



Linfield Care Home, Worthing

Daylight and Sunlight Assessment

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1.0 Introduction

- 1.1 This daylight and sunlight assessment has been prepared in relation to a planning application for the proposed extension of the Linfield Care Home. Worthing
- 1.2 The report assesses the development in respect of daylight, sunlight and overshadowing matters, having regard to industry standard guidance.
- 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 NPPF 2024 (Para 130(c)) does refer to daylight and sunlight in relation to density, encouraging Local Planning Authorities to take a flexible approach to applying policies and guidance relating to the impacts of proposals where they would otherwise inhibit making effective use of the site.
- 1.5 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 within proposed new dwellings.
- 1.6 It refers in turn to the daylight and sunlight recommendations in BS EN 17037: 2018+A1:2021 (with UK Annexe): 'Daylight in Buildings'
- 1.7 These reference documents are accepted as the authoritative works in the field on daylight, sunlight and overshadowing and the BRE guidance specifically referred to in many Local Authorities' planning policy guidance for daylighting.
- 1.8 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 site is a 2/3 storey care home, situated on Wykeham Road, Worthing.
- 2.2 The proposal is for the construction of a three-storey extension to the building, along with internal works to provide additional 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 The only existing neighbours that would be adversely impacted by the proposal are within the care home itself.
- 2.5 Due to the nature of the proposal location, additional windows are also to be provided to the existing bedrooms facing the proposal to mitigate the loss of amenity.
- 2.6 Further details on the location of the assessed neighbours and their windows are given in Section 5.0



3.0 Methodology

- 3.1 For this analysis, we have undertaken the following calculations for the change in daylight and sunlight to existing buildings, as recommended in BRE Digest 209:
 - Vertical Sky Component (VSC) and No Sky Line (NSL) 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 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.
- 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.
- 3.7 Only windows which face within 90° of due south need be assessed for sunlight. In this instance, all assessed windows face within 90° of north and so no sunlight calculations are required.
- 3.8 APSH can also be used to assess the impact on external spaces such as gardens. In this instance, no gardens are close enough to the site 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 in terms of loss of daylight and sunlight.
- 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, including the large existing hedge adjacent to the boundary and neighbouring window.
- 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 where available.

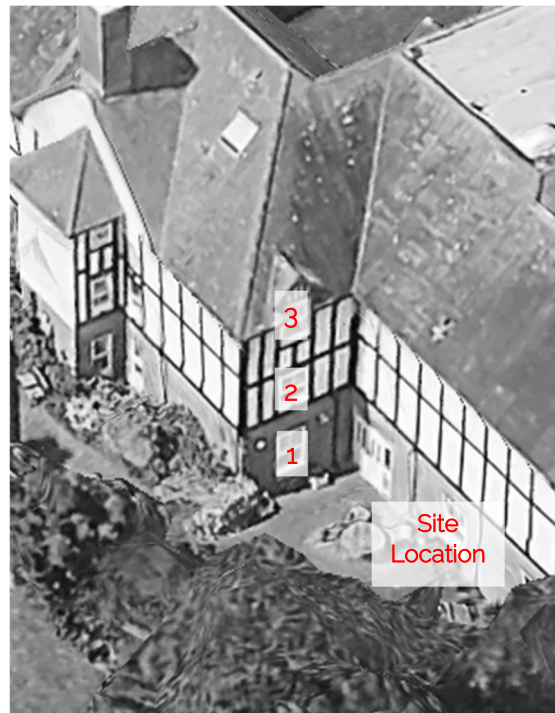


Side Elevation as Proposed

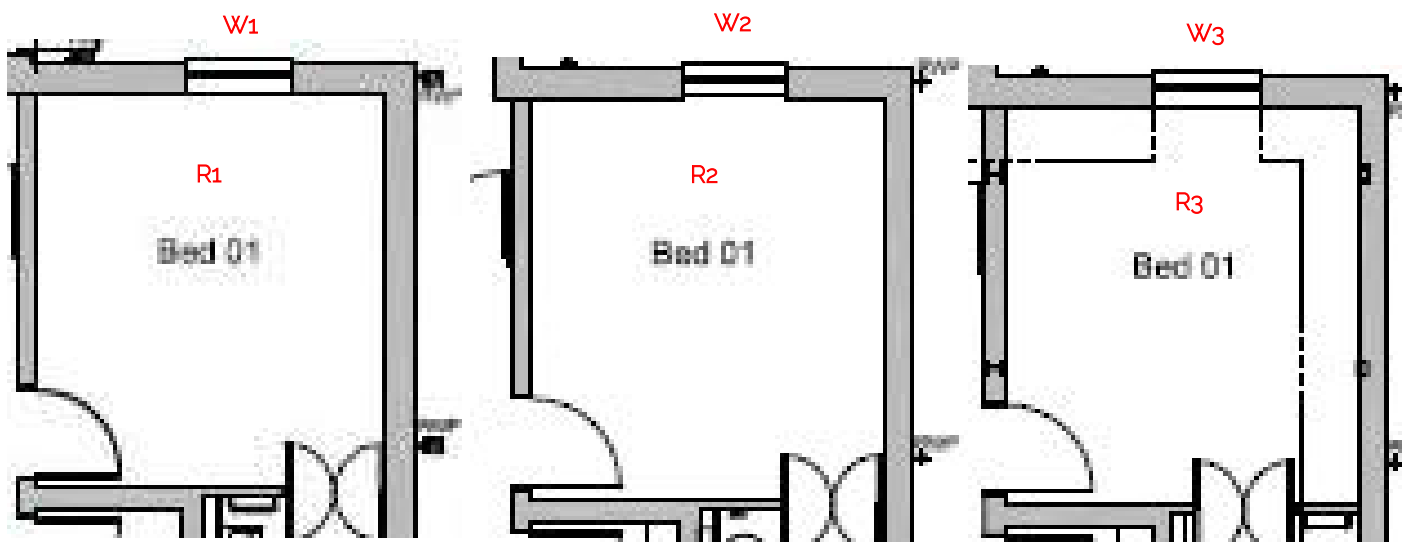
5.0 BRE Guidance Targets

- 5.1 The reference document for this analysis, BRE Digest 209, 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice' (3rd Edition, 2022) gives the methodology for undertaking the calculations.
- 5.2 It also provides benchmark figures for the acceptable reduction in the daylight on existing properties which might be affected by development.
- 5.3 Specifically, the guidance gives figures for the VSC and APSH, as a percentage reduction that is "permissible" for the effect on existing windows.
- 5.4 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."
- 5.5 The relevant BRE recommendations for daylight 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.

6.0 Window and Room Schedules



Linfield Care Home



Ground Floor Room Plan

1st Floor Room Plan

2nd Floor Room Plan

7.0 Daylight Impact Results – VSC Test

- 7.1 The Vertical Sky Component has been calculated for the 3 assessed windows for both the existing and proposed conditions.
- 7.2 As can be seen in the results below, using the VSC test, the windows fall short of the BRE Guidance.
- 7.3 However, as part of the works, additional windows are to be provided to each room, which would not be affected by the proposal.
- 7.4 Although the VSC test does not take this into account, the No Sky Line test, shown in the following section does consider multiple rooms serving the same space.
- 7.5 As such, in this case, the VSC test should be given limited weight, since the primary source of light for each bedroom is being transferred to a new window.
- 7.6 The No Sky Line results presented in the following section demonstrate this.
- 7.7 All assessed windows face within 90° of north and so no sunlight calculations are required.

Vertical Sky Component				
Window	Existing VSC	Proposed VSC	% Retained	Meets BRE Guidance?
1	25.84	4.80	18.58%	No
2	29.02	7.58	26.12%	No
3	33.04	21.16	64.04%	No

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 provided for the existing care home building, allowing a more detail analysis can be undertaken.
- 8.3 The No Sky Line test has been undertaken for each of the impacted bedrooms.
- 8.4 In both calculations, the additional proposed windows are included
- 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, and accounts for multiple windows serving one room, which VSC does not.
- 8.6 The new windows would be provided with privacy glass to avoid overlooking and this has been accounted for in the modelling.
- 8.7 As can be seen in the results below, the rooms as a whole, retain in excess of 80% of their area with a good view of the sky.
- 8.8 The proposal is therefore compliant with BRE Guidance in relation to daylight, when assessed using the more detailed and representative No Sky Line test.

No Sky Line

Room	Window	Floor	Room Served	Existing NSL (%)	Proposed NSL (%)	% Retained	Meets BRE Guidance?
1	1	Ground	Bedroom	76.30%	66.40%	87.02%	Yes
2	2	First	Bedroom	84.10%	77.20%	91.80%	Yes
3	3	Second	Bedroom	95.90%	94.20%	98.23%	Yes

9.0 Conclusions

- 9.1 Using industry standard methodology, we have made numerical analyses to ascertain the effects of the proposed extension of the Linfield Care Home, Worthing, and the levels of change in daylight and sunlight and overshadowing for the windows of the existing bedrooms within the care home which face the proposal.
- 9.2 The main criteria used in this analysis to show compliance are the Vertical Sky Component (VSC) and No Sky Line (NSL) for daylight impacts. Sunlight does not need to be assessed.
- 9.3 As has been shown, while the effect on VSC for the existing windows falls short of the BRE recommendations, as the rooms are to be provided with additional windows as part of the works, the rooms themselves will retain good levels of daylight, well within the Guidance, when assessed using the No Sky Line test.
- 9.4 In terms of sunlight, all assessed windows face within 90° of north and so no sunlight calculations are required.
- 9.5 No neighbouring gardens require assessment.
- 9.6 It is therefore the conclusion of this report that the development, including the provision of the additional windows, causes limited adverse impact and the existing residents will continue to have good levels of daylight amenity.



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