Daylight, Sunlight & Shading Report

94 Arlington Rd, London NW1 7HT

July 2023

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Executive summary

This report outlines the results of the analysis for the detailed planning application of 94 Arlington Rd, London NW1 7HT primarily assessing the daylight, sunlight and overshadowing impact on the adjacent properties, along with the sunlight and daylight levels of the proposed dwelling.

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 (2022) which is accepted as good practice by Planning Authorities.

The modelling part has been carried out using a dynamic modelling software: (IES-VE) version 2023. The RADIANCE lighting simulation package, developed by the Lawrence Berkeley Laboratory in California, in conjunction with IES modelling software interface has been used to perform the daylight simulations.

Daylight & Sunlight Impact Assessment

Based on the orientation and the site layout, windows facing the proposed development, within the adjacent properties; 94 Arlington Rd and 8 Delancey Passage were tested to assess the impact of the proposed development on them, in terms of daylight and sunlight.

Results indicate there will be no adverse impact on the neighboring residential units at 94 Arlington Road in terms of daylight and sunlight.

8 Delancey Passage is a commercial building consisting of two floors, the ground floor has two windows on the party wall parallel to the proposed dwelling, **with no rights on the title**. Nevertheless, those two windows were tested, and although one would be impacted in terms of daylight and sunlight (W6), window (W7), only shows medium levels of impact for both VSC and APSH, while the sky view within the ground floor has a negligible impact due to the fact that the room has other source of daylight. Therefore, the overall impact on 8 Delancey Passage ground floor level is Medium, whilst the first floor impact is negligible.

Shading Assessment

The gardens of 96 Arlington Road and the proposed garden area of 94 Arlington road, were tested in terms of shading. Results indicate that the proposal has no significant impact on the gardens, and BRE recommendation are met.

Daylight & Sunlight Assessment of the proposed

Sunlight and daylight were assessed based on: BRE Guide / BS 8206-2:2008 & BS EN 17037:2018. Results indicate that the habitable rooms tested pass all requirement in terms of sunlight and daylight. Changes to the ground floor plans have been implemented as a result of the analysis to insure high levels of daylight in the living kitchen area.

Date	Prepared by	Signature	Version	Comments
July 2023	Halla Huws	Halla Huws.	V1	

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Section 1 Introduction

This report assesses the impact of daylight, sunlight & shading levels, due to the proposed dwelling at 94 Arlington Rd, London NW1 7HT, on the adjacent properties. Along with a study of the internal daylight and sunlight levels of the proposed.

The approach is based on the BRE's "Site Layout Planning for Daylight and Sunlight, a Guide to Good Practice" PJ Littlefair 2022, BRE Guide / BS 8206-2:2008 & EN 17037:2018. which is generally accepted as good practice by Town and Country Planning authorities.

It should be noted that although the numerical values stated in the BRE provide useful guidance to designers, consultants and planning officials, these are purely advisory and may vary depending on context.

Site Location

The proposal site is at the rear of 94 Arlington Road, with access onto Delancey Passage.

The proposal is for the construction of a one bedroom new dwelling.

Based on the orientation and sun cast analysis, the analysis was mainly carried out for the following: commercial unit at 8 Delancey Passage and Exisitng 94 Arlington Road residential units.

Additionally, the shading analysis of 96 and 94 Arlington gardens has been carried out due to the proximity to the site.

Figure 1 Site Location

Documents Considered

Table 1: List of Drawings

Description	Drawing Reference
Existing Site Plan	SLP SUBMITTED SBP REV B SUBMITTED
Proposed Plans	P101 C REV
Proposed Elevations	P102 B REV

Calculation Data

Weather file: London Heathrow

Software: IES-VE 2023

Sky Model: CIE Standard Overcast Sky

Sunlight and Daylight for Existing Buildings Methodology

The following methodology was used to carry out the daylight, sunlight and overshadowing assessments. The methodology is based on the guidelines set out in the BRE "Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice" (2022).

Vertical Sky Component

The BRE document definition of the (VSC) is: Ratio of the part of illuminance, at a point on a given vertical plane that is received directly from a CIE standard overcast sky, to illuminance on a horizontal plane due to an unobstructed hemisphere of this sky. Usually the 'given vertical plane' is the outside of a window wall. The VSC does not include reflected light, either from the ground or from other buildings.

The VSC is usually expressed as a percentage and the maximum value for a completely unobstructed window is slightly less than 40%. The recommendations set down in the BRE report,' Site layout for daylight and sunlight, a guide to good practice', would indicate, for residential properties, that a VSC value of greater than 27% is acceptable.

The BRE guide explains that diffuse daylight may be adversely affected if, after a development, the VSC is both less than 27% and less than 0.8 times its former value. If a room has two or more windows of equal size, the mean of their VSCs may be taken.

It should be noted that the Guide itself, within the introduction, states that the advice given was not mandatory and the Guide should not be seen as an instrument of planning policy, its aim being to help, rather than constrain, the designer. Although it gives numerical guidelines, these should be interpreted flexibly.

Table 2: Magnitude of change for Vertical Sky Component (VSC) Results

VSC Values	Ratio of Impact	Magnitude of change
VSC ≥27%	≥0.8	Negligible
VSC ≥ 27%	< 0.8	Negligible
VSC < 27%	> 0.8	Negligible
VSC < 27%	0.7 – 0.8	Low
VSC < 27%	0.6 – 0.7	Medium
VSC < 27%	< 0.6	High

Sky View (No Sky Line)

The No Sky Line is the outline on the working plane of the area from which no sky can be seen. This is to determine the light distribution in a room. The IES-ve calculation method is to define the sky view factor, which is the factor from the surface to the sky, this is the ratio of the diffuse sky radiation received by the surface to that which would be received by the same surface if it were completely exposed to the sky (The theory assumes that the diffuse sky radiation is isotropic).

A significant loss is when the area of a working plane in a room which can receive direct skylight is reduced to less than 0.8 times its former value.

Annual Probable Sunlight Hours (APSH)

APSH is the total number of hours in the year that the sun is expected to shine on the center of each window, allowing for average levels of cloudiness for the location in question. This test is usually used to test façades within 90 degrees of due south.

The BRE Handbook notes that: "*…a south facing window will, in general, receive most sunlight, while a north facing one will receive it only on a handful of occasions. East and west facing windows will receive sunlight only at certain times of day*".

The BRE Handbook suggests that: "*all main living rooms of dwellings… should be checked if they have a window facing within 90° of due south. Kitchens and bedrooms are less important, although care should be taken not to block too much sun*".

If a room has multiple windows on the same wall or on adjacent walls, the highest value of APSH should be taken. If a room has two windows on opposite walls, the APSH due to each can be added together.

The BRE guide explains that sunlight availability may be adversely affected if the center of the window:

- Receives less than 25% of annual probable sunlight hours, or less than 5% of annual probable sunlight hours between 21st of September and 21st March and;
- Receives less than 0.8 times its former sunlight hours during either period and;
- Has a reduction in sunlight received over the whole year greater than 4% of annual probable sunlight hours

Table 3: Magnitude of change for APSH Results

APSH Values	Ratio of Impact	Absolute reduction in APSH	Magnitude of change
APSH ≥25%	> 0.8	≤ 4%	Negligible
APSH ≥25%	> 0.8	> 4%	Negligible
APSH ≥25%	< 0.8	> 4%	Negligible
APSH <25%	> 0.8	≤ 4%	Negligible
APSH <25%	> 0.7	> 4%	Low
APSH <25%	0.6-0.7	> 4%	Medium
APSH <25%	< 0.6	> 4%	High

Section 2 Results of Daylight and Sunlight Assessments on Existing Buildings

A daylight and sunlight assessment was carried out for the commercial unit at 8 Delancey Passage and Existing 94 Arlington Road residential units.

Sky view levels, Daylight Distribution (DD), Table 5, showed that the impact on both properties is negligible.

The Vertical Sky Component Levels (VSC) were tested. The results in Table 4 indicate that the reduction due to the proposal is negligible for all of 94 Arlington windows. Whilst W6, 8 Delancey Passage, has high impact and W7 has medium impact.

The Average Probable Sunlight Hours (APSH) is used to test façades within 90 degrees of due south, windows 7 and 8 were tested, indicating the W7 would have medium impact Table 6.

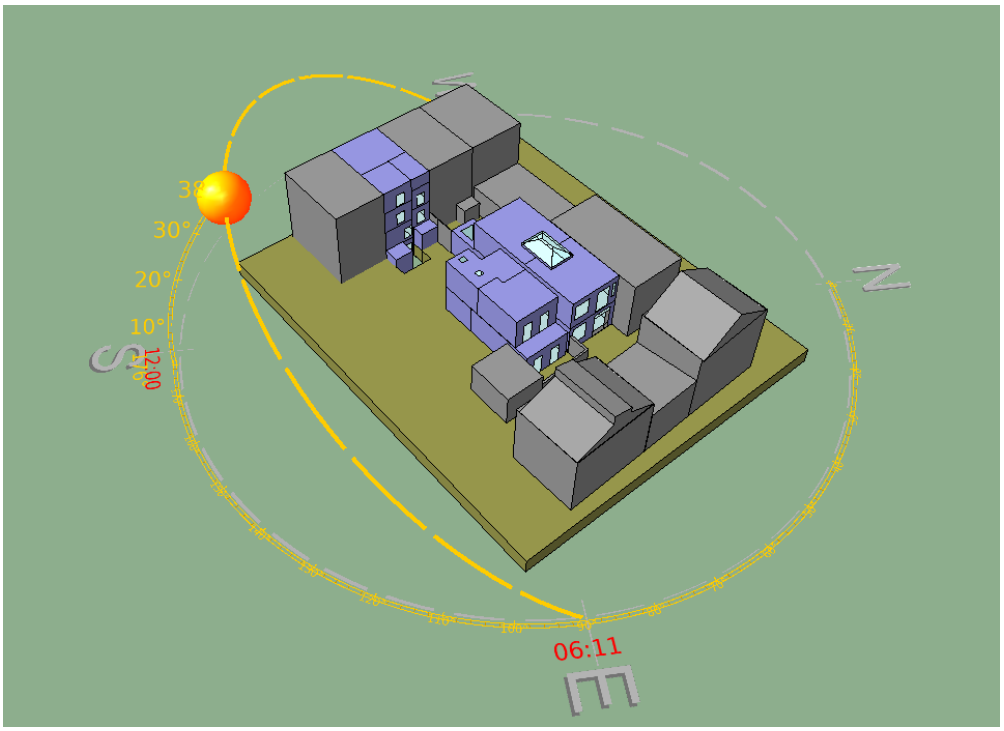


Figure 2 Sun Path on the 21st of March

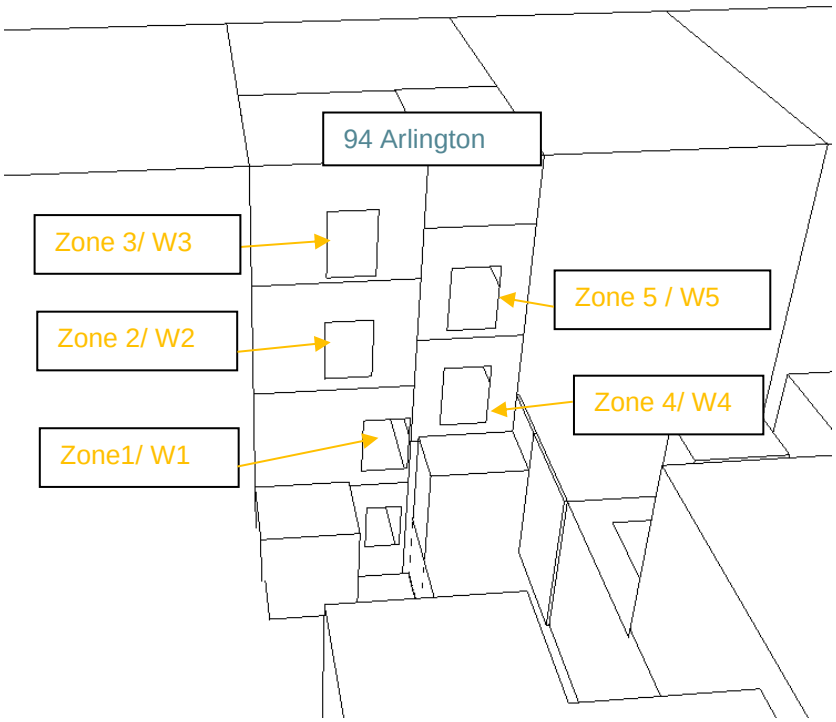


Figure 3 94 Arlington Test Zones &Windows

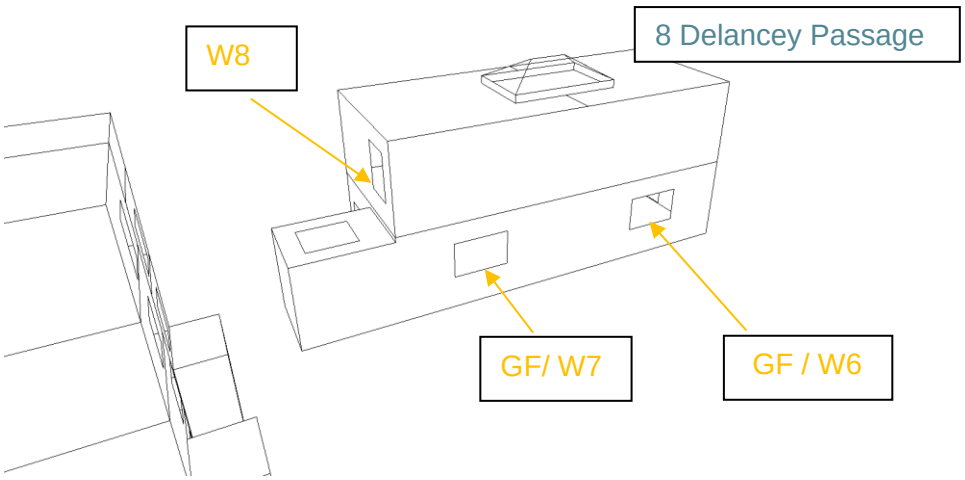


Figure 4 8 Delancey Passage Tested Zones & Windows

Table 4: Vertical Sky Component

Property	Opening Ref	Existing VSC (%)	Proposed VSC (%)	Reduction	Impact
94 Arlington	W1	31.65	29.22	0.08	Negligible
	W2	36.58	35.88	0.02	Negligible
	W3	38.85	38.72	0.00	None
	W4	33.64	32.02	0.05	Negligible
	W5	37.48	37.49	0.00	None
8 Delancey Passage	W6	33.40	0.01	1.00	High
	W7	35.03	12.28	0.65	Medium
	W8	27.37	27.37	0.00	None

Table 5: Sky View Results

Building	Zone	Existing Sky view	Proposed Sky view	Reduction	Impact
94 Arlington	Zone 1	100%	100%	0	None
	Zone 2	100%	100%	0	None
	Zone 3	100%	100%	0	None
	Zone 4	75%	69%	0.08	Negligible
	Zone 5	100%	100%	0	None
8 Delancey Passage	Offices First Floor	100%	100%	0	None
	Offices ground Floor	99%	95%	0.04	Negligible

Table 6 Average Probable Sunlight Hours

Building	Opening Ref	Scenario	Total Average (%)	Winter Average (%)	Summer Average (%)	Impact
8 Delancey Passage	7	Existing	56.97	21.88	35.09	Medium
		Proposed	22.11	7.77	14.34	
	8	Existing	40.99	13.66	27.33	None
		Proposed	40.99	13.66	27.33	

Section 3 Shading Assessment

A shading analysis for the neighboring garden of 94 & 96 Arlington Road has been carried out.

The BRE guidelines recommend that for a garden or amenity area to appear adequately sunlit throughout the year, at least half of it should receive at least two hours of sunlight on March 21st. If as a result of a new development, an existing garden does not meet the above, and the area which can receive two hours of sun on March 21st is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable.

Based on the BRE recommendations the solar exposure for the gardens was tested for the 21st of March, Vernal equinox. On that day the day and night have an equal length.

The results indicate that both gardens, would not be impacted in terms of shading, as they will maintain the same level of exposure.

The garden of number 96, in the existing condition, has no access to solar exposure that exceeds the 2 hours on the 21st of March. Whilst, the garden of the 94 Arlington, based on the proposed area, benefits from a southern orientation and will not be impacted, as the tested area of the garden receives 2 hours of sunlight or more on the 21st of March, and this is still maintained with the proposed dwelling. Appendix B details the shading analysis carried out, highlight the low impact of overshadowing from the proposed dwelling.

Table 7: Shading results

Zones	Percentage of existing with more than 2 hours of sun-21 March	Percentage of proposed with more than 2 hours of sun-21 March	Impact
Garden of 96 Arlington	100%	100%	None
Garden of 94 Arlington	0%	0%	None

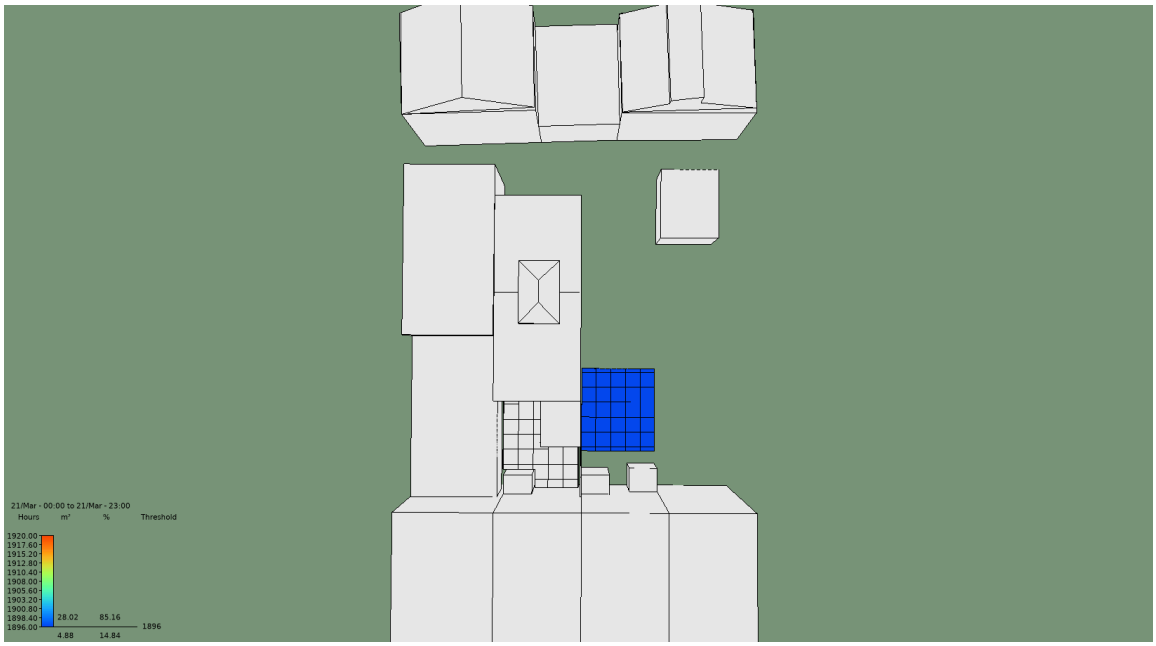


Figure 5: Solar Exposure- 21st of March- Existing

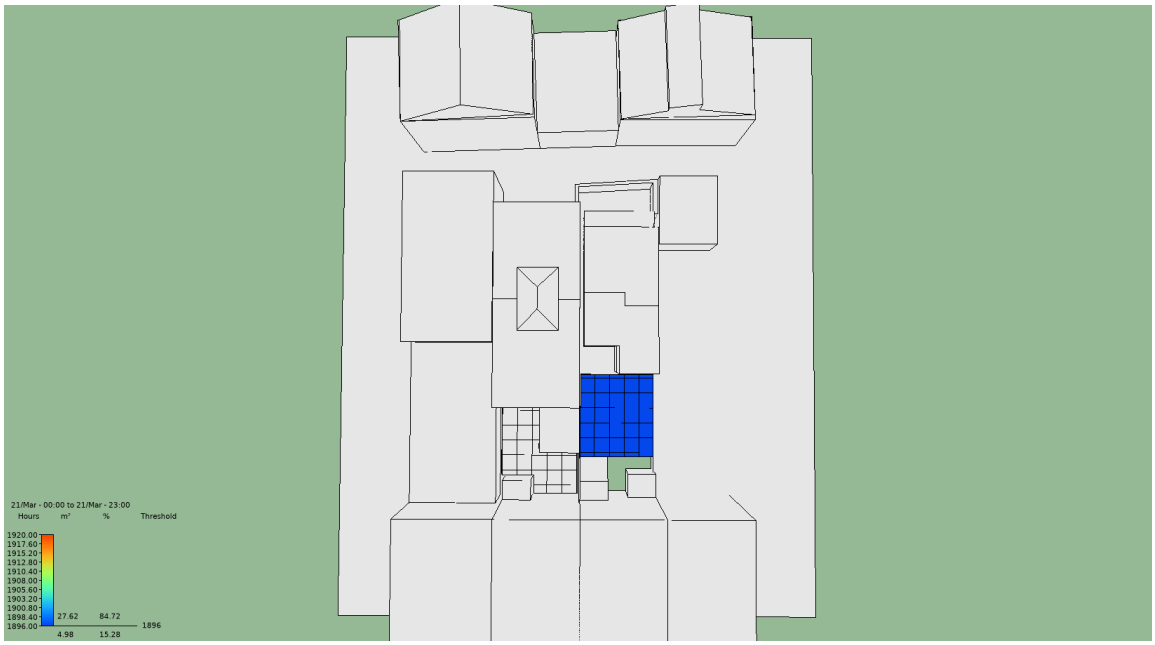


Figure 6 Solar Exposure- 21st of March- Proposed

Section 4 Sunlight - Proposed Development

Guidance – BRE Guide / BS8206-2:2008

The British Standard BS 8206-2:2008 recommends that interiors where the occupants expect sunlight should receive at least one quarter (25%) of annual probable sunlight hours, including at least 5% of annual probable sunlight hours during the winter months, between 21st September and 21st March. Here 'probable sunlight hours' means the total number of hours in the year that the sun is expected to shine on unobstructed ground, allowing for average levels of cloudiness for the location in question.

If a window reference point can receive more than one quarter of annual probable sunlight hours, including at least 5% of annual probable sunlight hours during the winter months between 21st September and 21st March, then the room should still receive enough sunlight.

Any reduction in sunlight access below this level should be kept to a minimum. As stated in Section 3.1.12 of the BRE Guide, “If window positions are already known, the centre of each main living room window can be used for the calculation”.

Summary (new buildings)

3.1.15 In general a dwelling, or non-domestic building that has a particular requirement for sunlight, will appear reasonably sunlit provided:

- at least one main window wall faces within 90° of due south and
- a habitable room, preferably a main living room, can receive a total of at least 1.5 hours of sunlight on 21 March. This is assessed at the inside centre of the window(s); sunlight received by different windows can be added provided they occur at different times and sunlight hours are not double counted.

3.1.16 Where groups of dwellings are planned, site layout design should aim to maximise the number of dwellings with a main living room that meets the above recommendations.

Figure 7 Extract from the BRE Guide

BRE Guide 2022 Guidance – BS EN 17037:2018

Section 5.3.1 of BS EN 17037:2018 states that “exposure to sunlight is an important quality criterion of an interior space and can contribute to human well-being.” Table A.6 from BS EN 17037:2018 summarises the recommendation for daily sunlight exposure.

Table A.6 — Recommendation for daily sunlight exposure

Level of recommendation for exposure to sunlight	Sunlight exposure
Minimum	1,5 h
Medium	3,0 h
High	4,0 h

Figure 8 Extract from BS EN 17037:2018

Within the context of a domestic property, EN 17037:2018 states that at least one habitable space within a dwelling should receive the recommended minimum value of 1.5 hours of sunlight on the 21st of March. The test is carried out on a clear, cloud free day.

APSH & Sunlight Exposure Assessment

Based on the above criteria for both the BRE Guide/BS8206-2:2008 and BS EN 17037:2018, all main living room windows within the proposed development have been assessed with the results included in Table 8. Results highlight that are areas meet the requirements, where all flats have at least one habitable room with a window achieving the APSH and the minimum sunlight exposure of 1.5 hours.

Please note, the “Comment” symbol in each of the tables represents the following:

BRE Guide / BS 8206-2:2008

✓/ ✓ For these locations, both the annual and winter APSH results are greater than 25% and

5% respectively.

x / ✓ For these locations, the annual APSH results are less than the recommended values, however, the winter APSH results are greater than 5%.

✓ / x For these locations, the winter APSH results are less than the recommended values, however, the annual APSH results are greater than 25%.

x / x For these locations, both the annual and winter APSH results are less than the recommended values.

BS EN 17037:2018

✓ These rooms achieve the minimum 1.5 hours of recommended sunlight exposure on March 21st.

x These rooms do not achieve the minimum 1.5 hours of recommended sunlight exposure on March 21st.

Table 8 Sunlight Assessment Results

Opening Ref	BRE Guide / BS 8206:2008 APSH Assessment			BS EN 17037:2018 Sunlight Exposure > 1.5 hrs
	APSH Annual (%)	APSH Winter (%)	Comment	Comment
Bedroom Window	22.82	8.96	✓/ ✓	✓

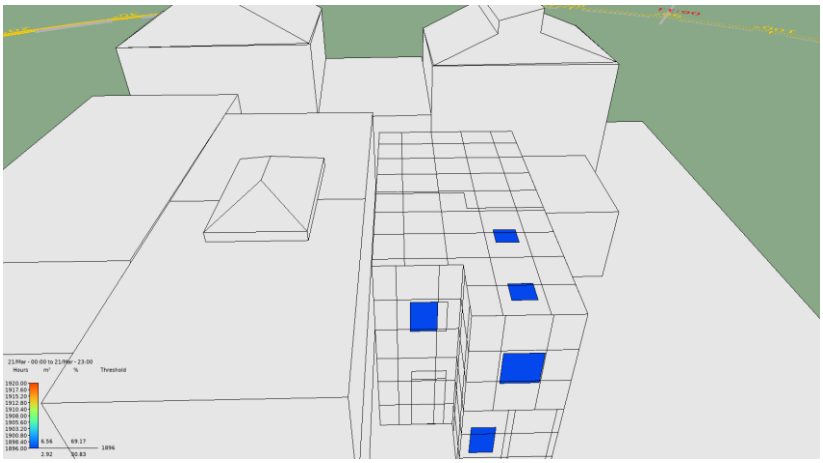


Figure 9 Sunlight Exposure >1.5 hours (Windows shown in blue)

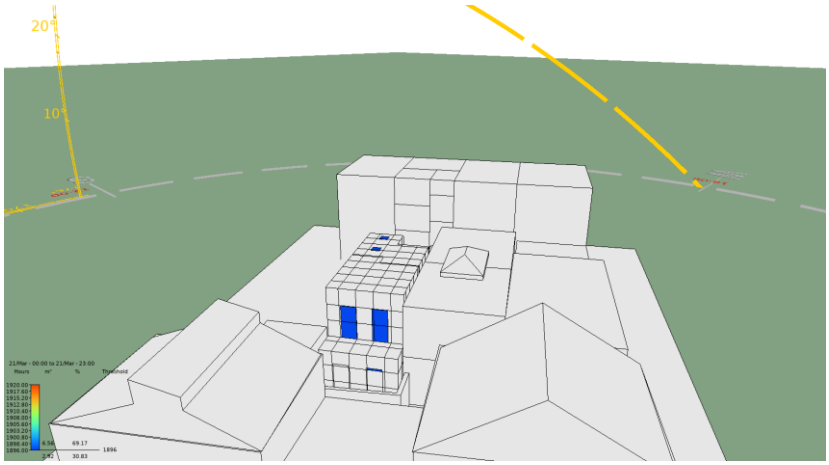


Figure 10: Sunlight Exposure >1.5 hours (Windows shown in blue)

Section 5 Daylight - Proposed Development

This section addresses daylight provision to the proposed apartments. The purpose of the calculations is to quantify an overall percentage of units which exceeds the daylight provision recommendations. Our proposed methodology is to complete the calculations for all of the apartments within the development.

Reference Standard

• BS EN 17037:2018

BRE Guide 2022: BS EN 17037:2018

As outlined in Section 5.1.2 of the BS EN 17037:2018 standard: *"A space is considered to provide adequate daylight if a target illuminance level is achieved across a fraction of the reference plane within a space for at least half of the daylight hours. In addition, for spaces with vertical or inclined daylight openings, a minimum target illuminance level is also to be achieved across the reference plane".*

Annex A of BS EN 17037:2018 gives three levels of recommendation for the assessment of daylight provision in interior spaces which are summarised as follows: "*The three levels are: minimum, medium and high, and the minimum recommendation should be provided."*

It is important to note that EN 17037:2018 does not provide different illuminance targets for different space types. Therefore, in the case of residential developments; bedrooms, living rooms, kitchens and combined LKDs all have the same daylight provision targets.

Table A.1 of BS EN 17037:2018 provides recommendations for daylight provision by daylight openings in vertical and inclined surfaces. Note, Table A.2 provides similar recommendations for daylight openings in horizontal surfaces, e.g. rooflights.

Table A.1 — Recommendations of daylight provision by daylight openings in vertical and inclined surface

Level of recommendation for vertical and inclined daylight opening	Target illuminance E_T lx	Fraction of space for target level $F_{plane,\%}$	Minimum target illuminance E_{TM} lx	Fraction of space for minimum target level $F_{plane,\%}$	Fraction of daylight hours $F_{time,\%}$
Minimum	300	50 %	100	95 %	50 %
Medium	500	50 %	300	95 %	50 %
High	750	50 %	500	95 %	50 %

NOTE Table A.3 gives target daylight factor (D_T) and minimum target daylight factor (D_{TM}) corresponding to target illuminance level and minimum target illuminance, respectively, for the CEN capital cities.

Figure 11 Extract from BS EN 17037:2018

Table A.2 — Recommendations of daylight provision by daylight openings in a horizontal surface

Level of recommendation for horizontal daylight opening	Target illuminance E_T lx	Fraction of space for target level $F_{plane,\%}$	Fraction of daylight hours $F_{time,\%}$
Minimum	300	95 %	50 %
Medium	500	95 %	50 %
High	750	95 %	50 %
NOTE Tables A.3 and A.4 give target daylight factor (D_T) corresponding to target illuminance level for the CEN capital cities. Note, that for spaces with horizontal daylight openings, there is no minimum target illuminance recommendations. Table A.4 is only for horizontal daylight openings with diffusing material.			

Figure 12 Extract from BS EN 17037:2018

To achieve the minimum level of daylight provision for vertical and inclined openings as per Table A.1, the following must be achieved:

• A target illuminance (ET) of 300 lux must be achieved on over 50% of the floor area for over 50% of the available daylight hours, and
• A minimum target illuminance (ETM) of 100 lux must be achieved on over 95% of the floor area for over 50% of the available daylight hours.
• Both targets above must be satisfied for a space to be deemed compliant with the requirements.

The recommendations in Table A.1 can also be expressed in terms of a daylight factor “D”. Table A.3 provides the corresponding daylight factor (D) relative to a recommended target illuminance ET (lx) and target minimum illuminance ETM (lx) depending on the location for daylight openings in vertical and inclined surfaces. Note, Table A.4 provides similar target values for openings in horizontal surfaces, e.g. rooflights.

Nation	Capital [a]	Geographical latitude φ [°]	Median External Diffuse Illuminance $E_{v,d,med}$	*D* to exceed 100 lx	*D* to exceed 300 lx	*D* to exceed 500 lx	*D* to exceed 750 lx
United Kingdom	London	51,51	14 100	0,7 %	2,1 %	3,5 %	5,3 %

Figure 13 Extract from BS EN 17037:2018, Location UK

Therefore, to achieve the minimum level of daylight provision for vertical and inclined openings as per Table A.3, the following must be achieved:

• A target daylight factor (DT) of 2.1% must be achieved on over 50% of the floor area for over 50% of the available daylight hours, and

• A minimum target daylight factor (DTM) of 0.7% must be achieved on over 95% of the floor area for over 50% of the available daylight hours.

• Both targets above must be satisfied for a space to be deemed compliant with the requirements.

There are two methods to assess daylight provision to the interior which are based on target values in either Table A.1 or Table A.3 which are summarised as follows:

Method 1: This calculation method uses the daylight factor targets on the reference plane as per Table A.3. The assessment is carried out on a representative day and time during the year, i.e. 21st September @ 12:00 under standard CIE overcast sky conditions.

Method 2: This calculation method uses the illuminance targets on the reference plane as per Table A.1. The assessment is carried out for each hour over the course of the year (8,760 hours) using a local weather file which accounts for varying sky conditions and sun positions throughout the year.

Based on the above criteria, the daylight provision to the proposed development has been assessed using an adequate software (i.e. IES VE), using the Method 2 climate-based approach and targeting the minimum recommended values outlined in Table A.1 of BS EN 17037:2018. The Method 2 climate-based approach was selected as it is a far more accurate assessment method compared to Method 1. Climate based daylight modelling (CBDM) is more accurate compared to a calculation based on a single day during the year, i.e. Method 1. The amount of daylight varies throughout the year, primarily due to the sun's position, so it is essential the impact of daylight variance is properly considered. CBDM utilises an annual simulation linking location, shading, climate data (including solar intensity and cloud cover) together with the building properties. This provides a complete overview on how the daylight performance varies throughout the year due to changes in these factors.

BS EN 17037:2018 National Annex

In the UK, EN17037:2018 was adopted to form "BS EN 17037:2018". However, a "National Annex NA" was included which states:

"*The UK committee supports the recommendations for daylight in buildings given in BS EN 17037:2018; however, it is the opinion of the UK committee that the recommendations for daylight provision in a space (see Clause A.2) may not be achievable for some buildings, particularly dwellings. The UK committee believes this could be the case for dwellings with basement rooms or those with significant external obstructions (for example, dwellings situated in a dense urban area or with tall trees outside), or for existing buildings being refurbished or converted into dwellings. This National Annex therefore provides the UK committee's guidance on minimum daylight provision in all UK dwellings.*"

Whereas BS EN 17037:2018 does not provide different illuminance targets for different space types, the BS EN 17037:2018 National Annex provides target illuminance values for bedrooms, living rooms and kitchens within residential developments as per Table NA.1 below.

Table NA.1 — Values of target illuminance for room types in UK dwellings

Room type	Target illuminance E_T (lx)
Bedroom	100
Living room	150
Kitchen	200

Figure 14 Table NA.1

The BS National Annex also states: “Where one room in a UK dwelling serves more than a single purpose, the UK committee recommends that the target illuminance is that for the room type with the highest value – for example, in a space that combines a living room and a kitchen the target illuminance is recommended to be 200 lx.” Therefore, combined LKDs are to be assessed using a 200 lux target illuminance (ET).

Finally, the BS National Annex also states that:

“It is the opinion of the UK committee that the recommendation in Clause A.2 – that a target illuminance level should be achieved across the entire (i.e. 95 %) fraction of the reference plane within a space – need not be applied to rooms in dwellings.”

Therefore, when assessing the daylight provisions in residential dwellings in accordance with BS EN 17037:2018, only the target illuminance (ET) or target daylight factor (DT) will be assessed for Bedrooms, Living Rooms, Kitchens (or combined LKDs) on over 50% of the floor area over 50% of the available daylight hours.

The minimum target illuminance (ETM) or minimum target daylight factor (DTM) will not be assessed. Based on the above criteria, the daylight provision to the proposed development has been assessed using an adequate software (i.e. IES VE), using the Method 2 climate-based approach and targeting the minimum recommended values outlined in Table NA.1 of BS EN 17037:2018.

The following inputs were used in the study:

BRE Guide / BS 8206-2:2008

• Sky Conditions: Standard CIE overcast sky

• Time (24hr): 12:00 • Date: 21 September

BS EN 17037:2018

• Weather File: London Heathrow

Common Inputs to all Standards

• Working Plane Height: 0.85m

• Glazing Light Transmittance: 70%

• Window Frame thickness: 50 mm

The illuminance method has been selected to test the daylight levels within the proposed dwelling.

Based on the modeling results of the illuminance Lx calculations and thresholds analysis as shown in Fig 15-18 below, both the LKD and bedroom achieve the daylight requirement.

Table 9: Lux levels calculations results

Room	EN 17037:2018 Method 2 Assessment	BS EN 17037:2018 Method 2 Assessment - National Annex
Proposed LKD	Pass	Pass
Proposed Bedroom	Pass	Pass

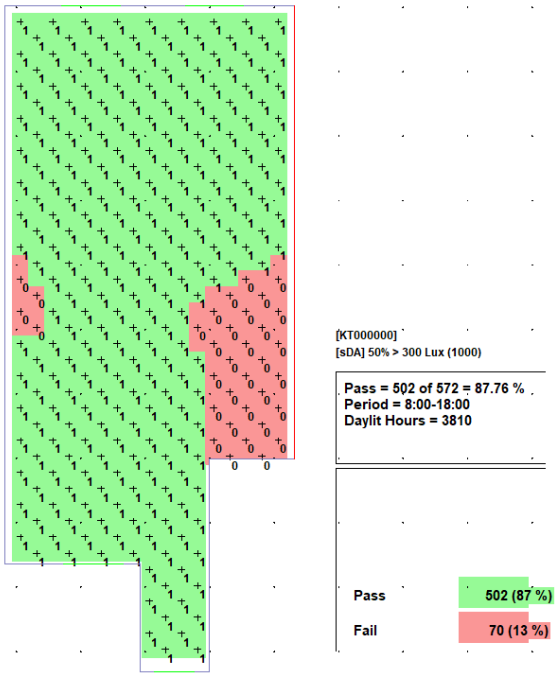


Figure 15 LKD Daylight Target Illuminance - 300Lux

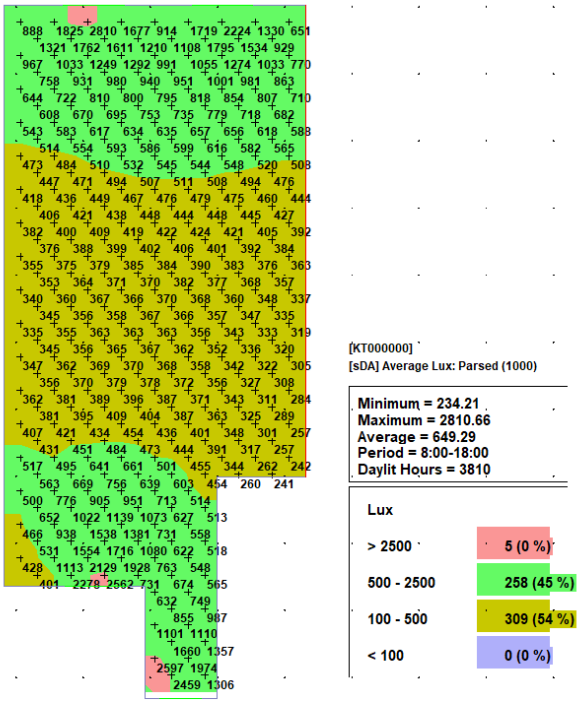


Figure 16 LKD Average Lux sDA Analysis

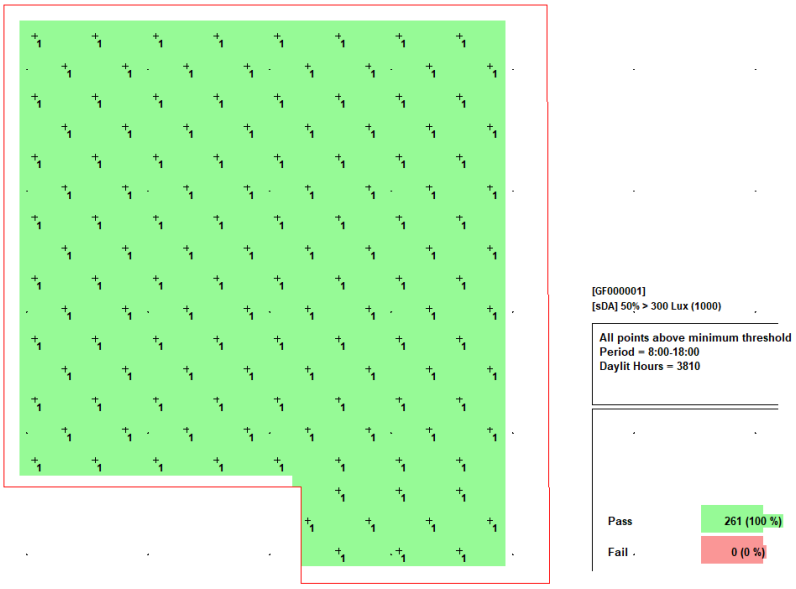


Figure 17 Bedroom Daylight Target Illuminance - 300Lux

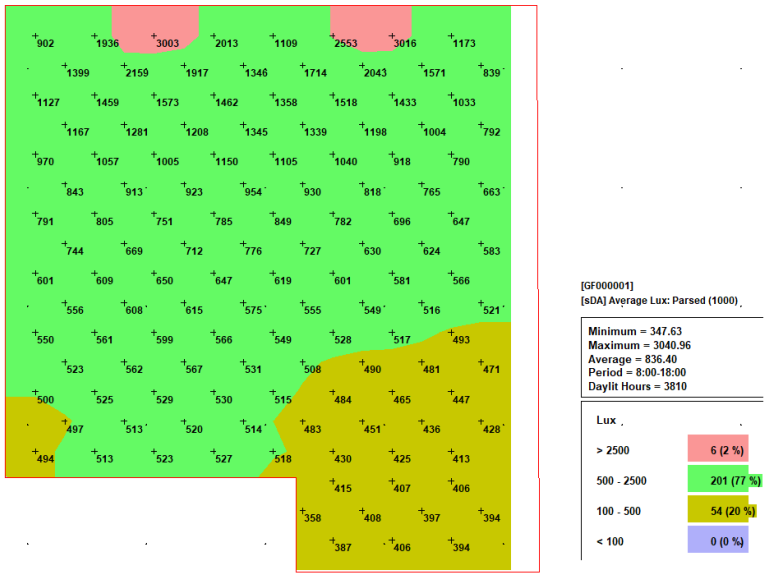


Figure 18 Bedroom Average Lux Levels sDA

Conclusion

Daylight, sunlight and shading assessments were carried out to assess the impact of the proposed dwelling, 94 Arlington Road, on the neighboring properties and open spaces that might impacted in terms of sunlight or daylight.

All windows and zones that might be at risk of losing sunlight or daylight due to the proposed new development were tested, those belonged to the following dwellings; Existing residential units at 94 Arlington Road, and 8 Delancey Passage commercial unit.

Daylight and sunlight analysis were carried out for both the existing and proposed scenarios to investigate the possible impact of the proposal on those properties.

The VSC, APSH and Sky View results, all highlighted that the impact is none to negligible, for 94 Arlington, highlighting that it will retain access to daylight and sunlight.

8 Delancey Passage is a commercial building consisting of two floors, the ground floor has two windows on the party wall parallel to the proposed dwelling, **with no rights on the title**. Nevertheless, those two windows were tested, and although one would be impacted in terms of daylight and sunlight (W6), the other window (W7), only shows medium levels of impacts for both VSC and APSH, while the sky view within the ground floor has a negligible impact due to the fact that the room has other source of daylight and sunlight. Therefore, the overall impact on 8 Delancey Passage ground floor level is Medium, whilst the first floor impact is negligible.

A shading assessment has been carried out, to determine the impact of the new proposal on the gardens of 94 & 96 Arlington Road, the calculations indicated that there will be no impact, and the gardens will retain the current solar exposure.

A daylight and sunlight analysis has been carried out for the habitable rooms of the proposed development, both habitable rooms were tested. Results indicate that both the Living Kitchen Dining area and the bedroom will benefit from sunlight and daylight levels in excess of the requirements of BS 8206-2:2008 & BS EN 17037:2018.

Appendix A: Sky View

Room 94000007 (94 Arlington Z5 Proposed)

Analysis calculation for room -

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=4.682m² Margin=0.50 m	Daylight factor	0.5 %	2.0 %	7.2 %	0.24	0.07
	Daylight illuminance	59.97 lux	246.57 lux	877.00 lux	0.24	0.07
	Sky view	1.00	1.00	1.00	1.00	1.00

Room 94000008 (94 Arlington Z4 Proposed)

Analysis calculation for room -

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=4.682m² Margin=0.50 m	Daylight factor	0.4 %	1.4 %	7.0 %	0.29	0.06
	Daylight illuminance	48.17 lux	165.12 lux	854.57 lux	0.29	0.06
	Sky view	0.00	0.55	1.00	0.00	0.00

Room 9400000A (94 Arlington Z2 Proposed)

Analysis calculation for room -

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=2.352m² Margin=0.50 m	Daylight factor	0.6 %	2.1 %	5.9 %	0.28	0.10
	Daylight illuminance	72.29 lux	259.04 lux	726.20 lux	0.28	0.10
	Sky view	1.00	1.00	1.00	1.00	1.00

Room 9400001A (94 Arlington Z1 Proposed)

Analysis calculation for room -

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=3.609m² Margin=0.50 m	Daylight factor	0.2 %	0.9 %	6.1 %	0.23	0.03
	Daylight illuminance	25.27 lux	111.80 lux	747.05 lux	0.23	0.03
	Sky view	0.00	0.69	1.00	0.00	0.00

Room 8D000000 (8 DP FF Proposed)

Analysis calculation for room -

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=47.963m² Margin=0.50 m	Daylight factor	0.9 %	9.4 %	24.5 %	0.10	0.04
	Daylight illuminance	110.99 lux	1152.67 lux	2998.48 lux	0.10	0.04
	Sky view	1.00	1.00	1.00	1.00	1.00

Room GF000000 (8 DP GF Proposed)

Analysis calculation for room -

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=52.681m² Margin=0.50 m	Daylight factor	0.2 %	1.7 %	11.1 %	0.11	0.02
	Daylight illuminance	23.85 lux	207.75 lux	1359.19 lux	0.11	0.02
	Sky view	0.00	0.94	1.00	0.00	0.00

Room 94000014 (94 Arlington Z1 Existing)

Analysis calculation for room -

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=2.352m² Margin=0.50 m	Daylight factor	0.6 %	2.3 %	7.0 %	0.25	0.08
	Daylight illuminance	70.08 lux	284.73 lux	860.17 lux	0.25	0.08
	Sky view	1.00	1.00	1.00	1.00	1.00

Room 8D000002 (8 DP GF Existing)

Analysis calculation for room -

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=52.681m² Margin=0.50 m	Daylight factor	0.3 %	2.7 %	11.1 %	0.11	0.03
	Daylight illuminance	35.42 lux	324.12 lux	1357.52 lux	0.11	0.03
	Sky view	0.00	0.99	1.00	0.00	0.00

Room 94000010 (94 Arlington Z5 Existing)

Analysis calculation for room -

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=4.682m² Margin=0.50 m	Daylight factor	0.6 %	2.2 %	7.5 %	0.26	0.08
	Daylight illuminance	71.76 lux	274.45 lux	918.83 lux	0.26	0.08
	Sky view	1.00	1.00	1.00	1.00	1.00

Room 94000011 (94 Arlington Z4 Existing)

Analysis calculation for room -

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=4.682m² Margin=0.50 m	Daylight factor	0.5 %	1.7 %	7.8 %	0.31	0.07
	Daylight illuminance	62.99 lux	202.24 lux	954.54 lux	0.31	0.07
	Sky view	0.00	0.75	1.00	0.00	0.00

Room 94000013 (94 Arlington Z2 Existing)

Analysis calculation for room -

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=2.352m² Margin=0.50 m	Daylight factor	0.6 %	2.1 %	6.0 %	0.26	0.09
	Daylight illuminance	68.07 lux	260.43 lux	734.37 lux	0.26	0.09
	Sky view	1.00	1.00	1.00	1.00	1.00

Room 8D000001 (8 DP FF Existing)

Analysis calculation for room -

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=47.963m² Margin=0.50 m	Daylight factor	0.8 %	9.5 %	24.7 %	0.09	0.03
	Daylight illuminance	102.62 lux	1157.21 lux	3011.62 lux	0.09	0.03
	Sky view	1.00	1.00	1.00	1.00	1.00

Appendix B: Shading Results

Table 7: Shading Analysis 21st of June

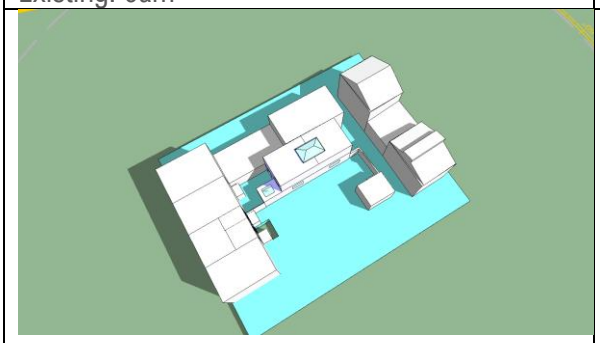
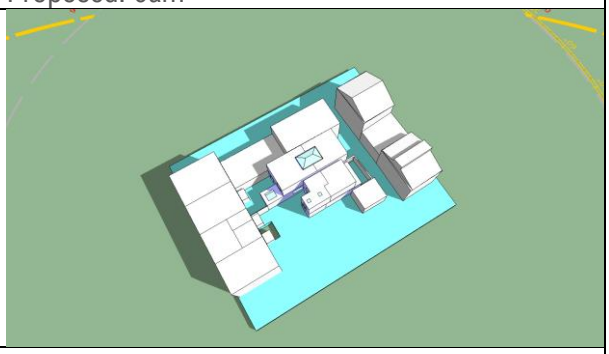
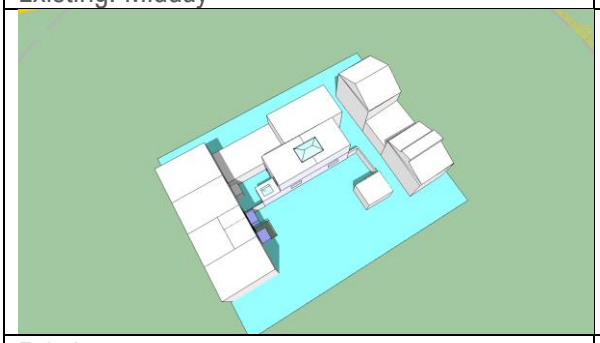
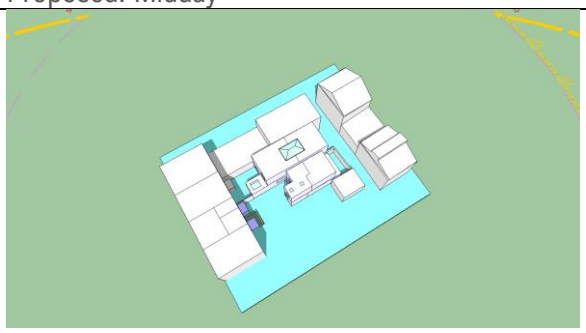
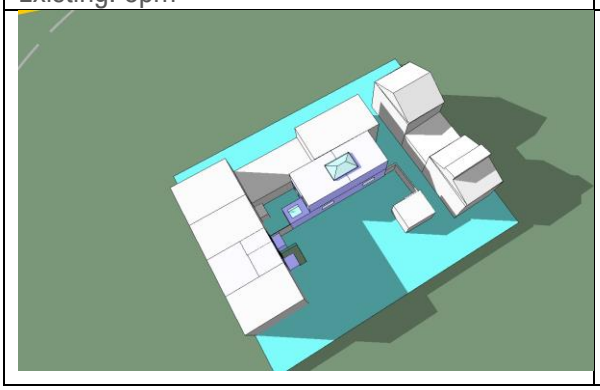
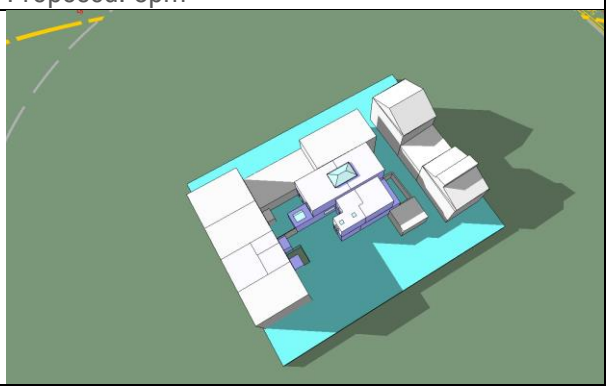
Existing: 9am	Proposed: 9am
	
Existing: Midday	Proposed: Midday
	
Existing: 5pm	Proposed: 5pm
	

Table 8: Shading Analysis 21st of March

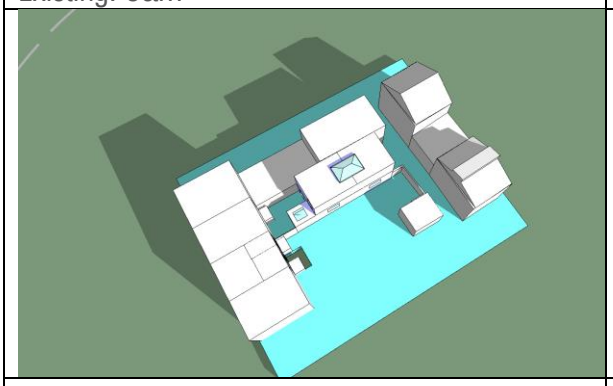
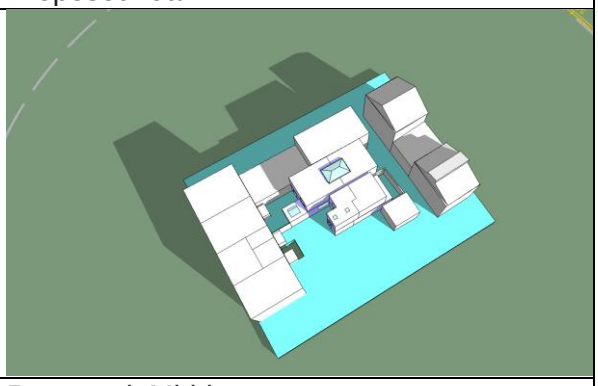
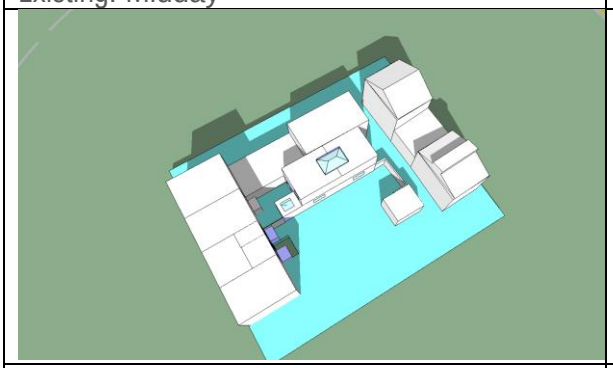
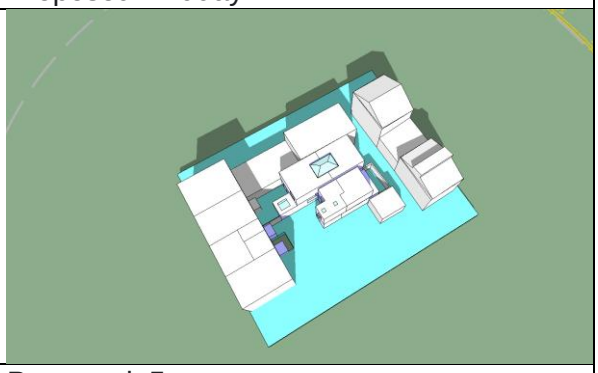
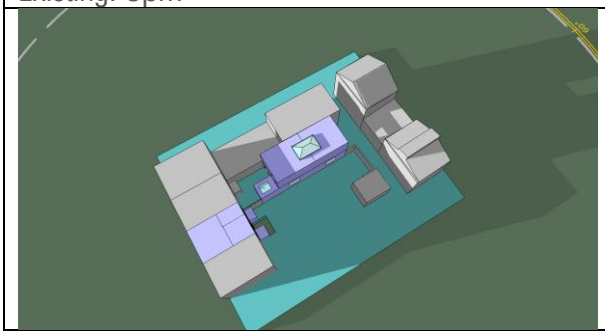
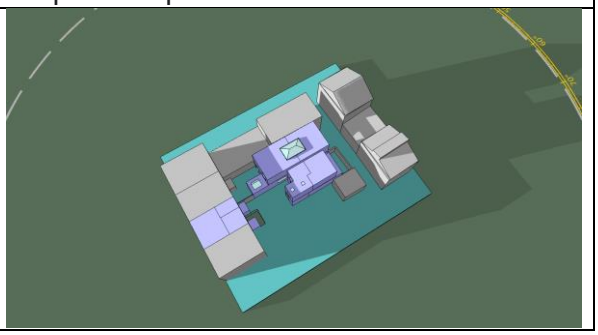
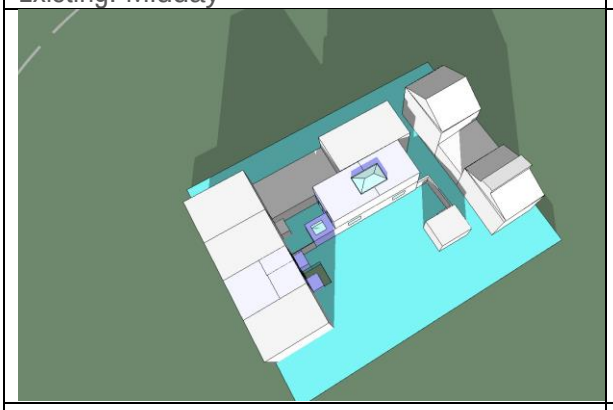
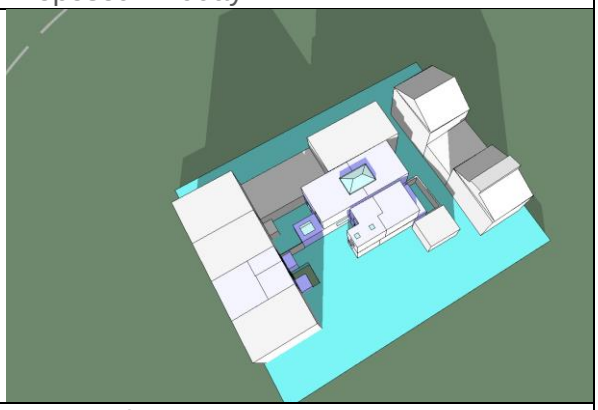
Existing: 9am	Proposed: 9am
	
Existing: Midday	Proposed: Midday
	
Existing: 5pm	Proposed: 5pm
	

Table 9: Shading Analysis 21st of December

Existing: 9am	Proposed: 9am
	
Existing: Midday	Proposed: Midday
	
Existing:3pm	Proposed: 3pm