s p planning

14 WOODCHURCH ROAD, LONDON NW6 3PN

Daylight Assessment

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R1396 DS

74 clerkenwell road
clerkenwell
london ec1m 5qa

t: 020 7253 1979

info@spplanning.co.uk
www.spplanning.co.uk

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1.0 INTRODUCTION

1.1 This report provides a quantitative assessment of the levels of daylight that would be achieved within the proposed basement room to the rear of 14 Woodchurch Road. The assessment has been undertaken in full accordance with the guidelines set out in the Building Research Establishment (BRE) document *"Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice"* (BR209, Second Edition 2011). The introduction states:

> *"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"*

1.2 The proposed basement room would provide secondary living accommodation. The property would incorporate a large kitchen/diner, a "drawing room", study and office on the ground floor.

1.3 The basement room would gain natural light via:

- 6.9sqm of glazing facing a 3m by 1.2m lightwell;
- a pair of skylights situated along the northern edge of the room each measuring 2m by 0.5m; and
- a pair of skylights situated along the western edge of the room each measuring 1.8m by 0.5m.

1.4 In addition to the above the basement room would gain borrowed light via a skylight above the stairs. For the purposes of this assessment, this additional source of light has been ignored.

1.5 This assessment has been carried out using application drawings (dated November 2013) and tree survey drawing CCL 09051/TCP.

2.0 PLANNING POLICY CONTEXT

2.1 The statutory Development Plan applicable to the application site is the London Plan 2011, and the Camden Core Strategy and Development Policies, both adopted in 2010.

2.2 Policy DP26, *Managing the impact of development on occupiers and neighbours,* states:

> *The Council will protect the quality of life of occupiers and neighbours by only granting permission for development that does not cause harm to amenity. The factors we will consider include: ..... c) sunlight, daylight and artificial light levels;*

2.3 The accompanying text (paragraph 26.3) notes:

> *To assess whether acceptable levels of daylight and sunlight are available to habitable spaces, the Council will take into account the standards recommended in the British Research Establishment's Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice (1991)*[1]*.*

[1] superseded by the second edition in 2011

3.0 DAYLIGHT

Methodology – Average Daylight Factor

3.1 For the assessment of daylight within rooms in new development or where existing buildings are converted to residential use, the Average Daylight Factor (*ADF*) method can be used. This takes into account the amount of light reaching the window serving the room, the size of windows, the size of the room and the transmittance of windows, the cleanliness of the windows and the size and reflectance of wall surfaces within the room. It is defined as the average internal illuminance as a percentage of the unobstructed external illuminance under standard overcast conditions.

3.2 ADF is calculated using the following formula:

$$ADF = \frac{TMAw\theta}{A(1-R^2)}\%$$

Where:

T is the diffuse visible transmittance of the glazing (typically 0.68 for clean, clear double glazing with a low emissivity coating);

M is the "maintenance factor", the cleanliness of the windows (1.0 for recently cleaned windows and 0.96 and 0.92 for vertical windows in rural/suburban and inner urban locations respectively)[2] For skylights the level of maintenance is largely dependent on how accessible they are for cleaning. Evidently skylights situated at ground level within a patio can be cleaned regularly so in this case an M factor of 0.95 is considered appropriate.

Aw is the net glazed area excluding frames (sqm);

θ is the angle of visible sky in degrees;

A is the total area of the room surfaces: ceiling, floor, walls and windows (sqm); and,

R is the average reflectance of internal wall and floor surfaces (For cream painted walls and light coloured floors reflectance levels of 0.8 and 0.4 are used proportionally).

3.3 In relation to interior daylighting, the BRE guidelines state that:

[2] *Daylighting and window design (Lighting Guide 10),* CIBSE (1999)

> *"If a predominately daylit appearance is required, then df [Average Daylight Factor] should be 5% or more if there is no supplementary electric lighting, or 2% or more if supplementary electric lighting is provided. There are additional recommendations for dwellings, of 2% for kitchens, 1.5% for living rooms and 1% for bedrooms. These last are minimum values of average daylight factor, which should be attained even if a predominately daylit appearance is not required".*

3.4 The above targets are also set out in British Standard BS 8206: Part 2. The proposed basement space would be a secondary living room. An Average Daylight Factor target of 1.5% therefore applies.

Angles of Visible Sky

3.5 The drawings in the Appendix show how angles of visible sky have been derived. In respect of the lightwell the reference point is taken as a point at 1.6m above basement floor level in accordance with paragraph 2.2.6 of the BRE guide. Daylight reaching this point would be affected by the boundary fence. At present the fence is relatively low so for the purposes of this assessment a 2m fence has been assumed.

3.6 The second drawing shows the worst-case angles of visible sky at each of the four skylights. In essence this angle is determined by the trees in the rear garden and the rear elevation of the house. Evidently, in winter months when leaf cover on the trees is reduced, daylight reaching the skylights would improve.

	RP1	*RP2*	*RP3*	*RP4*	*RP5*
	lightwell	skylight	skylight	*skylight*	*skylight*
Angle of visible sky (θ)	28^0	59^0	59^0	74^0	73^0

Table 3.1: Angle of visible sky values (θ)

3.7 The areas of the floor/ceiling/wall surfaces and glazing have been measured from the application drawings. These, and all the other parameters that affect the level of daylight in the room, are summarised below.

	RP1	*RP2*	*RP3*	*RP4*	*RP5*
	lightwell	skylight	skylight	*skylight*	*skylight*
Transmittance (T)	0.68	0.68	0.68	0.68	0.68
Maintenance Factor (M)	0.9	0.9	0.9	0.9	0.9
Net glazed area (Aw)	6.9	1.0	1.0	0.9	0.9
Room surfaces (A) [sqm]	310.7	310.7	310.7	310.7	310.7
Average reflectance (R)[1]	0.71	0.71	0.71	0.71	0.71

1. Based on cream painted walls and light timber floors or light coloured carpet proportionally

Table 3.2: Values used for the calculation of Average Daylight Factors

3.8 The table below sets out the average daylight factors derived via each of the five apertures. The average daylight factor for the room as a whole is the sum of these five levels

	RP1	*RP2*	*RP3*	*RP4*	*RP5*	***TOTAL***
	lightwell	*skylight*	*skylight*	*skylight*	*skylight*	
ADF	0.79	0.23	0.23	0.26	0.26	**1.77**

Table 3.3: Average Daylight Factor derived via each reference point

4.0 CONCLUSIONS

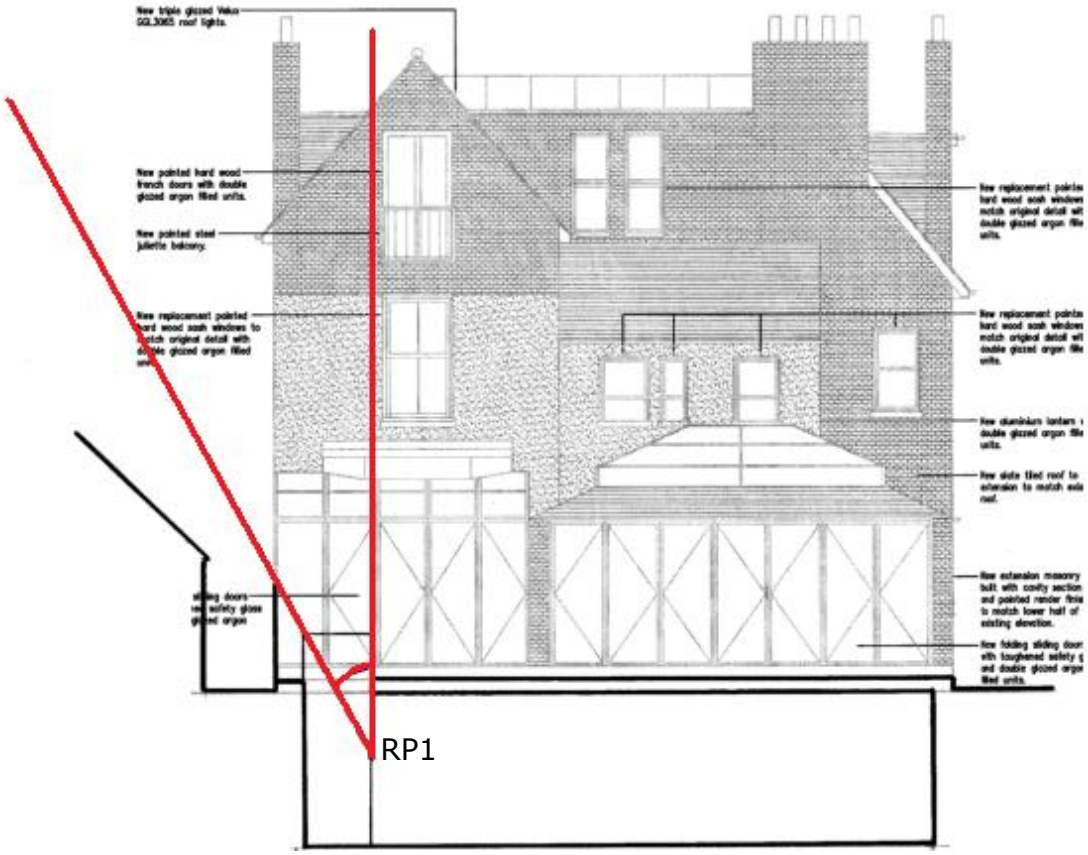
4.1 This assessment has been undertaken in full accordance with the Building Research Establishment (BRE) document "Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice" (BR209, 2011).

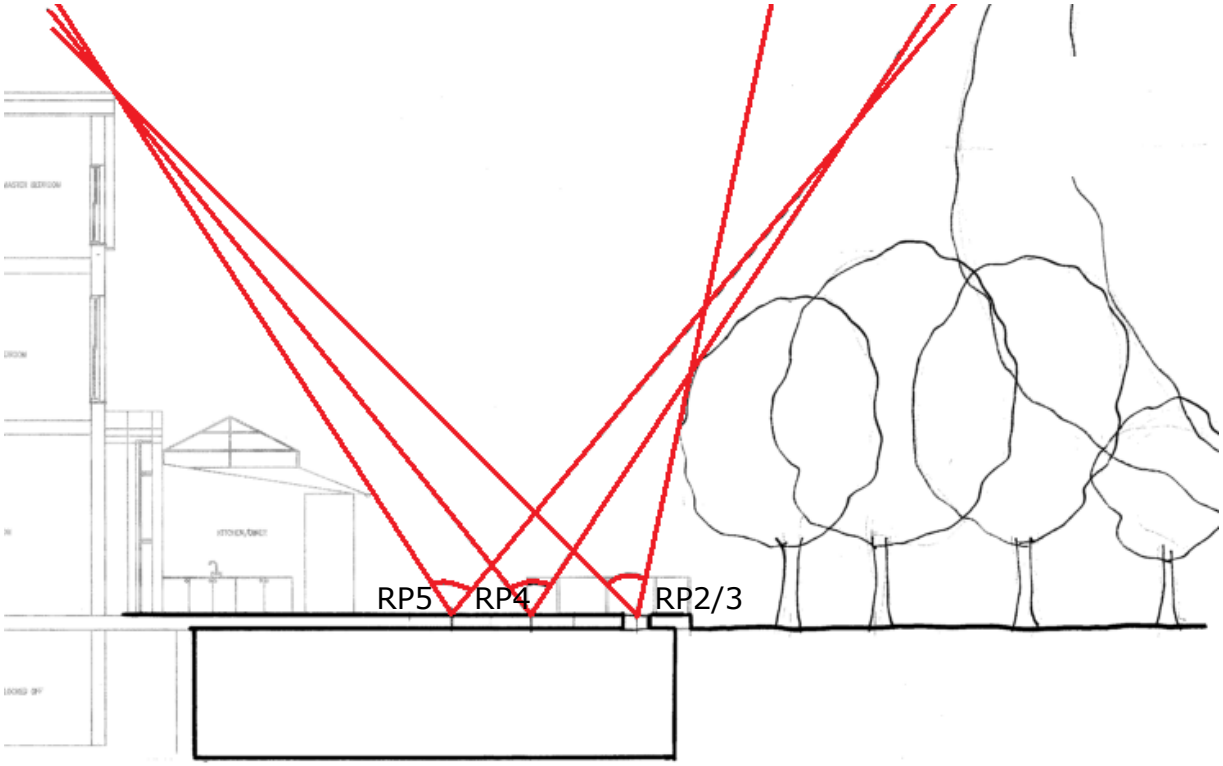
4.2 The average daylight factor levels recommended by the BRE and set out in the British Standard BS8206 are 1% for a bedroom, 1.5% for a living room and 2% for a kitchen.

4.3 The scheme would create a secondary living space below ground. This assessment demonstrates that this room would have average daylight factor of 1.77% when the nearby trees are in full leaf. In winter months when daylight is more precious higher levels of interior daylight would be gained via the skylights.

APPENDIX:

Drawings showing reference points and angles of visible sky




RP5
RP4
RP2/3