



# 10 Grove Avenue, London, N3

## Daylight and Sunlight Assessment

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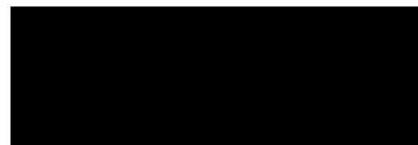
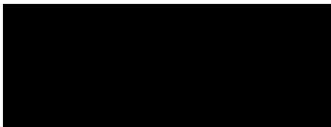
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## 1.0 Introduction

- 1.1 This daylight and sunlight assessment has been prepared to support a planning application for the proposed development at 10 Grove Avenue. N3.
- 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' 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 8206: Part 2: 'Lighting for Buildings - Code of Practice for Daylighting'
- 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

- 2.1 The proposal site is at the rear of 10 Grove Avenue, and it is currently occupied by a garage.
- 2.2 The proposal is for the demolition of the existing garage and replace it with a two storey dwelling with the bedroom at lower ground floor and living kitchen diner at ground floor.
- 2.3 The impacts of the scheme on all residential neighbours potentially affected by the scheme have been considered.
- 2.4 The design has been formulated with consideration of the impacts on the neighbouring dwellings.
- 2.5 Further details on the location of neighbours and their windows are given in Section 5.0
- 2.6 In addition to assessing the impacts of the scheme on neighbours, daylight within the proposed new dwellings within the extension 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 impacts and Average Daylight Factor (ADF) for daylight within the proposal

Annual Probable Sunlight Hours and Winter Probable Sunlight Hours (WPSH) (APSH) for sunlight impacts

- 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.
- 3.5 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.
- 3.6 Only windows which face within 90° of due south need be assessed for sunlight. This is looked at in Section 8.
- 3.7 APSH 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 and a 3D model 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 and a model giving the site as existing and proposed and photographs of the site and surroundings.
- 4.5 Web-based mapping sources and planning records for neighbouring buildings have also been used.

## 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:
- 5.4 "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.
- 5.5 Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of the many factors in site layout design."
- 5.6 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.

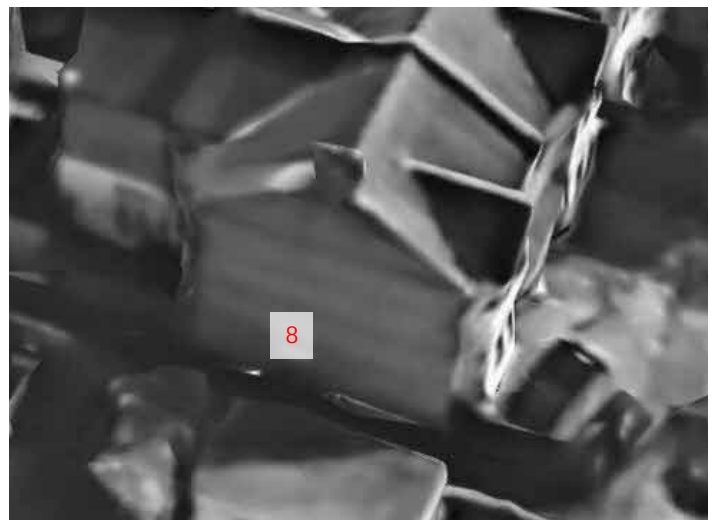
## 6.0 Window Schedules



10 – 12 Grove Avenue (Rear)



22 Falkland Avenue (Front)



22 Falkland Avenue (Side)



## 7.0 Daylight Impact Results

- 7.1 The Vertical Sky Component has been calculated for each of the 8 assessed windows for both the existing and proposed conditions.
- 7.2 As can be seen in the results below, all windows retain in excess of 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	35.50	35.48	99.93%	Yes
2	33.59	33.59	100.00%	Yes
3	32.01	31.94	99.80%	Yes
4	32.36	32.25	99.67%	Yes
5	33.66	33.53	99.62%	Yes
6	32.21	31.83	98.81%	Yes
7	39.31	39.31	99.99%	Yes
8	29.11	26.51	91.08%	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, 6 windows fall into this category. The Annual Probable Sunlight Hours has been calculated for this window 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)
- 8.2 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

- 8.3 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.
- 8.4 The results below show that the assessed window retains 25% of annual sunlight hours and 5% of winter hours.
- 8.5 The scheme is therefore compliant with BRE guidance in relation to sunlight impacts.

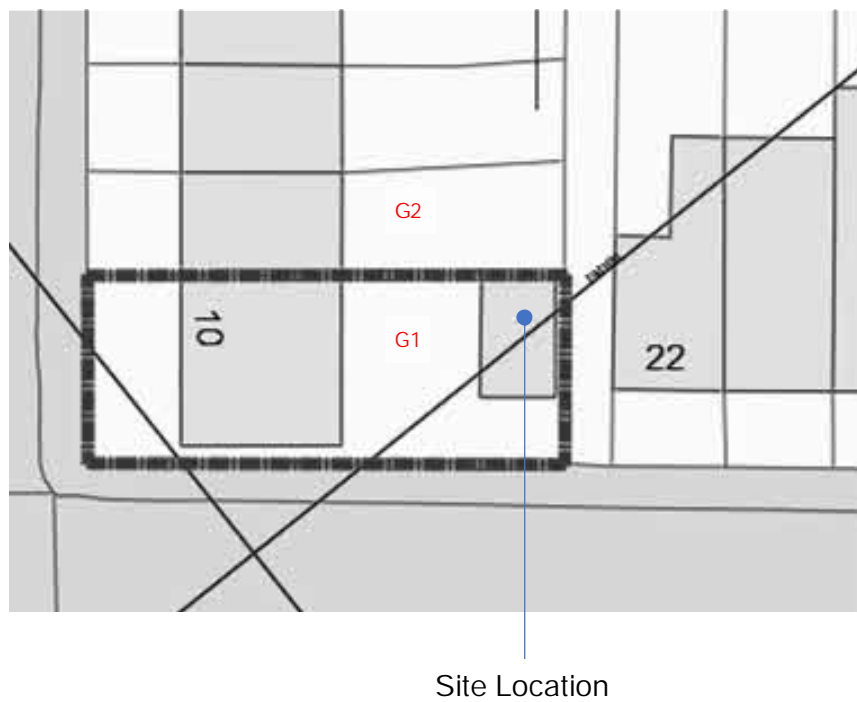


## 8.0 Sunlight Impact Results

Window	Annual Sunlight Hours			Winter Sunlight Hours			Meets Guidance?
	Ex. Hrs Received (%)	Prop. Hrs Received	% Retained	Ex. Hrs Received	Prop. Hrs Received	% Retained	
1	66.39	66.39	100.00%	23.70	23.70	100.00%	Yes
2	63.89	63.34	99.13%	21.41	20.86	97.41%	Yes
3	60.85	59.88	98.41%	19.06	18.09	94.91%	Yes
4	61.95	61.95	100.00%	16.98	16.98	100.00%	Yes
5	59.46	59.46	100.00%	15.66	15.66	100.00%	Yes
7	72.35	72.35	100.00%	26.33	26.33	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 As can be seen, the neighbouring gardens retain over 80% of its 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	93%	93%	100.00%	Yes
G2	53%	50%	93.46%	Yes

## 10.0 Daylight within the Proposal

10.1 This BRE and BS EN 17037 guidance provides methodology to assess daylight within a proposal this report uses:

### Target Daylight Factor ( $DF_T$ )

- 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 Due to the complexity of the daylight entering the proposed rooms, the Target Daylight Factor approach is the most suitable calculation to give a realistic indication of the internal illuminance that will be experienced.
- 10.5 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.
- 10.6 The benchmark values each room type which are recommended by the BRE guidance and BS:EN 17037:2018 are:

Table C2 – Target daylight factors (D) for London		
Level of recommendation	Target daylight factor D for half of assessment grid	Target daylight factor D for 95% of assessment grid
Minimum	2.1%	0.7%
Medium	3.5%	2.1%
High	5.3%	3.5%

## 10.0 Daylight within the Proposal

10.8 As the bedroom is situated in a basement 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%

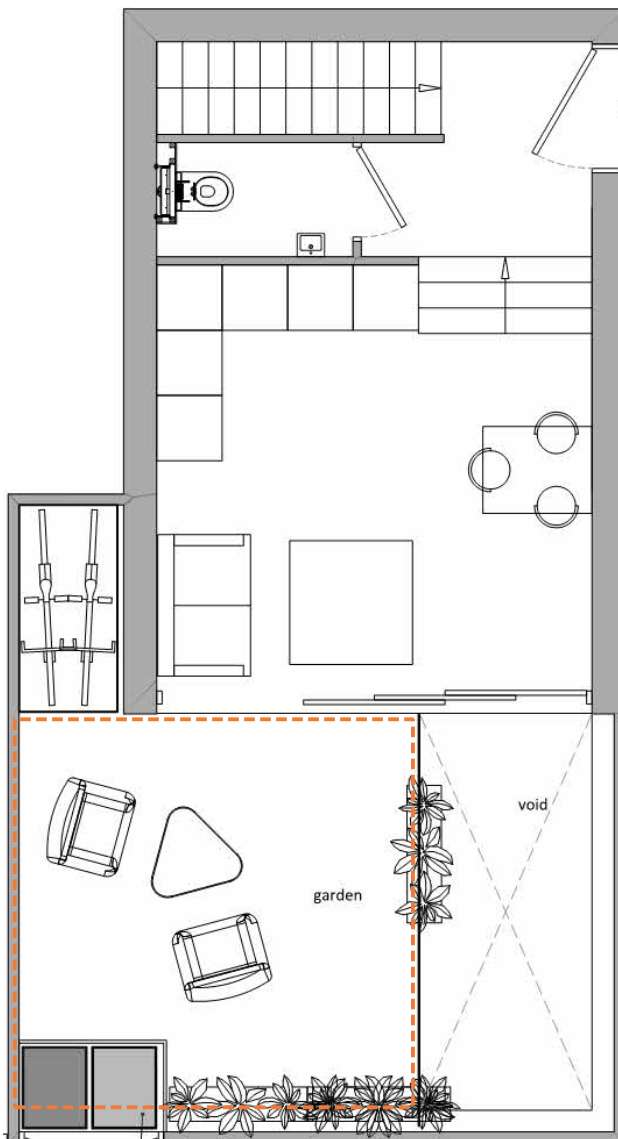
10.9 It is deemed by the guidance that if the minimum  $DF_T$  criteria are met, then the occupiers of the dwelling will have sufficient daylight. As can be seen from the results below that all assessed habitable rooms meet and exceed the minimum levels of internal daylight

Minimum Target Daylight Factor						
Unit	Room	0.7% DF Target Area	Area Receiving 0.7% DF	2.1% DF Target Area	Area Receiving 2.1% DF	Meets Standards?
1	LKD	95%	99.60%	50%	95.30%	Yes

Minimum Target Daylight Factor				
Unit	Room	Required $DF_T$ Over 50% of Room Area	Area Of Room Receiving Required $DF_T$	Meets Standards?
1	Bedroom	0.7%	54.5%	Yes

## 11.0 Sunlight to Proposed Amenity Space

- 11.1 Amenity spaces within a proposal are also assessed using the Probable Sunlight Hours test. BRE guidance recommends that for a space to have adequate sunlight levels, it should receive two hours or more of direct sun over 50% of its area on March 21<sup>st</sup>.
- 11.2 The test has been undertaken for the proposed amenity space(detailed below)
- 11.3 As can be seen, the amenity space meets this standard and the future occupants will benefit from a well sunlit amenity space



Proposed Amenity Sunlight Hours	
Garden G1	Area Receiving 2 Hours 62.20%

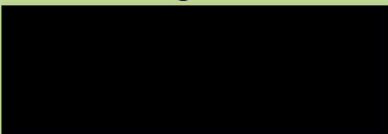
## 12.0 Conclusions

- 12.1 Using industry standard methodology, we have made numerical analyses to ascertain the effects of the proposal at 10 Grove Avenue, N3 and the levels of change in daylight and sunlight for the windows of the neighbouring properties.
- 12.2 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
- 12.3 As has been shown, the effect on VSC is within the 80% guidance value in all cases.
- 12.4 There will therefore be no adverse impact on neighbouring residents in terms of daylight.
- 12.5 In terms of sunlight, the assessed window retains 25% of annual sunlight hours and 5% of winter hours.
- 12.6 The neighbouring gardens retain over 80% of its existing area which receives 2 hours or more of sunlight on March 21st.
- 12.7 The scheme is therefore compliant with BRE guidance in relation to sunlight impacts.
- 12.8 The new unit will benefit from daylight levels in excess of the requirements of BS8206:2 - 2008 recommendations.
- 12.9 The proposed amenity space will receive over 2 hour of sunlight on March 21<sup>st</sup>.
- 12.10 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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