



Daylight, Sunlight & Overshadowing Assessment

CORNERWAYS HOUSE (2), LONDON

FEBRUARY 2023

GreenBuild Consult Head Office |
Suite 3, Churchgate Court, 3 Church
Rd, Whitchurch, Cardiff, CF14 2DX

London Office | Kemp
House, 152 City Road, London
EC1V 2NX

W: www.greenbuildconsult.co.uk | T: 0333355 3610

Document Control

Project	The Cornerways House (2), London
GBC Job Number	7586

Document Checking:

Prepared By:

Buwani Kilpatrick

Signed:



Checked By:

Daryl Fisher

Signed:



Verified By:

Daryl Fisher

Signed:



Issue	Date	Status
1	03.02.2023	Draft issue

Contents

Document Control	1
1. EXECUTIVE SUMMARY	3
2. INTRODUCTION	4
Site Proposal	4
3. POLICY & LEGISLATIVE CONTEXT	6
Local Policy Drivers	6
Haringey Development Management DPD (adopted in June 2017)	6
4. METHODOLOGY	7
Daylight Tests for Neighbouring Properties	7
Sunlight Tests for Neighbouring Properties	8
Sunlight Tests for Neighbouring Amenity Spaces	8
Daylight Tests for Proposed Developments	9
5. DAYLIGHT ASSESSMENT: EXISTING NEIGHBOURING PROPERTIES	13
Daylight Tests for Neighbouring Properties	14
Existing Cornerways House (1)	14
6. SUNLIGHT ASSESSMENT: EXISTING NEIGHBOURING PROPERTIES	16
Sunlight Tests for Neighbouring Properties	16
Existing Cornerways House (1)	17
7. OVERSHADOWING ASSESSMENT: EXISTING NEIGHBOURING PROPERTIES	19
8. DAYLIGHT ASSESSMENT: PROPOSED SCHEME	21
Daylight Factor (DF) Tests	21
9. CONCLUSIONS	25
Appendix A	26
Appendix B	28
Appendix C	30
Appendix D	32
Appendix E	35

1. EXECUTIVE SUMMARY

- 1..1 This report presents the daylight, sunlight & overshadowing assessment carried out for the neighbouring properties adjacent to the proposed scheme at Cornerways House (2). In addition, a daylight assessment has been carried out for the habitable spaces within the proposed scheme,
- 1..2 The assessment uses the methodology within the BRE's "Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice" (2022), which is generally recognised by local authorities as an acceptable standard for demonstrating good levels of access to daylight and sunlight at existing neighbouring properties and proposed developments.

Daylight, Sunlight & Overshadowing Assessment – Existing Neighbouring Properties

- 1..3 All 12 assessed neighbouring windows are shown to meet the BRE's VSC criteria, thereby indicating that the proposed scheme will have no adverse impacts on the daylight access of its neighbouring properties.
- 1..4 10 assessed neighbouring windows, facing within 90 degrees of due south, are shown to meet the BRE's annual sunlight access criteria. 9 of the 10 assessed windows are also shown to meet the BRE's winter sunlight access criteria, while 1 window not achieving these criteria most likely serves the same habitable space as 3 windows that do meet this standard (see Figure 9). Therefore, it can be determined that the proposed scheme will have no adverse impacts on the sunlight access of its neighbouring properties.
- 1..5 One neighbouring amenity space assessed at the existing Cornerways House (1) was shown to meet the BRE's criterion for the reduction of overshadowing, as its area receiving at least 2 hours of sunlight on the 21st of March under the proposed condition was shown to be at least 0.80 times of that under the existing scenario.

Daylight Assessment – Proposed Scheme

- 1..6 All 4 spaces within the proposed scheme have been included within the daylight assessment using the BRE's daylight factor (DF) methodology. The kitchen/living/dining (KLD) space located at lower ground level was identified as a 'hard to light' space with significant obstructions (see Figure 14). Therefore, the relevant DF target for living rooms has been used for this area.
- 1..7 The assessed KLD and 3 no. bedrooms have been found to achieve the relevant DF targets in line with the BRE's recommendations. Therefore, the rooms within the proposed scheme were shown to be well daylight and suitable for their intended uses.

2. INTRODUCTION

- 2..1 This document has been prepared by GreenBuild Consult in support of the planning application for the proposed scheme at Cornerways House (2), located within the London Borough of Haringey.
- 2..2 This report presents the Daylight & Sunlight impacts within the proposed development and existing neighbouring properties surrounding the site. The analysis approach is based on the BRE's "Site Layout Planning for daylight and sunlight, a Guide to good practice" by PJ Littlefair (2022), which is generally accepted as good practice by town and country planning authorities.

Site Proposal

- 2..3 The proposed scheme is to be located on the junction of Ellington Road and Cranley Gardens, which is located in close proximity to Highgate Woods and a number of local amenities in the Highgate and Muswell Hill areas in London.
- 2..4 The proposed scheme will comprise 1 no. residential building three storeys in height with two storeys above ground including three bedrooms, in addition to a lower ground level including a kitchen/living/dining area. The location of the proposed site is highlighted in Figure 1 and the proposed scheme's south elevation is shown in Figure 2.



Figure 1: Proposed Site Location (courtesy of Wolff Architects)

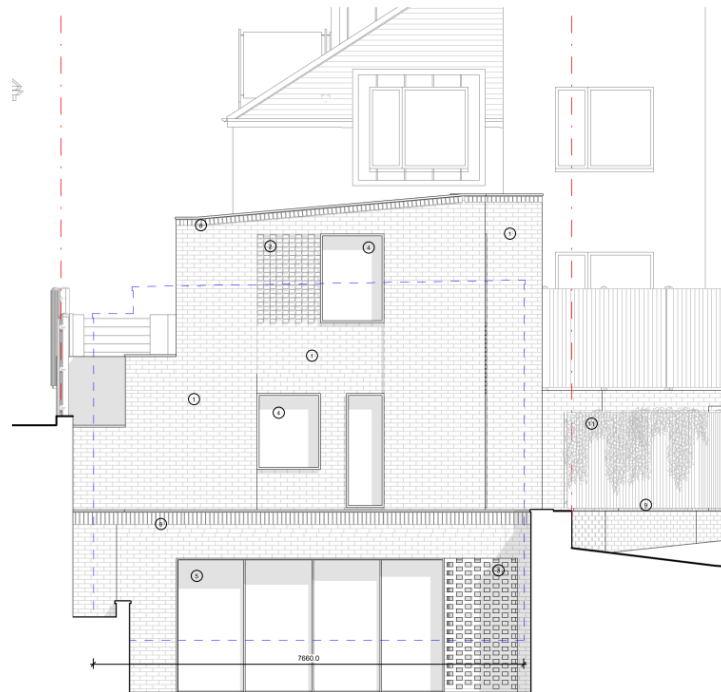


Figure 2: Proposed South Elevation (courtesy of Wolff Architects).

3. POLICY & LEGISLATIVE CONTEXT

- 3.1 Local policy drivers for performing daylight and sunlight assessments for planning are introduced to address the issue of maintaining adequate daylight and sunlight access within existing neighbouring properties, while ensuring the same within new proposed developments. The policies within the London Borough of Haringey Development Management Development Plan Document (adopted in June 2017) highlight the criteria to be met within a daylight and sunlight assessment.

Local Policy Drivers

Haringey Development Management DPD (adopted in June 2017)

- 3.2 The Haringey Development Management DPD includes the local authority's policy guidance regarding acceptable levels of daylight and sunlight access to neighbouring properties and within a proposed scheme as follows.

Policy DM1: Delivering High Quality Design

Design Standards - Privacy and amenity

D. Development proposals must ensure a high standard of privacy and amenity for the development's users and neighbours. The Council will support proposals that:

- a) Provide appropriate sunlight, daylight and open aspects (including private amenity space where required) to all parts of the development and adjacent buildings and land.*

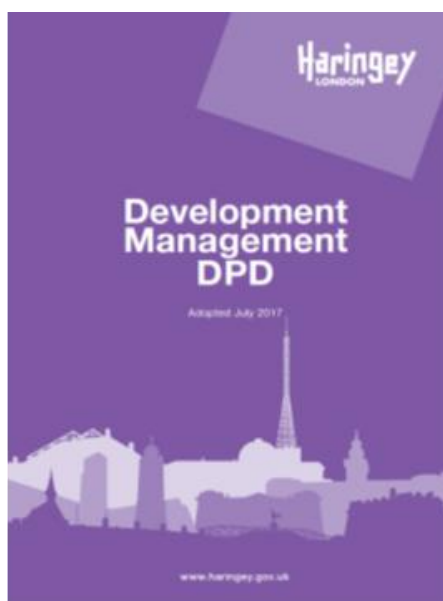


Figure 3: Haringey Local Policy documents

4. METHODOLOGY

- 4.1 The assessment methodology presented within the BRE's "Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice" (2022) is generally recognised by local authorities as an acceptable standard for demonstrating good levels of access to daylight and sunlight within new proposed schemes and existing neighbouring properties.
- 4.2 The updated BRE guide, also known as BR 209, is to be used in conjunction with the British Standard "Daylight in buildings" (BS EN 17037) which supersedes BS 8206 Part 2 "Code of practice for daylighting". A brief description of the testing methodologies for each assessment are presented below.

Daylight Tests for Neighbouring Properties

25-degree plane test

- 4.3 A plane is drawn at 25 degrees from the horizontal, at the centre of an existing window. If the new development intersects with this plane, the internal daylight levels of the surrounding windows may be reduced. When an obstruction of the 25-degree plane occurs, a more detailed assessment involving the Vertical Sky Component of the affected window would need to be carried out.
- 4.4 This test has not been carried out within this daylight assessment, as all existing neighbouring properties are in close proximity to the proposed scheme and would not achieve this criterion.

Absolute Vertical Sky Component (VSC)

- 4.5 The Vertical Sky Component is the ratio of the direct sky illuminance falling on the vertical wall at a reference point, to the simultaneous horizontal illuminance under an unobstructed sky. To maintain good levels of daylight, the Vertical Sky Component of a window needs to be 27% or greater. If the VSC is less than 27%, then a comparison of existing and proposed levels of VSC level would need to be calculated.

Relative Vertical Sky Component

- 4.6 Good levels of daylighting can still be achieved if VSC levels are equal to or above 0.8 of their value under their existing conditions.

Relative Percentage of Room with View of the Sky (NSL)

- 4.7 Rooms connected to the windows assessed will not experience a noticeable loss in daylight if the percentage (%) of the room's working plane with view of the sky is over 0.8 of its former value. The former value could refer either to the existing development in place or the mirror image buildings for properties

with windows close to site boundaries. This testing method cannot be performed where internal layouts of existing neighbouring properties are unavailable.

Sunlight Tests for Neighbouring Properties

Annual Probable Sunlight Hours (APSH) & Winter Probable Sunlight Hours (WPSH)

- 4..8 The term ‘annual probable sunlight hours’ refers to the long-term average of the total of hours during a year in which direct sunlight reaches the unobstructed ground (when clouds are taken into account). The ‘winter probable sunlight hours’ is used to mean the same but only for the winter period (21 September – 21 March).
- 4..9 The BRE sunlight tests relate mainly to existing living room windows, although care should be taken to ensure that kitchens and bedrooms receive reasonable amounts of sunlight. Annual Probable Sunlight Hour (APSH) assessment is carried out when there is an obstruction within the 25-degree line and the window is facing within 90 degrees due south. The APSH assessment states that the existing living room window should receive at least:
- 25% of annual probable sunlight hours (APSH) throughout the year; and
 - 5% of annual probable sunlight hours during the winter months.

Relative APSH & WPSH

- 4..10 Good levels of sunlight can still be achieved if APSH & WPSH achieved by windows under their proposed conditions are within 0.8 of their value under their existing conditions.

Reduction in APSH

- 4..11 Adequate levels of sunlight would be achieved if the overall reduction in annual sunlight hours (APSH) received at a window is not more than 4% of the total sunlight hours anticipated over whole year.

Sunlight Tests for Neighbouring Amenity Spaces

- 4..12 An overshadowing test should be carried out for all neighbouring amenity spaces, including the following.
- Gardens, usually the main back garden of a house
 - Parks and playing fields
 - Children’s playgrounds
 - Outdoor swimming pools and paddling pools
 - Sitting out areas such as those between non-domestic buildings and in public squares
 - Focal points for views such as a group of monuments or fountains.

Minimum Sunlight Access to Amenity spaces

- 4..13 Neighbouring amenity 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 2 hours of sunlight on 21 March”.

Relative Sunlight Access to Amenity spaces

- 4..14 In addition, if the area of amenity space receiving at least 2 hours of sunlight is at least 80% of that under the existing condition, then the amenity space is said to receive adequate levels of sunlight.

Daylight Tests for Proposed Developments

- 4..15 BS EN 17037 provides two methodologies for calculating internal daylight levels within a side lit space, replacing the Average Daylight method of assessment. These are as follows.
- The first new methodology is based on target illuminances (lux) from daylight to be achieved over specified fractions of the reference plane (also known as the ‘working plane’ located at 0.85m above the finished floor of a room) for at least half of the available daylight hours in a typical year.
 - The alternative method is based on calculating the daylight factors (%) achieved over specified fractions of the reference plane for at least half of the available daylight hours in a typical year.
- 4..16 BS EN 17037 gives three levels of recommendations for daylight provision in spaces: minimum, medium and high. For compliance with the standard, a daylit space should achieve the minimum level of recommendation. The Daylight Factor methodology is used within this assessment.

Daylight Factor method

- 4..17 This method involves the computation of the daylight factor at each calculation point on an assessment grid, which consists of a reference or ‘working plane’ located 0.85m above the finished floor of a room and a perimeter band of 0.3m is to be excluded from all assessed domestic spaces in line with the BRE guidance. The CIE standard overcast sky is used for the calculation.
- 4..18 For side lit spaces, the equivalent daylight factor (D) aims to achieve a target illuminance over at least half of the daylight hours in a year as shown in the following formula. The daylight factor is typically expressed as a percentage.

- $D = \text{Target illuminance} / \text{Median external diffuse horizontal illuminance} \times 100 (\%)$

where the 'Median external diffuse horizontal illuminance' is the illuminance from the sky on an unobstructed horizontal surface achieved for half of the annual daylight hours at a particular location.

- 4..19 Table 1 gives the daylight factor targets for side lit rooms in London. For compliance with the BRE's criteria, a daylit space should achieve at least the minimum level of recommendation.

Table 1: BRE Guide (2022) Target daylight factors (D) for side lit rooms in London

Target daylight factors (D) for London		
Level of recommendation	Target daylight factor (D) for half of assessment grid	Target daylight factor (D) for 95% of assessment grid
Minimum	2.1%	0.7%
Medium	3.5%	2.1%
High	5.3%	3.5%

- 4..20 The recommendations for side lit rooms are met if both target daylight factors (the median daylight factor over 50% of the reference plane, and the minimum daylight factor over 95% of the reference plane) are achieved.
- 4..21 In addition, the UK National Annex gives specific minimum recommendations for habitable rooms in dwellings in the United Kingdom with vertical and/or inclined daylight apertures, as shown in Table 2. These are intended for 'hard to light' dwellings, for example in basements, or with significant external obstructions, or for existing buildings being refurbished and converted into dwellings.
- 4..22 Table 2 presents the corresponding daylight factors for the recommended median illuminances, to be exceeded over at least 50% of the assessment points in the room for at least half of available daylight hours. The recommended levels over 95% of a reference plane need not apply to dwellings in the UK. The targets for the latitude nearest to the assessment site should be used. In this specific instance, the daylight factor targets for 'London (Gatwick Airport)' will be used.
- 4..23 Where a room has a shared use, the highest target should apply. For example, the target for a living room could be used for a combined living/dining/kitchen area if the kitchens are not treated as habitable spaces, as it may avoid small separate kitchens in a design. The kitchen space would still need to be included in the assessment area.

Table 2: BRE Guide (2022) Target daylight factors (D_T) for UK domestic habitable rooms with vertical and/or inclined daylight apertures

Target daylight factors (D_T) to achieve over at least 50% of the assessment grid in UK domestic habitable rooms with vertical and/or inclined daylight apertures			
Location	D_T for 100 lux (Bedroom)	D_T for 150 lux (Living Room)	D_T for 200 lux (Kitchen)
St Peter (Jersey)	0.6%	0.9%	1.2%
London (Gatwick Airport)	0.7%	1.1%	1.4%
Birmingham	0.6%	0.9%	1.2%
Hemsby (Norfolk)	0.6%	0.9%	1.3%
Finningley (Yorkshire)	0.7%	1.0%	1.3%
Aughton (Lancashire)	0.7%	1.1%	1.4%
Belfast	0.7%	1.0%	1.4%
Leuchars (Fife)	0.7%	1.1%	1.4%
Oban	0.8%	1.1%	1.5%
Aberdeen	0.7%	1.1%	1.4%

Calculation Model Inputs and Assessment Areas

- 4..24 The following inputs have been used within the proposed scheme daylight calculations in line with the BRE guidance (2022).
- Default reflectance values for all spaces – 0.2 for floors, 0.5 for walls and 0.7 for ceilings
 - 0.68 visible light transmission for clear double glazing
 - A maintenance factor of 0.96 in line with Table C6 within the updated BRE guidance
 - A typical 'design summer year' weather file for London (i.e., London DSY05) was used for the calculations.
- 4..25 In a room with a corridor, or annexed entrance, the corridor need not be included in the assessment grid area as shown in Figure 4, unless it is wide enough to be part of the usable space in a room (i.e., over 1.5m wide). The room layout and surfaces, including the corridor would still need to be included in the calculation model.

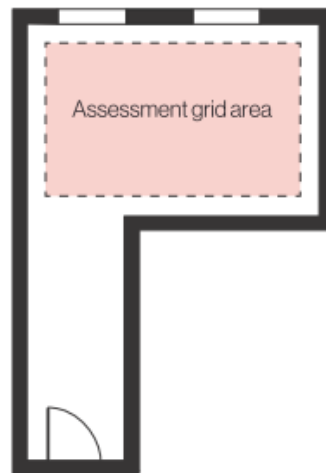


Figure 4: Assessment grid area when habitable space has a narrow (i.e., <1.5m) corridor/ circulation area (courtesy of BR 209 – 2022, Appendix C)

Results Representation

- 4..26 The BRE guidance specifies that target daylight factors are to be achieved for at least half of the available daylight hours in a year. The available daylight on an average day can typically be represented via the autumn or spring equinox, i.e., September 21 or March 21, which receives around 12.5 hours of daylight in London (see Figure 5).
- 4..27 Therefore, the proposed scheme daylight results presented in this report are shown for at least than half of these hours, and the area of a reference plane receiving the minimum target daylight factors are represented for 6.5 hours (typically 9am-3.30pm) on the 21st of September.
- 4..28 The area of the reference plane achieving the relevant target daylight factor is shown as a percentage of its total area to show compliance with the BRE's criteria for proposed habitable spaces. The results represent the average daylit areas on a reference/working plane over a typical year.

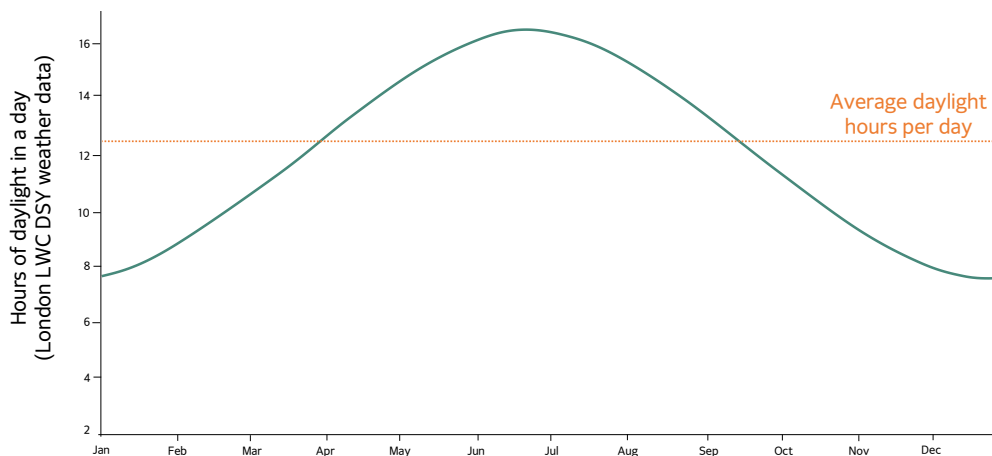


Figure 5: Daylight hours distribution throughout the year (London DSY05 weather data)

5. DAYLIGHT ASSESSMENT: EXISTING NEIGHBOURING PROPERTIES

5.1 This section of the report presents the results of the daylight assessment carried out for the neighbouring properties adjacent to the proposed scheme at Cornerways House (2). The neighbouring properties and façades with window openings considered are shown in Figure 6.



Figure 6: Daylight assessment - neighbouring property façades

5.2 A total of 12 windows have been included within the neighbouring property daylight assessment and these are shown within the model images in Figure 7. The window reference images are included within Appendix A. The assessed neighbouring buildings are as follows.

- 12 Cranley Gardens (7 windows assessed)
- The existing Cornerways House (1) (5 windows assessed).



Figure 7: Model images of windows included within daylight assessment.

Information used for modelling.

- 5..3 The neighbouring property model was constructed using a drone video survey of the proposed site and surrounding area provided by the client, planning drawings for the existing Cornerways House (1), architect's elevation drawings and desktop visual reviews.

Daylight Tests for Neighbouring Properties

12 Cranley Gardens

Vertical Sky Component (VSC) Tests

- 5..4 A total of 7 windows have been assessed, consisting of 4 windows at ground level and 3 windows at first floor level. The assessment results indicate that the 3 windows on the first floor will achieve VSC's greater than 27% with the proposed scheme in place, while the 4 windows at ground will achieve relative VSC ratios greater than 0.80, thereby meeting the BRE's criteria for daylight access. A full set of results can be found within Appendix B.

Existing Cornerways House (1)

Vertical Sky Component (VSC) Tests

- 5..5 A total of 5 windows, 3 at ground level and 2 at first floor level, have been included within the daylight assessment. The results indicate that the 2 first floor windows and 1 of the 3 ground floor windows will achieve VSC's greater than 27%, while the remaining 2 ground floor windows were found to achieve a relative VSC ratio greater than 0.80 with the proposed scheme in place. Therefore, all assessed windows at this building were found to meet the BRE criteria for daylight access. A full set of results can be found within Appendix B.

Daylight Results Summary – Existing Neighbouring Properties

- 5..6 Overall, it can be determined that all the assessed neighbouring property windows meet the BRE's criteria for daylight access, with the proposed scheme at Cornerways House (2) in place. A summary of the results is presented within Table 3. A full set of the neighbouring property daylight results is presented within Appendix B.

Table 3: Daylight Assessment Results Summary – Existing Neighbouring Properties

Neighbouring Property Daylight Assessment Results Summary		
Category		Percentage of assessed windows
Total no. of neighbouring property windows tested	12	100%
No. of windows achieving VSCs > 27%	6	50%
No. of windows achieving Relative VSC ratios > 0.80	6	50%
<i>No. of windows NOT meeting the BRE criteria for daylight access</i>	<i>0</i>	<i>0%</i>

(WPSH) greater than 5%. 2 of the 3 remaining windows were found to achieve proposed scenario APSH's and WPSH's of at least 0.80 of their existing value, thereby meeting the BRE criteria for sunlight access.

- 6..4 1 window at ground floor level was found to achieve a relative APSH of 0.9, but a relative WPSH of 0.7. However, this window is located adjacent to additional windows which meet the BRE's sunlight access criteria, and these are most likely connected to the same space at 12 Cranley Gardens (see Figure 9). Therefore, it can be estimated that the relevant ground floor space connected to the assessed windows will still receive an adequate level of sunlight during the winter months.

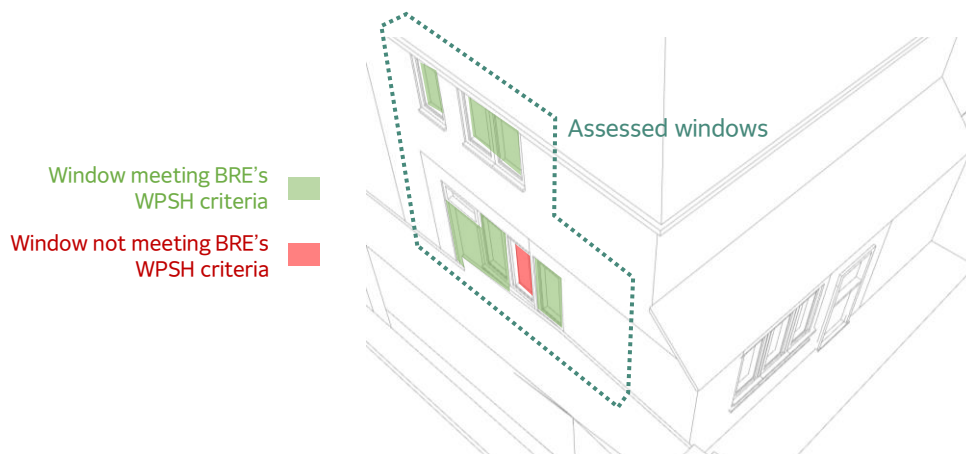


Figure 9: 12 Cranley Gardens – windows meeting and not meeting the BRE's WPSH criteria.

Existing Cornerways House (1)

Annual and Winter Probable Sunlight Hour (APSH & WPSH) Tests

- 6..5 The assessment results indicate that the 3 assessed windows at the existing Cornerways House (1) were found to achieve annual probable sunlight hours (APSH) greater than 25% and winter probable sunlight hours (WPSH) greater than 5%, thereby meeting the BRE's criteria for sunlight access.

Sunlight Results Summary – Existing Neighbouring Properties

- 6..6 A summary of the sunlight access results for assessed neighbouring property windows is presented within Table 4. It can be determined that the proposed scheme at Cornerways House (2) will have no adverse impact on the sunlight access to its neighbouring properties. A full set of the sunlight assessment results is available within Appendix C of this report.

Table 4: Sunlight Assessment Results Summary – Existing Neighbouring Properties

Neighbouring Property Sunlight Assessment Results Summary		
Category		Percentage of assessed windows
Total no. of neighbouring property windows tested	10	100%
No. of windows achieving APSH>25% & WPSH>5%	7	70%
No. of windows achieving Relative APSH and WPSH ratios > 0.80	2	20%
No. of windows meeting the Relative APSH criteria, but not the Relative WPSH criteria (and is most likely located in the same space as 3 additional windows meeting the BRE's sunlight access criteria)	1	10%

7. OVERSHADOWING ASSESSMENT: EXISTING NEIGHBOURING PROPERTIES

- 7..1 A review of the neighbouring properties has indicated that there is one amenity space at the existing Cornerways House (1) that may be affected in terms of sunlight access by the proposed scheme (Figure 10). This area has been assessed to gauge the amount of overshadowing from the proposed scheme.



Figure 10: Neighbouring property amenity space

- 7..2 It should be highlighted that the BRE guidance (2022) indicates that, *“In assessing the impact of buildings on sunlight in gardens, trees and shrubs are not normally included in the calculation unless a dense belt or group of evergreens is specifically planned as a windbreak or for privacy purposes.”* Therefore, trees and shrubs have been omitted from the calculation.
- 7..3 Figure 11 shows the areas of the assessed neighbouring amenity space receiving at least 2 hours of sunlight on the 21st of March, under the existing and proposed scenarios.
- 7..4 The area of the assessed amenity space receiving at least 2 hours of sunlight on the 21st of March is shown to be less than half its area. However, the ratio of the amenity space area receiving at least 2 hours of sunlight under the proposed condition is shown to be at least 0.80 times of that area under the existing

condition. Therefore, the amenity space is shown to receive adequate levels of sunlight in accordance with the BRE guidance.

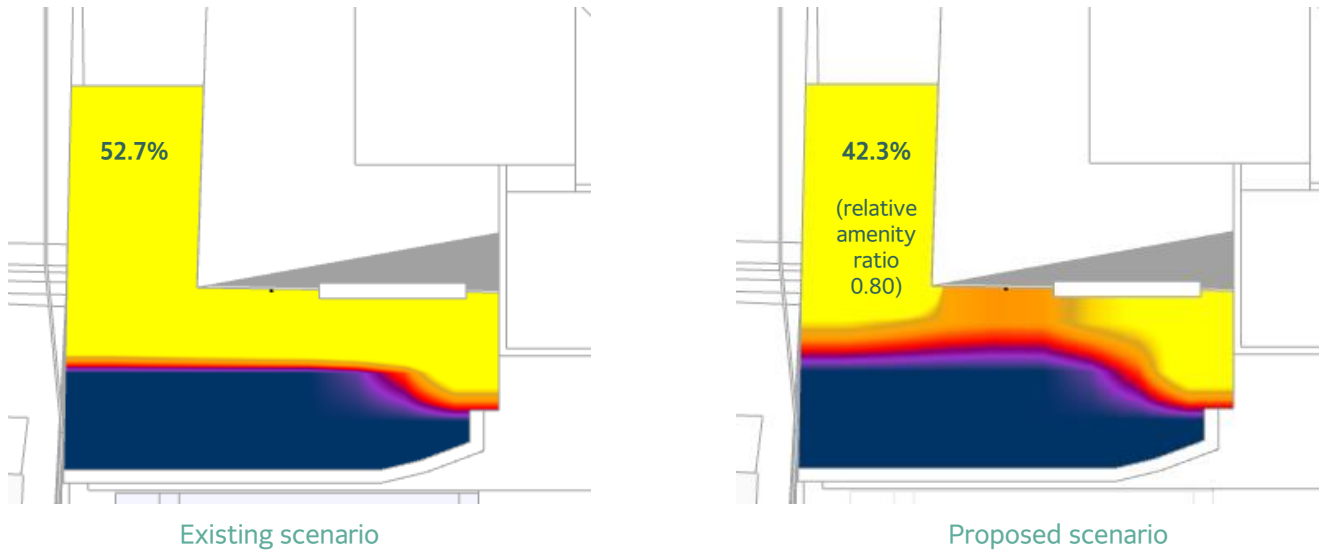


Figure 11: Area of the assessed neighbouring amenity space receiving at least 2 hours of sunlight on 21st March, under the existing and proposed scenarios.

8. DAYLIGHT ASSESSMENT: PROPOSED SCHEME

- 8..1 This section of the report presents the results of the daylight assessment carried out for the proposed scheme at Cornerways House (2). Please note that a sunlight access and overshadowing assessment has not been requested for the proposed scheme at this point.
- 8..2 All habitable spaces have been included within this assessment (Figure 12). Therefore, a total of 4 habitable spaces, consisting of 1 kitchen/living/dining (KLD) space and 3 bedrooms have been assessed for daylight access.

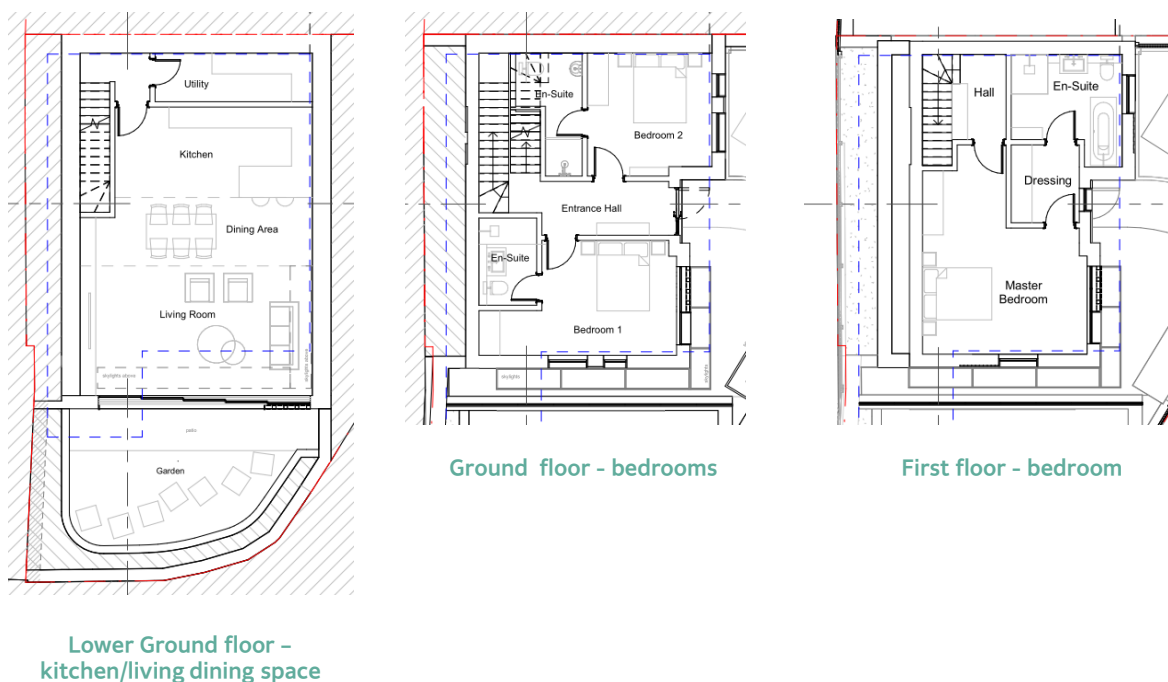


Figure 12: Proposed scheme floor plans (courtesy of Wolff Architects)

Daylight Factor (DF) Tests

Model Setup and Inputs

- 8..3 The daylight factor (DF) tests have been carried out in line with the BRE's guidance (2022). The analysis model has been set up in accordance with the BRE'S recommendations, including a working or reference plane at a height of 0.85, a grid spacing of 0.3m maximum (set at 0.25m in this assessment) and excluding a perimeter band of 0.3m from all assessed spaces.
- 8..4 All internal and external surface reflectances have been set in line with the BRE's suggestions (internal - 0.2 for floors, 0.5 for walls and 0.7 for ceilings, external 0.2 – all surfaces), along with the visible transmittance (0.68) and maintenance factors (0.96) for all windows and glazed openings.

- 8..5 In addition, the small entrance circulation area within the master bedroom on the first floor has been excluded from its reference plane in line with the BRE's guidance for modelling (Figure 13). However, the full room layout including the corridor has been incorporated in the calculation model.

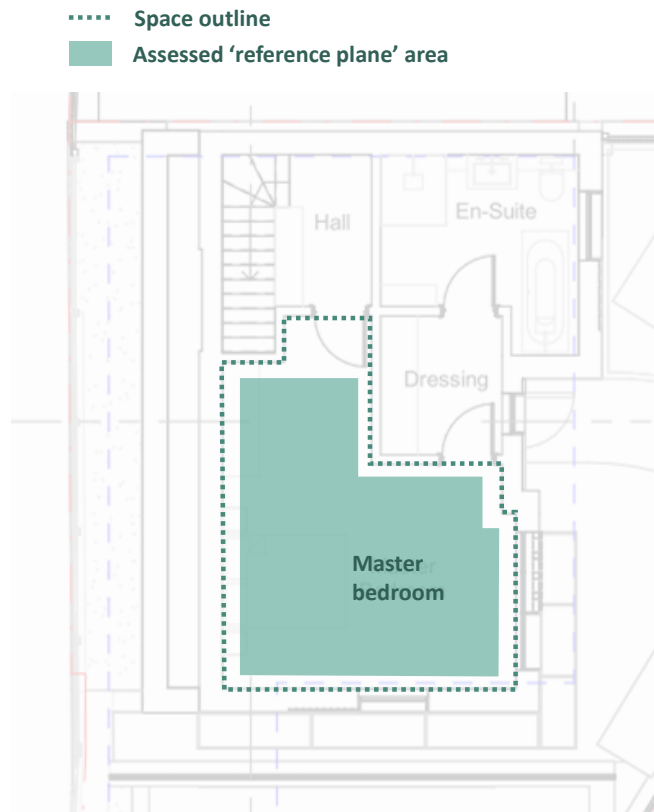


Figure 13: Proposed scheme first floor - area of master bedroom included in the reference plane.

BRE Daylight Factor (DF) Targets

- 8..6 The DF targets to be met via the analysis have been set in line with the BRE's guidance. The targets to be achieved by the bedroom spaces are in line with the minimum requirements within Table 1. However, the kitchen/dining/living (KLD) space located on the lower ground floor of the proposed scheme has been identified as a 'hard to light' space with significant external obstructions, as shown in Figure 14. Therefore, the DF target to be within this space would be in line with Table 2.
- 8..7 In addition, the BRE guidance (2022) notes that the daylight factor target for a living room could be used for a combined living/dining/kitchen area if the kitchen is not treated as a habitable space. Therefore, the relevant target for living rooms has been used for the KLD area of the proposed scheme.

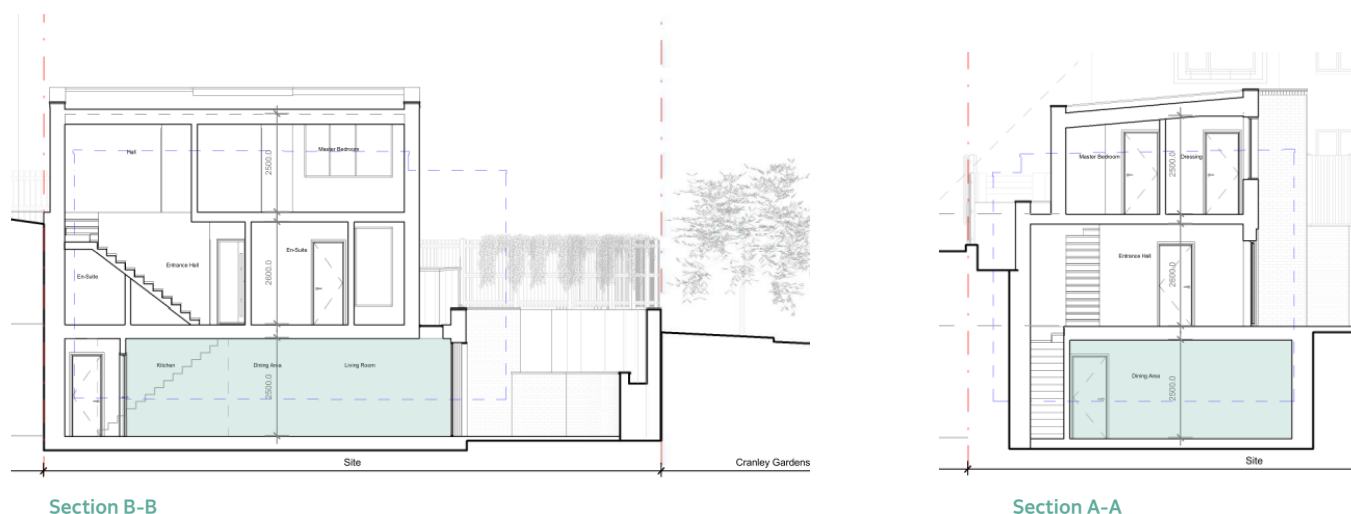


Figure 14: Proposed scheme – Sections showing KLD space at lower ground level (courtesy of Wolff Architects)

8..8 The daylight assessment results indicate the following for at least half the available daylight hours on an average daylit day in a year (i.e., 9am-3.30pm on 21st September).

- The assessed KLD space will achieve a minimum 1.1% daylight factor across more than half of its reference plane,
- All bedrooms within the proposed scheme will achieve a minimum 2.1% daylight factor across at least half of their reference planes,
- All bedrooms will also achieve a minimum 0.7% daylight factor across at least 95% of their reference planes.

Therefore, all habitable spaces within the proposed scheme are shown to meet the BRE's criteria for daylight access.

Daylight Results Summary – Proposed scheme

8..9 Overall, it can be determined that all habitable spaces within the proposed scheme will receive adequate levels of daylight. A summary of the results is presented within Table 5 and a full set of results can be found within Appendix D. The corresponding daylight distribution images for all assessed spaces can be found within Appendix E.

Table 5: Daylight Assessment Results Summary – Proposed scheme

Proposed Scheme Daylight Assessment Results Summary		
Category		Percentage of assessed spaces
Total no. of kitchen/ living/ dining rooms tested	1	100%
No. of 'hard to light' kitchen/ living/ dining rooms located at Lower Ground level, achieving a minimum DF $\geq$ 1.1% across at least 50% of its reference plane for half the available daylight hours on an average daylit day	1	100%

Proposed Scheme Daylight Assessment Results Summary		
Category		Percentage of assessed spaces
Total no. of bedrooms tested	3	100%
No. of bedrooms achieving a minimum DF > 2.1% across at least 50% of their reference planes for half the available daylight hours on an average daylit day	3	100%
No. of bedrooms achieving a minimum DF > 0.7% across at least 95% of their reference planes for half the available daylight hours on an average daylit day	3	100%

9. CONCLUSIONS

- 9..1 This report presents the daylight, sunlight & overshadowing assessment considering the neighbouring properties adjacent to the proposed scheme at Cornerways House (2). In addition, a daylight assessment has been carried out for the habitable spaces within the proposed scheme,

Daylight, Sunlight & Overshadowing Assessment – Existing Neighbouring Properties

- 9..2 Overall, it can be determined that all 12 assessed neighbouring windows are shown to meet the BRE's VSC criteria, thereby indicating that the proposed scheme will have no adverse impacts on the daylight access of its neighbouring properties.
- 9..3 In addition, the 10 assessed neighbouring windows facing within 90 degrees of due south are shown to meet the BRE's annual sunlight access criteria. 9 of the 10 windows are also shown to meet the BRE's winter sunlight access criteria, while 1 window not achieving this criterion most likely serves the same habitable space as 3 windows that do meet this standard (see Figure 9). Therefore, it can be determined that the proposed scheme will have no adverse impacts on the sunlight access of its neighbouring properties.
- 9..4 One neighbouring amenity space assessed at the existing Cornerways House (1) was shown to meet the BRE's criterion for the reduction of overshadowing, as its area receiving at least 2 hours of sunlight on the 21st of March under the proposed condition was shown to be at least 0.80 times of that under the existing scenario.

Daylight Assessment – Proposed Scheme

- 9..5 All 4 spaces within the proposed scheme have been included within the daylight assessment using the BRE's daylight factor (DF) methodology. The kitchen/living/dining (KLD) space located at lower ground level was identified as a 'hard to light' space with significant obstructions (see Figure 14). Therefore, the relevant DF target for living rooms has been used for this area.
- 9..6 The assessed KLD and 3 no. bedrooms have been found to achieve the relevant DF targets in line with the BRE's recommendations. Therefore, the rooms within the proposed scheme were shown to be well daylit and suitable for their intended uses.

Appendix A

Window Reference Images – Existing Neighbouring Properties

Window Reference Images - Existing Neighbouring Properties

The following images include window number references relating to the full set of daylight and sunlight results for existing neighbouring presented in Appendix B and C.



Figure 15: 12 Cranley Gardens – Window ID reference image



Figure 16: Existing Cornerways House (1) – Window ID reference image

Appendix B

Daylight Assessment Results – Existing Neighbouring Properties

Daylight Assessment Results - Existing neighbouring Properties

The following table includes the full set of daylight results for the assessed neighbouring properties surrounding Cornerways House (2).

Table 6: Daylight Assessment: existing neighbouring properties - full results

Window ID ref.	VSC Existing	VSC Proposed	Relative VSC ratios	Meets BRE Criteria
12 Cranley Gardens				
1	12.3	12.3	1.0	Yes
2	22.2	19.0	0.9	Yes
3	17.6	16.5	0.9	Yes
4	14.6	14.4	1.0	Yes
5	-	28.6	-	Yes
6	-	28.3	-	Yes
7	-	27.9	-	Yes
Existing Cornerways House (1)				
8	-	35.0	-	Yes
9	27.9	25.6	0.9	Yes
10	28.7	25.4	0.9	Yes
11	-	39.0	-	Yes
12	-	36.0	-	Yes

Appendix C

Sunlight Assessment Results – Existing Neighbouring Properties

Sunlight Assessment Results - Existing Neighbouring Properties

The following table includes the full set of sunlight results for the assessed neighbouring properties surrounding Cornerways House (2).

Table 7: Sunlight Assessment: existing neighbouring properties - full results

Window ID ref.	APSH - Existing	APSH - Proposed (>25%)	Relative APSH Ratio (>0.80)	WPSH - Existing	WPSH - Proposed (>5%)	Relative WPSH Ratio (>0.80)	Window meets BRE criteria?
12 Cranley Gardens							
1	15	15	1.0	3	3	1.0	Yes
2	-	25	-	-	5	-	Yes
3	22	20	0.9	6	4	0.7	No – but window most likely located in same space as windows no. 1,3 and 4
4	16	16	1.0	3	3	1.0	Yes
5	-	37	-	-	9	-	Yes
6	-	36	-	-	9	-	Yes
7	-	36	-	-	9	-	Yes
Existing Cornerways House (1)							
8	-	81	-	-	24	-	Yes
9	-	57	-	-	14	-	Yes
10	-	63	-	-	13	-	Yes
11	Windows excluded from sunlight assessment as they are connected to bedrooms (see Figure 8)						
12							

Appendix D

Daylight Results – Proposed Scheme

Daylight Assessment Results – Proposed Scheme

Table 8 includes the full set of daylight results for the assessed habitable spaces at the proposed Cornerways House (2). The BRE guidance specifies that target daylight factors are to be achieved for at least half of the available daylight hours in a year, and an average daylit day can be represented via the autumn or spring equinox, September 21 or March 21, receiving around 12.5 hours of daylight in London (see Figure 5). Therefore, the proposed scheme daylight results are shown for at least than half of these hours, i.e., 6.5 hours (typically 9am–3.30pm) on the 21st of September.

The area of the reference plane achieving the relevant target daylight factor (DF) is shown as a percentage of its total area to show compliance with the BRE's criteria for proposed habitable spaces. The results represent the average daylit areas on a reference/working plane over a typical year.

Table 8: Proposed Scheme Daylight Results - Daylight Factor methodology

Room	Time on 21 st September	BRE Daylight Factor Tests - General (Table 1)				Daylight Factor Tests for 'Hard to Light' Domestic Spaces (Table 2)	
		Percentage of Reference plane achieving a min. DF ≥ 2.1% (target >50%)	Room meets BRE criteria?	Percentage of Reference plane achieving a min. DF ≥ 0.7% (target >95%)	Room meets BRE criteria?	Percentage of Reference plane achieving min. DF ≥ 1.1% in a living room (BRE target >50%)	Room meets BRE criteria?
Kitchen / Living / Dining	9:00 AM	N/A – Lower Ground level ' hard to light space' with significant obstructions. Therefore, BRE DF criteria from Table 2 should be used for this space.				78.6%	YES Reference plane receiving min. DF > 1.1% across at least 50% of its area during more than half of available daylight hours
	10:00 AM					79.0%	
	11:00 AM					79.8%	
	12:00 PM					79.0%	
	1:00 PM					78.7%	
	2:00 PM					79.1%	
	3:00 PM					79.3%	
	3:30 PM					79.0%	
Bedroom 1	9:00 AM	93.4%	YES	100.0%	YES	N/A – the general DF test from Table 1 is applicable to these spaces.	
	10:00 AM	93.9%	Reference plane receiving DF ≥ 2.1% across at least 50% of its area for more than half of available daylight hours	100.0%	Reference plane receiving DF ≥ 0.7% across at least 95% of its area for more than half of available daylight hours		
	11:00 AM	93.4%		100.0%			
	12:00 PM	93.9%		100.0%			
	1:00 PM	93.9%		100.0%			
	2:00 PM	93.9%		100.0%			
	3:00 PM	93.4%		100.0%			
	3:30 PM	93.4%		100.0%			

Room	Time on 21 st September	BRE Daylight Factor Tests - General (Table 1)				Daylight Factor Tests for ‘Hard to Light’ Domestic Spaces (Table 2)	
		Percentage of Reference plane achieving a min. DF ≥ 2.1% (target >50%)	Room meets BRE criteria?	Percentage of Reference plane achieving a min. DF ≥ 0.7% (target >95%)	Room meets BRE criteria?	Percentage of Reference plane achieving min. DF ≥ 1.1% in a living room (BRE target >50%)	Room meets BRE criteria?
Bedroom 2	9:00 AM	69.8%	YES	100.0%	YES		
	10:00 AM	69.8%	Reference plane receiving DF ≥ 2.1% across at least 50% of its area for more than half of available daylight hours	100.0%	Reference plane receiving DF ≥ 0.7% across at least 95% of its area for more than half of available daylight hours		
	11:00 AM	69.2%		100.0%			
	12:00 PM	69.8%		100.0%			
	1:00 PM	70.4%		100.0%			
	2:00 PM	69.2%		100.0%			
	3:00 PM	70.4%		100.0%			
	3:30 PM	69.8%		100.0%			
Master bedroom	9:00 AM	54.1%	YES	95.2%	YES		
	10:00 AM	53.4%	Reference plane receiving DF ≥ 2.1% across at least 50% of its area for more than half of available daylight hours	95.5%	Reference plane receiving DF ≥ 0.7% across at least 95% of its area for more than half of available daylight hours		
	11:00 AM	53.8%		96.1%			
	12:00 PM	54.1%		95.2%			
	1:00 PM	53.4%		95.5%			
	2:00 PM	53.8%		95.8%			
	3:00 PM	53.1%		95.1%			
	3:30 PM	53.1%		95.0%			

Appendix E

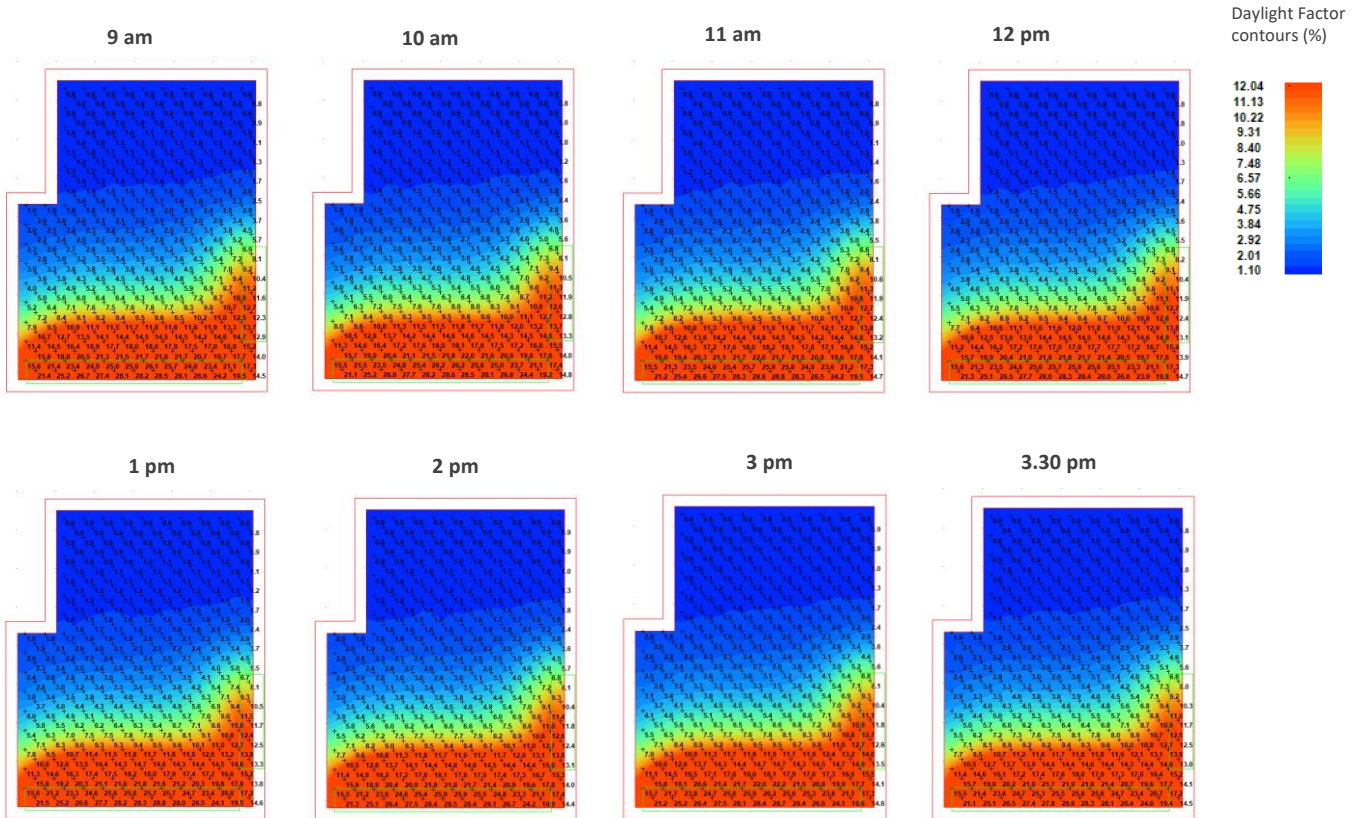
Daylight Distribution Images – Proposed Scheme

Daylight Distribution Images – Proposed Scheme

The following images present the daylight distribution images for all assessed habitable spaces at Cornerways House (2), for the 21st of September from 9am-3.30pm.

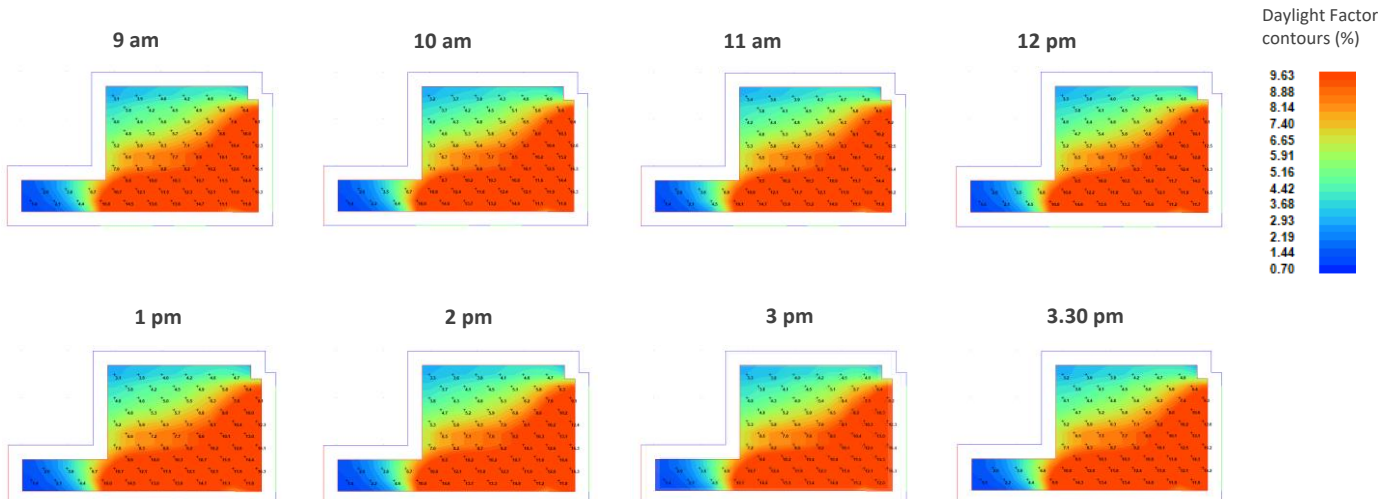
CORNERWAYS HOUSE 2023 – Kitchen / Living / Dining Room

Internal daylight variation 9am-3.30pm 21st September

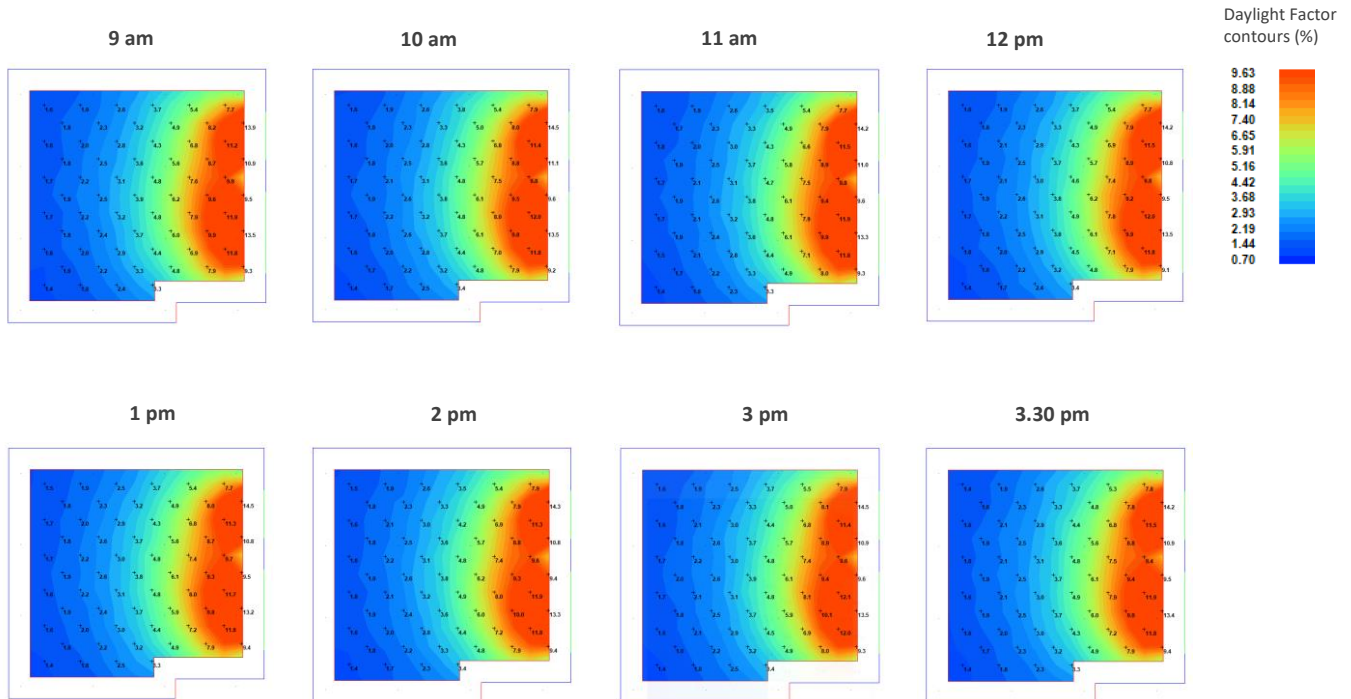


CORNERWAYS HOUSE 2023 – Bedroom 1

Internal daylight variation 9am-3.30pm 21st September



CORNERWAYS HOUSE 2023 – Bedroom 2
Internal daylight variation 9am-3.30pm 21st September



CORNERWAYS HOUSE 2023 – Master Bedroom
Internal daylight variation 9am-3.30pm 21st September

