Delta Green
environmental design

REPORT

53 Gordon Road, Shoreham

Daylight & Sunlight Report

Revision 1

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1.0 Introduction

The proposed development at 53 Gordon Road, Shoreham is the replacement of a lean to with a side extension in the side return area at the rear of the property. The potential impact of the proposed development on the adjacent dwelling at 55 Gordon Road has been assessed to understand any changes to the daylight and sunlight to the windows as a result of the extension.

2.0 Assessment Criteria

2.1 Vertical Sky Component

The amount of skylight that reaches the windows is assessed by determining the Vertical Sky Component (VSC). The vertical sky component is the ratio of direct sky light that reaches a vertical plane (wall or window) to the amount of sky light that reaches the horizontal plane (the ground). This ratio is expressed as a percentage. The maximum VSC that could be achieved for a completely unobstructed window/wall is almost 40%.

The BRE's Guide to Good Practice Site Layout Planning for Daylight and Sunlight[1] provides the following guide for relating VSC to daylight levels:

VSC ≥ 27% should give reasonable daylight results
VSC between 15% and 27% would need large windows to achieve good daylight
VSC between 5% and 15% would need very large windows to achieve good daylight
VSC less than 5% often impossible to achieve good daylight even if whole wall were glazed.

When assessing the impact of a new development on existing buildings the guidance suggests that if with a new development, an existing window has a VSC greater than 27% it should still receive sufficient skylight. If the VSC is reduced below 27% and less than 0.8 times its former value, then the occupants are likely to notice the loss of skylight.

2.2 Annual Probable Sunlight Hours

The criteria used for assessment of the impact of the proposed development on sunlight levels to existing dwellings is taken from the BRE Guidance for "Site Layout Planning for Daylight and Sunlight, a Guide to Good Practice".

The BRE guidance summarises that a dwelling shall appear reasonably sunlit if the centre of a main living room window can receive 25% of annual probable sunlight hours, including at least 5% of annual probable sunlight hours in winter months between 21st September and 21st March.

When considering the impact of a development on an existing dwelling, the sunlight to the existing dwelling may be adversely affected if:

[1] Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice (BR 209), 2011, Paul Littlefair, BRE, Second Edition.

- The centre of the main living room window receives less than 25% of annual probable sunlight hours, or less than 5% of annual probable sunlight hours between 21st September and 21st March;
- The centre of the main living room window receives less than 80% of its former sunlight hours during either period, and;
- The centre of the main living room window has a reduction in sunlight received over the whole year greater than 4% of annual probable sunlight hours

3.0 Methodology

The Radiance module in the IES Virtual Environment (VE) software is used to calculate the vertical sky component (VSC). The VSC calculation uses the standard CIE overcast sky. The SunCast module in IES VE is used to determine the annual probable sunlight hours (APSH).

4.0 3D Models

A 3D model of the existing site, the proposed development, and neighbouring property has been constructed based upon the drawings from RJA Planning & Building Consultants Ltd. Please note – the drawings did not show 55 Gordon Road, however as the properties are terrace houses, 53 Gordon Road was duplicated and the window positions and sizes have been estimated using brick counts from site photos.

The 3D axonometric models are presented in Figure 4.1.

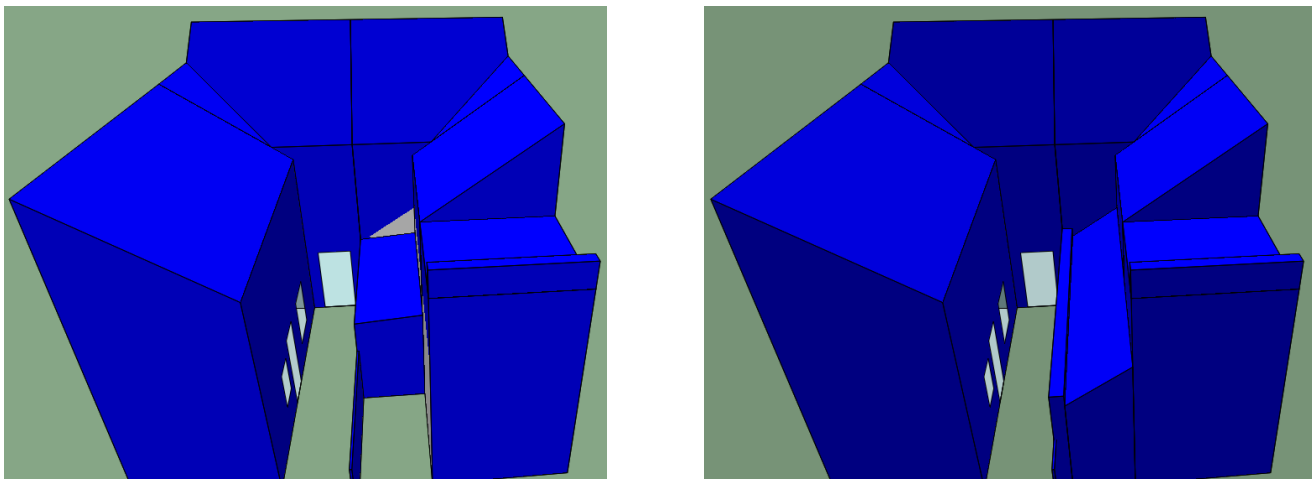

Figure 4.1 Axonometric view of existing (left) 53 Gordon Road and proposed (right) 53 Gordon Road and 55 Gordon Road.

5.0 Results and Discussion

5.1 Vertical Sky Component

The results for the existing VSC and the design proposals are presented in Table 5.1 with the window references in Appendix 1. The results show that currently all the rear ground floor windows of no. 55 receive less than the recommended 27% VSC. With the proposed side extension at 53 Gordon Road, the VSC will be reduced very slightly but not beyond the VSC threshold. Therefore the change is unlikely to be noticeable and meets the BRE guidance.

No. 55	Point No.	Existing VSC	Guidance met currently?	80% VSC Threshold	Proposed VSC	reduced below 27%?	Reduced beyond threshold?	BRE guidance met?
French doors	1	13	✘	10	11	N/A	No	✓
smaller window	2	17	✘	14	15	N/A	No	✓
larger window	3	12	✘	9	11	N/A	No	✓

Table 5.1 Daylight results for 55 Gordon Road

5.2 Annual Probable Sunlight Hours

The annual probable sunlight hours are determined for the living room windows only. Although it is most likely the main living room is to the front of the property, the sunlight to the rear windows have been assessed to evaluate any changes.

The sunlight results are presented in Table 5.2 and demonstrate the proposed side extension to no. 53 will have no impact at all on the sunlight to the rear windows of no. 55 Gordon Road as the results remain unchanged.

Window No.	Existing APSH %		80% Threshold		Proposed APSH %		BRE Guidance met?
	Annual	Winter	Annual	Winter	Annual	Winter	
1	0.00	0.00	0.00	0.00	0.00	0.00	✓
2	8.48	0.08	6.78	0.06	8.48	0.08	✓
3	1.33	0.00	1.06	0.00	1.33	0.00	✓

Table 5.2 APSH results

6.0 Conclusions

The daylight and sunlight study of the proposed 53 Gordon Road has demonstrated there will be no noticeable impact to the rear windows of 55 Gordon Road according to the impact criteria set out in the BRE Guide to Good Practice Site Layout Planning for Daylight and Sunlight.

7.0 Appendix 1 – Window References

