13-15 John's Mews, WC1N

Daylight and Sunlight Assessment

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Contents

Document Prepared By:	Document Authorised By:
Ollie Westover	Bernice Waterman
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Signed:	**Signed:**

1.0 Introduction

1.1 This daylight and sunlight assessment has been prepared to support a planning application for the extension of the dwellings at 13 and 15 John's Mews, London WC1N

1.2 The report assesses the proposals in respect of daylight, sunlight and overshadowing matters, having regard to industry standard guidance.

1.3 The report concludes that the proposal is acceptable and in accordance with planning policy requirements in relation to daylight and sunlight.

1.4 There is no existing specific National Planning Policy relating to the prospective impacts of developments on daylight and sunlight on their surrounding environment.

1.5 However, the NPPF (Para 129) does refer to daylight and sunlight in relation to density, encouraging Local Planning Authorities to take a flexible approach to applying policies and guidance relating to the impacts of proposals where they would otherwise inhibit making effective use of the site.

1.6 The BRE Report 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice' (3rd Edition, 2022) is the established National guidance to aid the developer to prevent and/or minimise the impact of a new development on the availability of daylight and sunlight in the environs of the site and the assessment of light within proposed new dwellings.

1.7 It refers in turn to the daylight and sunlight recommendations in BS EN 17037: 2018+A1:2021 (with UK Annexe): 'Daylight in Buildings'

1.8 These reference documents are accepted as the authoritative works in the field on daylight, sunlight and overshadowing and the BRE guidance specifically referred to in many Local Authorities' planning policy guidance for daylighting.

1.9 The methodology therein has been used in numerous lighting analyses and the standards of permissible reduction in light are accepted as the industry standards.

2.0 Project Summary

2.1 The proposal site is at 13-15 John's Mews and comprises a pair of terraced mews properties which are converted to residential dwellings.

2.2 The proposal is for the construction of mansard roof extensions over both properties, along with internal reconfiguration and changes to the fenestration, to provide additional and improved living accommodation.

2.3 The impacts of the scheme have been assessed, in line with BRE guidance. Generally, it is the impacts on residential neighbours which are of primary concern.

2.4 Further details on the location of the assessed neighbours and their windows are given in Section 5.0.

2.5 In addition to assessing the impacts of the scheme on neighbours, daylight within the proposed new habitable rooms has also been assessed.

Site Location

3.0 Methodology

3.1 For this analysis, we have undertaken the most common calculations for the change in daylight and sunlight to existing buildings, as recommended in BRE Digest 209. These are:

- Vertical Sky Component (VSC) for daylight
- Annual Probable Sunlight Hours and Winter Probable Sunlight Hours (A/WPSH) for sunlight impacts
- Target Daylight Factor (DF_T) for daylight within the proposal

3.2 The VSC method measures the general amount of light available on the outside plane of the window as a ratio (%) of the amount of total unobstructed sky viewable following introduction of visible barriers such as buildings. The maximum value is just under 40% for a completely unobstructed vertical wall.

3.3 The VSC is calculated using computer simulation under a CIE overcast sky. This works by simulating the amount of visible sky from the centre point of each window. It is not affected by orientation and so all potentially affected windows are assessed.

3.4 Annual Probable Sunlight Hours (APSH) and Winter Probable Sun light Hours (WPSH) are a measure of the amount of potential direct sunlight that is available to a given surface. APSH covers sunlight over the whole year and WPSH from September 21st to March 21st. The number of total available hours is calculated from a data file in the software, built up over a number of years of actual weather data records.

3.5 Only windows which face within 90° of due south need be assessed for sunlight.

3.6 PSH can also be used to assess the impact on external spaces such as gardens. This is looked at in Section 9.

4.0 Modelling & Data Sources

4.1 The first stage of the analysis is to create the analysis model of the existing site condition and the proposal. This allows us to analyse the impact of the proposal when compared to the existing condition.

4.2 2D drawings have been provided by the design team. These drawings are used to construct a 3D analysis model which is exported into the specialist daylight software. Calculations are then run, for both existing and proposed scenarios.

4.3 Sufficient detail is added to the model for the analysis. In accordance with BRE recommendations, trees and foliage have been omitted from the calculations.

4.4 Information on the properties has been provided to us by the design team in the form of drawings giving the site as existing and proposed and photographs of the site and surroundings.

4.5 Web-based mapping sources and photos have been used to establish the location and size of neighbouring windows.

Front Elevation - as Proposed

5.0 BRE Guidance Targets

5.1 The reference document for this analysis, BRE Digest 209, gives the methodology for undertaking the calculations. It also provides benchmark figures for the acceptable reduction in the daylight on existing properties which might be affected by development.

5.2 Specifically, the guidance gives figures for the VSC and APSH, as a percentage reduction that is "permissible" for the effect on existing windows.

5.3 It is worth noting the following statement in the Guidance introduction:

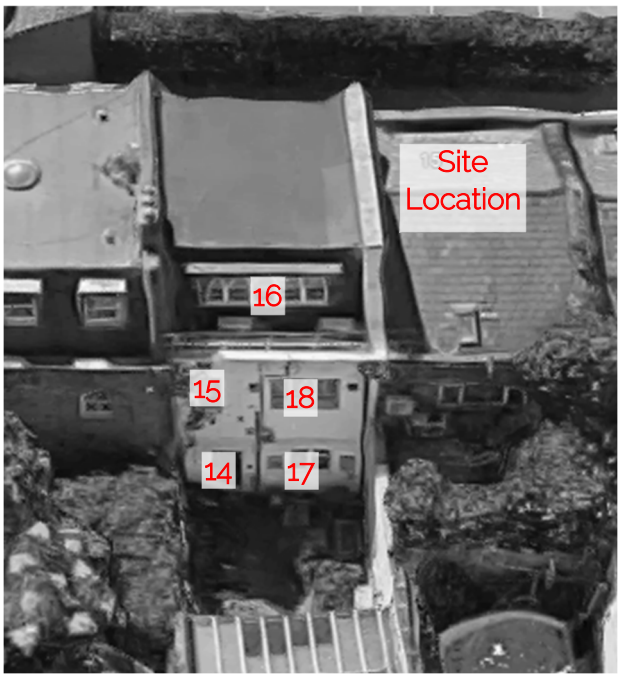
- "The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and this document should not be seen as an instrument of planning policy. Its aim is to help rather than constrain the developer.
- Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of the many factors in site layout design.

5.4 The relevant BRE recommendations for daylight and sunlight are:

- The Vertical Sky Component measured at the centre of a window should be no less than 27, or if reduced to below this, no less than 0.8 times the former value.
- The window should receive at least 25% of available annual sunlight hours and more than 5% during the winter months (September 21st to March 21st), or, where this is not the case, 80% of its former value.

6.0 Window Schedules

23-25 John Street



17 John's Mews

St George The Martyr Primary School

7.0 Daylight Impact Results

7.1 The Vertical Sky Component has been calculated for each of the 20 assessed windows for both the existing and proposed conditions.

7.2 As can be seen in the results below, all windows retain 80% of their current values.

7.3 The scheme is therefore compliant with BRE recommendations in relation to daylight impacts.

Vertical Sky Component				
Window	Existing VSC	Proposed VSC	% Retained	Meets BRE Guidance?
1	22.19	21.55	97.12%	Yes
2	34.60	34.13	98.64%	Yes
3	28.19	26.26	93.15%	Yes
4	35.05	34.56	98.60%	Yes
5	11.51	10.59	92.01%	Yes
6	27.76	26.96	97.12%	Yes
7	32.64	32.27	98.87%	Yes
8	22.00	20.12	91.45%	Yes
9	29.72	29.11	97.95%	Yes
10	38.18	38.12	99.84%	Yes
11	16.46	14.97	90.95%	Yes
12	34.45	33.59	97.50%	Yes
13	34.76	34.17	98.30%	Yes
14	20.73	20.73	100.00%	Yes
15	27.85	27.85	100.00%	Yes
16	31.39	31.31	99.75%	Yes
17	23.41	23.41	100.00%	Yes
18	27.64	27.64	100.00%	Yes
19	29.67	28.79	97.03%	Yes
20	28.88	28.24	97.78%	Yes

8.0 Sunlight Impact Results

8.1 BRE guidance states that only windows which face within 90° of due south need be assessed for sunlight provision. In this instance, 13 windows fall into this category.

8.2 The Annual Probable Sunlight Hours has been calculated for these windows for both the existing and proposed conditions using the methodology described previously, both over the whole year, and through the "winter months" (September 21st until March 21st).

8.3 The BRE guidance states that the sun lighting may be adversely affected if the centre of the window:

- Receives less than 25% of annual hours or less than 5% of winter hours and
- Receives less than 80% of its current sunlight hours during either period and
- Has a reduction in sunlight over the whole year greater than 4% of annual probable sunlight hours

8.4 It is clear from the wording of the above that all three clauses need to be met to qualify as an adverse impact. Thus, if the window does not meet any one of these criteria, the impact is acceptable.

8.5 The results below show that the assessed windows retain 80% of their existing values both annually and over the winter months.

8.6 The scheme is therefore compliant with BRE guidance in relation to sunlight impacts.

8.0 Sunlight Impact Results

	Annual Sunlight Hours			Winter Sunlight Hours			
Window	Ex. Hrs Received (%)	Prop. Hrs Received	% Retained	Ex. Hrs Received	Prop. Hrs Received	% Retained	Meets Guidance?
1	33.47	32.99	98.55%	1.59	1.31	82.44%	Yes
2	55.99	55.93	99.88%	18.50	18.43	99.63%	Yes
3	48.30	45.74	94.69%	12.89	11.78	91.40%	Yes
4	52.53	52.53	100.00%	15.73	15.73	100.00%	Yes
5	16.98	15.66	92.24%	0.42	0.36	86.10%	Yes
6	37.91	37.08	97.81%	7.28	6.65	91.43%	Yes
7	40.96	40.96	100.00%	10.33	10.33	100.00%	Yes
8	28.14	24.88	88.42%	0.42	0.42	100.00%	Yes
9	40.96	40.96	100.00%	3.67	3.67	100.00%	Yes
10	56.48	56.48	100.00%	18.99	18.99	100.00%	Yes
11	25.50	25.50	100.00%	4.92	4.92	100.00%	Yes
12	52.67	52.67	100.00%	17.19	17.19	100.00%	Yes
13	52.88	52.88	100.00%	17.19	17.19	100.00%	Yes

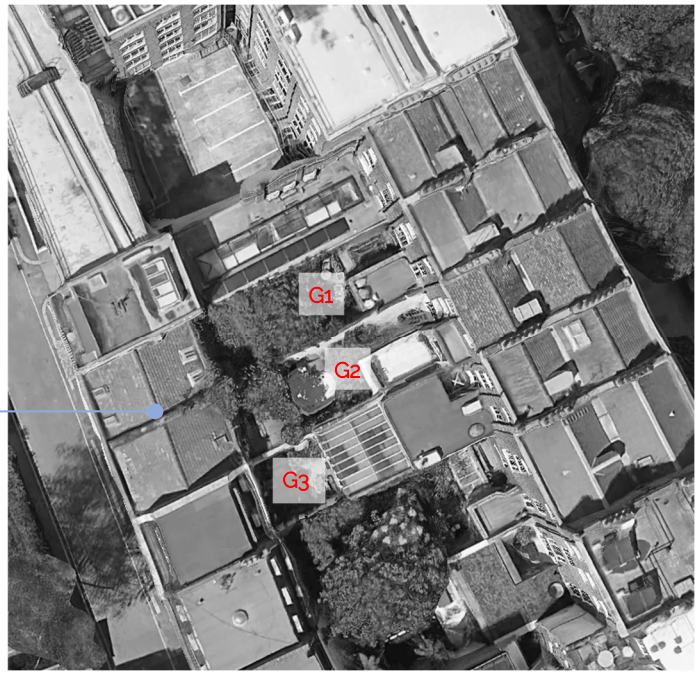
9.0 Sunlight to Neighbouring Gardens

9.1 Residential gardens are generally assessed using the sunlight /hours test, but only on March 21st. The guidance describes a well-lit space as being one which receives at least 2 hours of direct sunlight on this date over 50% of its area.

9.2 BRE guidance also uses the "80%" rule for this test, whereby the effects are considered acceptable if the remaining sunlight is in excess of 80% of the existing level. This clause applies if the space is reduced to less than 50% of the area well sunlit.

9.3 The gardens of the nearest neighbouring properties to the site were assessed using this methodology.

9.4 As can be seen, the neighbouring gardens retain over 80% of their existing values and the scheme is therefore compliant with BRE guidance



Amenity Sunlight Hours				
Garden	Existing Area Receiving 2 Hours	Proposed Area Receiving 2 Hours	% Retained	Meets BRE Guidance?
G1	32.10%	26.50%	82.55%	Yes
G2	1.07%	0.92%	85.98%	Yes
G3	33.19%	33.19%	100.00%	Yes

10.0 Daylight within the Proposal

10.1 The BRE and BS EN 17037 guidance allows for two alternative methods to assess daylight within new dwellings. This report uses the following method:

- Target Daylight Factor (DF_1)

10.2 The DF_T method is a complex and representative calculation to determine natural internal luminance.

10.3 It takes into account such factors as window size, number of windows available to the room, room size and layout, room surface reflectance, and the angle of visible sky reaching the window

10.4 The calculations have assumed a white ceiling, cream walls and mid-grey carpet or wooden floor using reflectance values taken from the BS EN 170437 Guidance.

10.5 As this is a conversion scheme, it falls under the category of "hard to light" dwellings and therefore an alternative target can be used. The minimum DF_T values for various UK locations and room types are provided below:

Table C3 – Target daylight factors (D_T) to achieve over at least 50% of the assessment grid in UK domestic habitable rooms with vertical and/or inclined daylight apertures

Location	D_T for 100 lx (Bedroom)	D_T for 150 lx (Living room)	D_T for 200 lx (Kitchen)
St Peter (Jersey)	0.6%	0.9%	1.2%
London (Gatwick Airport)	0.7%	1.1%	1.4%
Birmingham	0.6%	0.9%	1.2%
Hemsby (Norfolk)	0.6%	0.9%	1.3%
Finningley (Yorkshire)	0.7%	1.0%	1.3%
Aughton (Lancashire)	0.7%	1.1%	1.4%
Belfast	0.7%	1.0%	1.4%
Leuchars (Fife)	0.7%	1.1%	1.4%
Oban	0.8%	1.1%	1.5%
Aberdeen	0.7%	1.1%	1.4%

10.6 It is deemed by the guidance that if the minimum DF_T criteria are met, then the occupiers of the dwelling will have sufficient daylight. As can be seen from the results below that all assessed habitable rooms meet and exceed the minimum levels of internal daylight

10.0 Daylight within the Proposal

13 John's Mews

15 John's Mews

Ground Floor as Proposed

First Floor as Proposed

2nd Floor as Proposed

10.0 Daylight within the Proposal

Minimum Target Daylight Factor				
Unit	Room	Required DF_T Over 50% of Room Area	Area Of Room Receiving Required DF_T	Meets Standards?
13	K/L/D	1.4%	81.3%	Yes
13	Master	0.7%	65.9%	Yes
13	Bedroom 1	0.7%	100.0%	Yes
13	Bedroom 2	0.7%	76.3%	Yes
15	K/L/D	1.4%	81.1%	Yes
15	Master	0.7%	65.8%	Yes
15	Bedroom 1	0.7%	100.0%	Yes
15	Bedroom 2	0.7%	76.5%	Yes

11.0 Conclusions

11.1 Using industry standard methodology, we have made numerical analyses to ascertain the effects of the proposal at 13-15 John's Mews, WC1N and the levels of change in daylight and sunlight for the windows of the neighbouring properties.

11.2 The main criteria used in this analysis to show compliance are the Vertical Sky Component for daylight impacts and Annual and Winter Probable Sunlight Hours for sunlight impacts

11.3 As has been shown, the effect on VSC is within the 80% guidance value for all of the assessed windows.

11.4 We conclude that these impacts are considered acceptable and within the BRE guidance recommendations.

11.5 In terms of sunlight, the assessed windows retain above 80% of their existing sunlight hours values both annually and over the winter months.

11.6 The neighbouring amenity spaces retain over 80% their existing area which receives 2 hours or more of direct sunlight on March 21st.

11.7 The scheme is therefore compliant with BRE guidance in relation to sunlight impacts.

11.1 The new habitable rooms will benefit from daylight levels in excess of the requirements of BS EN 17037:2018 recommendations.

11.2 From a planning perspective therefore, it is the conclusion of this report that the proposed development is entirely acceptable for planning, in daylight and sunlight terms.

T16 Design Ltd.

T: 01206 572452

E: info@t16design.com

W: www.t16design.com