

38 Leighton Road, London NW5

# Daylight & Sunlight Assessment

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Urban Space Management Ltd



## Document Issue Register

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1.0	Issue to client	07/09/2017	Chris Collier
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## 1 Introduction

This report details a Daylight & Sunlight Assessment for the proposed extension at 38 Leighton Road, London NW5. The mid-terrace property is situated to the south of Leighton Road. The site is immediately surrounded by residential properties on either side, with substantially higher residential buildings to the north of Leighton Road.

The proposed extension consists of a rear lower ground floor garden room, with rooftop extension sloping away from view at street level (angled to match the existing party wall profile). The proposed building has been designed with consideration to the existing neighbouring properties.

A photographic survey has been undertaken by Urban Space Management in July 2017.

The purpose of this report is to perform a daylight and sunlight assessment for the habitable rooms of the surrounding residential properties, and to compare with guidance provided by the BRE (BR209: Site Layout Planning for Daylight and Sunlight 2011).



*Figure 1: 38 Leighton Road (centre-left of image)*

## 2 Executive Summary

There are two components of natural light which need to be considered when assessing the impact of a proposed development on the surrounding residential properties, being the level of daylight and the annual sunlight hours. In terms of daylight levels to a window, the BRE recommends a Vertical Sky Component (VSC) of 27%, or not less than 0.8 times its former level. The 27% figure relates to low-density suburban housing. The BRE advises that in inner city locations lower values can be acceptable.

### 36 Leighton Road

The proposed rear garden room extension to 38 Leighton Road, is fully below the existing boundary wall to 36 Leighton Road, and thus is not visible from the centre of the GF rear windows. Thus obstruction to daylight & sunlight is unlikely to be an issue.

### 40 Leighton Road

All of the windows (south facing) would retain a VSC of above 27%, and not less than 0.8 times their former level, thus the reduction in daylight levels would not be noticeable according to the BRE. The assessed windows lie within 20° of due south and retain a VSC above 27%, thus sunlight analysis is not necessary according to the BRE.

### Properties north of Leighton Road

The proposed extension falls below a 25° line measured from a point 1.6m high on the south-facing building line of the properties to the north of Leighton Road, thus daylighting is unlikely to be significantly affected.

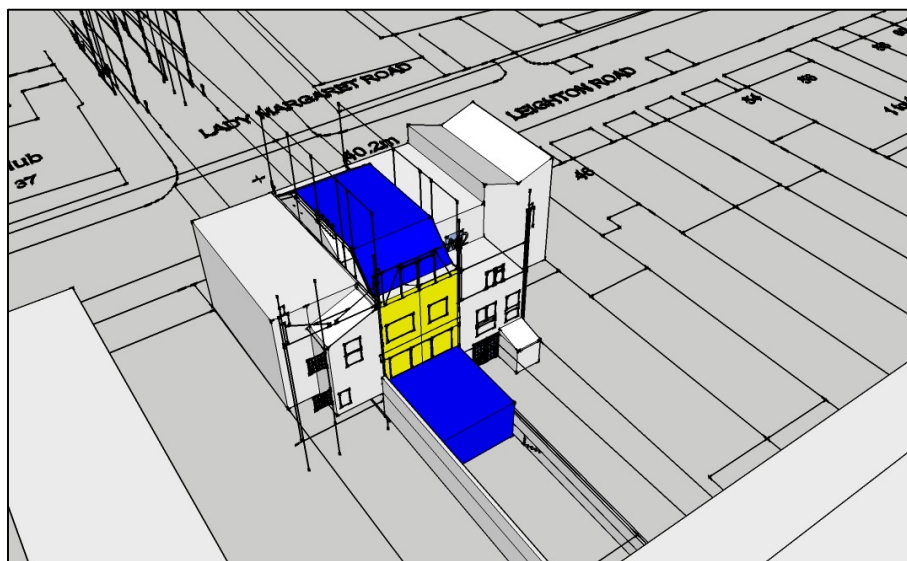


Figure 2: 3D Site Model – r/o 38 Leighton Road (yellow), Proposed extension (blue)

## 3 Discussion

The introduction to the BRE document 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice' states the following:

'The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and this document should not be seen as an instrument of planning policy. Its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of many factors in site layout design. In special circumstances the developer or Planning Authority may wish to use different target values. For example, in an historic city centre a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings.'

With this in mind, the assessment has been carried out to assess the impact of the development on daylight and sunlight levels to neighbouring residential properties.

### 3.1 Measurement of Daylight

If a proposed development will fall beneath a 25° angle taken from the centre of the lowest window at an existing property, then no further assessment will be required. Furthermore, if the centre of a main window of the next door property lies on the extension side of a 45° line drawn in plan and elevation, then the extension may well cause a significant reduction in the skylight received by the window.

There are three mechanisms for determining the daylight levels to a window or room:

1. Vertical Sky Component (VSC)
2. No Sky Contours (NSC)
3. Average Daylight Factor (ADF)

The second and third methods (NSC and ADF) require knowledge of the internal layout of the property being assessed, whilst the first method is determined solely on the external skyline obstructions. In this instance it is appropriate to assess the neighbouring properties based on the first method (VSC) in order to avoid disruption to neighbouring properties. The VSC methodology is defined as:

'Ratio of that part of illuminance, at a point on given vertical plane, that is received directly from a CIE Standard Overcast Sky, to illuminate on a horizontal plane due to an unobstructed hemisphere of this sky'.

The VSC for a completely unobstructed CIE Standard Overcast Sky is 39.6%. The BRE guideline VSC for an existing window in a habitable room is 27%, or not less than 0.8 times its former value. This figure has been derived from a low-density suburban housing model. The BRE guide provides flexibility for a 'historic city centre' where the existing skyline does not allow for a figure of 27% to be attained.

### 3.2 Measurement of Sunlight

The sunlight to a given window is quantified using the Annual Probable Sunlight Hours (APSH) method, which in London equates to approximately 1500 hours. An indicator is provided in the BRE guide which is overlaid with 100 spots, each representing approximately 15 hours. Each spot which is uncovered by an obstruction can thus be counted to provide a percentage of total APSH.

The guideline criteria for assessing annual sunlight at a reference point (centre of window) of an existing building is that it receives 25% of APSH including at least 5% of APSH in winter and not less than 0.8 times its former value.

According to the BRE guidance, it is not always necessary to do a full calculation to check sunlight potential. The guideline above is met if the following is true:

- If the distance of each part of the new development from the existing window is three or more times its height above the centre of the existing window (obstructions within 90° of due north of the existing window need not count here)
- The window wall faces within 90° of due south and no obstruction, measured in the section perpendicular to the window wall, subtends an angle of more than 25° to the horizontal (again, obstructions within 90° of due north of the existing window need not be counted).
- The window wall faces within 20° of due south and the reference point has a VSC of 27% or more

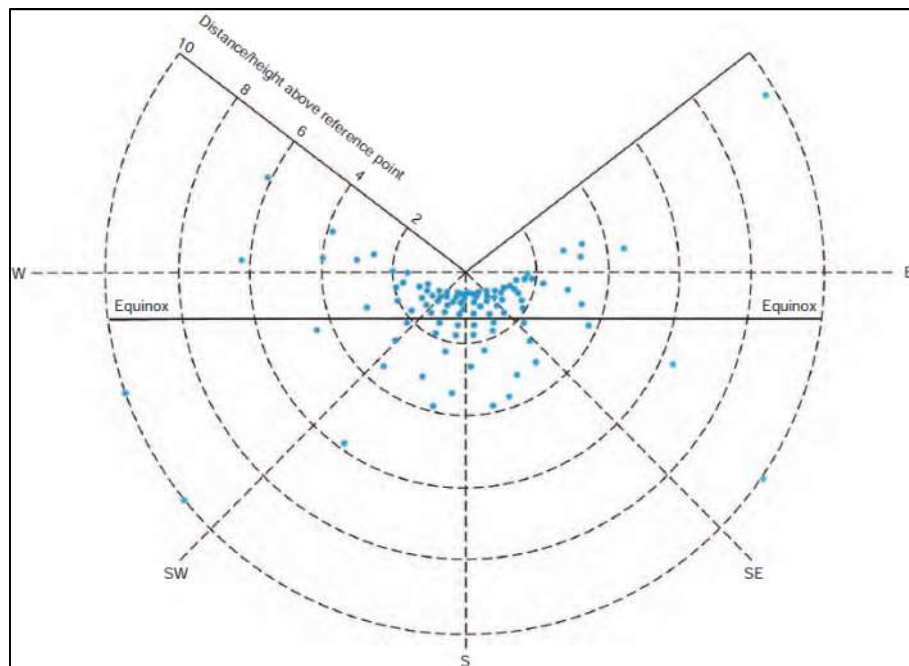


Figure 3: BRE Sunlight Availability Indicator - London

### 3.3 Daylight & Sunlight Analysis of surrounding properties

The surrounding properties which have been assessed include the following:

- 36 Leighton Road
- 40 Leighton Road
- Properties north of Leighton Road

#### 3.3.1 36 Leighton Road

The proposed rear garden room extension to 38 Leighton Road, is fully below the existing boundary wall to 36 Leighton Road, and thus is not visible from the centre of the GF rear windows.



*Figure 4: View from 36 Leighton Road (arrow indicates boundary wall)*



### 3.3.2 40 Leighton Road

The property is shown below, the rear window wall of the property faces due south. The 1<sup>st</sup> photo has been taken from the roof of 38 Leighton Road, and the 2<sup>nd</sup> photo has been taken from the location of the proposed rear garden room:



*Figure 5: r/o 40 Leighton Road (2F)*



*Figure 6: r/o 40 Leighton Road (GF)*

### Results of Daylight & Sunlight Analysis

A Vertical Sky Component (VSC) assessment criteria of 27% is usually adopted, however the BRE advises that in inner city locations lower values can be acceptable.

The results of the daylight assessment for the rear of 40 Leighton Road indicate that all of the windows (south facing) would retain a VSC of above 27%, and not less than 0.8 times their former level, thus the reduction in daylight levels would not be noticeable according to the BRE.

The assessed windows lie within 20° of due south and retain a VSC above 27%, thus sunlight analysis is not necessary according to the BRE.

Window ID	Window Location	VSC existing (%)	VSC proposed (%)	Ratio	Notes:
W1	Ground floor	28.93	28.25	0.98	Reduction of 2.3%
W2	2 <sup>nd</sup> floor	33.55	31.74	0.95	Reduction of 5.4%

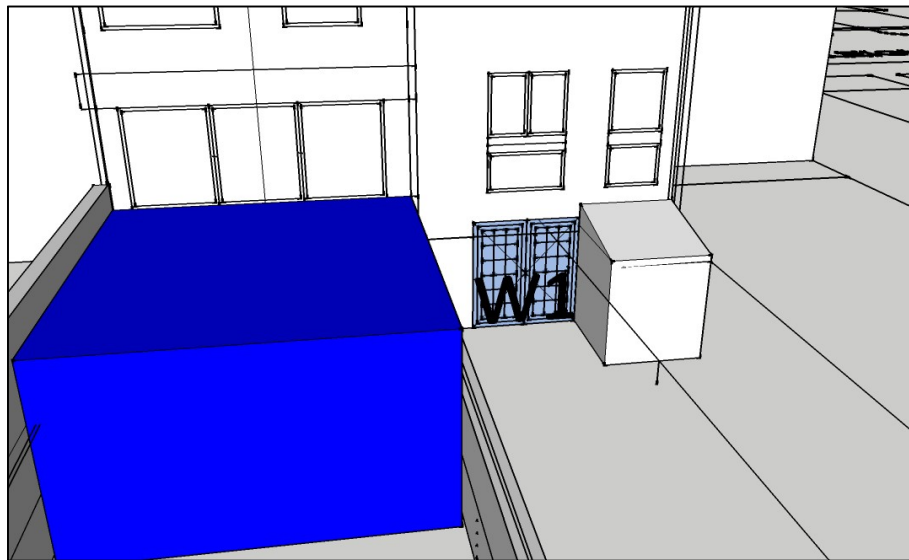


Figure 7: Window W1, Ground floor, 40 Leighton Road (3D Model with window ID's)

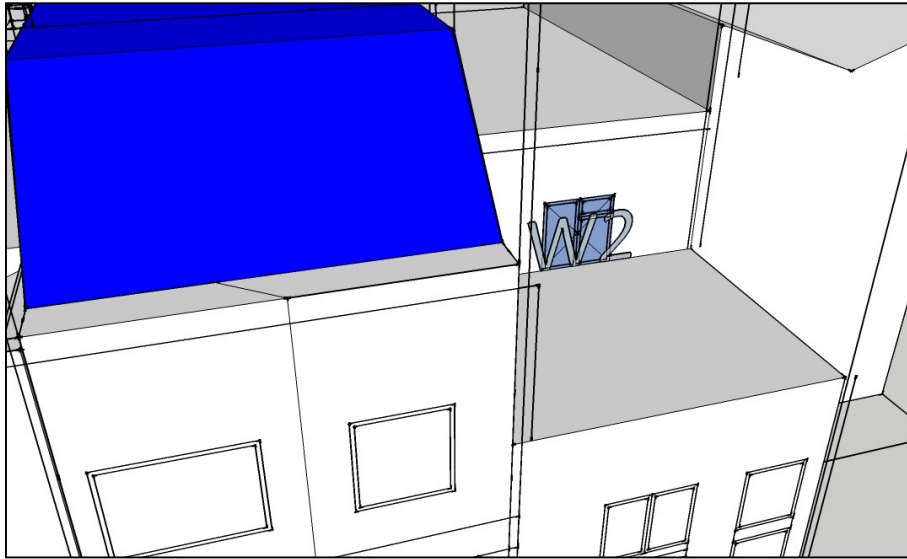


Figure 8: Window W2, 2<sup>nd</sup> floor, 40 Leighton Road (3D Model with window ID's)

### 3.3.3 Properties north of Leighton Road

The proposed extension falls below a 25° line measured from a point 1.6m high on the south-facing building line of the properties to the north of Leighton Road. Thus daylighting is unlikely to be significantly affected, according to the BRE.

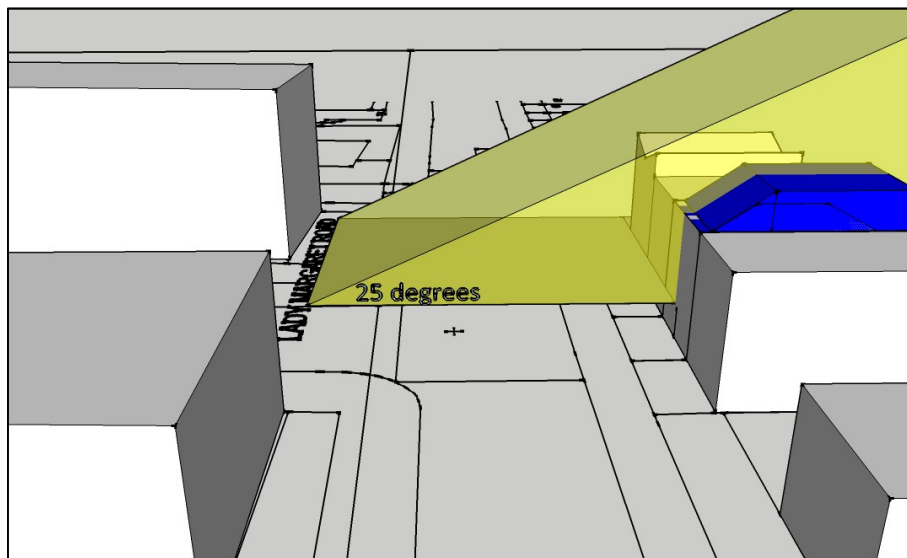


Figure 9: 25 degree line – Ground Floor, Properties north of Leighton Road