

PROPOSED SCHEME DAYLIGHT, SUNLIGHT & OVERSHADOWING

Consort Road

Produced by XCO2 for Bluecroft Peckham Ltd

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EXECUTIVE SUMMARY

The daylight, sunlight and overshadowing analysis indicates that the habitable rooms of the proposed development at Consort Road will achieve good levels of daylight and sunlight. Each dwelling will benefit from adequately sunlit open spaces.

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

The methodology set out in this report is in accordance with BRE's "Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice" by PJ Littlefair (2011) which is accepted as good practice by Planning Authorities.

Computer modelling software was used to carry out the assessments. The model used was based on drawings and a 3D model provided by the design team.

DAYLIGHT ASSESSMENT

The rooms evaluated in the internal daylight assessment include open plan kitchen, living room, dining spaces, and bedrooms within the proposed development.

The assessment was carried out for 2 no. dwellings considered to be the worst-case units in terms of daylight access across the scheme. All habitable rooms on ground floor level within these dwellings have been included in the assessment.

The analysis results indicated that all worst-case rooms satisfy the recommendations set out by the BRE's "Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice" by PJ Littlefair (2011), which is accepted as good practice by Planning Authorities. Therefore, all habitable spaces within the development will satisfy the BRE daylight recommendations.

Overall, the proposed development as a whole is anticipated to achieve good levels of daylighting to all

dwellings and habitable spaces, and is therefore considered to provide good quality of accommodation to the future occupants in terms of daylight.

SUNLIGHT ASSESSMENT

The assessment was carried out for 1 no. dwelling considered to be the worst-case unit in terms of sunlight access across the scheme as it is the only unit that has a living space on ground floor level.

The living space on ground floor level has windows facing within 90° of due south and was assessed for solar access.

The analysis has shown that the living space will achieve adequate annual and winter sunlight based on the BRE Guide meeting the recommendations.

Overall, it can be concluded that the proposed design offers optimum accessibility to sunlight in living spaces.

OVERSHADOWING ASSESSMENT

The building's conformity to the BRE guidance on sunlight access to amenity spaces has been assessed to determine whether the designed amenity spaces will receive adequate sunlight.

A solar access analysis was undertaken for the amenity spaces on three worst-case dwellings, on either side of the development, for the full 24 hours on 21st of March in line with the BRE guidance.

All three worst-case dwellings have a minimum of 1 amenity space that achieves at least 2 hours of sunlight on the 21st of March over at least 50% of the area.

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All the dwellings at the proposed development therefore have a minimum of one amenity space considered to be adequately sunlit.

INTRODUCTION

The site is located in a city environment and the assessment is based on the BRE guidance.

SITE

The proposed development is a mixed-use building located at Consort Road just north of the railway line, within the London Borough of Southwark.

The development consists of 8 residential units (6 houses and 2 flats), ranging between ground floor and second floor and circa 145sqm of commercial space on two levels in a separate building.

 Site Location



Figure 1: Aerial view of the proposed scheme at Consort Road - approximate site area highlighted in yellow.

METHODOLOGY

The assessment is based on guidelines set out in the BRE “Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice” (2011).

The methodology is based on the British Research Establishment’s (BRE) publication “Site Layout Planning for Daylight and Sunlight - A Guide to Good Practice,” by PJ Littlefair (2011).

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

The guide also clearly states that “this document should not be seen as an instrument of planning policy” and that “in special circumstances the developer or planning authority may wish to use different target values”.

DAYLIGHT

The BRE guidelines use the average daylight factor calculation (ADF). The ADF is a measure of internal daylight indicating the ratio of inside illuminance to the outside illuminance expressed as a percentage. The BRE states that daylighting in new rooms can be determined using average daylight factor (ADF) calculations. BS8206-2 Code of Practice for Daylighting recommends different average daylight factors for different habitable spaces. These are as follows:

- 1% for bedrooms
- 1.5% for living rooms and
- 2% for kitchens, or rooms with kitchens

SUNLIGHT

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).

The BRE guide states that “in general, a dwelling or non-domestic building which has a particular requirement for sunlight, will appear reasonably sunlit provided: at least one main window faces within 90° of due south and the centre of at least one window to a main living room can receive 25% of annual probable sunlight hours, including at least 5% of annual probable sunlight hours in the winter months between 21 September and 21 March. “

Note that the BRE sunlight tests relate mainly to living room windows, although care should be taken to ensure that kitchens and bedrooms receive reasonable amounts of sunlight.

OVERSHADOWING

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

DAYLIGHT ASSESSMENT

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

A total of 2 no. of units located on both ends of the development that are considered to be the worst-case dwellings in terms of daylight access have been included in the assessment. All habitable rooms (kitchens, living, dining rooms and bedrooms) on the ground floor level within these dwellings were assessed.

The references of the evaluated dwellings and the corresponding habitable rooms can be found in the appendix. The tables below show the Average Daylight Factor (ADF) results for all the assessed rooms.

For the calculations, the following assumptions have been made:

- 50% average internal surface reflectivity
- 70% light transmission for vertical glazing

The analysis results indicate that all 3 rooms tested on the worst-case floor meet the BRE recommended internal daylight levels.

Overall, the habitable rooms are predicted to receive adequate daylight levels across the scheme.



Figure 2: Assessed rooms on ground floor marked in yellow

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Table 1: Detailed Daylight results

Unit ref	Floor	Room type	Window No.	VSC (%)	Room ADF (%)	ADF Target (%)	Comments
1B 2P	Ground	Bedroom	W1	25.2	3.1	1	Good internal daylight levels
	Ground	KLD	W2	18.0	2.7	2	
			W3	21.2			
			W4	35.1			
3B 5P House	Ground	Kitchen	W5	34.6	3.8	2	
			W6	19.6			

Table 2: Daylight results summary

Number of habitable rooms tested	3
Number of kitchen/living/dining rooms	2
Number of kitchen/living/dining rooms with ADF meeting 2% target for kitchens	2
Number of bedrooms	1
Number of bedrooms with ADF meeting 1% target	1
Number of rooms with ADF below the BRE recommendations	0

SUNLIGHT ASSESSMENT

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

A sunlight access assessment has been carried out for south facing living rooms of the proposed development in line with the BRE methodology.

The worst-case living room located on ground floor level with windows facing within 90 degrees of due south was tested for sunlight access in line with the BRE methodology.

This worst-case south facing living room was found to satisfy the sunlight criteria for both annual and winter sunlight access. The table below elaborates the results of the assessment.



 Assessed room - Living room

Figure 3: Assessed Living space on ground floor

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Table 3: Detailed Sunlight results

Unit ref	Floor	Room type	Window No.	Window APSH > 25%?	Window WPSH > 5%?	Comments
1B 2P	Ground	KLD	W2	>25%	>5%	Good sunlight access to living space
			W3	>25%	>5%	Good sunlight access to living space
			W4	>25%	>5%	Good sunlight access to living space

Table 4: Sunlight results summary

Number of living rooms tested	1
Number of living rooms with at least one south facing window achieving APSH > 25% & WPSH > 5%	1
Number of living rooms with at least one south facing window achieving APSH > 25%	0
Number of living rooms with at least one south facing window achieving WPSH > 5%	0
Number of living rooms not meeting any of the above criteria	0

OVERSHADOWING ASSESSMENT

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

A review of the site plan showed that each individual unit of the proposed development has at least one amenity space. Three of the worst-case dwellings, on either side of the development were tested for overshadowing access. A Solar Access Analysis was undertaken on six amenity areas for the full 24 hours on the 21st of March as set out by the BRE.

The amenity areas of the dwellings to the far west; 1B2P Flat, and 2B4P Flat and to the far east; 3B5P

House have a minimum of one amenity space each that achieves at least 2 hours of sunlight on the 21st of March over at least 50% of their area, as shown in the table below. This satisfies the BRE criteria.

All the dwellings at the proposed development therefore have a minimum of one amenity space considered to be adequately sunlit.

Table 5: Table showing overshadowing results for proposed amenity spaces

Unit ref	Floor	Amenity Ref	Lit Area Proposed	Comments
1B2P Flat	Ground (garden)	A1	99%	Meets BRE criteria
2B4P Flat	First (balcony)	A1	99%	Meets BRE criteria
	First (balcony)	A2	99%	Meets BRE criteria
	Second (terrace)	A3	54%	Meets BRE criteria
3B5P House	Ground (courtyard)	A1	17%	Below BRE criteria
	First (balcony)	A2	75%	Meets BRE criteria
	Second (terrace)	A3	65%	Meets BRE criteria

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Figure 4: Assessed amenity areas of the three worst-case dwellings

CONCLUSION

The daylight, sunlight and overshadowing analysis indicates that the habitable rooms of the proposed development at Consort Road will achieve good levels of daylight and sunlight. Each dwelling will benefit from adequately sunlit open spaces.

DAYLIGHT ASSESSMENT

The rooms evaluated in the internal daylight assessment include open plan kitchen, living room, dining spaces, and bedrooms within the proposed development.

The assessment was carried out for 2 no. dwellings considered to be the worst-case units in terms of daylight access across the scheme. All habitable rooms on ground floor within these dwellings have been included in the assessment.

The analysis results indicated that all three rooms satisfy the recommendations set out by the BRE's "Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice" by PJ Littlefair (2011), which is accepted as good practice by Planning Authorities.

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

SUNLIGHT ASSESSMENT

The assessment was carried out for 1 no. dwelling considered to be the worst-case units in terms of sunlight access across the scheme.

A total of one living space on ground floor level with at least one main window facing within 90° of due south each was assessed for solar access.

The analysis has shown that the living space will achieve adequate annual and winter sunlight based on the BRE Guide.

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

OVERSHADOWING ASSESSMENT

The building's conformity to the BRE guidance on sunlight access to amenity spaces has been assessed to determine whether the designed amenity spaces will receive adequate sunlight.

A solar access analysis was undertaken for the amenity spaces on three worst-case dwellings, on either side of the development, for the full 24 hours on 21st of March in line with the BRE guidance.

All three worst-case dwellings have a minimum of one amenity space that achieves at least 2 hours of sunlight on the 21st of March over at least 50% of the area.

All the dwellings at the proposed development therefore have a minimum of one amenity space considered to be adequately sunlit

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