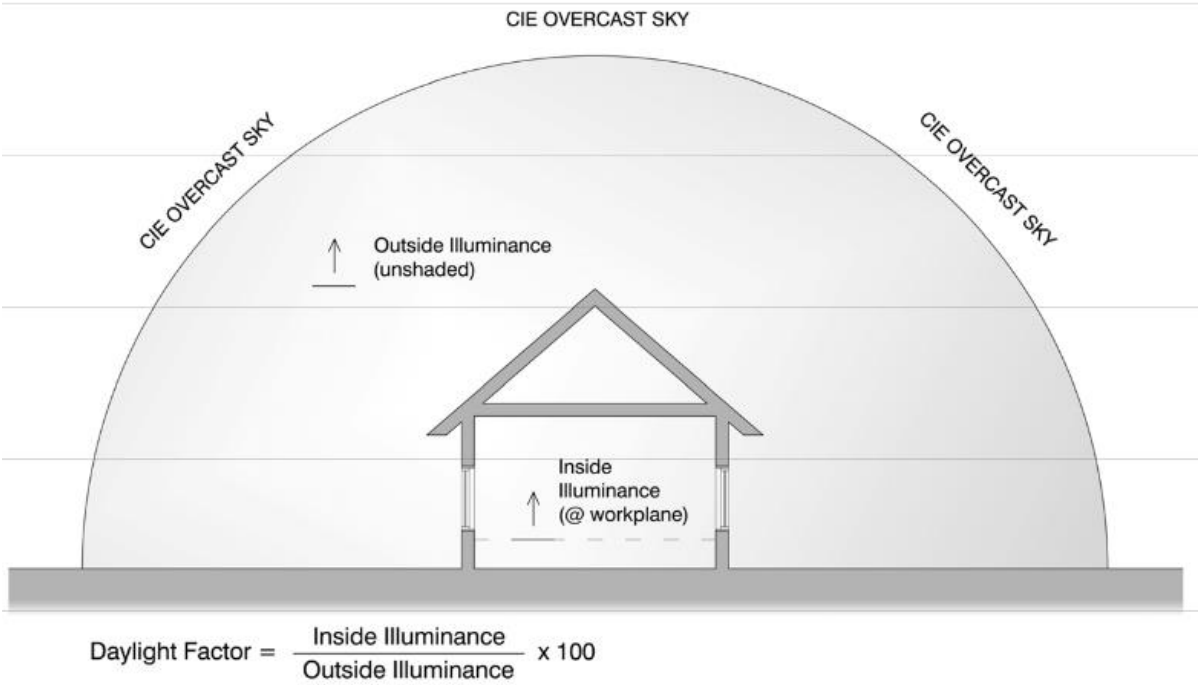
- ☐ FlucDL: allows to calculate point by point illuminance and daylight factors on any surfaces in the model or on specified workplanes (e.g. the height of a desk).

5.2. BRE Digest 209: "Site layout planning for daylight and sunlight"

This section provides a brief description of the calculating methods for the daylight, sunlight and overshadowing to gardens and open spaces criteria presented in BRE Digest 209.

5.2.1. Average Daylight Factor (ADF)

The Average Daylight Factor (ADF) is the average indoor illuminance (from daylight) on the working plane within a room, expressed as a percentage of the simultaneous outdoor illuminance on a horizontal plane under an unobstructed CIE "standard overcast sky".



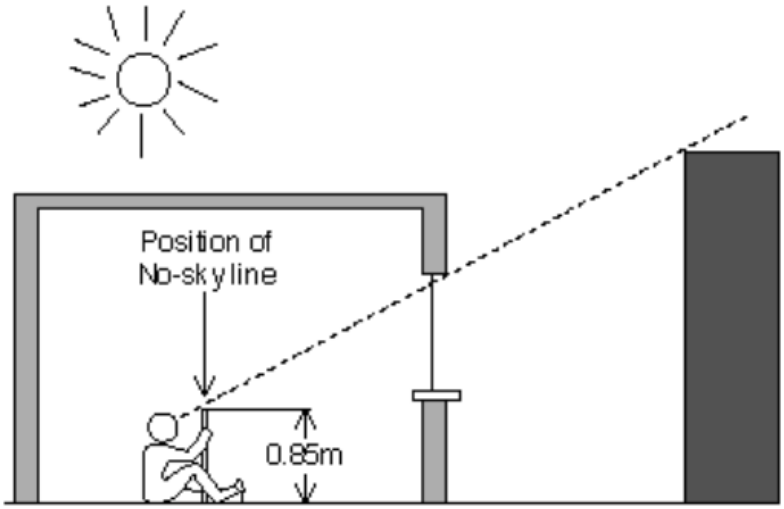
The BRE guidelines *"Site layout planning for daylight and sunlight"* incorporate two main methods of calculating daylight: the Vertical Sky Component (VSC) method and the Average Daylight Factor (ADF) method.

The ADF method of assessment takes into account the total glazed area to the room, the transmittance quality of the glazing proposed, the total area of the room surfaces including ceilings and floors, and the internal average reflectance for the room being assessed. The method also takes into account the Vertical Sky Component and the quantum of reflected light off external surfaces.

In this assessment, the ADF method is selected and more details on the numerical criteria for the VSC method are presented in section 9.6.

5.2.2. No-Sky Line (NSL)

This method of assessment is a simple test to establish where within the proposed room the sky will be visible through the windows, taking into account external obstructions. The assessment is undertaken at working plane height (850mm above floor level) and the method of calculation is set out in Appendix D of the BRE handbook.



Appendix C of the BRE handbook states *"if a significant area of the working plane lies beyond the no skyline (i.e., it receives no direct skylight), then the distribution of daylight in the room will look poor and supplementary electric lighting will be required."* To guarantee a satisfactory daylight uniformity, this area is more precisely quantified in the BS 8206 Part2 2008 as 20%.

More details on the numerical criteria for the NSL method are presented in section 9.6.

6. BRE Digest 209: Significant criteria

6.1. Average Daylight Factor and No-Sky Line

The daylight criteria given within the BRE guidelines have been used as a basis to assess the internal daylight:

"If a predominantly daylit appearance is required, then ADF should be 5% or more if there is no supplementary electric lighting, or 2% or more if supplementary electric lighting is provided. There are additional recommendations for dwellings, of 2% for kitchens, 1.5% for living rooms and 1% for bedrooms. These last are minimum values of Average Daylight Factor, and should be obtained even if a predominantly daylit appearance is not required".

The Code for Sustainable Homes: technical guide (Nov 2010) recommends that kitchens must achieve a minimum Average Daylight Factor (ADF) of at least 2%, all living rooms, dining rooms and studies (including any room designated as a home office under Ene 9 – Home Office) must achieve a minimum Average Daylight Factor of at least 1.5% and 80% of the working plane in each kitchen, living room, dining room, and study (including any room designated as a home office under Ene 9 – Home Office) must receive direct light from the sky.

6.2. Criteria for Average Daylight Factor and No-Sky Line

The table 1 is a summary of the criteria to assess the ADF and NSL.

Room function	Criteria
Kitchen	ADF > 2.0%
Living/Dining room	ADF > 1.5%
Bedroom	ADF > 1.0%
No-Sky Line: % of working plane in each rooms	≥ 80%

Table 1: Criteria for assessing ADF and NSL

7. Assessment

7.1. BS 8206-2: 1992

The foreword to BS 8206-2: 1992 states that:
"The aim of the standard is to give guidance to architects, builders and others who carry out lighting design. It is recognised that lighting is only one of many matters that influence fenestration. These include other aspects of environmental performance (such as noise, thermal equilibrium and the control of energy use), fire hazards, constructional requirements, the external appearance and the surroundings of the site. The best design for a building does not necessarily incorporate the ideal solution for any individual function. For this reason, careful judgement should be exercised when using the criteria given in the standards for other purposes, particularly town planning control."

7.2. Average Daylight Factor and No-Sky Line

The daylight results are presented in section 8.6 in Appendix.
(K = kitchen, L = Living, D = Dining, B = Bedroom)

A summary of results is displayed in the table 2 below:

Internal daylight assessment						
Room	Room function	ADF (criteria)	ADF (result)	Result	NSL	Result
R01 - Flat 01 - Kitchen/Living room - GF	K/L	2%	4.9 %	PASS	96 %	PASS
R02 - Flat 01 - Bedroom - GF	B	1%	1.3 %	PASS	94 %	PASS
R03 - Flat 02 - Living/Dining room - GF	L/D	1.5%	3.5 %	PASS	100 %	PASS
R04 – Fla02 – bedroom - GF	B	1%	2.5%	PASS	99%	PASS
R05 – Flat02 – K/L/D - GF	K/D	2%	3.1%	PASS	91%	PASS
R06 - Flat 02 - Bedroom - GF	B	1%	2.7 %	PASS	100 %	PASS
R07 - Flat 03 - Kitchen/dining room - GF	K/D	2%	3.5 %	PASS	100 %	PASS
R08 - Flat 03 - Living room - 1F	L	1.5%	4.1 %	PASS	100 %	PASS
R09 - Flat 03 - Master bedroom - 1F	B	1%	4.0 %	PASS	99 %	PASS
R10 - Flat 04 - Dining/living/kitchen room - 1F	K/L/D	2%	2.5 %	PASS	100 %	PASS
R11 - Flat 04 - Master bedroom - 1F	B	1%	5.0 %	PASS	100 %	PASS

R12 – Flat 05 – K/L/D – 2F	K/L/D	2%	1.8%	FAIL	99%	PASS
R13 – Flat 05 – Master bedroom – 2F	B	1%	4.0%	PASS	99%	PASS
R14 – Flat 06 – K/L/D – 2F	K/L/D	2%	2.5%	PASS	96%	PASS
R15 – Flat 06 – Master bedroom – 2F	B	1%	3.7%	PASS	98%	PASS
R16 – Flat 07 – K/L/D – 3F	K/L/D	2%	2.1%	PASS	99%	PASS
R17 – Flat 07 – Master bedroom – 3F	B	1%	2.5%	PASS	100%	PASS
R18 – Flat 07 – Second bedroom – 3F	B	1%	2.9%	PASS	92%	PASS
R19 – Flat 08 – K/L/D – 4F	K/L/D	2%	3.6%	PASS	100%	PASS
R20 – Flat 08 – Master bedroom – 4F	B	1%	14.3%	PASS	100%	PASS
R21 – Flat 08 – Second bedroom – 4F	B	1%	2.0%	PASS	97%	PASS
R22 – Flat 01 – Study/Library – LGF	Library room	1.0% - 1.5%	2.4%	PASS	94%	PASS

Table 2: Internal daylight results

- As it can be seen in the table above, the 95% of the habitable rooms achieve the internal daylight factor (**ADF**), then the average illuminance on the working plane will be adequate.

- The kitchen/dining rooms (**R01-R03-R05-R07-R08-R10-R14-R16-R19**) from the ground level to fourth level exceed the BRE criteria (values between 2.1% and 4.9%) and the bedrooms (**R02-R04-R06-R09-R11-R13-R15-R17-R18-R20**) will be close enough to the ADF criteria (values between 1.3% and 14.3%), therefore the internal daylighting levels will be adequate.

- The **kitchen/dining/living room R12** site on second floor failed to meet the Average daylight factor of only 0.2%. However it will be close enough to the BRE criteria with a proposed ADF of 1.8% and with only 1% of a no significant area of the working plane laying beyond the no sky line, therefore according to BS8209-2 supplementary electric lighting will not be needed and the area lit by the windows is unlikely to appear gloomy.

- As it can be seen in the table above, almost all habitable rooms exceed or achieve the NSL criteria (**No Sky Line Criteria**). On the average the distribution of indoor daylight will be adequate and the habitable rooms will not require supplementary electric lighting.

→ As the kitchen/dining room is "open plan" it is considered as one room, therefore the minimum criteria of 2.0% (kitchen) would need to be achieved.

It should be noted that the values provided in the BRE 209 are for guidance purposes only.

8. Conclusion

8.1. Average Daylight Factor

This report demonstrates that adequate levels of internal daylight are met on 95% of the habitable rooms. Only 1 out of 22 rooms failed to meet the average daylight factor, however **room R12** will achieve a NSL of 99%, the Sky view at working plane level will exceed the 80% in accordance to the BS8206-2 therefore the room will not appear gloomy.

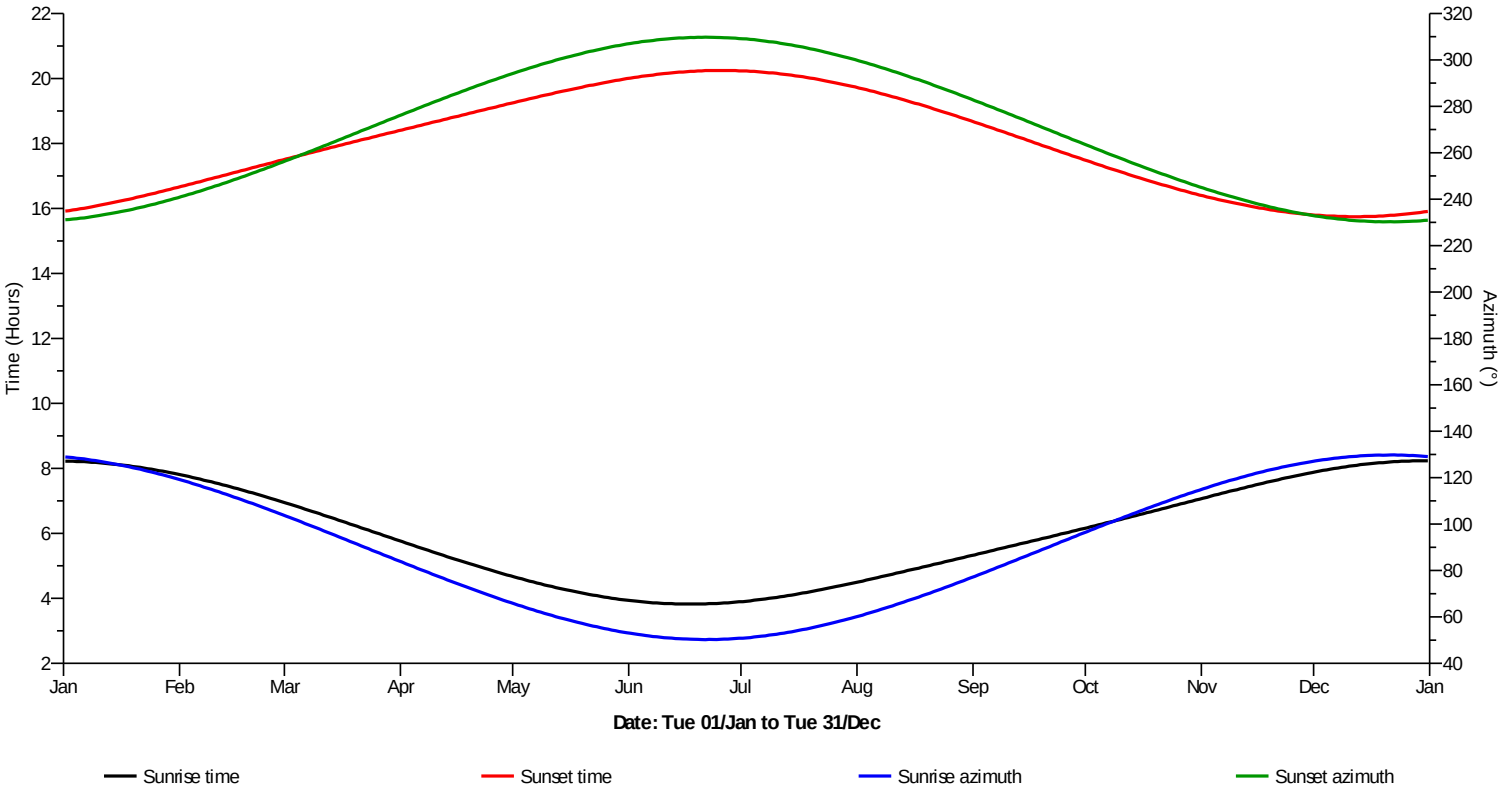
8.2. No-Sky Line

This report clearly shows that the No-Sky Line criteria are met on all habitable rooms.

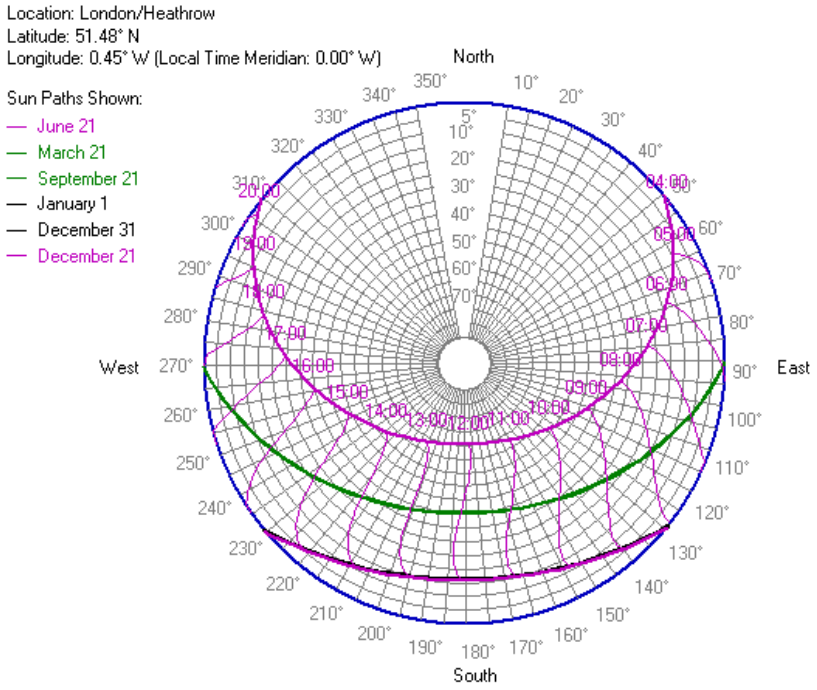
On balance the proposed development will provide good residential accommodations which will enjoy good levels of daylight.

9. Appendix

9.1. Sunrise and sunset time

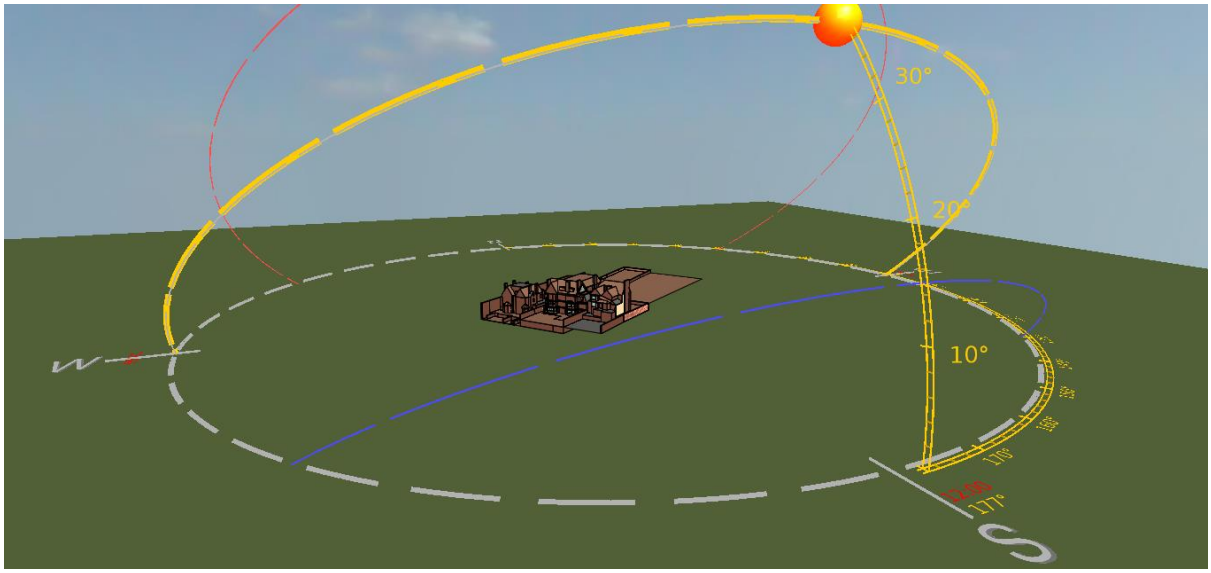


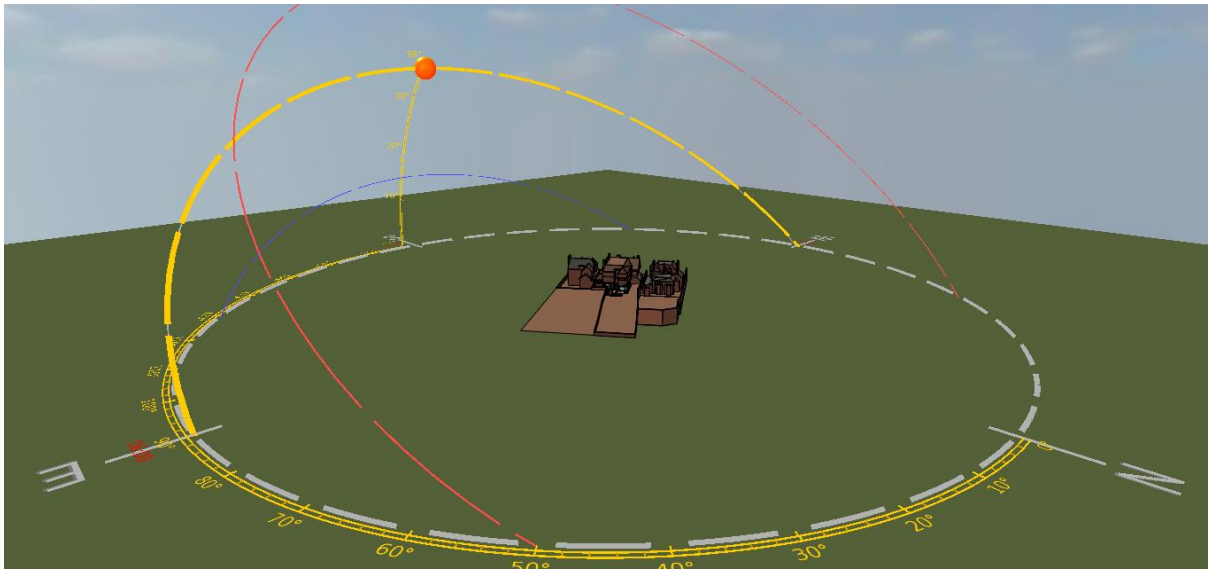
9.2. Sun path



9.3. Suntrace

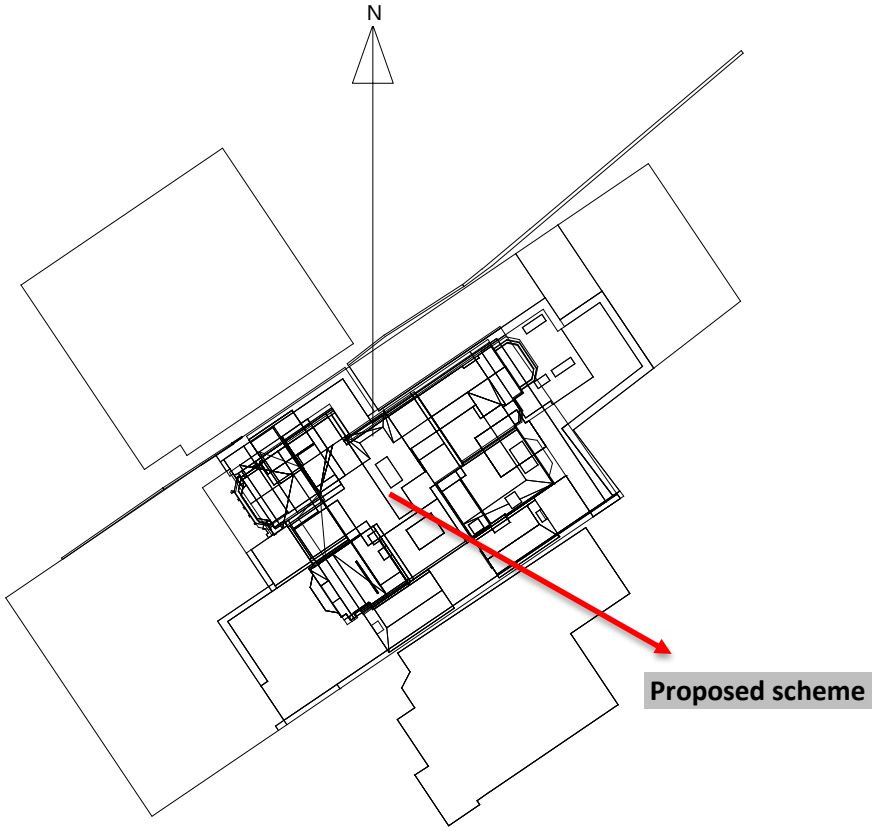
- The red line represents the sun's path during June.
- The yellow line represents the sun's path during March/September.
- The blue line represents the sun's path during December.

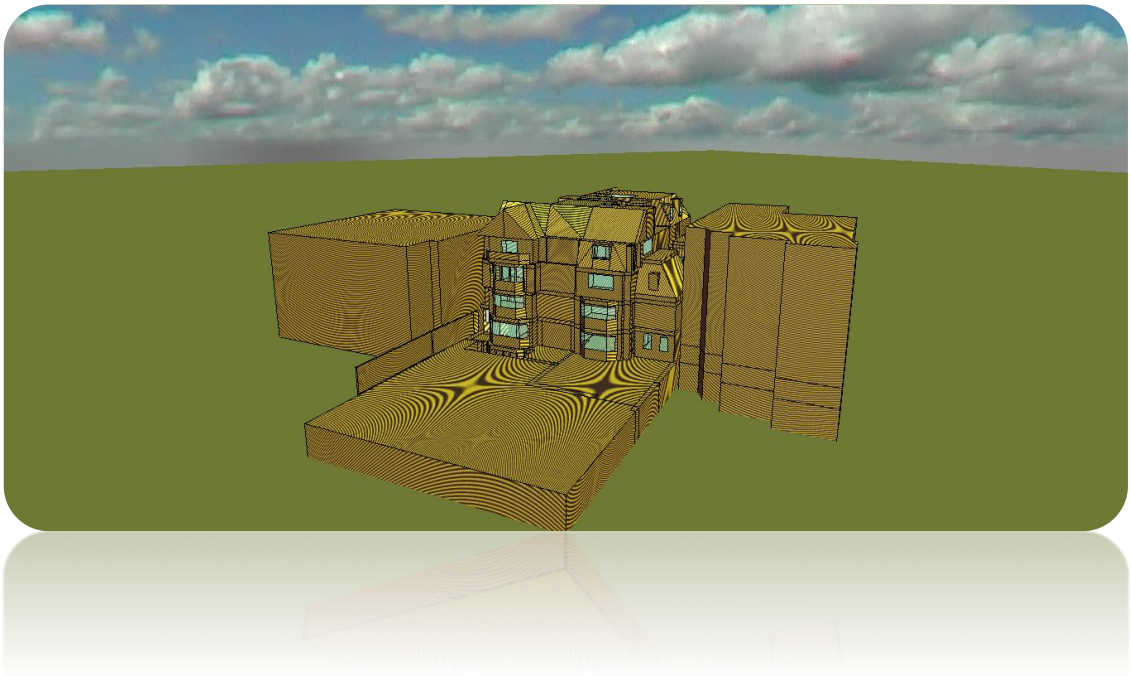


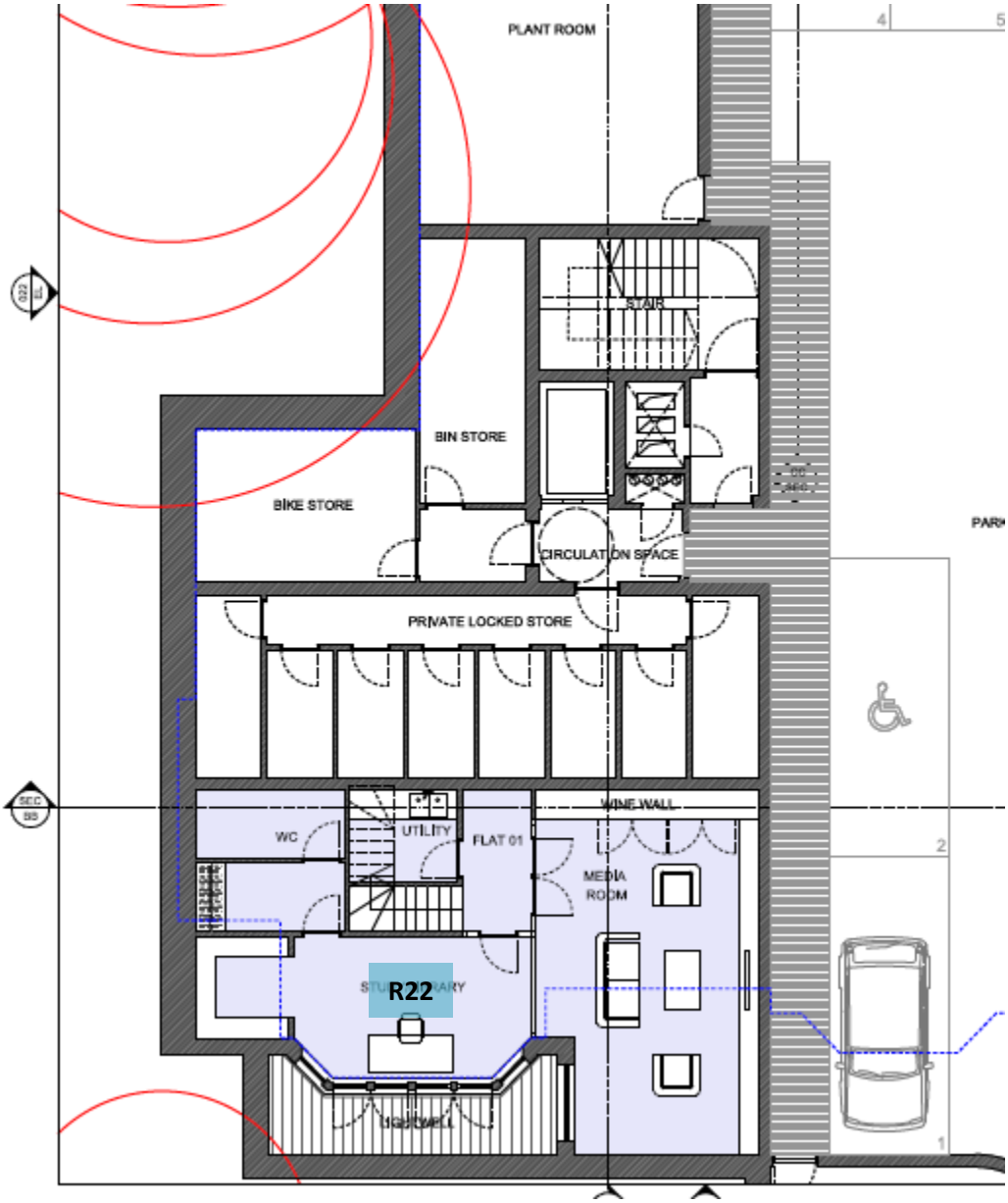


9.4. Site plan and location

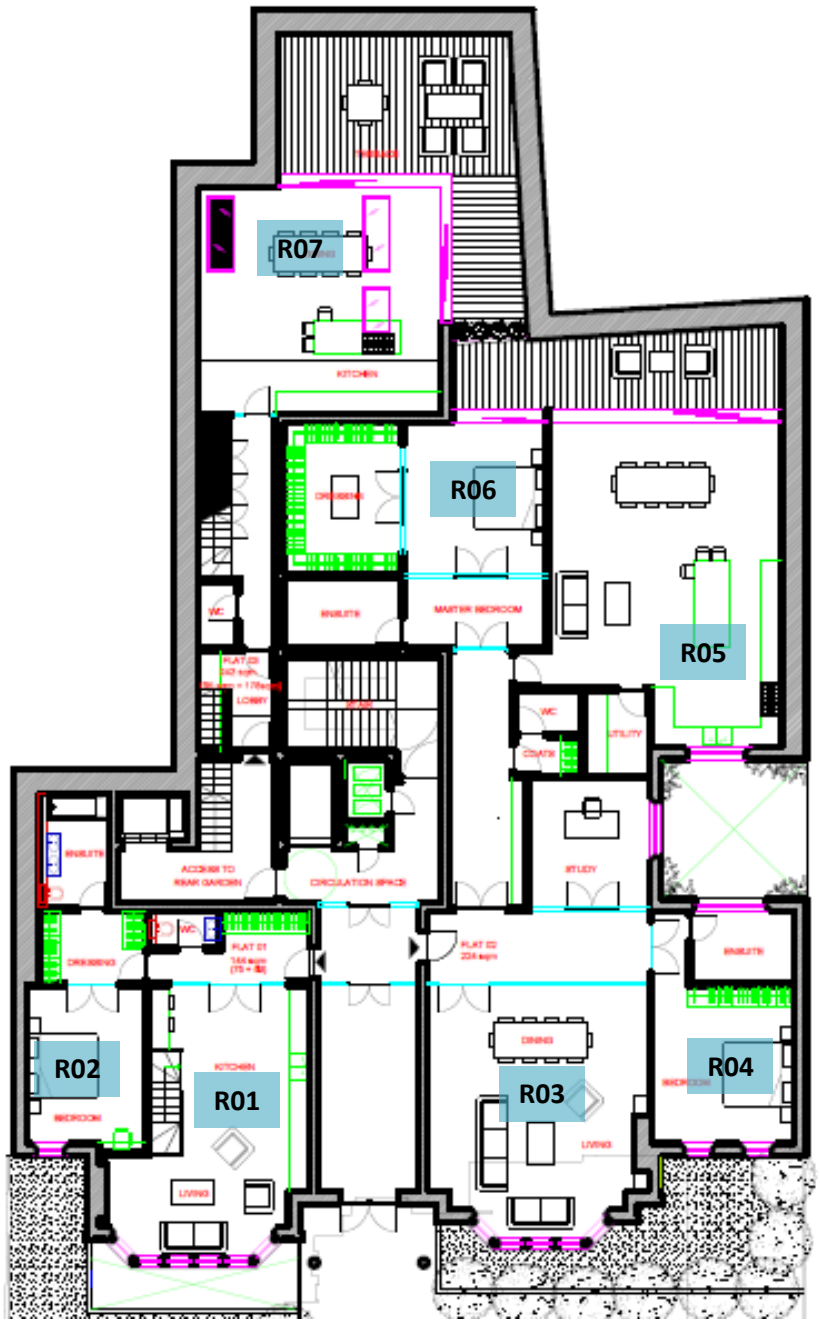
9.4.1. Proposed site layout



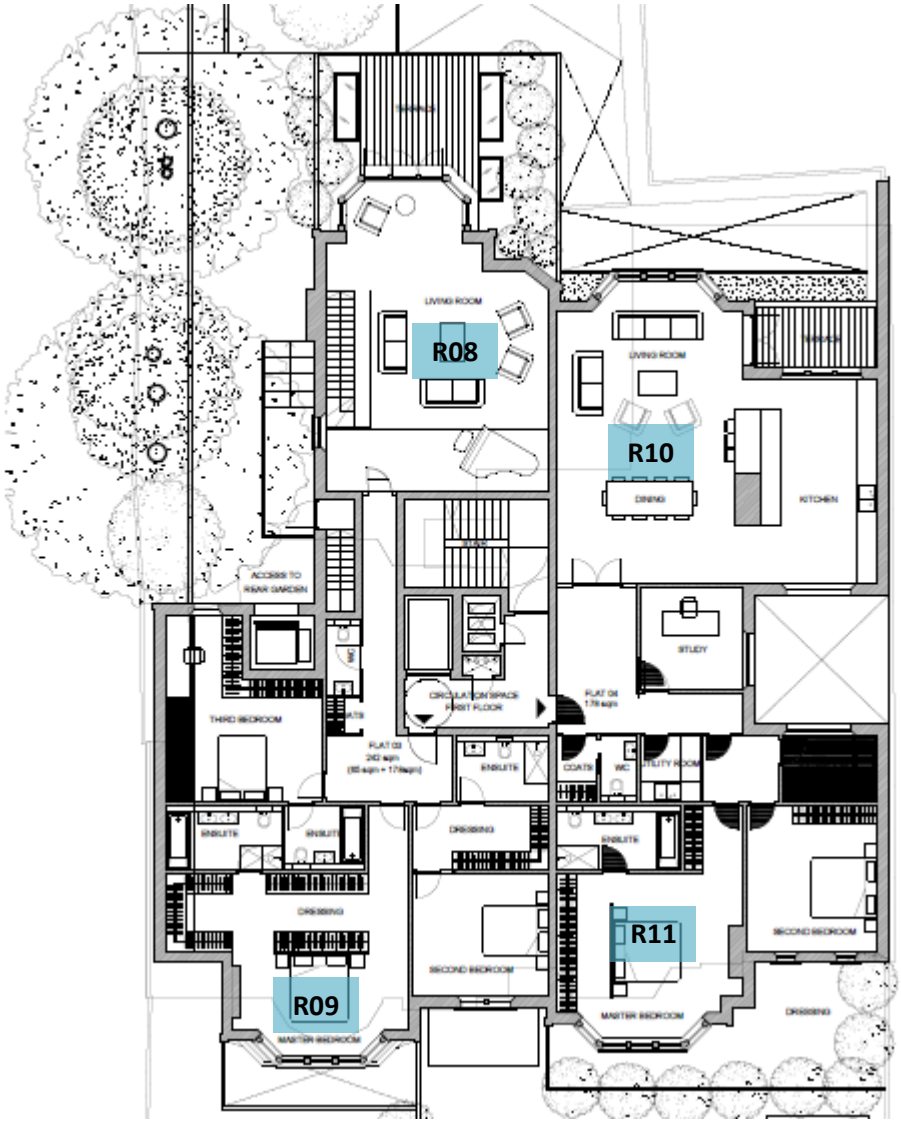




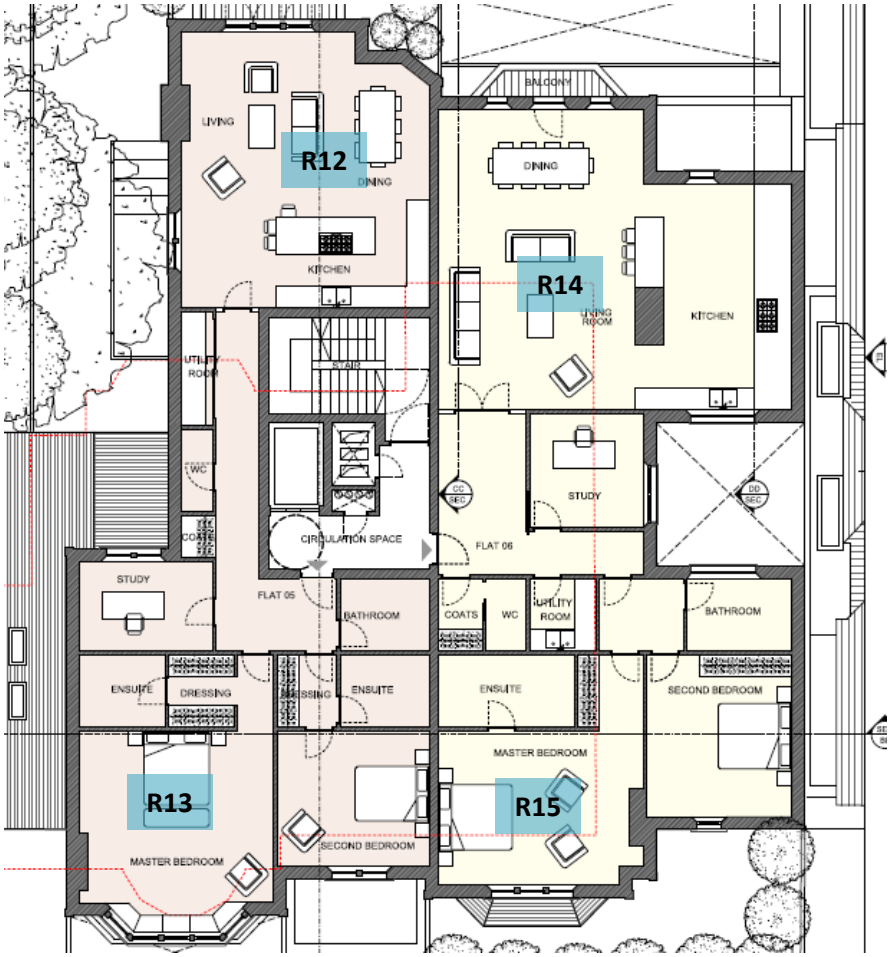
Proposed Lower ground floor



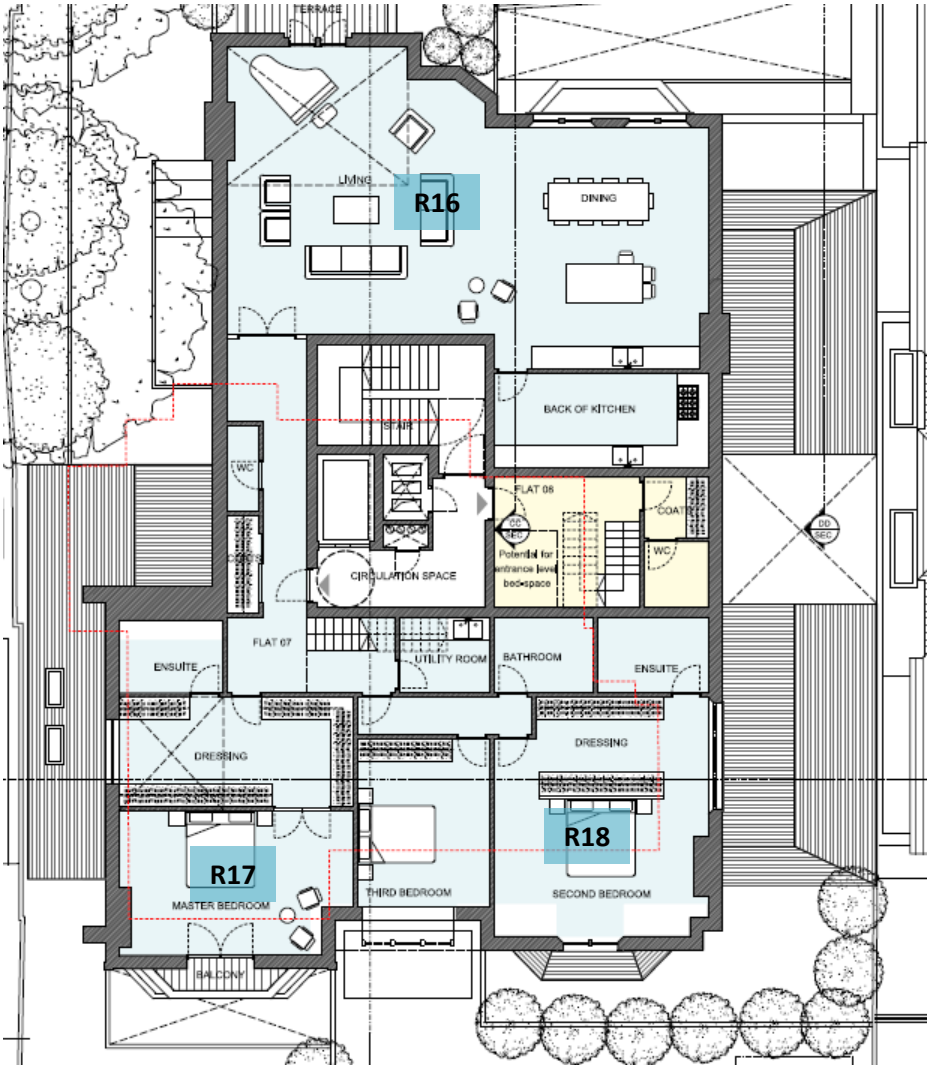
Proposed ground floor



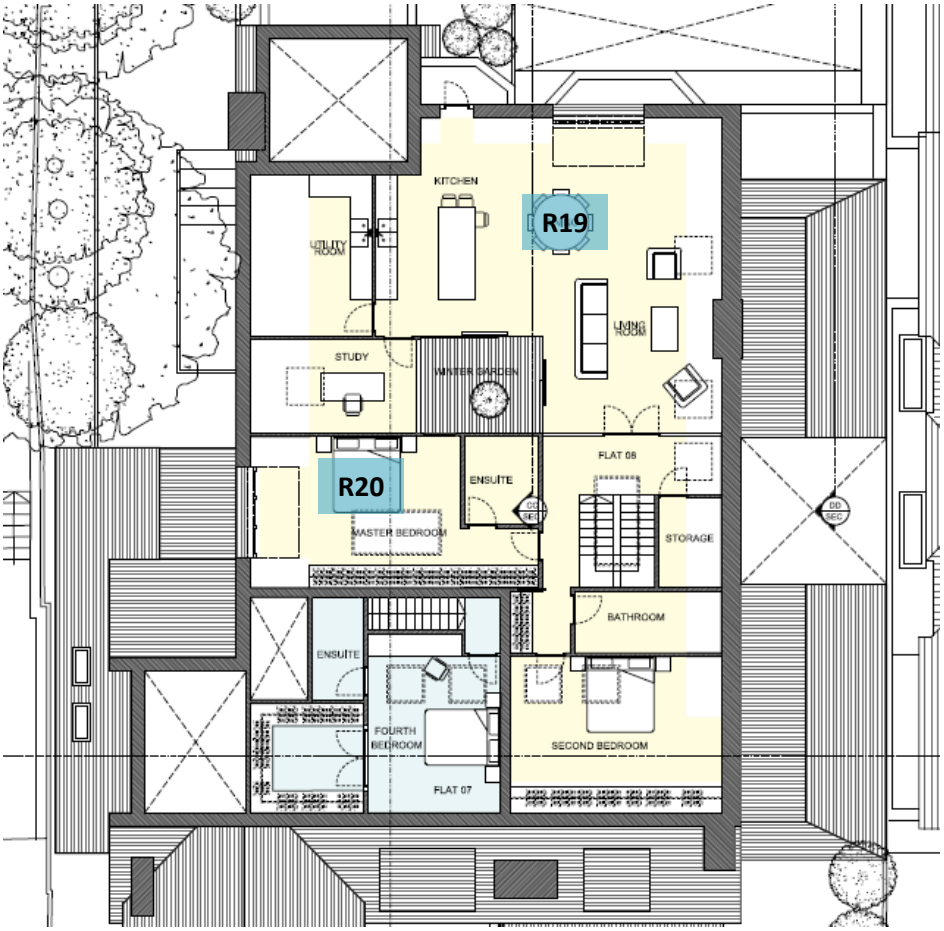
Proposed first floor



Proposed Second floor



Proposed Third floor



Proposed Fourth floor

Location	28 Redington Road, Hampstead, London, NW3 7RB
Latitude (°)	51.55 N
Longitude (°)	0.18 W

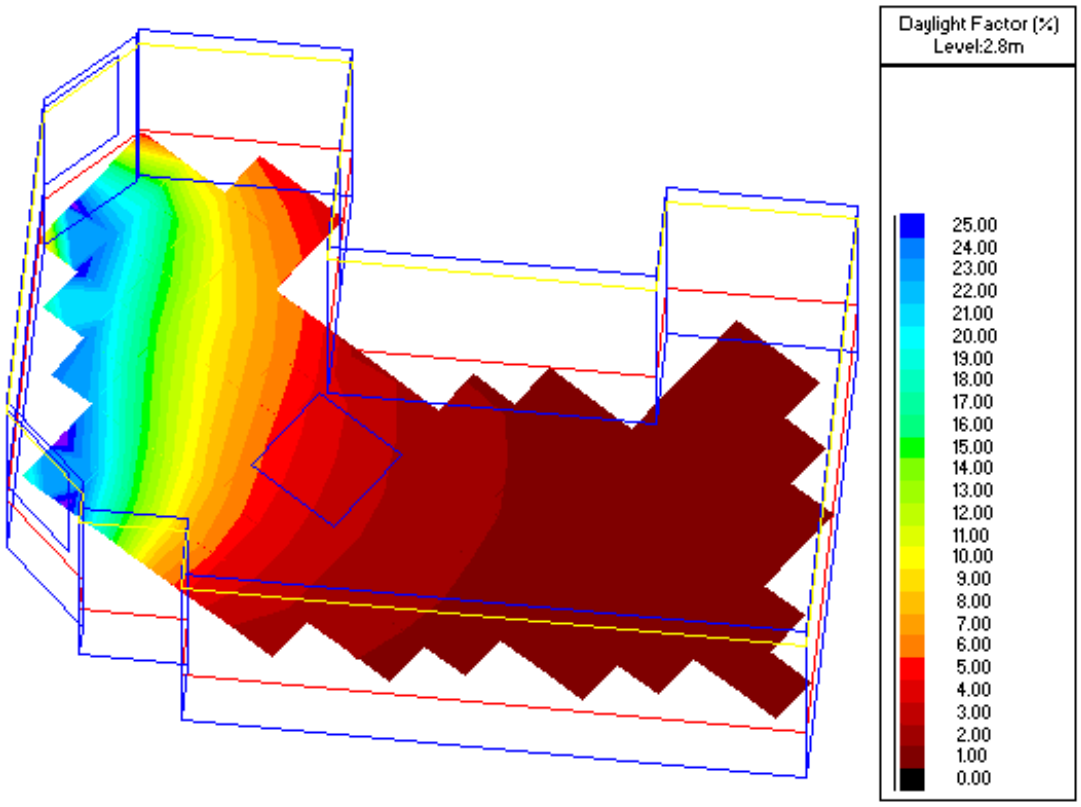
9.5. Model images

Rear Elevation

Front Elevation

9.6. ADF and No-Sky Line results

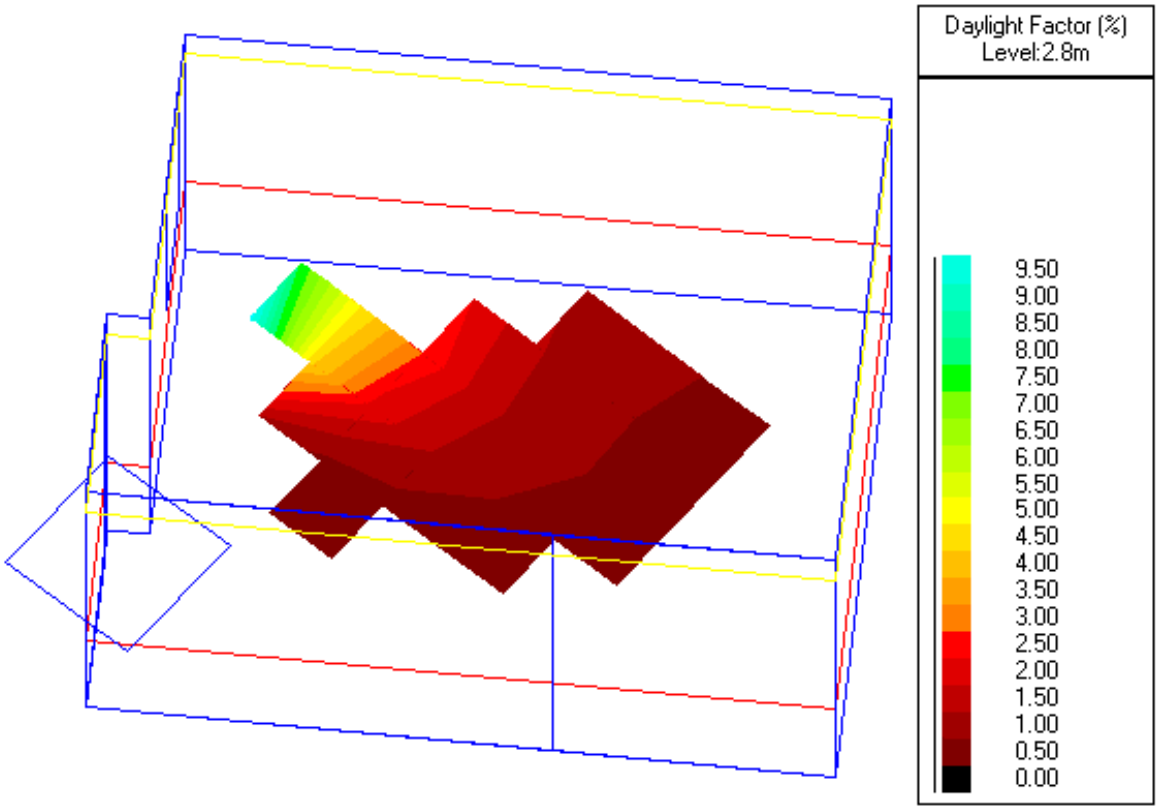
R01 - Flat 01 - Kitchen/Living room - GF



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=33.166m² Margin=0.00 m	Daylight factor	0.0 %	4.9 %	26.0 %	0.00	0.00
	Daylight illuminance	2.14 lux	603.08 lux	3172.48 lux	0.00	0.00
	Sky view	0.00	0.96	1.00	0.00	0.00

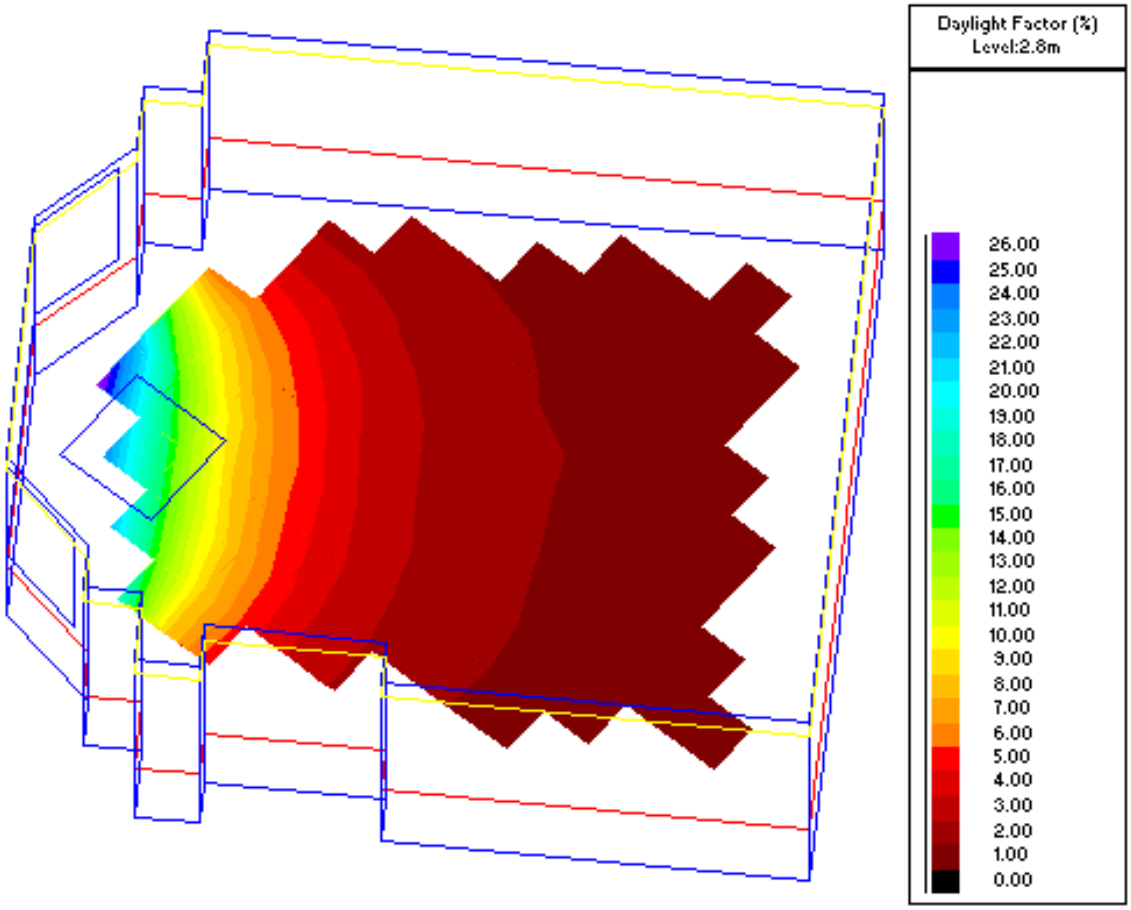
R02 - Flat 01 - Bedroom - GF



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=8.214m² Margin=0.50 m	Daylight factor	0.0 %	1.3 %	9.7 %	0.01	0.00
	Daylight illuminance	1.32 lux	160.18 lux	1180.17 lux	0.01	0.00
	Sky view	0.00	0.94	1.00	0.00	0.00

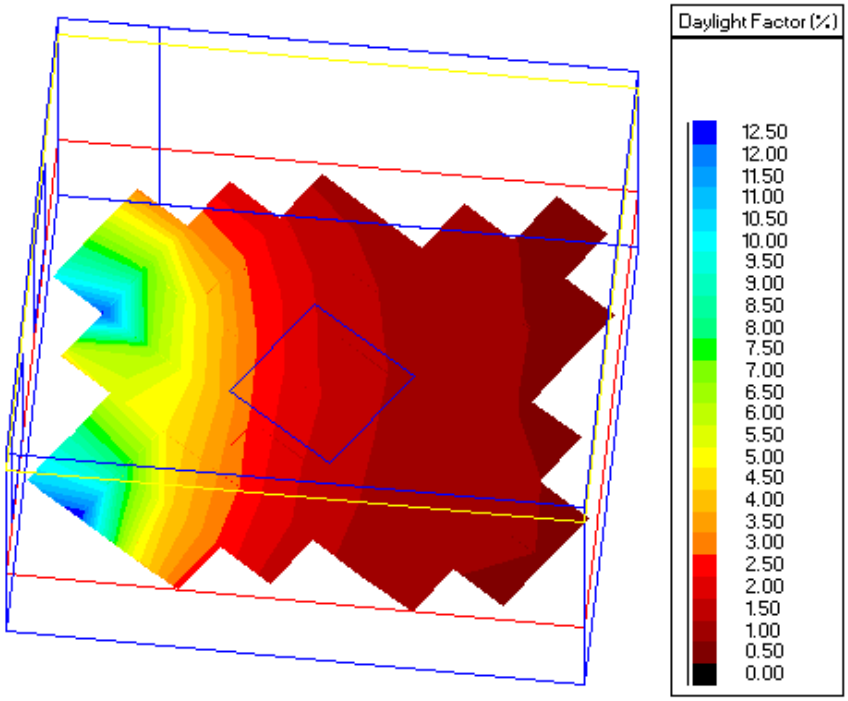
R03 - Flat 02 - Living/Dining room - GF



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=28.487m² Margin=0.50 m	Daylight factor	0.4 %	3.5 %	26.2 %	0.11	0.01
	Daylight illuminance	45.53 lux	433.29 lux	3206.15 lux	0.11	0.01
	Sky view	1.00	1.00	1.00	1.00	1.00

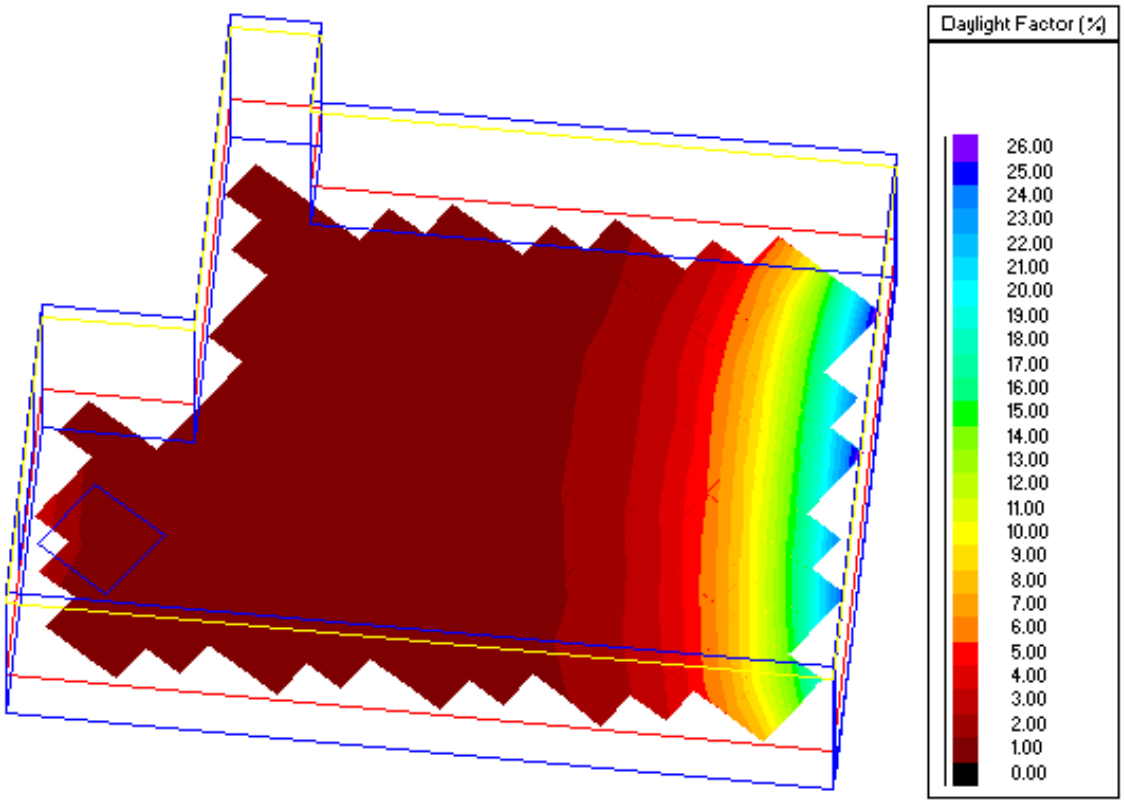
R04 – Fla02 – bedroom - GF



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=17.212m² Margin=0.00 m	Daylight factor	0.1 %	2.5 %	12.5 %	0.04	0.01
	Daylight illuminance	12.64 lux	305.08 lux	1530.13 lux	0.04	0.01
	Sky view	0.00	0.99	1.00	0.00	0.00

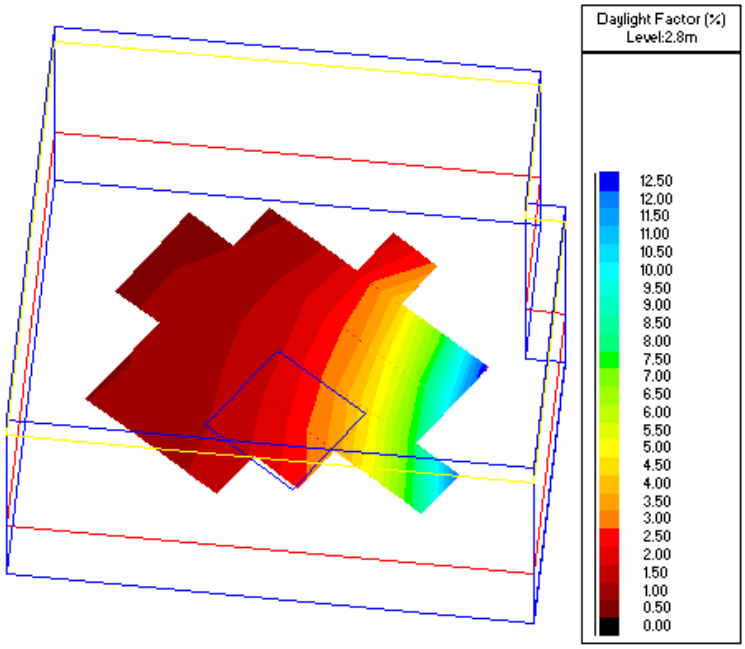
R05 – Flat02 – K/L/D - GF



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=56.341m² Margin=0.00 m	Daylight factor	0.0 %	3.1 %	26.3 %	0.00	0.00
	Daylight illuminance	0.01 lux	380.53 lux	3208.77 lux	0.00	0.00
	Sky view	0.00	0.91	1.00	0.00	0.00

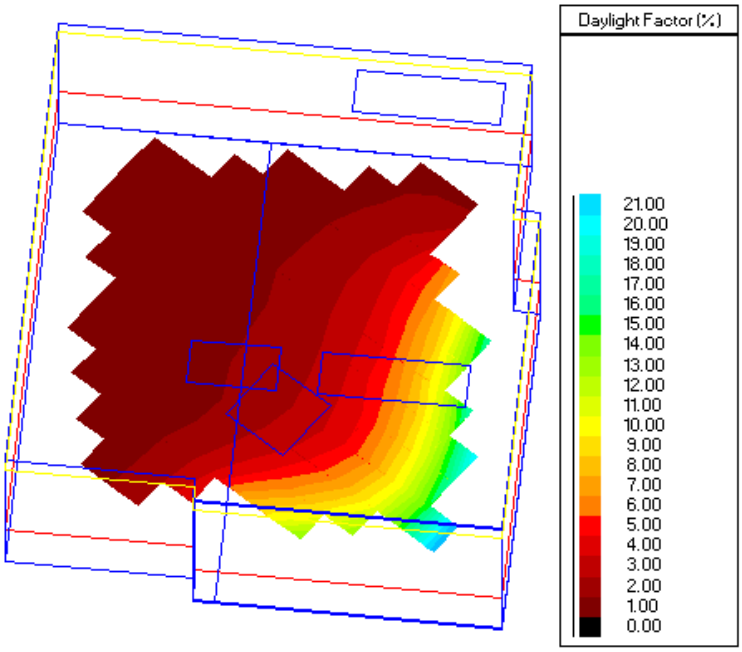
R06 - Flat 02 - Bedroom - GF



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=10.474m² Margin=0.50 m	Daylight factor	0.2 %	2.7 %	12.7 %	0.09	0.02
	Daylight illuminance	30.01 lux	328.04 lux	1547.02 lux	0.09	0.02
	Sky view	1.00	1.00	1.00	1.00	1.00

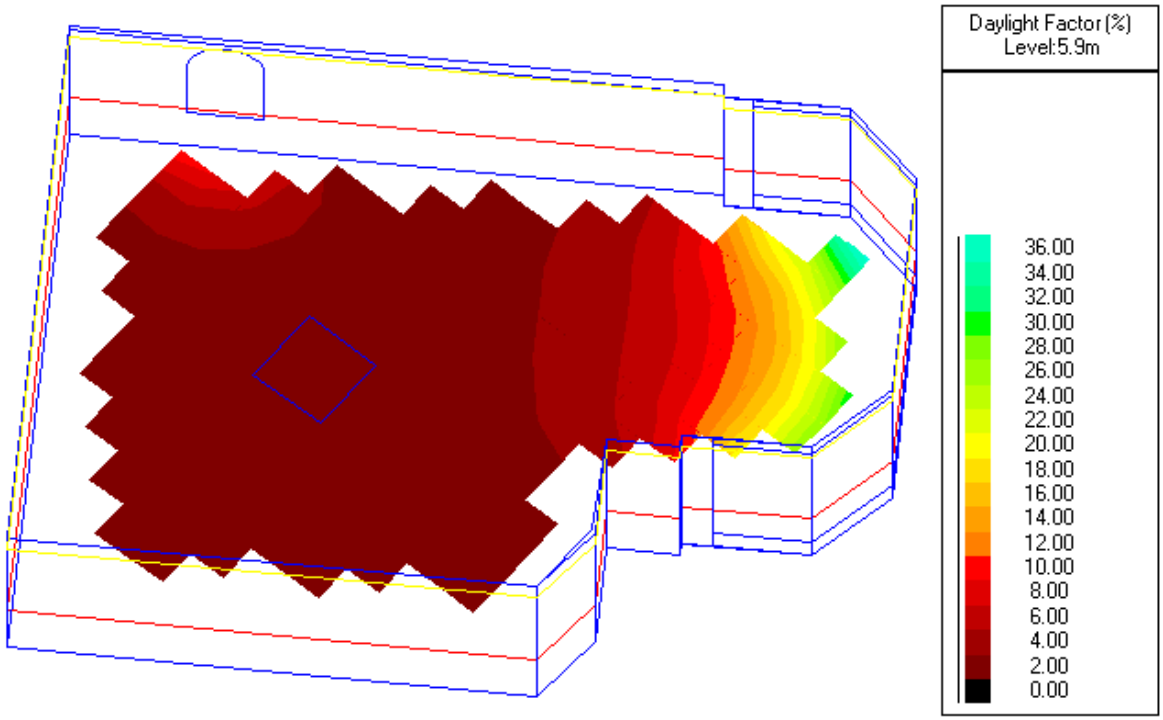
R07 - Flat 03 - Kitchen/dining room - GF



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=33.820m² Margin=0.50 m	Daylight factor	0.1 %	3.5 %	21.9 %	0.04	0.01
	Daylight illuminance	16.04 lux	428.23 lux	2675.79 lux	0.04	0.01
	Sky view	1.00	1.00	1.00	1.00	1.00

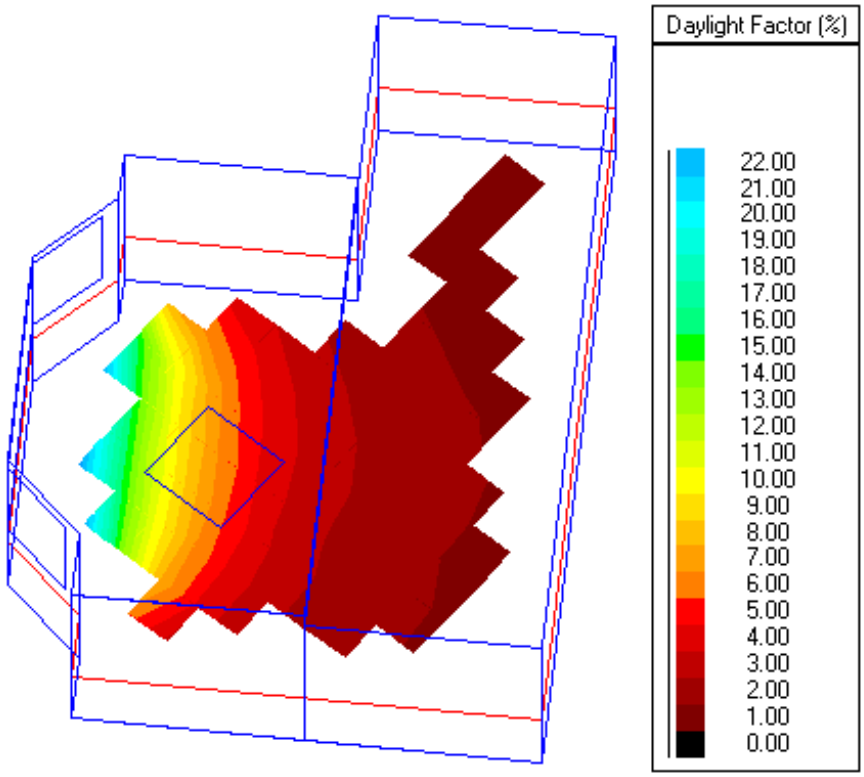
R08 - Flat 03 - Living room - 1F



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=44.522m² Margin=0.50 m	Daylight factor	0.3 %	4.1 %	36.5 %	0.08	0.01
	Daylight illuminance	37.66 lux	496.49 lux	4460.94 lux	0.08	0.01
	Sky view	1.00	1.00	1.00	1.00	1.00

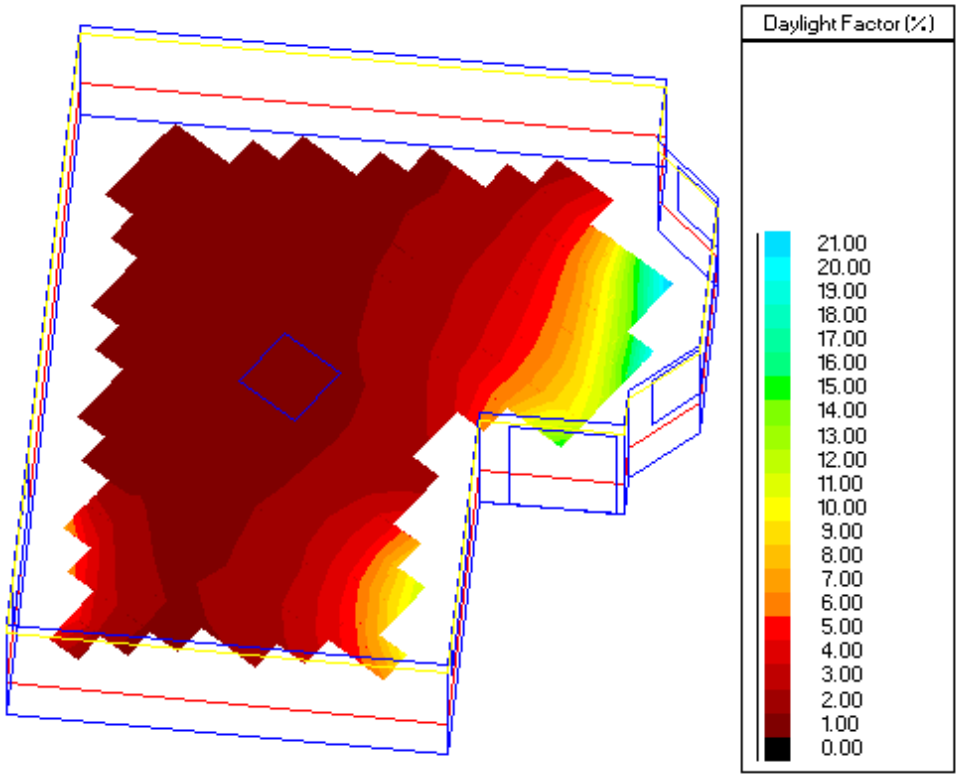
R09 - Flat 03 - Master bedroom - 1F



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=20.511m² Margin=0.50 m	Daylight factor	0.1 %	4.0 %	22.4 %	0.03	0.01
	Daylight illuminance	13.79 lux	492.23 lux	2731.28 lux	0.03	0.01
	Sky view	0.00	0.99	1.00	0.00	0.00

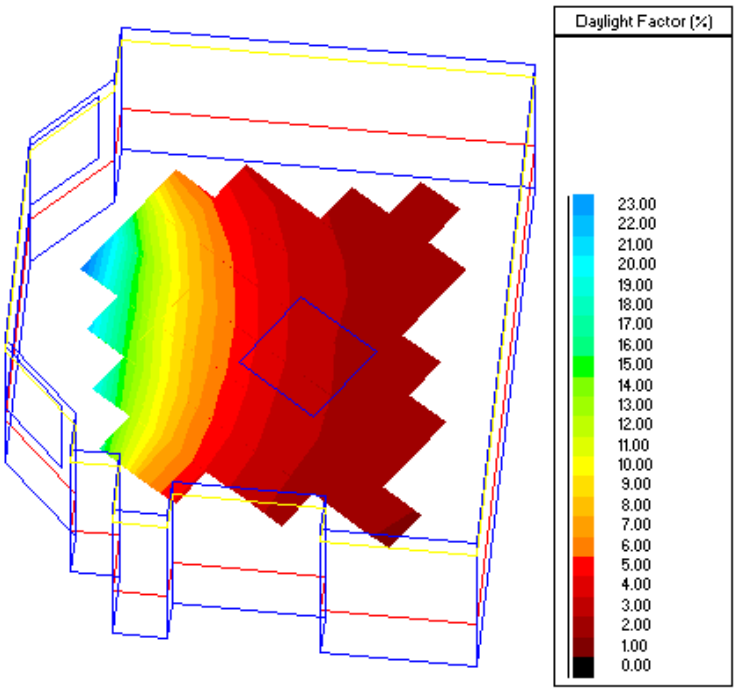
R10 - Flat 04 - Dining/living/kitchen room - 1F



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=57.805m² Margin=0.50 m	Daylight factor	0.2 %	2.5 %	21.2 %	0.09	0.01
	Daylight illuminance	27.57 lux	307.63 lux	2592.70 lux	0.09	0.01
	Sky view	1.00	1.00	1.00	1.00	1.00

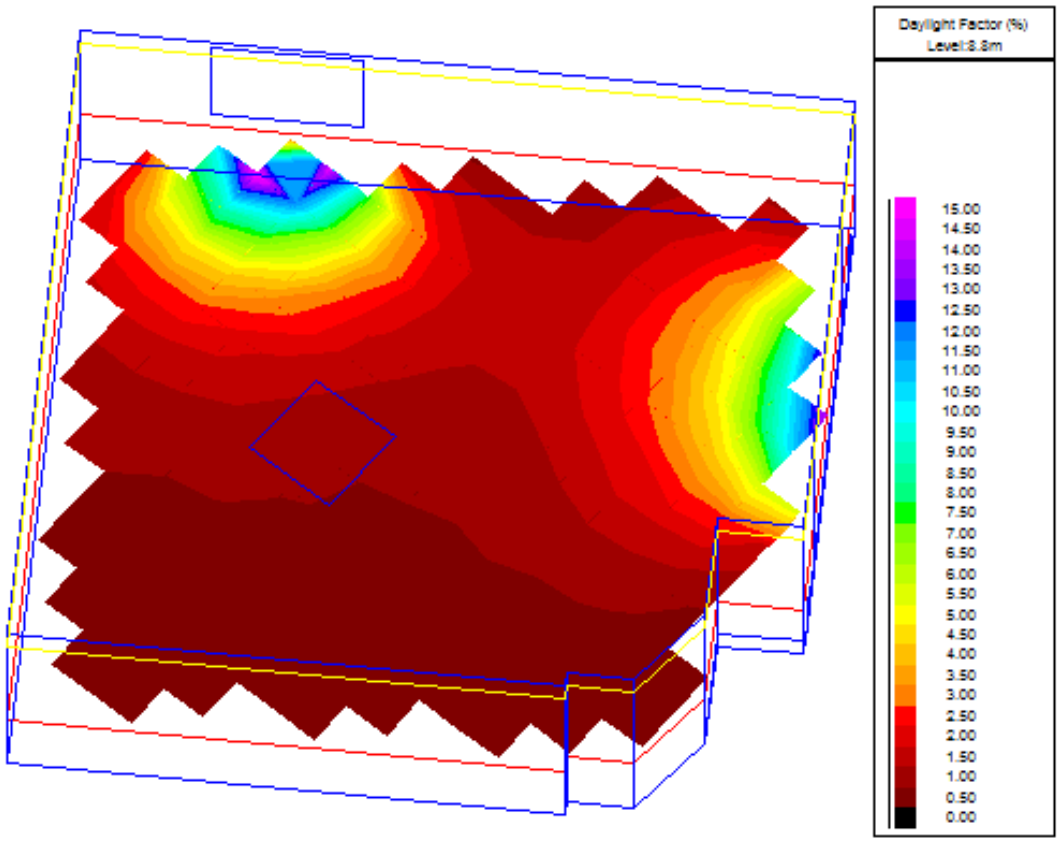
R11 - Flat 04 - Master bedroom - 1F



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=15.832m² Margin=0.50 m	Daylight factor	0.8 %	5.0 %	23.9 %	0.15	0.03
	Daylight illuminance	93.45 lux	614.37 lux	2925.38 lux	0.15	0.03
	Sky view	1.00	1.00	1.00	1.00	1.00

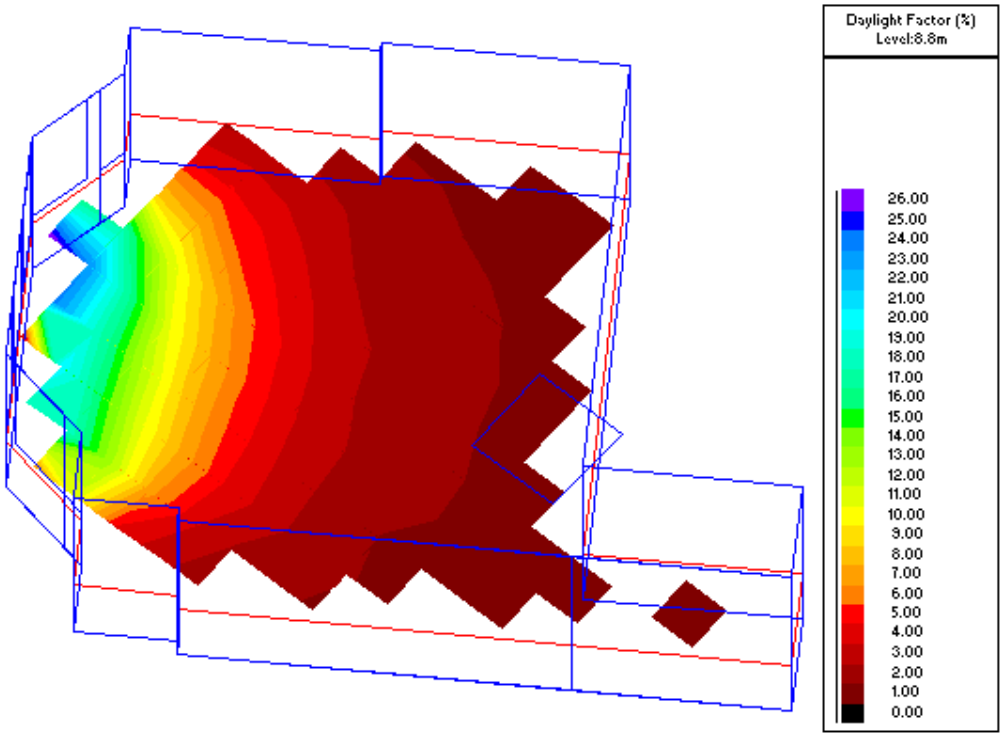
R12 – Flat 05 – K/L/D – 2F



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=49.724m² Margin=0.00 m	Daylight factor	0.0 %	1.8 %	15.0 %	0.00	0.00
	Daylight illuminance	0.69 lux	219.05 lux	1834.48 lux	0.00	0.00
	Sky view	0.00	0.99	1.00	0.00	0.00

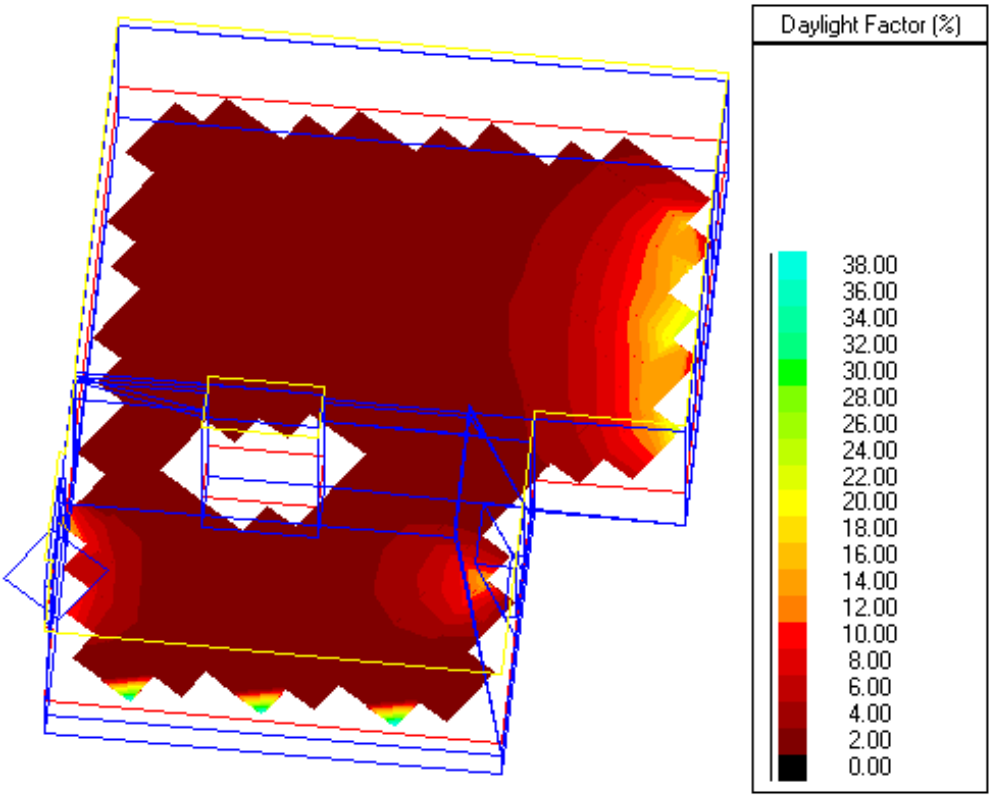
R13 – Flat 05 – Master bedroom – 2F



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=29.557m² Margin=0.00 m	Daylight factor	0.1 %	4.0 %	26.0 %	0.02	0.00
	Daylight illuminance	7.50 lux	494.15 lux	3179.00 lux	0.02	0.00
	Sky view	0.00	0.99	1.00	0.00	0.00

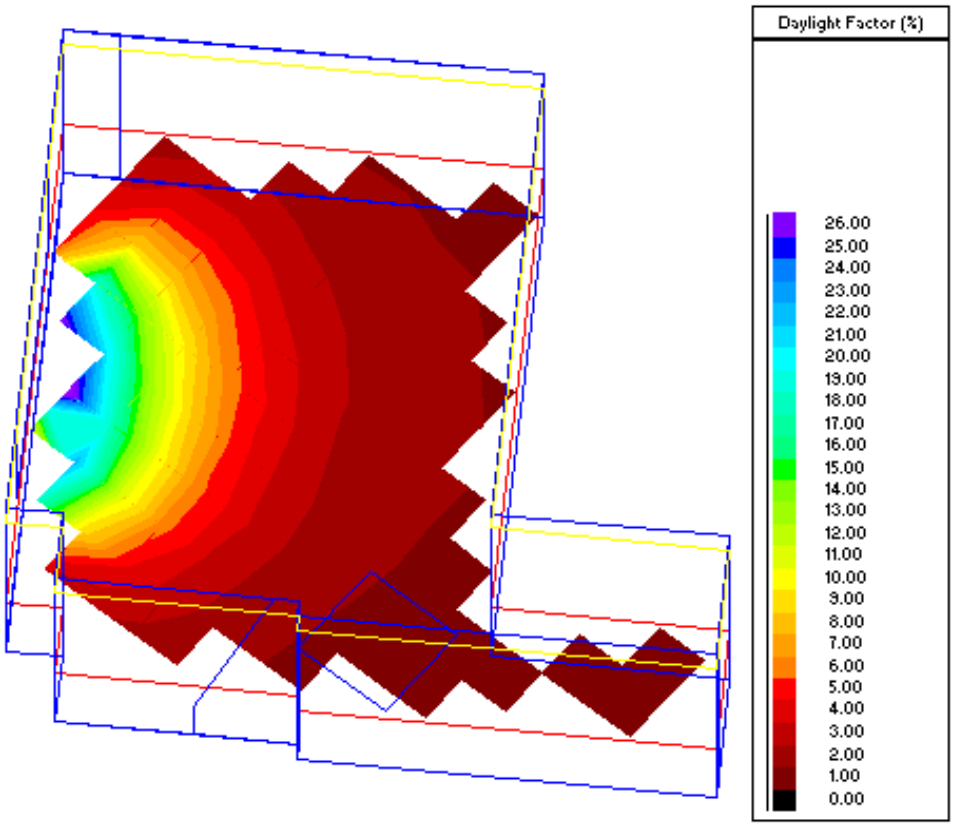
R14 – Flat 06 – K/L/D – 2F



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=69.979m² Margin=0.00 m	Daylight factor	0.0 %	2.5 %	38.0 %	0.00	0.00
	Daylight illuminance	0.00 lux	310.34 lux	4645.59 lux	0.00	0.00
	Sky view	0.00	0.96	1.00	0.00	0.00

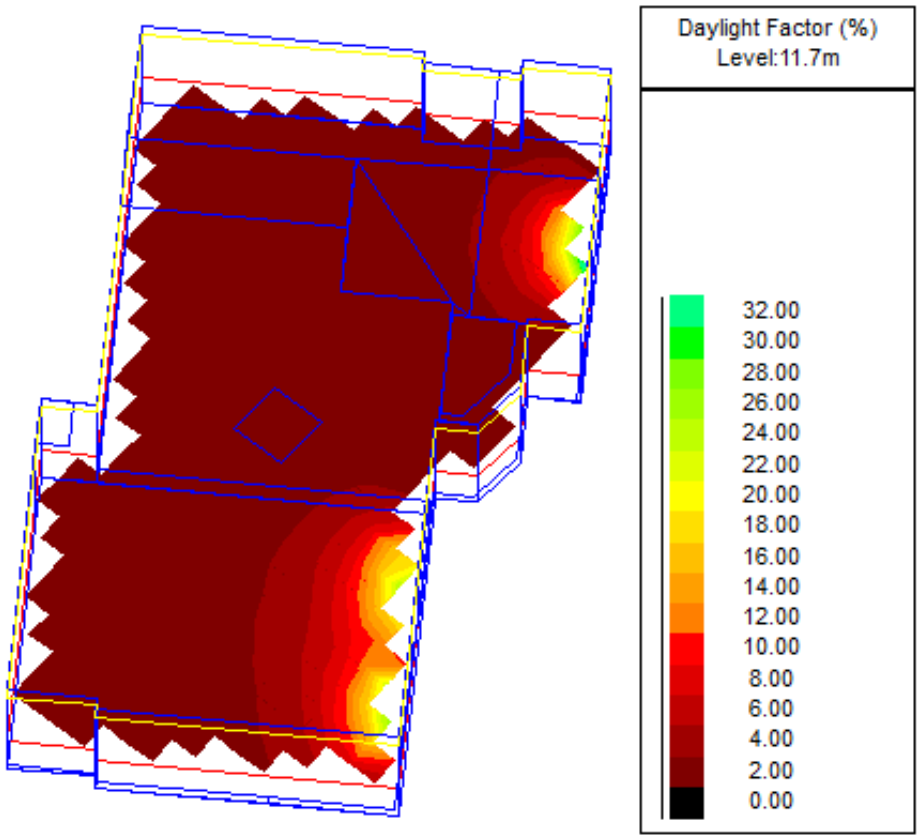
R15 – Flat 06 – Master bedroom – 2F



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=25.684m² Margin=0.00 m	Daylight factor	0.0 %	3.7 %	26.9 %	0.00	0.00
	Daylight illuminance	1.35 lux	456.35 lux	3292.11 lux	0.00	0.00
	Sky view	0.00	0.98	1.00	0.00	0.00

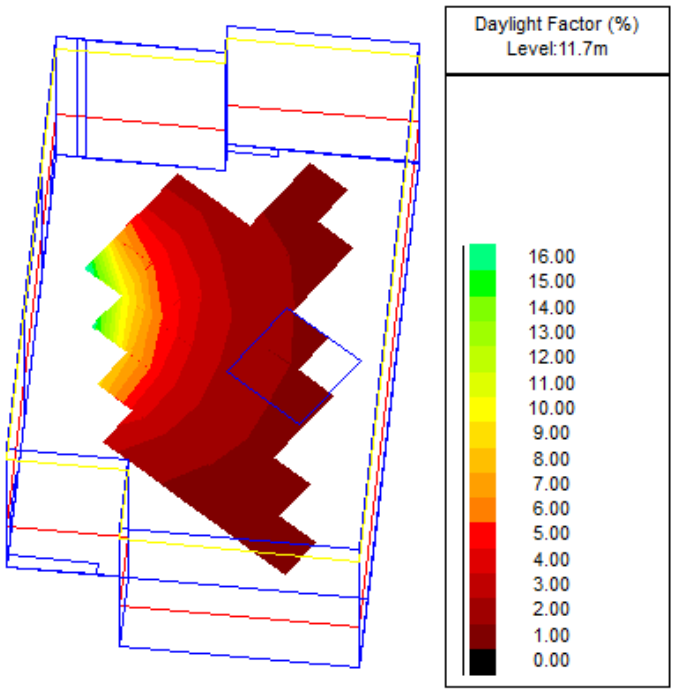
R16 – Flat 07 – K/L/D – 3F



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=86.313m² Margin=0.00 m	Daylight factor	0.1 %	2.1 %	33.2 %	0.05	0.00
	Daylight illuminance	11.95 lux	254.27 lux	4057.90 lux	0.05	0.00
	Sky view	0.00	0.99	1.00	0.00	0.00

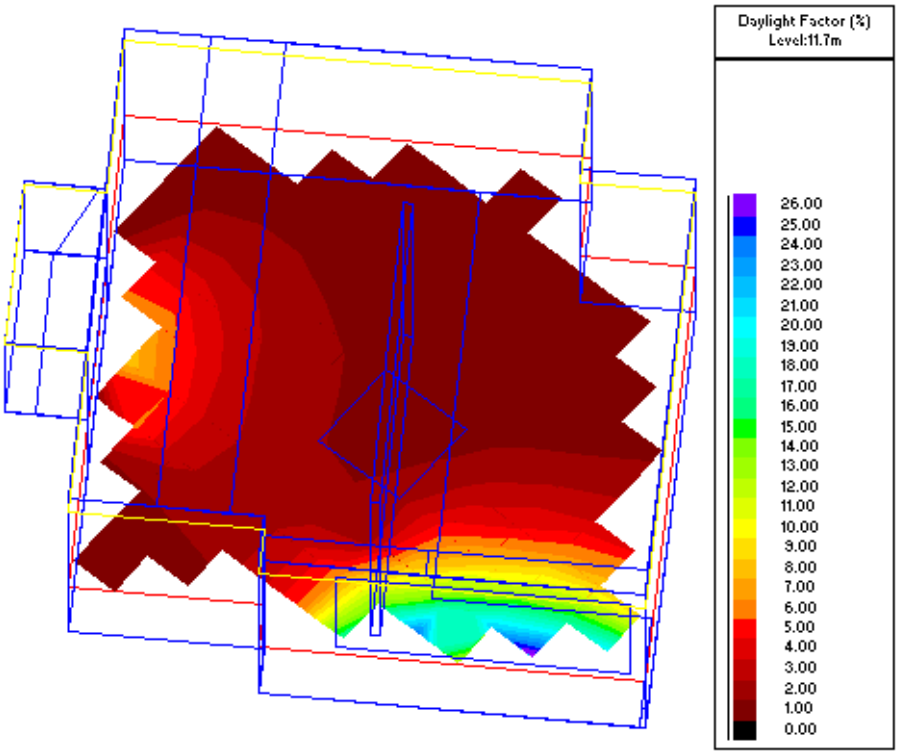
R17 – Flat 07 – Master bedroom – 3F



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=13.102m² Margin=0.50 m	Daylight factor	0.3 %	2.5 %	16.4 %	0.12	0.02
	Daylight illuminance	35.81 lux	305.69 lux	2000.59 lux	0.12	0.02
	Sky view	1.00	1.00	1.00	1.00	1.00

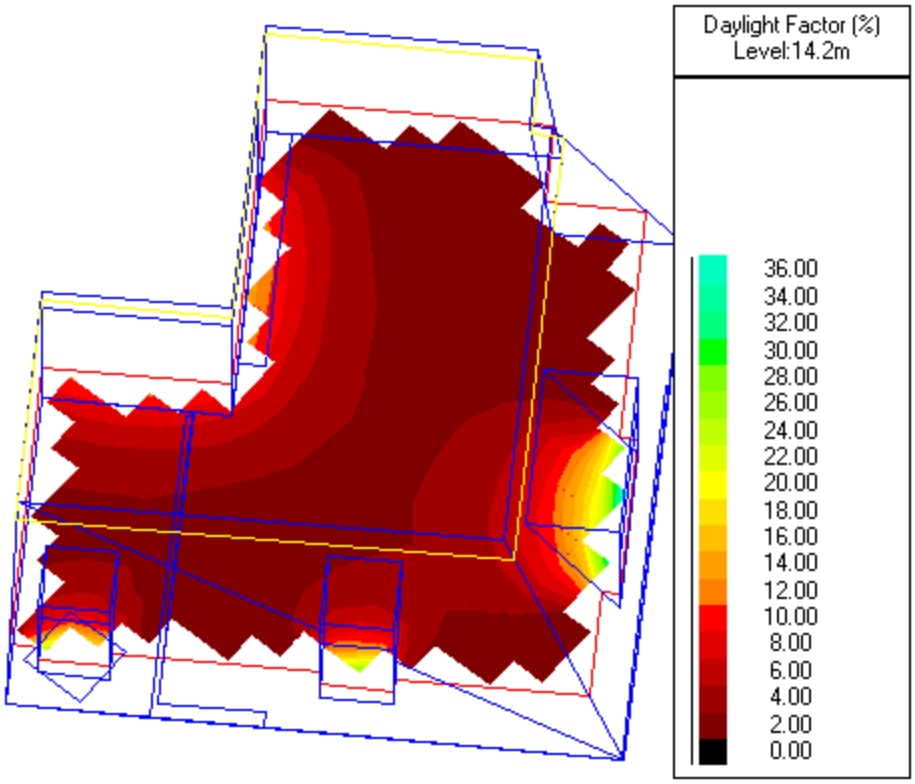
R18 – Flat 07 – Second bedroom – 3F



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=29.235m² Margin=0.00 m	Daylight factor	0.0 %	2.9 %	26.4 %	0.01	0.00
	Daylight illuminance	3.91 lux	356.60 lux	3223.70 lux	0.01	0.00
	Sky view	0.00	0.92	1.00	0.00	0.00

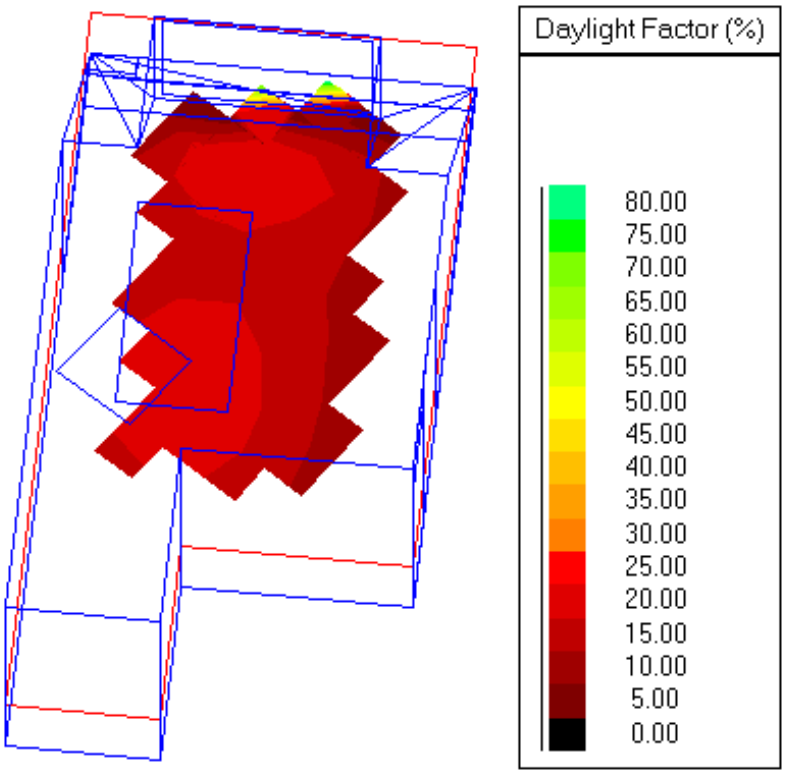
R19 – Flat 08 – K/L/D – 4F



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=58.182m² Margin=0.00 m	Daylight factor	0.1 %	3.6 %	37.5 %	0.03	0.00
	Daylight illuminance	13.97 lux	438.70 lux	4583.85 lux	0.03	0.00
	Sky view	1.00	1.00	1.00	1.00	1.00

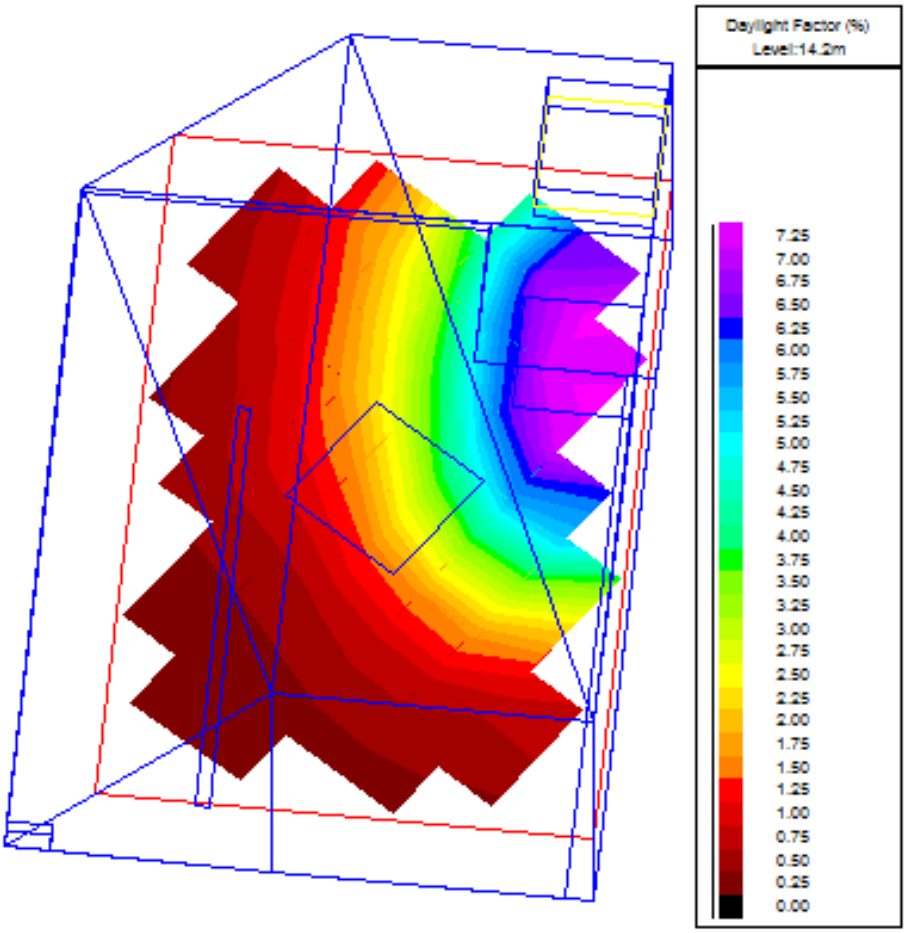
R20 – Flat 08 – Master bedroom – 4F



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=17.613m² Margin=0.50 m	Daylight factor	0.9 %	14.3 %	82.0 %	0.06	0.01
	Daylight illuminance	111.09 lux	1747.54 lux	10015.07 lux	0.06	0.01
	Sky view	1.00	1.00	1.00	1.00	1.00

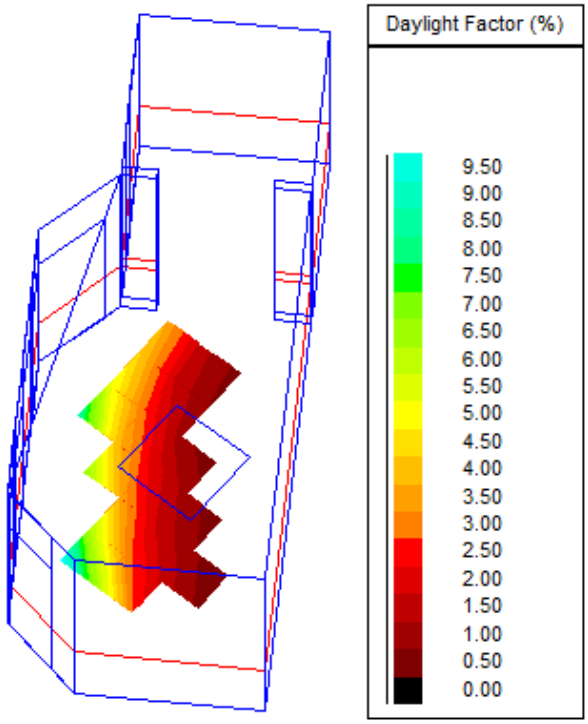
R21 – Flat 08 – Second bedroom – 4F



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=19.332m² Margin=0.00 m	Daylight factor	0.0 %	2.0 %	7.4 %	0.01	0.00
	Daylight illuminance	1.70 lux	246.78 lux	906.25 lux	0.01	0.00
	Sky view	0.00	0.97	1.00	0.00	0.00

R22 – Flat 01 – Study/Library – LGF



Summary results for working planes and floor

Surface	Quantity	Values			Uniformity (Min./Ave.)	Diversity (Min./Max.)
		Min.	Ave.	Max.		
Working plane 1 Reflectance=0% Transmittance=100% Grid size=0.50 m Area=7.940m² Margin=0.50 m	Daylight factor	0.0 %	2.4 %	9.8 %	0.01	0.00
	Daylight illuminance	1.69 lux	295.88 lux	1203.02 lux	0.01	0.00
	Sky view	0.00	0.94	1.00	0.00	0.00