



“South Winds”

Battledown Approach

Cheltenham

Daylight and Sunlight Assessment

Job No: 5301

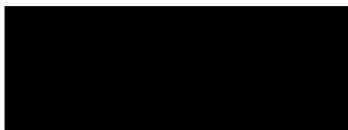
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Contents

1.0	Introduction	3
2.0	Project Summary.....	4
3.0	Methodology.....	5
4.0	Modelling & Data Sources.....	6
5.0	BRE Guidance Targets.....	7
6.0	Window Schedules.....	8
7.0	Daylight Impact Results.....	9
8.0	Sunlight Impact Results.....	10
9.0	Conclusions.....	12

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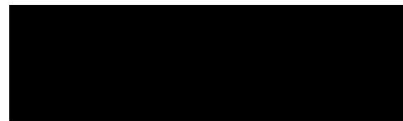
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1.0 Introduction

- 1.1 This daylight and sunlight assessment has been prepared to support a planning application for the extension of the dwelling known as “South Winds”, Battledown Approach, Cheltenham.
- 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 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 levels within new proposals.
- 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.
- 1.7 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 lies on Battledown Approach, Cheltenham and is currently occupied by a 2-storey detached dwelling.
- 2.2 The proposal is for a rear and side extensions to the dwelling, along with internal reconfiguration to provide additional 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



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
 - 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 Sunlight Hours (WPSH) are a measure of the amount of potential direct sunlight that is available to a given surface.
- 3.5 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.
- 3.6 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. In this instance, due to the orientation of the site relative to the neighbouring gardens, no spaces require 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 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 planning records for neighbouring buildings have also been used.



Rear 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:
- 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



Battledown Grange



“Waverley”

7.0 Daylight Impact Results

- 7.1 The Vertical Sky Component has been calculated for each of the 13 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	31.891	28.745	90.13%	Yes
2	36.109	34.651	95.96%	Yes
3	38.990	38.990	100.00%	Yes
4	38.990	38.990	100.00%	Yes
5	29.590	25.556	86.36%	Yes
6	35.481	33.531	94.51%	Yes
7	38.990	38.990	100.00%	Yes
8	38.990	38.990	100.00%	Yes
9	31.218	30.806	98.68%	Yes
10	38.635	38.635	100.00%	Yes
11	30.565	24.535	80.27%	Yes
12	38.316	33.855	88.35%	Yes
13	33.589	31.408	93.51%	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, all 13 windows fall into this category. The Annual Probable Sunlight Hours has been calculated for each of 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)
- 8.2 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 all of the assessed windows retain 80% of their existing values, both annually and over the winter months.
- 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	52.807	45.461	86.09%	19.473	19.058	97.86%	Yes
2	55.094	53.638	97.36%	19.889	19.127	96.17%	Yes
3	58.351	58.351	100.00%	19.889	19.889	100.00%	Yes
4	58.351	58.351	100.00%	19.889	19.889	100.00%	Yes
5	47.678	42.550	89.24%	18.780	16.840	89.67%	Yes
6	53.222	50.728	95.31%	19.889	18.087	90.94%	Yes
7	58.351	58.351	100.00%	19.889	19.889	100.00%	Yes
8	58.351	58.351	100.00%	19.889	19.889	100.00%	Yes
9	47.263	45.530	96.33%	16.701	15.246	91.29%	Yes
10	58.351	58.351	100.00%	19.889	19.889	100.00%	Yes
11	61.469	49.289	80.18%	18.503	16.632	89.89%	Yes
12	79.903	70.270	87.94%	30.007	29.037	96.77%	Yes
13	55.579	53.430	96.13%	19.473	19.473	100.00%	Yes

9.0 Conclusions

- 9.1 Using industry standard methodology, we have made numerical analyses to ascertain the effects of the proposed works at “South Winds”, Battledown Approach, Cheltenham, and the levels of change in daylight and sunlight for the windows of the neighbouring properties.
- 9.2 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
- 9.3 As has been shown, the effect on VSC is within the guidance values in all cases .
- 9.4 There will therefore be no adverse impact on neighbouring residential properties in terms of daylight.
- 9.5 In terms of sunlight, all of the assessed windows retain 80% of existing values both annually and over the winter months.
- 9.6 No gardens or external spaces require 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.

