PROPOSED SCHEME
DAYLIGHT & SUNLIGHT

33 Belsize Avenue

Produced by XCO2 for Vikki Done

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XCO2
56 Kingsway Place, Sans Walk
London EC1R 0LU

+44 (0)20 7700 1000
mail@xco2.com
xco2.com

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EXECUTIVE SUMMARY

The daylight and sunlight analysis indicates that the habitable rooms of the proposed development at 33 Belsize Avenue will achieve good levels of daylight and sunlight.

Daylight and Sunlight analysis was carried out for the proposed development at 33 Belsize Avenue, located within the London Borough of Camden. 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 an open plan kitchen/living/dining room, living room, and bedroom within the proposed development.

The assessment was carried out for 3 no. rooms at lower ground and ground floor levels within the dwelling. The other habitable rooms are located on the upper levels of the dwelling, which will not be altered as part of the proposed development. The analysis results indicated that all the evaluated 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

A total of 1 living space with at least one main window facing within 90° of due south was assessed for solar access.

The analysis has shown that all windows associated with this room 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 this living space considering the context and limitations of the site.

INTRODUCTION

The site is located in dense urban environment and the interpretation of the results requires careful consideration of the BRE guidance.

SITE

The proposed development is a single, family residential dwelling located at 33 Belsize Avenue within the London Borough of Camden, approximately 250m south-west of Haverstock Hill (Figure 1). The scheme is located within the Belsize Park Conservation area but does not have listed status. The approximate site boundary and location, as well as adjacent roads are illustrated in the figure below.

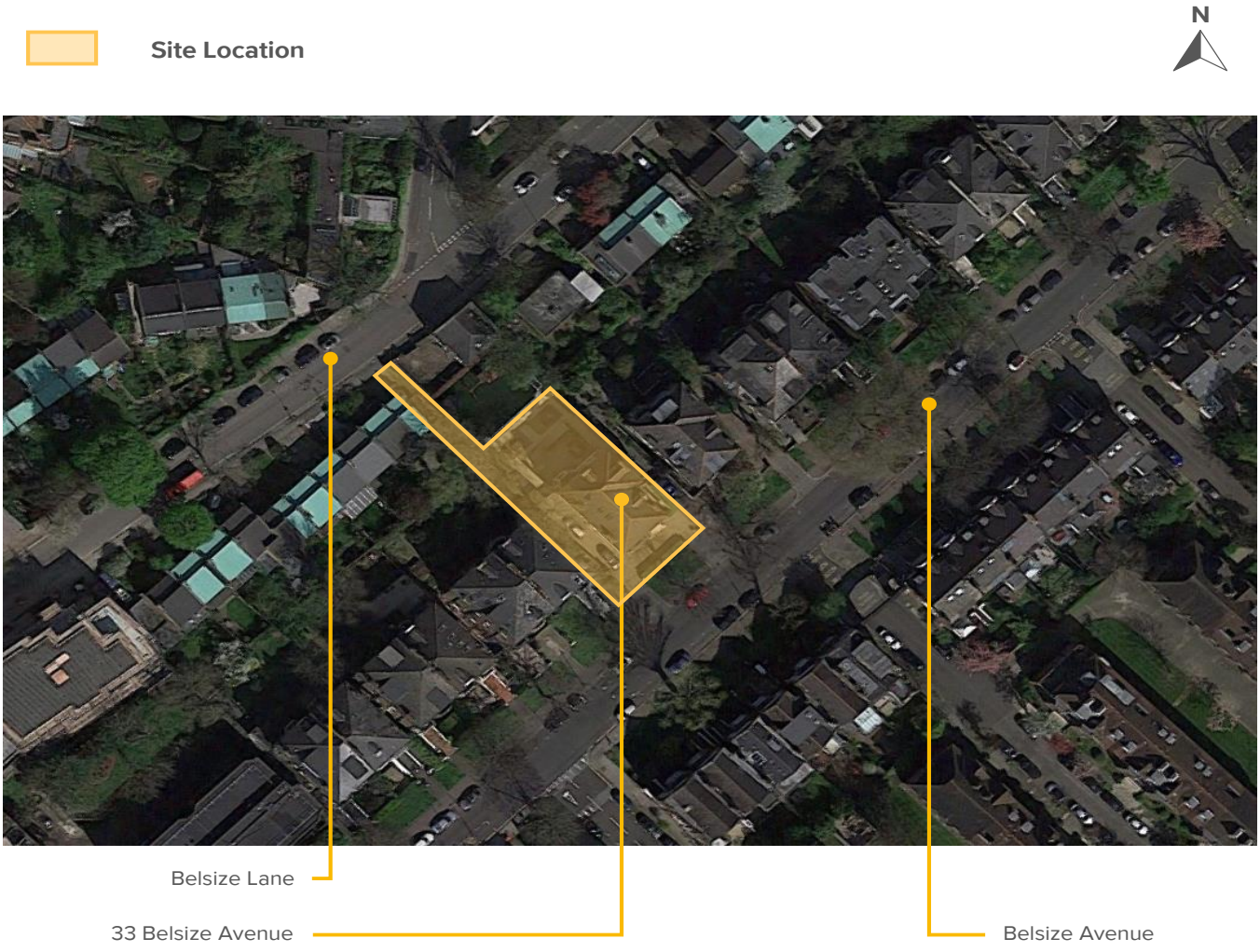


Figure 1: Site location and neighbouring buildings assessed

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:

- 1.0% for bedrooms
- 1.5% for living rooms, and;
- 2.0% 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.

DAYLIGHT ASSESSMENT

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

A total of 3 no. of rooms located over the lower ground and ground floors of the development have been included in the assessment. All habitable rooms (kitchens, living rooms, dining rooms and bedrooms) within the proposed extension and areas of the dwellings where alterations will take place were assessed.

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

For the calculations, the following assumptions have been made:

- 65% average internal surface reflectivity
- 75% light transmission for vertical glazing
- 85% maintenance factor

The results from the proposed daylight assessment analysis illustrate that all of the 3 rooms investigated will meet the ADF targets outlined in the BRE criteria.

A conservative VSC assumption of 27% was made for the kitchen/living/dining and living rooms located on the ground floor, as there is no massing in close proximity to the north-west or south-east windows to obstruct in terms of daylight access. Based on the VSCs achieved for the lower ground level, the VSCs for the ground floor windows will most likely be above 27%.

Table 1: Detailed Daylight results

Room ref	Floor	Room type	Window No.	VSC (%)	Room ADF (%)	ADF Target (%)	Comments
1	Lower Ground	Bedroom	1	35.87	2.86	1.0	Pass
			2	38.95			
			3	30.28			
2	Ground	KLD	4	27	5.73	2.0	Pass
			5	27			
			6	27			
			7	27			
3	Ground	Living	8	27	2.77	1.5	Pass
			9	27			
			10	27			

Table 2: Daylight results summary

Number of habitable rooms tested	3
Number of kitchen/living/dining rooms with ADF meeting 2.0% target for kitchens	1
Number of living rooms with ADF meeting 1.5% target for living space	1
Number of bedrooms with ADF meeting 1.0% target for bedrooms	1
Number of rooms with ADF below the BRE recommendations	0

SUNLIGHT ASSESSMENT

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

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

The results illustrate that the room evaluated will receive excellent levels of sunlight. The windows achieved APSH and WPSH results surpassing the requirements set out by the BRE criteria.

Table 3: Detailed Sunlight results

Room ref	Floor	Room type	Window No.	Window APSH > 25%?	Window WPSH > 5%?	Comments
3	Ground	Living Room	8	79.2%	29.7%	Pass
			9	75.1%	27.4%	Pass
			10	55.6%	16.6%	Pass

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 not meeting any of the above criteria	0

CONCLUSION

The daylight and sunlight analysis indicates that the habitable rooms of the proposed development at 33 Belsize Avenue will achieve good levels of daylight and sunlight.

DAYLIGHT ASSESSMENT

The rooms evaluated in the internal daylight assessment include open plan kitchen/living/dining room, living room and bedroom at the lower ground and ground floors within the proposed extension development. The assessment was carried out for 3 no. rooms.

The analysis results indicated that all the assessed 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

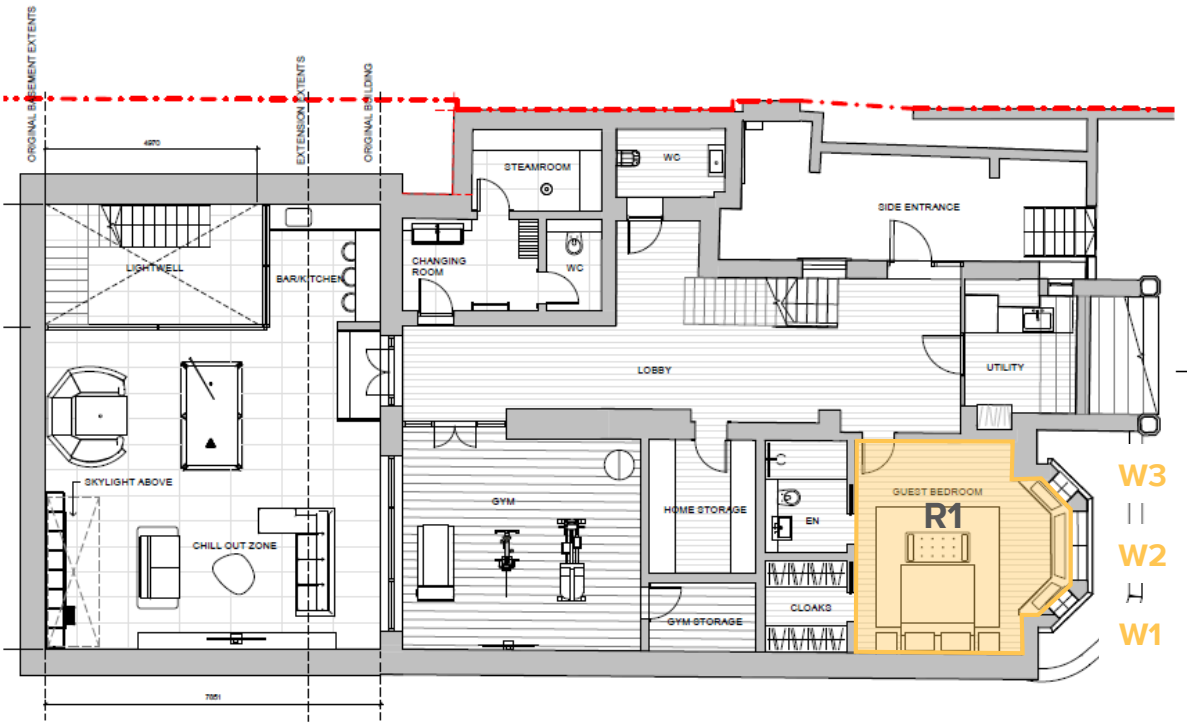
A total of 1 living space, with at least one main window facing within 90° of due south was assessed for solar access.

The analysis has shown that all the windows linked to this room will achieve adequate annual and winter sunlight based on the BRE Guide.

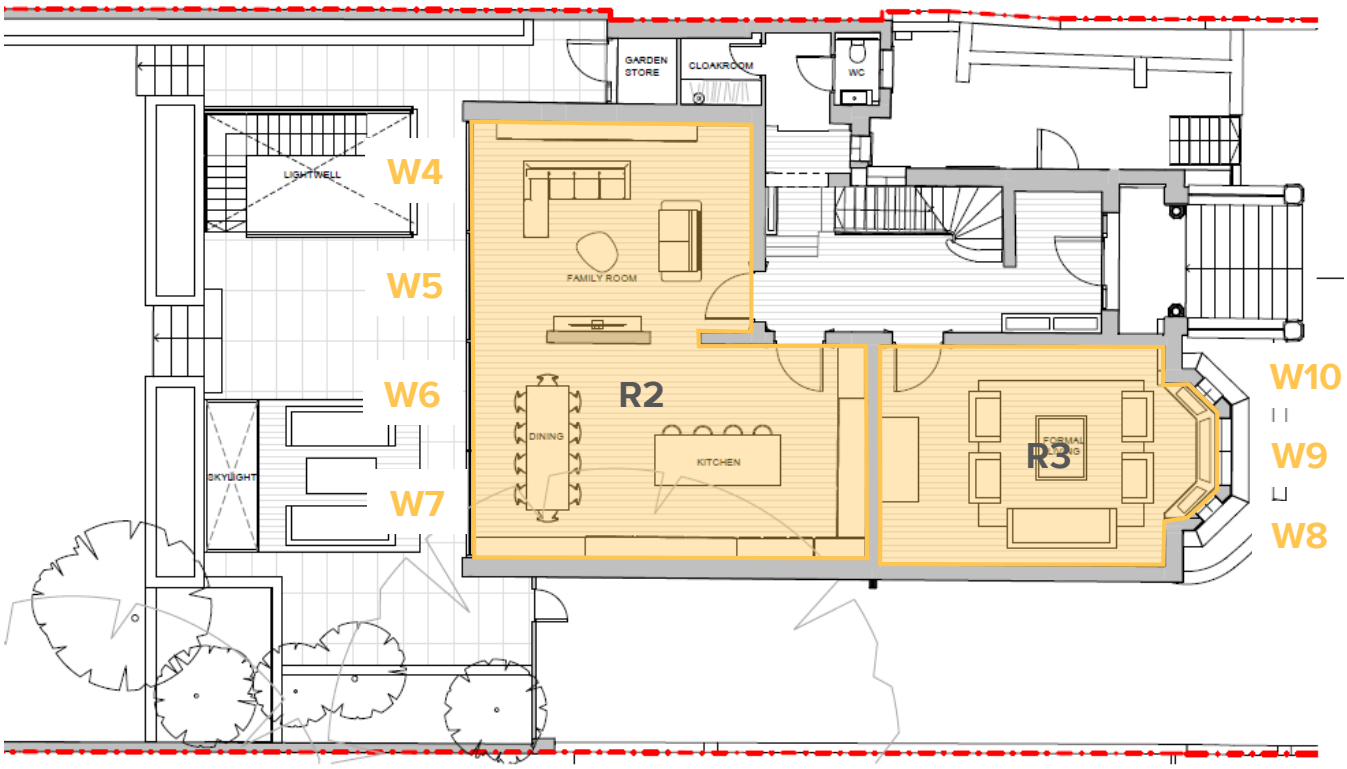
Overall, it can be concluded that the proposed design offers optimum accessibility to sunlight in the assessed living space considering the context and limitations of the site.

APPENDIX A - WINDOW/ROOM REFERENCE

LOWER GROUND FLOOR:



GROUND FLOOR:



XCO2
56 Kingsway Place, Sans Walk
London EC1R 0LU

+44 (0)20 7700 1000
mail@xco2.com
xco2.com