18 Greville Street, EC1N

Daylight and Sunlight Assessment for Planning

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Contents

Document Control

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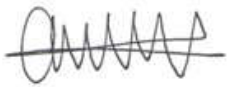
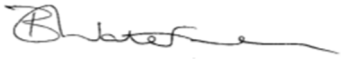
	

1.0 Introduction

1.1 This daylight and sunlight assessment has been prepared to support a planning application for the proposed extension of the site at 18 Greville Street, London EC1N.

1.2 The report assesses the proposals in respect of daylight, sunlight and overshadowing matters, having regard to industry standard guidance. The report concludes that the proposal is acceptable and in accordance with planning policy requirements in relation to daylight and sunlight.

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

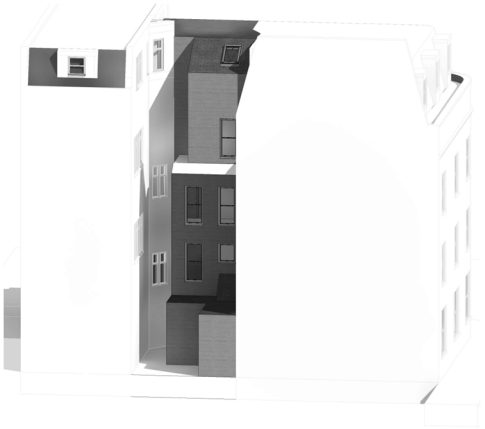
1.4 However, the BRE Report 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice' (3rd Edition, 2022) is the established National guidance to aid the developer to prevent and/or minimise the impact of a new development on the availability of daylight and sunlight in the environs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

1.5 It has been developed in conjunction with daylight and sunlight recommendations in BS EN 17037: 'Daylighting for Buildings'

1.6 This reference document is accepted as the authoritative work in the field on daylight, sunlight and overshadowing and is specifically referred to in many Local Authorities' planning policy guidance for daylighting. 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

Site Location as Existing



3D Render of Proposal

2.1 The proposal site is at 18 Greville Street, EC1N and is currently occupied by a 4-storey (plus roof space) building in a dense urban location.

2.2 The proposal is for a rear extension to the full height of the existing building, creating additional floorspace.

2.3 The impacts of the scheme on all residential neighbours potentially affected by the scheme have been considered.

2.4 The BRE guidance states that non-residential neighbours can also be assessed if they have a particular requirement for daylight. In this instance, it is not considered that the non-residential neighbours fall under this criterion.

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

3.0 Methodology

3.1 For this analysis, we have considered the recommended calculations for the change in daylight and sunlight to existing buildings, as detailed in the BRE Guidance. These are:

- Vertical Sky Component (VSC) and No Sky Line (NSL) for daylight
- Annual Probable Sunlight Hours and Winter Probable Sunlight Hours (WPSH) (APSH) for sunlight

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 The NSL test calculates the distribution of daylight within rooms by determining the area of the room at desk / work surface height (the 'working plane') which can and cannot receive a direct view of the sky and hence 'sky light'. The working plane height is set at 850mm above floor level within residential property.

3.5 The NSL test can be carried out where neighbouring room layouts are known. In this instance, floor plans of the key assessed neighbour at 17 Greville Street have been sourced and used for this analysis.

3.0 Methodology

3.6 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.

3.7 Only windows which face within 90° of due south need be assessed for sunlight. In this instance, no windows are within this orientation and so no calculations have been undertaken.

3.8 APSH can also be used to assess the impact on external spaces such as gardens. No gardens are close enough to the proposal to warrant assessment.

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.

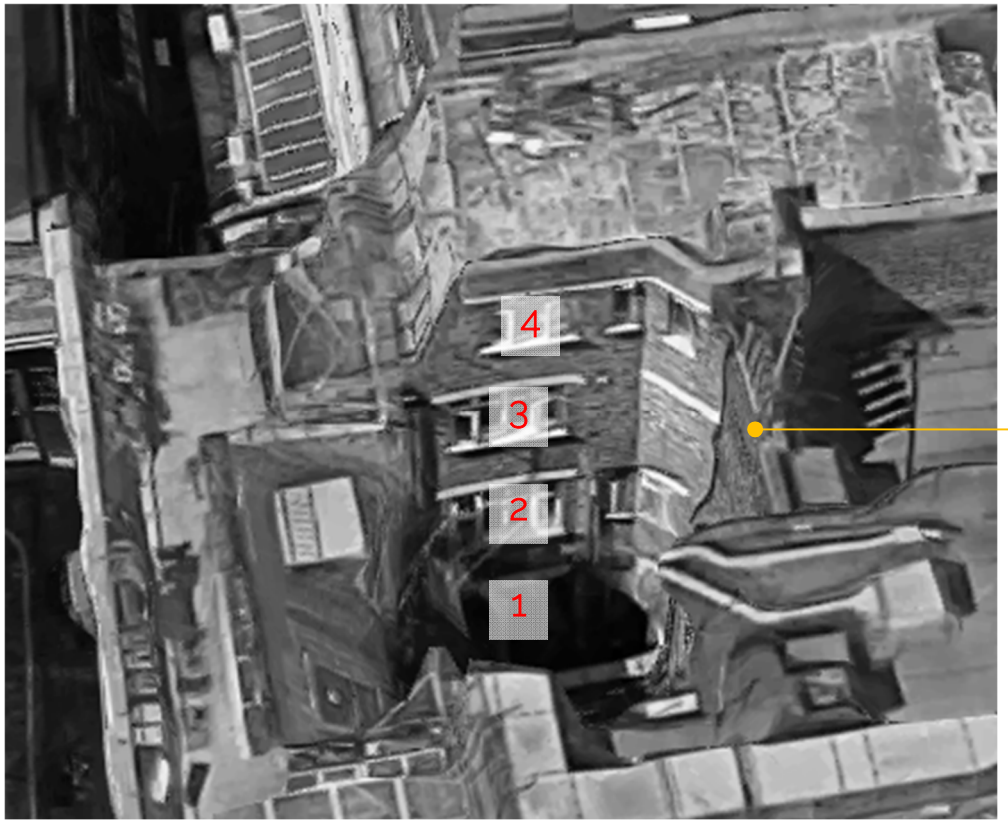
4.2 2D drawings and a 3D model have been provided by the design team. These are used to construct a 3D analysis model which is exported into the specialist daylight software. Calculations are then run, for both existing and proposed scenarios.

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 2D drawings and 3D models, giving the site as existing and proposed.

4.5 Photographs of the site and surroundings, web-based mapping sources and planning records for neighbouring buildings have also been used.

5.0 Window Schedules



17 Greville Street

6.0 BRE Guidance Targets

6.1 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.

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

6.3 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."

6.4 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 area of the room beyond the No Sky Line should not be reduced to less than 80% of its current size.
- Relevant windows should receive at least 25% of available annual sunlight hours and more than 5% during the winter months (September 21st to March 21st), and 80% of its former value.

7.0 Daylight Impact Results – VSC Test

7.1 The Vertical Sky Component has been calculated for each of the 4 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 using the VSC test.

Vertical Sky Component				
Window	Existing VSC	Proposed VSC	% Retained	Meets BRE Guidance?
1	3.064	2.721	88.83%	Yes
2	7.419	6.657	89.74%	Yes
3	19.184	18.135	94.53%	Yes
4	35.690	35.498	99.46%	Yes

8.0 Daylight Impact Results – NSL Test

8.1 BRE guidance states that the No Sky Line can additionally be calculated "where neighbouring room layouts are known".

8.2 In this instance floor plans have been sourced for the neighbour at 17 Greville Street which is the main neighbour to be assessed.

8.3 This has allowed a more detail analysis to be undertaken.

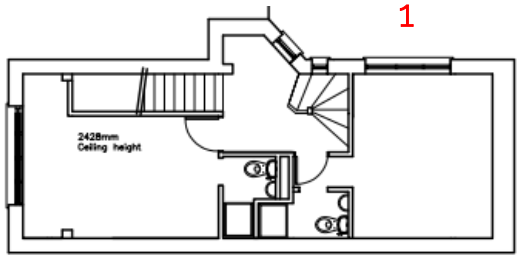
8.4 The area of the room beyond the No Sky Line has been calculated for the rooms served by the windows shown in the window schedule, for both the existing and proposed conditions.

8.5 This test is more detailed and represents better the actual impact on a room, as it considers both the size of the room and the window.

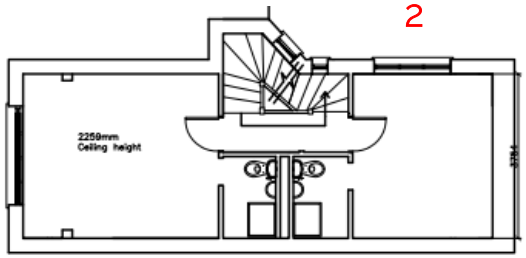
8.6 As can be seen in the results below, the rooms assessed retain in excess of 80% of its area within the No Sky Line.

8.7 The scheme is therefore compliant with BRE guidance when assessed using the more detailed and representative No Sky Line test.

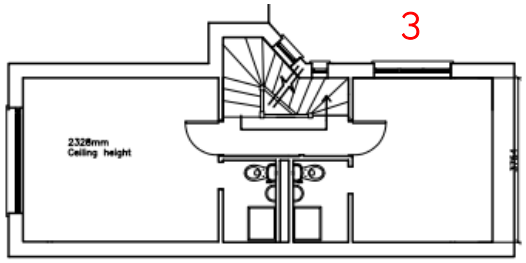
8.0 Daylight Impact Results – NSL Test



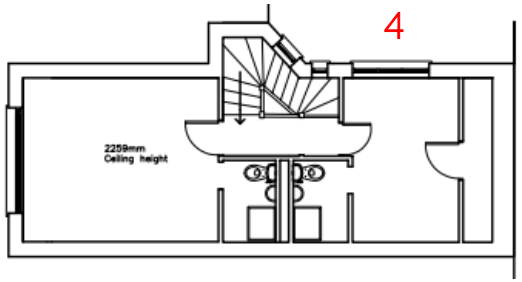
17 Greville St. – 1st Floor Plan



17 Greville St. – 2nd Floor Plan



17 Greville St. – 3rd Floor Plan



17 Greville St. – 4th Floor Plan

No Sky Line						
Window	Floor	Room Served	Existing NSL (%)	Proposed NSL (%)	% Retained	Meets BRE Guidance?
1	First	Unknown	19.10%	18.46%	96.68%	Yes
2	Second	Unknown	23.99%	23.42%	97.64%	Yes
3	Third	Unknown	76.66%	71.16%	92.83%	Yes
4	Fourth	Unknown	81.60%	81.04%	99.31%	Yes

9.0 Conclusions

9.1 Using industry standard methodology, we have made numerical analyses to ascertain the effects of the proposals at 18 Greville Street, and the levels of change in daylight for the windows of the neighbouring property.

9.2 The main criteria used in this analysis to show compliance are the Vertical Sky Component and No Sky Line for daylight impacts.

9.3 As has been shown, the effects on VSC and NSL are within the 80% guidance value in all cases.

9.4 There will therefore be no adverse impact on neighbouring residents in terms of daylight.

9.5 In terms of sunlight, no windows face within 90° of south and so no calculations are required.

9.6 Additionally, no garden spaces are within close enough proximity to the site to warrant assessment.

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

9.8 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.

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