



25-49 Victoria Road

Ruislip Manor

Daylight and Sunlight Assessment

Job No: 5049

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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 25-49 Victoria Road, Ruislip Manor.
- 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 17037:2018 'Daylighting in 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.
- 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 occupies 25-49 Victoria Road, Ruislip Manor and is a series of part 2 and part 3-storey buildings, primarily used for retail purposes at ground level with residential uses above.
- 2.2 The proposal is for roof extensions at 2nd and 3rd floor level over parts of the existing terrace, along with internal reconfiguration and rear deck access. creating 9 additional residential units
- 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 In this instance the impacts on the existing units below have been assessed as well as the neighbouring buildings.
- 2.5 Further details on the location of the assessed 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 has also been assessed.



Site Location



3.0 Methodology

3.1 For the impacts 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 Target Daylight Factor (DF_T) 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 Sunlight 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. In this instance, all windows face outside of this orientation and so no sunlight calculations are required.

3.7 PSH can also be used to assess the impact on external spaces such as gardens. This is looked at in Section 8.

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.



Front (West) 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



51A Victoria Road

44-50 Victoria Road



34-44 Victoria Road

6.0 Window Schedules



22-34 Victoria Road



25-49 Victoria Road (Rear Elevation as Proposed - Extract)

Note – a sample of windows on the existing building have been assessed to ensure acceptable impact from the proposed external deck accesses and the increased massing



7.0 Daylight Impact Results

- 7.1 The Vertical Sky Component has been calculated for each of the 83 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	28.469	26.165	91.91%	Yes
2	36.523	34.914	95.59%	Yes
3	37.857	36.395	96.14%	Yes
4	37.040	35.332	95.39%	Yes
5	38.450	36.890	95.94%	Yes
6	36.299	34.498	95.04%	Yes
7	37.787	36.140	95.64%	Yes
8	36.694	34.705	94.58%	Yes
9	38.263	36.421	95.18%	Yes
10	36.514	34.398	94.20%	Yes
11	38.206	36.226	94.82%	Yes
12	36.284	34.030	93.79%	Yes
13	38.116	35.999	94.45%	Yes
14	36.148	33.833	93.60%	Yes
15	38.066	35.881	94.26%	Yes
16	35.297	32.935	93.31%	Yes
17	37.417	35.193	94.05%	Yes
18	35.861	33.492	93.39%	Yes
19	38.018	35.785	94.13%	Yes
20	35.180	32.810	93.26%	Yes
21	37.365	35.135	94.03%	Yes
22	35.684	33.367	93.51%	Yes
23	37.807	35.624	94.23%	Yes



7.0 Daylight Impact Results

Vertical Sky Component				
Window	Existing VSC	Proposed VSC	% Retained	Meets BRE Guidance?
24	35.614	33.348	93.64%	Yes
25	37.765	35.640	94.37%	Yes
26	35.549	33.393	93.93%	Yes
27	37.739	35.707	94.61%	Yes
28	35.499	33.416	94.13%	Yes
29	37.708	35.748	94.80%	Yes
30	34.696	32.709	94.28%	Yes
31	37.059	35.186	94.95%	Yes
32	35.298	33.345	94.47%	Yes
33	37.671	35.825	95.10%	Yes
34	34.662	32.736	94.44%	Yes
35	37.036	35.212	95.07%	Yes
36	35.433	33.547	94.68%	Yes
37	37.714	35.922	95.25%	Yes
38	35.363	33.496	94.72%	Yes
39	37.602	35.824	95.27%	Yes
40	35.433	33.543	94.67%	Yes
41	37.652	35.862	95.25%	Yes
42	35.496	33.560	94.55%	Yes
43	37.739	35.912	95.16%	Yes
44	35.508	33.523	94.41%	Yes
45	37.687	35.825	95.06%	Yes
46	35.541	33.510	94.29%	Yes
47	37.698	35.799	94.96%	Yes
48	35.574	33.499	94.17%	Yes
49	37.704	35.769	94.87%	Yes
50	35.632	33.496	94.00%	Yes
51	37.767	35.782	94.74%	Yes
52	35.608	33.431	93.89%	Yes
53	37.654	35.639	94.65%	Yes



7.0 Daylight Impact Results

Vertical Sky Component				
Window	Existing VSC	Proposed VSC	% Retained	Meets BRE Guidance?
54	35.627	33.422	93.81%	Yes
55	37.634	35.596	94.58%	Yes
56	35.672	33.467	93.82%	Yes
57	37.651	35.606	94.57%	Yes
58	35.731	33.551	93.90%	Yes
59	37.689	35.651	94.59%	Yes
60	35.860	33.744	94.10%	Yes
61	37.768	35.774	94.72%	Yes
62	35.956	33.911	94.31%	Yes
63	37.843	35.912	94.90%	Yes
64	36.040	34.114	94.65%	Yes
65	37.832	35.990	95.13%	Yes
66	36.166	34.342	94.96%	Yes
67	37.882	36.137	95.39%	Yes
68	36.301	34.571	95.23%	Yes
69	37.929	36.275	95.64%	Yes
70	36.519	34.962	95.74%	Yes
71	38.037	36.551	96.09%	Yes
72	36.688	35.282	96.17%	Yes
73	38.028	36.697	96.50%	Yes
74	36.963	35.680	96.53%	Yes
75	38.148	36.951	96.86%	Yes
76	37.248	36.069	96.83%	Yes
77	38.323	37.241	97.18%	Yes
78	39.207	33.326	85.00%	Yes
79	39.451	32.043	81.22%	Yes
80	39.127	33.355	85.25%	Yes
81	39.423	31.612	80.18%	Yes
82	38.652	32.766	84.77%	Yes
83	39.207	32.417	82.68%	Yes

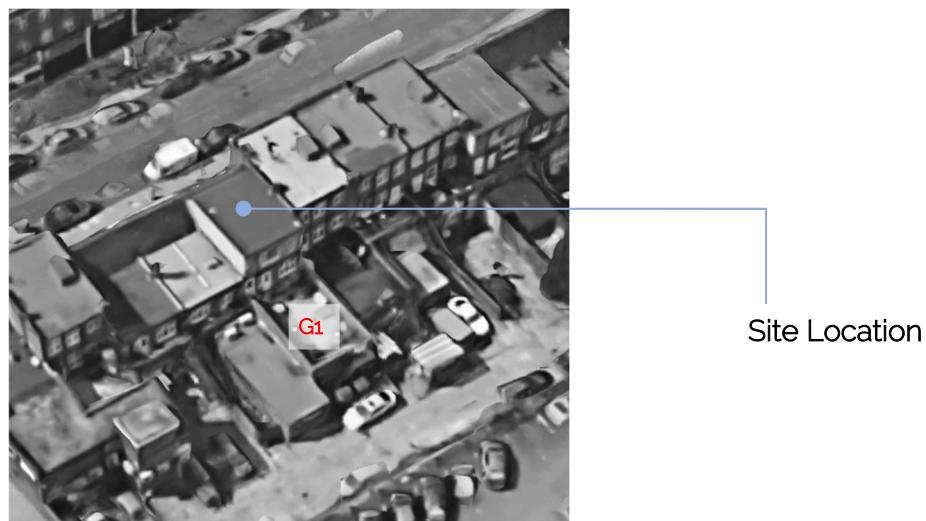
8.0 Sunlight to Gardens and Amenity Spaces

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 rooftop amenity space within the existing building was assessed using this methodology, as identified below.

9.4 As can be seen, the space retains 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	70.51%	58.66%	83.19%	Yes



9.0 Daylight within the Proposal

9.1 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)

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

9.3 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

9.4 Due to the complexity of the daylight entering the proposed rooms, the Target Daylight Factor approach is the one of the suitable calculations to give a realistic indication of the internal illuminance that will be experienced.

9.5 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.

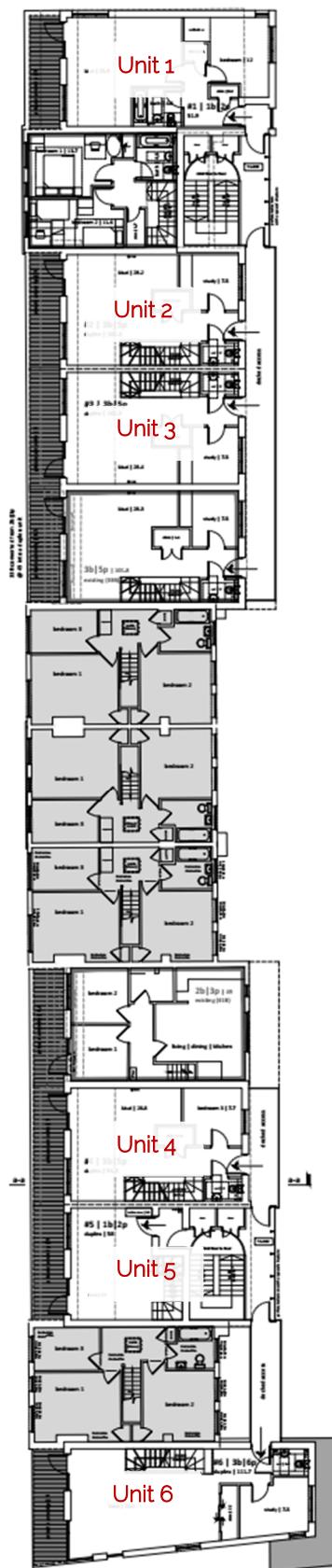
9.6 The benchmark values each room type which are recommended by the BRE guidance and BS:EN 17037:2018 are.

Table C2 – Target daylight factors (D) for London

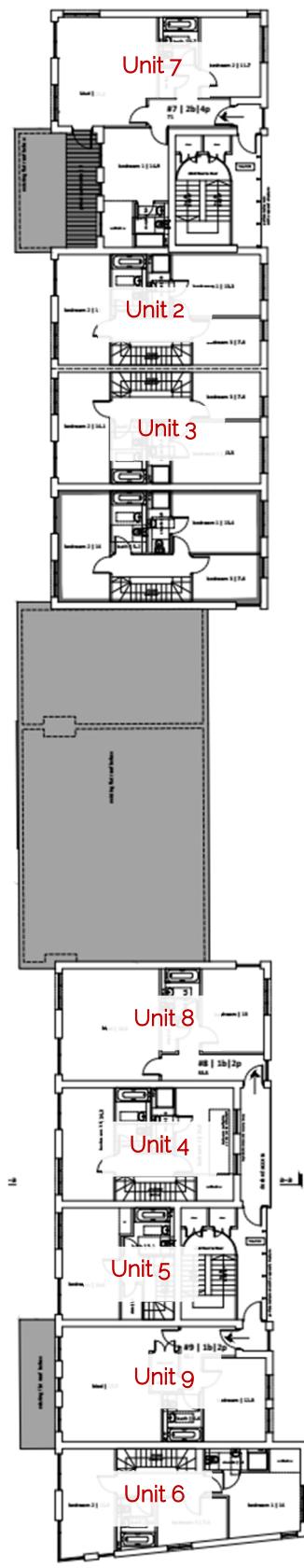
Level of recommendation	Target daylight factor D for half of assessment grid	Target daylight factor D for 95% of assessment grid
Minimum	2.1%	0.7%
Medium	3.5%	2.1%
High	5.3%	3.5%

9.7 It is deemed by the guidance that if the minimum DF 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 comfortably meet the minimum levels of internal daylight.

9.0 Daylight within the Proposal



2nd Floor as Proposed



3rd Floor as Proposed



9.0 Daylight within the Proposal

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	K/L/D	95%	100.0%	50%	100.0%	Yes
1	Bedroom 1	95%	100.0%	50%	100.0%	Yes
2	K/L/D	95%	100.0%	50%	98.1%	Yes
2	Study	95%	100.0%	50%	100.0%	Yes
2	Bedroom 1	95%	100.0%	50%	100.0%	Yes
2	Bedroom 2	95%	100.0%	50%	100.0%	Yes
2	Bedroom 3	95%	100.0%	50%	87.9%	Yes
3	K/L/D	95%	100.0%	50%	100.0%	Yes
3	Study	95%	100.0%	50%	100.0%	Yes
3	Bedroom 1	95%	100.0%	50%	100.0%	Yes
3	Bedroom 2	95%	100.0%	50%	100.0%	Yes
3	Bedroom 3	95%	100.0%	50%	88.0%	Yes
4	K/L/D	95%	100.0%	50%	100.0%	Yes
4	Bedroom 1	95%	100.0%	50%	100.0%	Yes
4	Bedroom 2	95%	100.0%	50%	100.0%	Yes
4	Bedroom 3	95%	100.0%	50%	86.9%	Yes
5	K/L/D	95%	100.0%	50%	100.0%	Yes
5	Bedroom 1	95%	100.0%	50%	100.0%	Yes
6	K/L/D	95%	100.0%	50%	100.0%	Yes
6	Study	95%	100.0%	50%	100.0%	Yes
6	Bedroom 1	95%	100.0%	50%	100.0%	Yes
6	Bedroom 2	95%	100.0%	50%	100.0%	Yes
6	Bedroom 3	95%	100.0%	50%	97.8%	Yes
7	K/L/D	95%	100.0%	50%	100.0%	Yes
7	Bedroom 1	95%	100.0%	50%	97.7%	Yes
7	Bedroom 2	95%	100.0%	50%	100.0%	Yes
8	K/L/D	95%	100.0%	50%	100.0%	Yes
8	Bedroom 1	95%	100.0%	50%	100.0%	Yes
9	K/L/D	95%	100.0%	50%	96.3%	Yes
9	Bedroom 1	95%	100.0%	50%	100.0%	Yes



10.0 Conclusions

- 10.1 Using industry standard methodology, we have made numerical analyses to ascertain the effects of the proposal at 25-49 Victoria Road, Ruislip Manor, and the levels of change in daylight and sunlight for the windows of the neighbouring properties.
- 10.2 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
- 10.3 As has been shown, the effect on VSC is within the 80% guidance value in all cases.
- 10.4 There will therefore be no adverse impact on neighbouring residents in terms of daylight.
- 10.5 In terms of sunlight, all of the assessed windows face within 90° of north and so no calculations for sunlight to windows are required.
- 10.6 The existing amenity space within the site retains in excess of 80% of its area that receives 2 hours or more of direct sunlight on March 21st.
- 10.7 The scheme is therefore compliant with BRE guidance in relation to sunlight impacts.
- 10.8 The new residential units will benefit from daylight levels in excess of the requirements of BSEN 17037:2018 recommendations.
- 10.9 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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