



152 Elgar Road, Reading

**Daylight and Sunlight
Assessment for Adjacent Properties**

Document Issue Record

This document has been revised and issued as below:

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Calculations are based solely on the drawings and information provided to us, which have been accepted in good faith as being accurate and valid. The accuracy of this information may have an impact on the daylight and sunlight assessments.

We have used our best endeavours to ensure that all relevant windows within the neighbouring properties and that all external amenity spaces have been identified.

We can make no guarantee as to the status (successful/unsuccessful) of the planning application following the submission of our report.

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1.0 Executive Summary

A daylight and sunlight assessment has been carried out for the surrounding properties on Elgar Road that are close to the proposed rear extension at 152 Elgar Road, Reading. This report outlines the results of the assessment in order to assist with the developments planning application.

Calculations have been based solely on the drawings and information provided to us, which have been accepted in good faith as being accurate and valid. The accuracy of this information may have an impact on the daylight and sunlight assessment.

The methodology used for this assessment follows the most recognised guidance document for daylight and sunlight within dwellings and is titled 'Site Layout Planning for Daylight and Sunlight - A Guide to Good Practice' *Second Edition 2011*; by Paul Littlefair and is published by the Building Research Establishment.

This report has investigated the changes in natural light received between the existing and proposed plans. The following daylight and sunlight assessments have been carried out with the use of computer modelling software in order to provide the most accurate results possible.

- Vertical Sky Component (VSC)
- Annual Probable Sunlight Hours Received

The VSC results show that 2 windows (W1 and W2) within property Number 154 would be minor adversely affected by the proposed rear extension at number 152 Elgar Road.

As one of these windows is located on the side of the property and as they are both located unusually close to the boundary line, they should expect to achieve lower than usual VSC values. Under circumstances such as these the BRE guide states the following:

"In certain situations care needs to be taken in applying these guidelines... If the existing building stands unusually close to the common boundary with the new development, or has a large balcony or overhang above the window, then a greater reduction in sunlight access may be unavoidable. The guidelines are purely advisory. Planning authorities may wish to use different criteria based on the requirements for sunlight in particular types of developments in particular areas. Sometimes a larger reduction in sunlight may be necessary if new development is to match the height and proportion of existing buildings nearby."

The sunlight results show that only 1 window (W1) within property Number 154 would fall just outside of the of the BRE Recommended guidelines of staying within 0.80 of their former value, and can therefore be described as receiving a very minor adverse impact due to the proposed extension at number 152 Elgar Road.

In summary, although the results have shown that a couple of the windows within Number 154 will have their VSC values and amount of sunlight received only minor adversely affected, this is to be expected for side windows and ones that are close to a common boundary line. Therefore, as recommended by the BRE Guidelines, the planning authority would hopefully consider this when determining if the proposed extension is suitable in terms of daylight and sunlight.

2.0 Introduction

EEABS (Elmstead Energy Assessments & Building Services) has been instructed by Adrian Gray to undertake a daylight and sunlight assessment for the nearby properties of the proposed rear extension at number 152 Elgar Road, Reading.

There is some concern as to whether the proposed extension could adversely affect the daylight and sunlight received by the adjacent property's windows at numbers 150 and 154 Elgar Road.

Therefore, this report will investigate the changes in natural daylight and sunlight received between the existing and proposed plans.

The key elements of this report are:

- To review the relevant guidance and methodology with respect to daylight and sunlight that relate to the development.
- Calculate the surrounding properties levels of daylight and sunlight for the existing scheme in accordance with standard methodology.
- Calculate the surrounding properties levels of daylight and sunlight for the proposed scheme in accordance with standard methodology.
- To summarise and compare the findings against regulation guidelines for daylight and sunlight of neighbouring buildings.

2.1 The Site and Development Proposal

The site is located at 152 Elgar Road, Reading and can be seen outlined in red on the satellite image below. The existing building is a mid-terraced property split over four floors.



Figure 1 - Satellite Image of 152 Elgar Road, Reading

The proposal is to demolish the existing the current extension at lower ground floor level and replace it with a new extension that stretches the full width of the property. At ground floor level an outrigger type extension will also be built, similar to the outrigger of number 154 Elgar Road. Rear elevations of the existing and proposed schemes are shown in figure 2 below.

This assessment has been based on the drawings and information provided to us by the client / architect, internet and OS mapping sources, and publicly available planning records where available. A drawing register can be found within Appendix A.



Figure 2 - Existing and Proposed Rear Elevations

2.2 Planning Policy and Guidance

The most recognised guidance document for natural light within dwellings is titled 'Site Layout Planning for Daylight and Sunlight - A Guide to Good Practice' *Second Edition 2011*; by Paul Littlefair and is published by the Building Research Establishment.

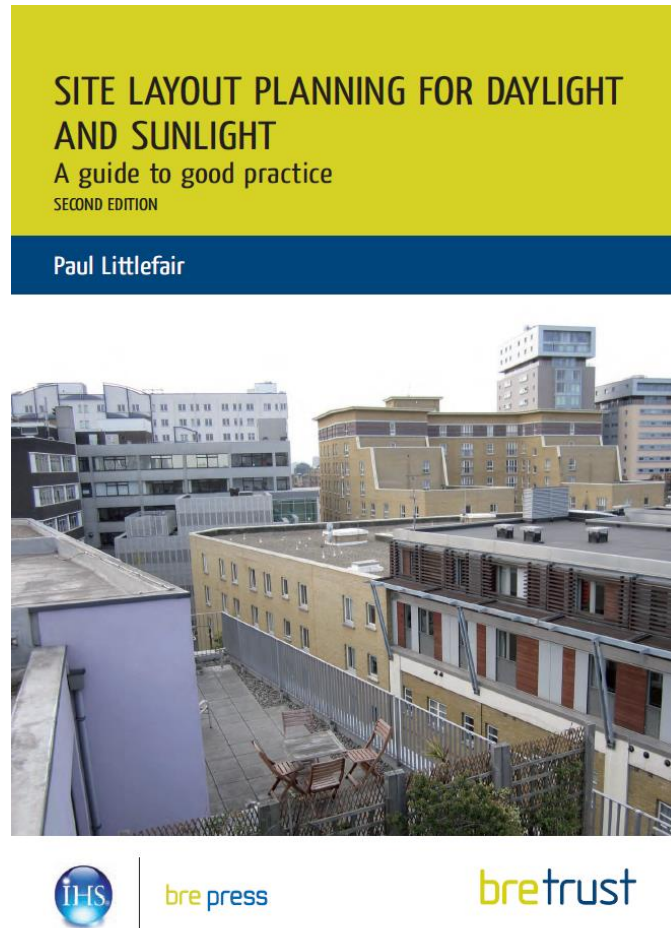


Figure 3 - BRE: Site Layout Planning for Daylight and Sunlight - A Guide to Good Practice

Although the BRE guide clearly states that its recommendations are not mandatory and the document should not be considered as an instrument of planning policy, it can be used in conjunction with the British Standard BS 8206-2:2008, Lighting for Buildings - Part 2: Code of Practice for Daylighting.

While the BRE Guidelines are the most recognised document for natural light within dwellings they also do state that:

"The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and the guide should not be seen as an instrument of planning policy; its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly since natural lighting is only one of many factors in site layout design. In special circumstances the developer or planning authority may wish to use different target values."

As the numerical values within the BRE guide are purely advisable, Appendix I of the guide provides further assistance on how to assess the impact to daylight and sunlight of the surrounding properties.

Criteria	Impact
Where the loss of skylight or sunlight fully meets the guidelines and only a small number of windows or limited area of open space lose light.	None / Negligible
Where the loss of skylight or sunlight is only just within the guidelines and a large number of windows or open spaces are affected. Where the loss of skylight or sunlight does not meet the guidelines but one or more of the following applies: • Only a small number of windows or limited area of open spaces are affected. • The loss of light is only just outside the guidelines. • The affected room has other sources of light. • The affected building/room or open space has a low requirement for light.	Minor Adverse
Where the loss of skylight or sunlight does not meet the guidelines and one or more of the following applies: • A large number of windows or large area of open space are affected. • The loss of light is substantially outside the guidelines. • All windows within a particular property are affected. • The affected indoor or outdoor spaces have a particularly strong requirement for skylight or sunlight.	Major Adverse

Absent of any particular planning requirements for daylight and sunlight, the methodology and target benchmarks set out within the BRE guide have been used to assess the surrounding properties under the existing and proposed schemes.

We generally consider a value greater than 0.8 times its former value to have a Negligible impact, between 0.5 and 0.8 to have a minor impact, and a value less than 0.5 to have a major impact.

2.3 Methodology

The following methodology and calculations set out within the BRE Guide 'Site Layout Planning for Daylight and Sunlight - A Guide to Good Practice' *Second Edition 2011* were used to carry out the daylight and sunlight assessment for the surrounding properties at 152 Elgar Road, Reading.

2.3.1 Daylight

Vertical Sky Component (VSC)

The Vertical Sky Component (VSC) is a ratio (expressed as a percentage) of the direct sky illuminance falling on the outside mid-point of a window, to the horizontal illuminance under a standard CIE overcast sky. For example, a window looking across an unobstructed field would achieve the highest possible value of just under 40% (39.6%).

For a window to be considered as receiving a good level of daylight, a VSC value of 27% should be achieved. However, for existing windows if the VSC value is less than 27%, then a window is still said to achieve a good level of daylight provided its VSC is within 0.8 of its former value.

No Sky Line / Daylight Distribution

The No Sky Line calculation investigates the distribution of daylight across a room at working plan height. It represents the line in the room where beyond it, there will be no view of the sky. Daylight distribution is similar but instead determines the total area of a room that will be able to see the sky.

As with the vertical sky component test, if following the construction of the development the no sky line / daylight distribution is 0.8 times its former value then there could be a noticeable loss of daylight to the occupants. To carry out this assessment the room geometry is needed to be known.

A no sky line / daylight distribution test can only be carried out where the room layout of an existing building is known. For this reason, this test will not be carried out on the surrounding properties.

Average Daylight Factor

The average daylight factor is the ratio of the average illuminance on the working plane in a room, divided by the outside illuminance on a horizontal surface under a CIE overcast sky. The ratio is usually expressed as a percentage and guidance for adequate levels of daylight are laid out within the British Standard BS 8206-2:2008, Lighting for Buildings - Part 2: Code of Practice for Daylighting and referenced within the BRE guide.

Room type	Minimum average daylight factor %
Bedrooms	1
Living rooms	1.5
Kitchens	2

Figure 4 - BS 8206-2:2008 Minimum Average Daylight Factors

As with the no sky line / daylight distribution test, the room geometry is needed to be known in order to determine its average daylight factor. For this reason again, this test will also not be carried out on the surrounding properties.

2.3.2 Sunlight

Annual Probable Sunlight Hours

To determine if an adequate amount of sunlight is achieved within a room the following criteria needs to be met. At least one main window wall should face within 90° of due south and at least one window should receive at least 25% of annual probable sunlight hours, including at least 5% of annual probable sunlight hours in the winter months between 21st September and 21st March.

The term Annual probable sunlight hours means the total amount of hours during a year in which direct sunlight will reach the ground. The winter annual probable sunlight hours are the same thing but only during 21st September to 21st March.

If any of the surrounding windows that face within 90° of due south fail to meet the 25% of annual probable sunlight hours and 5% of winter sunlight hours, then they can still be said to receive a good amount of sunlight providing they are within 0.8 of their former value and the reduction in sunlight received over the whole year is not greater than 4%.

The BRE guide states that the above guidance is to be applied for living room windows only. Without knowing the type of room behind each window, all of the windows within 90° of due south have been tested for their annual probable sunlight hours.

3.0 Dynamic Simulation Modelling

EDSL TAS Dynamic Simulation Modelling software was used to carry out the daylight and sunlight calculations, as this can provide a more accurate means of assessment over the 'by hand' indicator method outlined within the BRE guide.

The daylight calculations are carried out under a standard CIE overcast sky. For the sunlight calculations, the computer model uses actual hourly weather data as close to the proposed location as possible, in this instance CIBSE London TRY weather data was used.

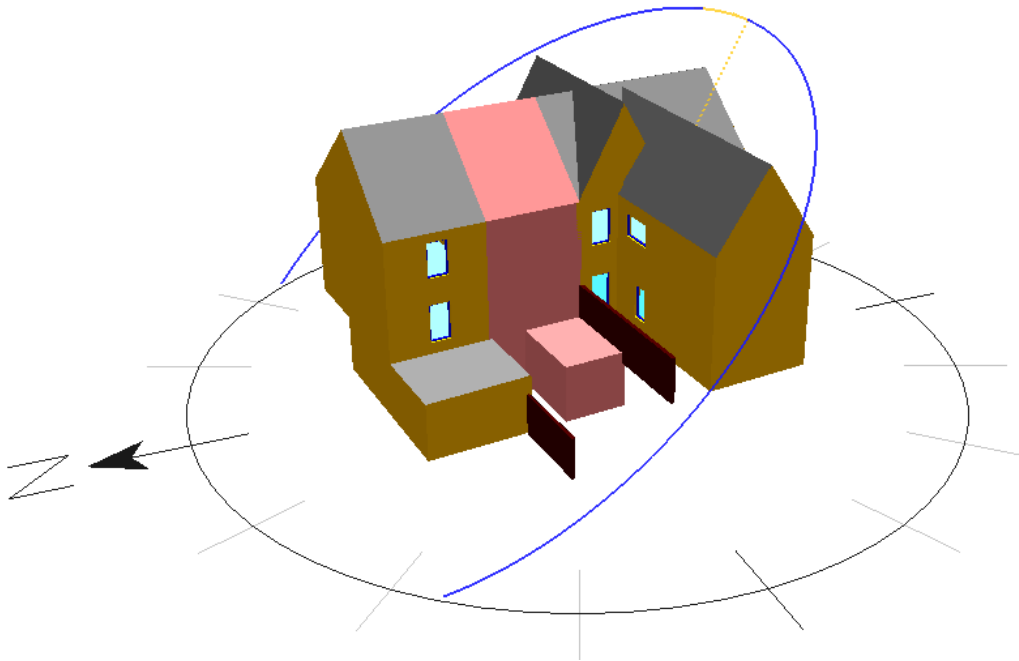


Figure 5 - EDSL TAS Computer Model of the Existing Site

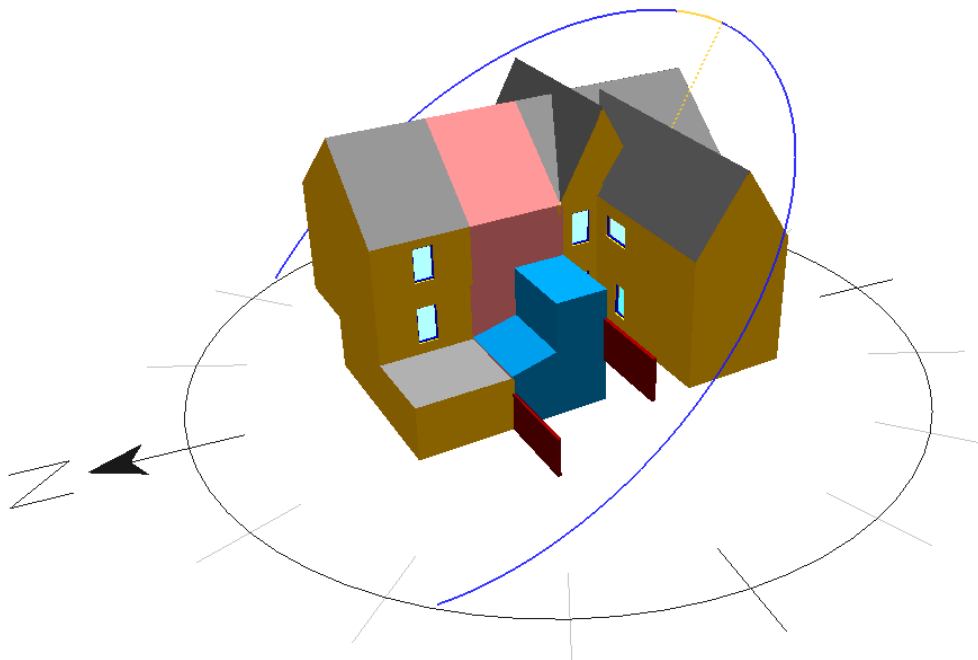


Figure 6 - EDSL TAS Computer Model of the Proposed Site

4.0 Daylight Assessment

The windows that were most likely to be affected by the proposed development have undergone the following calculations and can be found in Appendix B - Window Reference Diagrams.

4.1 Vertical Sky Component (VSC)

The VSC calculated for the surrounding windows can be found in the table below.

Property	Win Ref	Orientation (°)	Scheme	VSC (%)	VSC Ratio	Impact
Number 150	W1	264	Existing	36.49	1.00	None
			Proposed	36.49		
	W2	264	Existing	37.63	1.00	None
			Proposed	37.63		
Number 154	W1	264	Existing	17.42	0.62	Minor Adverse
			Proposed	10.74		
	W2	354	Existing	21.97	0.55	Minor Adverse
			Proposed	12.09		
	W3	264	Existing	28.05	1.00	None
			Proposed	28.05		
	W4	354	Existing	30.72	1.00	None
			Proposed	30.72		

The VSC results show that 2 windows (W1 and W2) within property Number 154 would be minor adversely affected by the proposed rear extension at number 152 Elgar Road.

As one of these windows is located on the side of the property and as they are both located unusually close to the boundary line, they should expect to achieve lower than usual VSC values. Under circumstances such as these the BRE guide states the following:

“In certain situations care needs to be taken in applying these guidelines... If the existing building stands unusually close to the common boundary with the new development, or has a large balcony or overhang above the window, then a greater reduction in sunlight access may be unavoidable. The guidelines are purely advisory. Planning authorities may wish to use different criteria based on the requirements for sunlight in particular types of developments in particular areas. Sometimes a larger reduction in sunlight may be necessary if new development is to match the height and proportion of existing buildings nearby.”

5.0 Sunlight Assessment

Only living room windows within 90° of due south need to have the amount of sunlight they can receive assessed (Due south is taken as 180°, therefore a windows orientation should be between 90° and 270° to be assessed). The orientation of each of the windows can be seen within the VSC results. As we are unsure as to the room types behind each window, every window within 90° of due south has been assessed.

5.1 Annual Probable Sunlight Hours

The results for these windows can be seen in the table below.

Property	Win Ref	Scheme	Annual Probable Sunlight Hours (%)	Annual Ratio	Impact	Winter Probable Sunlight Hours (%)	Winter Ratio	Impact
Number 150	W1	Existing	41	1.00	None	6	1.00	None
		Proposed	41			6		
	W2	Existing	44	1.00	None	9	1.00	None
		Proposed	44			9		
Number 154	W1	Existing	11	0.73	Minor Adverse	0	1.00	None
		Proposed	8			0		
	W3	Existing	24	1.00	None	0	1.00	None
		Proposed	24			0		

The sunlight results show that only 1 window (W1) within property Number 154 would fall just outside of the of the BRE Recommended guidelines of staying within 0.80 of their former value, and can therefore be described as receiving a very minor adverse impact due to the proposed extension at number 152 Elgar Road.

Appendix A - Drawing Register

Drawing Number	Drawing Title
190217_A00	Location Plan
190217_A001	Existing Plans
190217_A002	Existing Elevations
190217_A003	Existing Sections
190217_A101	Proposed Plans Rev B
190217_A102	Proposed Elevations Rev B
190217_A103	Proposed Sections Rev B
N/A	Design Statement

Appendix B - Window Reference Diagrams

