

## **Daylight and Sunlight Assessment (Neighbouring Properties)**

50 Station Road, Barnes

For Angela McDonald

November 2024

**ecolytik**

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## 1 Executive Summary

Daylight and Sunlight analysis was carried out for the proposed development at 50 Station Road, Barnes within the London Borough of Richmond upon Thames. This report outlines the results of the analysis for the planning application, assessing daylight and sunlight impacts on surrounding properties.

The methodology set out in this report is in accordance with BRE's "Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice" by PJ Littlefair (2022) which is accepted as good practice by Planning Authorities. The numerical criteria recommended within the BRE guidelines was applied to the assessment and it is important to note that these guidelines are advisory and often need to be applied flexibly according to the specific context of a site.

To carry out the analysis, a 3D computer model was prepared in specialist software of the existing site, the key surrounding properties and the proposed scheme. The daylight and sunlight levels in both the existing and proposed conditions for the relevant neighbouring buildings were evaluated.

The analysis was carried out for the closest neighbouring buildings to the application site.

The results showed that the closest neighbouring windows and rooms that required detailed modelling will receive satisfactory levels of daylight and sunlight in line with BRE guidelines. All closest neighbouring amenity spaces were found to meet BRE's criteria for sunlight access.

Overall, the proposed development at 50 Station Road will not result in any notable impacts on daylight and sunlight access to neighbouring properties.

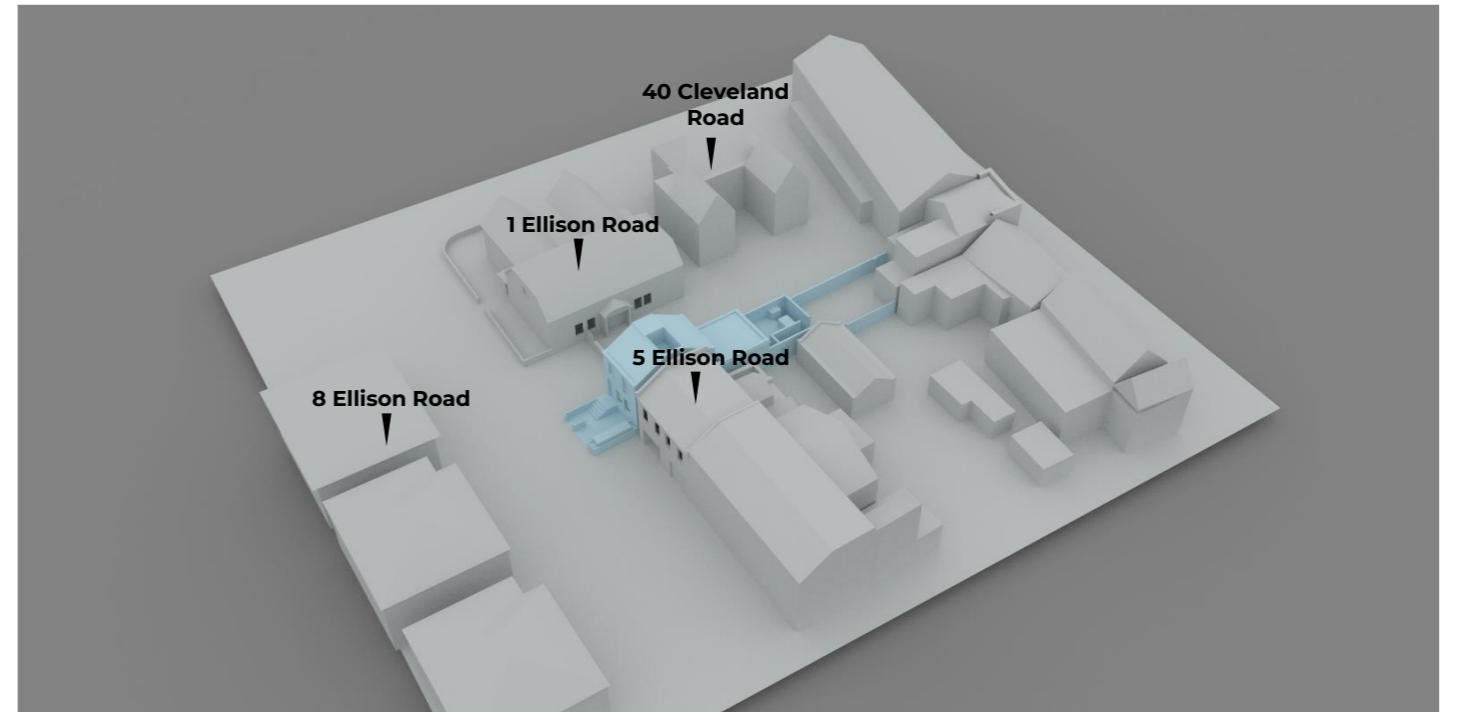


Figure 1: Technical 3D model of the proposed development and surrounding context.

Table 1. Summary of daylight and sunlight results to neighbouring properties

<b>Daylight to buildings</b>	
Number of neighbouring windows assessed in detail	6
Neighbouring windows that meet the VSC and DD tests	6
Neighbouring windows that do not comply with the above daylight criteria	0
<b>Sunlight to buildings</b>	
Number of neighbouring windows within 90 degrees due south assessed in detail	4
Neighbouring windows that meet the APSH/WPSH criteria	4
Neighbouring windows that do not comply with the above	0
<b>Sunlight to amenity spaces</b>	
Neighbouring amenity spaces assessed	3
Neighbouring amenity spaces achieving 2 hours of sunlight on 21 March	3
Neighbouring amenity spaces that do not comply with the above criteria	0



## 2 Introduction

Ecolytik were instructed to assess the potential daylight/sunlight impacts of the proposed development at 50 Station Road, Barnes on neighbouring properties. The assessment considers the latest proposal for the site, dated October 2024.

### 2.1 Site

The proposed development at 50 Station Road is located between Station Road and Ellison Road in Barnes, within the London Borough of Richmond upon Thames.

The site currently comprises a single dwelling to the eastern end, with an elongated garden to the rear and a single storey garage to the western end. The proposed works include demolition of the existing garage and provision of a single dwelling development.

The site location is presented in Figure 2.

### 2.2 Planning policies

Local, regional and national planning policies relating to daylight and sunlight were considered in the assessment. Planning policy advises that new development should only be permitted where it is shown not to cause unacceptable loss of daylight or sunlight amenity to neighbouring properties. Consideration often needs to be given to the development's context.

A full summary of the relevant policy landscape is presented in Appendix C.

### 2.3 Application of BRE's guidance

The BRE guidelines advise that, when assessing any potential effects on surrounding properties, only those windows and rooms where daylight and sunlight is required need to be considered. Therefore, habitable rooms were tested while non-habitable spaces such as staircases, hallways, bathrooms, toilets, stores etc, were omitted from the analysis as per BRE guidance.

In addition, it is worth highlighting the following excerpts from the guidance:

*“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.”*

*Note that numerical values given here are purely advisory. Different criteria may be used based on the requirements for daylighting in an area viewed against other site layout constraints. Another important issue is whether the existing building is itself a good neighbour, standing a reasonable distance from the boundary and taking no more than its fair share of light”*

It is therefore important to carefully consider the context of a potential development site and in certain circumstances apply the BRE guidelines more flexibly. The numerical values of the BRE guide theoretically apply to any built environment. However, in more dense city environments or constrained sites, achieving the standard BRE criteria can be challenging and often conflicts with other beneficial factors of site layout design.

With the above in mind, rigid adherence to the BRE in certain situations could easily result in an inappropriate form of development. In such circumstances, local authorities and applicants may agree to adopt lower target values which would be more relevant to the location concerned.

Further details on the BRE guidelines including the standard numerical criteria as well as suggested approaches on how to set alternative targets, where this is deemed appropriate, are presented in Appendix D of this report.



Figure 2. Approximate site location plan of 50 Station Road, Barnes (source: Google Maps).

### 3 Technical model

#### 3.1 Sources of information and assumptions

Architectural drawings from Paper Projects Architecture and Design, and publicly available satellite images were used to create a 3D computer model of the proposed development. The full list of sources of information used in this assessment is as follows:

- 24.P0064.PREAPP - 50 Station Road.pdf
- 50 Station Rd\_BS5837-2012
- 23581\_Model for DWG
- 23581\_PL\_010\_Plan Site.pdf
- 23581\_PL\_011\_Plan Ground.pdf
- 23581\_PL\_012\_Plan First.pdf
- 23581\_PL\_013\_Plan Roof.pdf
- 23581\_PL\_013\_Section 1.pdf
- 23581\_PL\_020\_Elev Front.pdf
- 23581\_PL\_021\_Elev Flank North.pdf
- 23581\_PL\_022\_Elev Rear.pdf
- 23581\_PL\_023\_Elev Flank South.pdf
- 49076\_01-02\_PE\_RevA.pdf
- Promap-2607931-2713408-720-0.DWG

#### 3.2 Scope of Assessment

The images to the right show the technical 3D model developed for the analysis.

The assessment is focused on the following properties that are in closest proximity to the proposed development:

- 1 Ellison Road
- 5 Ellison Road
- 8 Ellison Road
- 40 Cleveland Road (amenity space only)

The findings and review of potential impacts for these properties are discussed in the next section of this report.

Trees were omitted from the technical model such that the potential impact of the proposed building massing can be fully assessed.

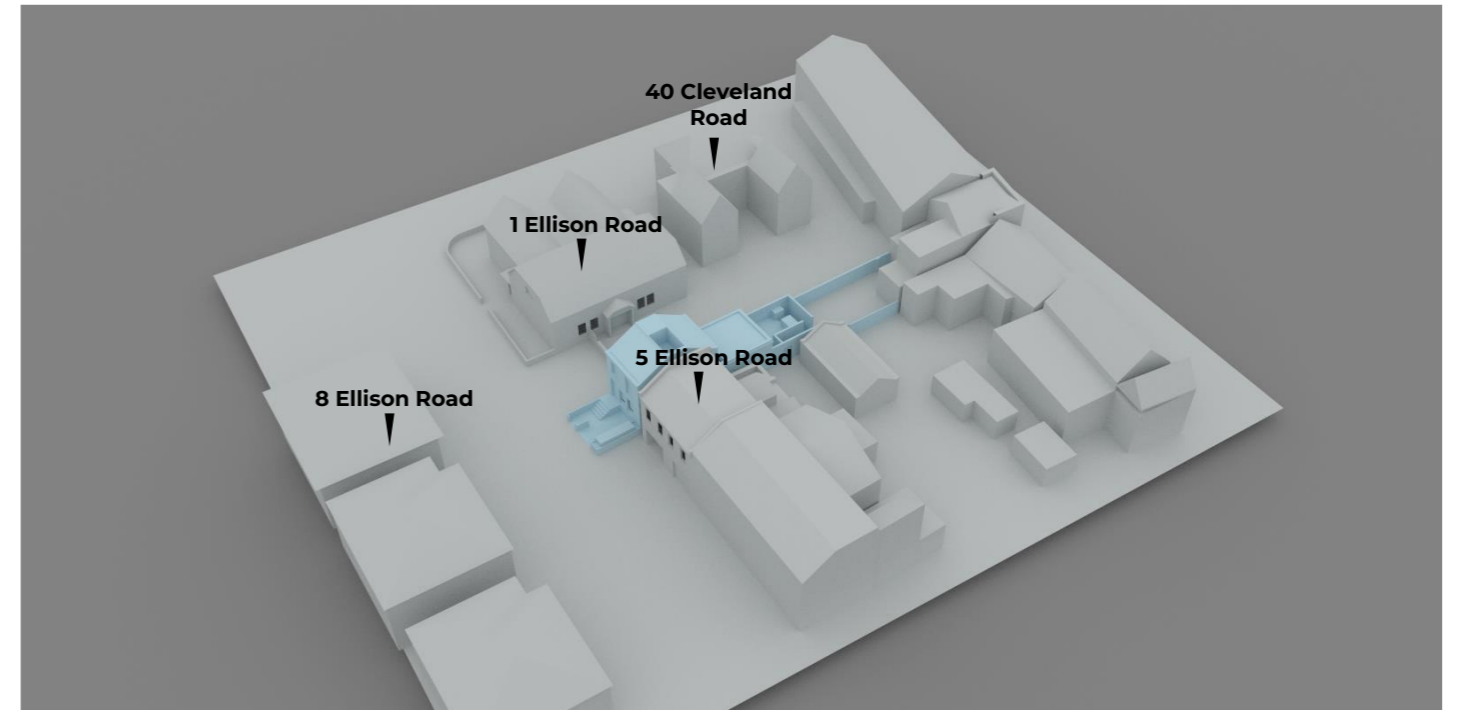


Figure 3: 3D model of proposed development (in blue) and surrounding context (in grey) (view from south).

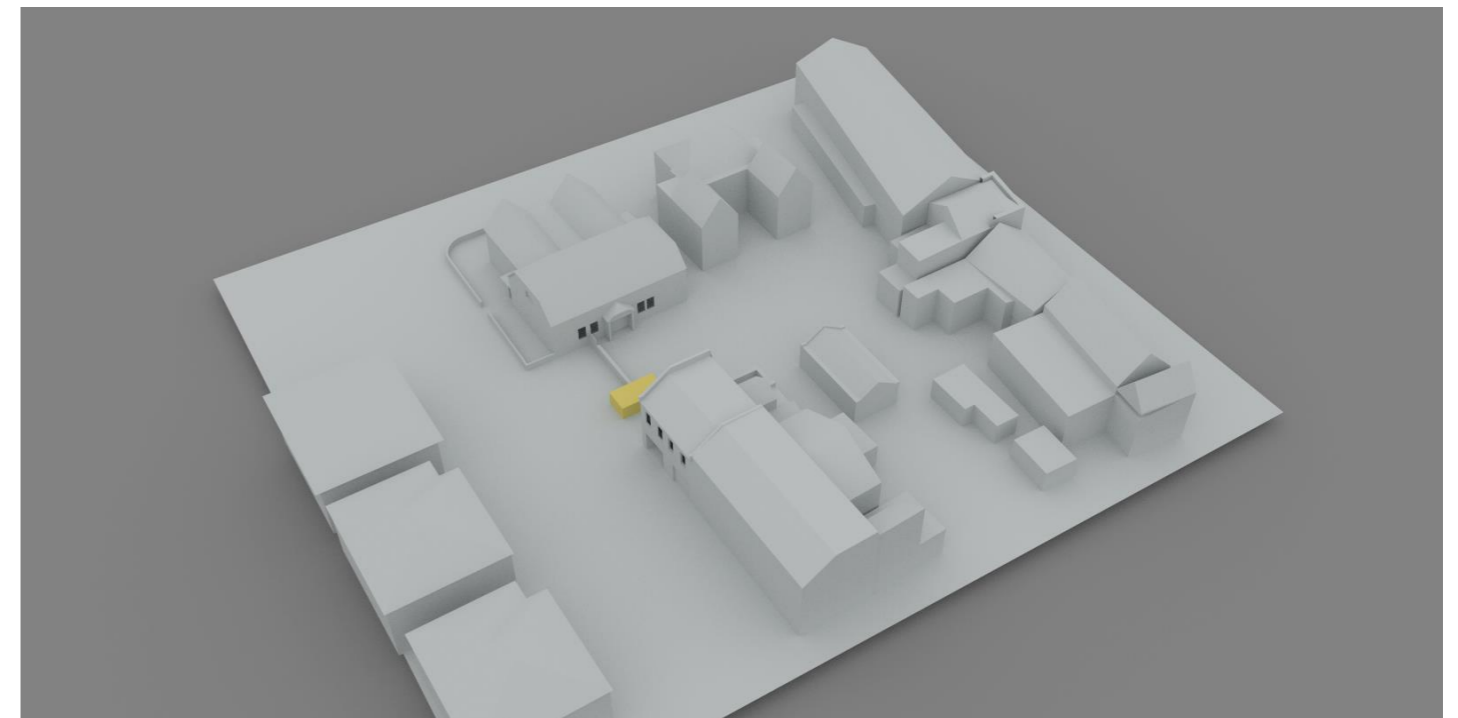


Figure 4: 3D model of existing building on site and surrounding context.



## 4 Assessment results

### 4.1 Daylight and Sunlight to Buildings

Assessment results for each neighbouring property are presented in the following sub-sections.

Window and room references are presented in Appendix A. Detailed numerical results for all buildings evaluated are presented in Appendix B.

#### 4.1.1 8 Ellison Road

The closest ground floor window of the property located across the road from the proposed development was evaluated against BRE's initial 25-degree line test (Figure 5). The results showed that the development does not subtend this plane, therefore all windows across Ellison Road will be unaffected from a daylight/sunlight perspective based on the BRE guidelines. Further modelling was not deemed required.

#### 4.1.2 1 Ellison Road

This building is located to the northwest of the application site. Given layouts of the property are not publicly available, it was assumed that the building comprises two storeys and the ground floor rooms do not benefit from daylighting from the rooflights. In addition, the rooms behind the windows shown in Figure 6 were assumed to be single aspect and habitable, and were modelled with room depths of 6m. This is a worst-case approach as the deeper and larger the room is, the more challenging it would be to meet BRE's guidelines.

The assessment results showed that the windows and associated rooms will meet the Vertical Sky Component (VSC) and Daylight Distribution (DD) targets set out by the BRE.

The Annual and Winter Probable Sunlight Hours (APSH and WPSH) to the assessed windows and rooms will also meet BRE guidelines.

The rooflights located higher up and angled towards the sky would not be affected from a daylight/sunlight perspective by the proposed development.

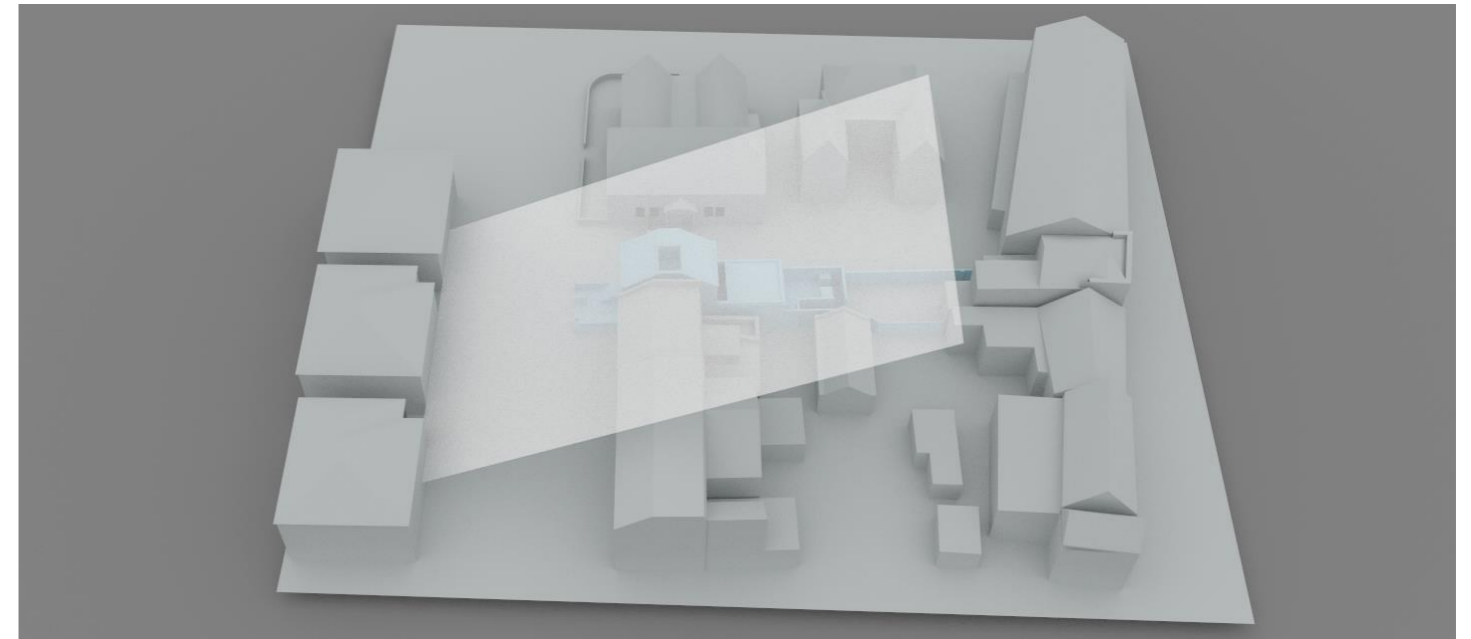


Figure 5. 25-degree test met by ground floor windows at 8 Ellison Road.



Figure 6: Windows located at ground floor of 1 Ellison Road (source: Google Maps) which were modelled in detail.

**4.1.3 5 Ellison Road**

This residential building is located to the southeast of the application site. No windows were identified on the flank wall abutting the site but two windows facing directly towards the application site were identified on the first floor, as shown in Figure 7 (marked in black). These windows most likely belong to a dual aspect room, as shown in the satellite images which indicates that this room is unlikely to be affected by the proposed development. Nevertheless, the room was modelled as single aspect for a conservative method of assessment. The windows facing the application site were found to comply with BRE's guidelines for daylight and sunlight and the room was found to comply with BRE's daylight distribution test (DD) even if it was modelled as single aspect.

The window highlighted in blue would not be affected by the proposed development as it was found to pass BRE's initial 45-degree plane test (Figure 8).

The aforementioned windows are not facing within 90 degrees south and therefore do not need to be assessed for potential sunlight impacts by the proposed development.

Overall, all windows on this property comply with BRE's guidelines for daylight and sunlight.



Figure 7. Main windows assessed on 5 Ellison Road (source: Google Maps). Windows marked in black were modelled in detail while the window marked in blue was found to pass BRE's initial tests.

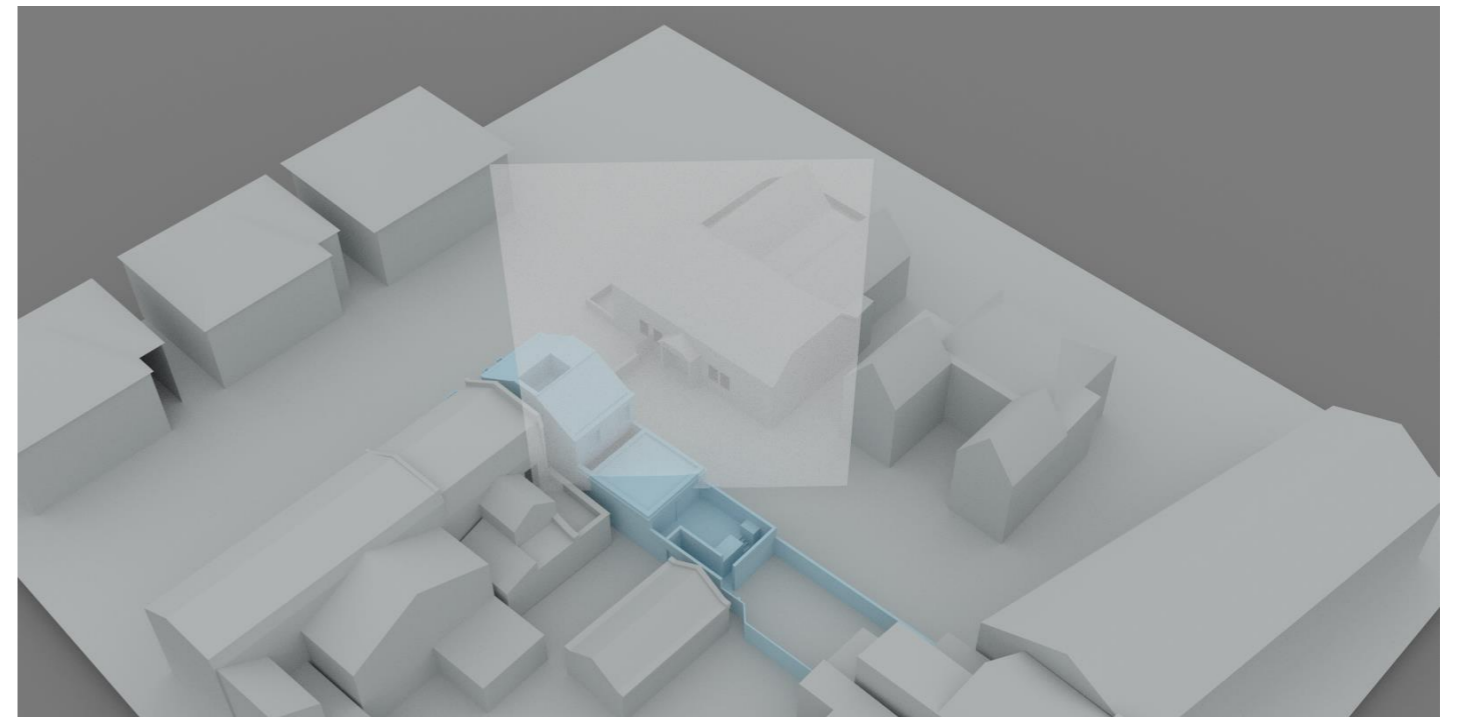


Figure 8. 45-degree test met by first floor window at 5 Ellison Road.



4.2 Sunlight to amenity spaces

The three closest neighbouring amenity spaces to the proposed development were assessed.

The results showed that all amenity spaces will achieve more than 2 hours of sunlight on 21 March for over 50% of their area, meeting BRE's guidelines. The areas in yellow in Figure 9 present the part of the amenity spaces that was found to receive 2 hours of sunlight. The detailed numerical results are shown in Appendix B.



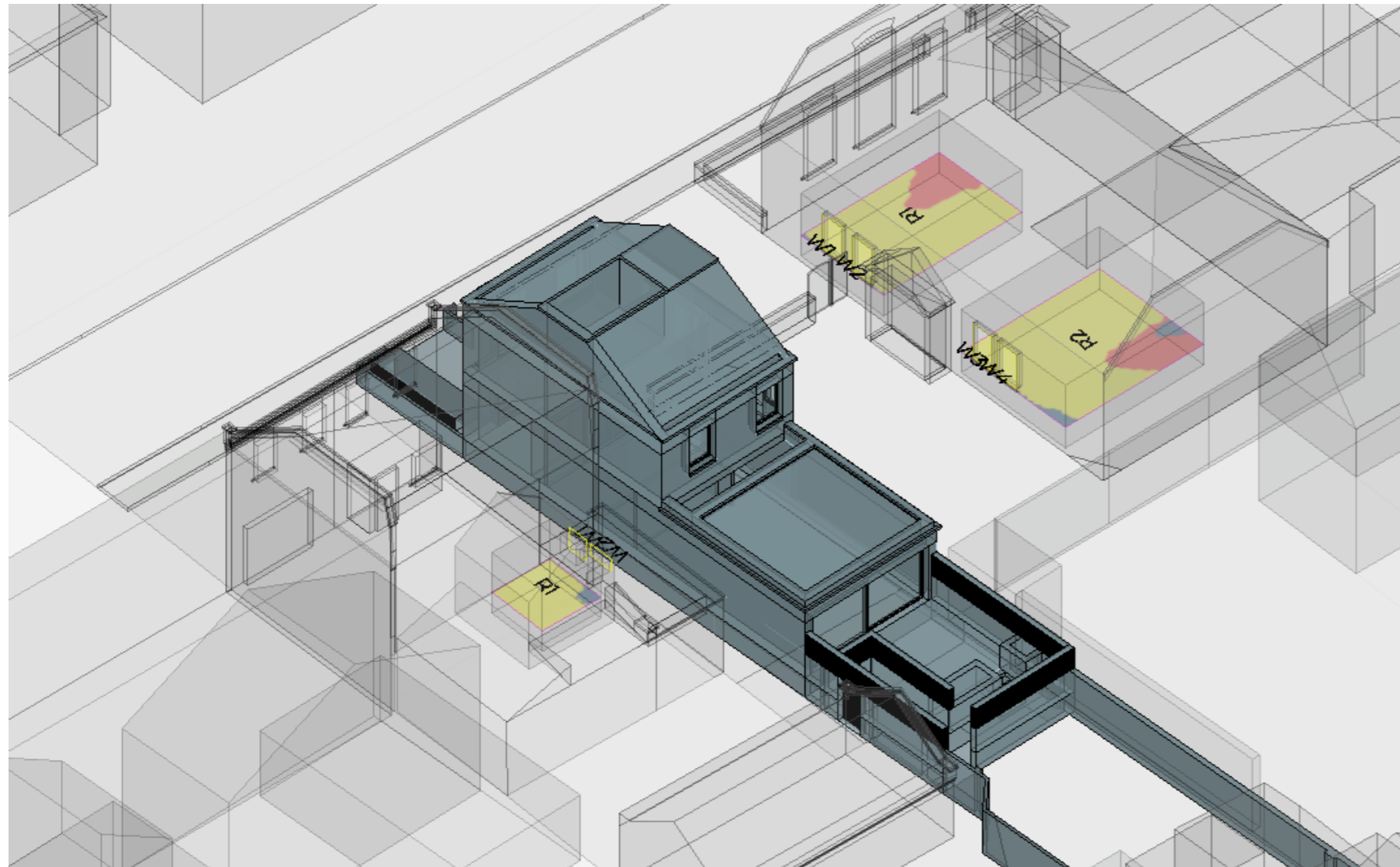
Figure 9. Amenity overshadowing assessment results for 21 March.

## **5 Conclusions**

The Daylight and Sunlight Assessment results show that the proposed development at 50 Station Road will not result in any notable impacts on daylight and sunlight access to neighbouring properties when assessed against the BRE guidelines.

### Appendix A – Window and room references

The 3D image shows the modelled layouts and the Daylight Distribution (DD) results. Large and deep, single aspect rooms were modelled as a worst-case approach for 1 Ellison Road and the room at 5 Ellison Road was modelled as single aspect.



Daylight distribution ratio

- Gain
- Loss
- Sky view
- No sky view



Appendix B – Detailed results

Table 2. Daylight and sunlight results for neighbouring windows and rooms.

Floor Ref.	Ref.	Assumed room use	Window Ref.		VSC	Pr/Ex	Meets BRE Criteria	Window Orientation	Room VSC	Pr/Ex	Meets BRE Criteria	Annual	Pr/Ex	Meets BRE Criteria	Winter	Pr/Ex	Meets BRE Criteria	Total Suns per Room Annual	Pr/Ex	Meets BRE Criteria	Total Suns per Room Winter	Pr/Ex	Meets BRE Criteria	
<b>1 Ellison Road</b>																								
Ground	R1	Bedroom	W1	Existing	33.47	0.83	YES	146°				75.00	0.88	YES	23.00	0.78	YES							
				Proposed	27.92							66.00			18.00									
			W2	Existing	30.78	0.80	YES	146°				69.00	0.87	YES	22.00	0.73	YES							
				Proposed	24.48							60.00			16.00									
									32.13	0.82	Yes							75.00			23.00			
									26.20									68.00	0.91	YES	18.00	0.78	Yes	
	R2	Living Room	W3	Existing	32.45	0.82	YES	146°				69.00	0.87	YES	18.00	0.50	YES							
				Proposed	26.65							60.00			9.00									
			W4	Existing	33.80	0.84	YES	146°				74.00	0.88	YES	21.00	0.57	YES							
				Proposed	28.49							65.00			12.00									
									33.13	0.83	Yes							74.00			21.00			
									27.57									66.00	0.89	YES	13.00	0.62	Yes	
<b>5 Ellison Road</b>																								
First	R1	Bedroom	W1	Existing	29.94	0.83	YES	328°N																
				Proposed	24.91																			
			W2	Existing	33.86	0.87	YES	328°N																
				Proposed	29.39																			
									31.52	0.85	Yes													
									26.72															
																			*North	*North		*North	*North	

Table 3. Daylight distribution results to neighbouring rooms.

Floor Ref.	Room Ref	Assumed room use		Room Area	Lit Area Existing	Lit Area Proposed	Pr/Ex	Meets BRE Criteria
1 Ellison Road								
Ground	R1	Bedroom	Area m2	22.04	21.54	17.75	0.82	Yes
			% of room		97.75%	80.53%		
	R2	Living Room	Area m2	27.84	26.30	22.32	0.85	Yes
			% of room		94.46%	80.19%		
5 Ellison Road								
First	R1	Bedroom	Area m2	5.76	5.02	5.02	1.00	Yes
			% of room		87.19%	87.19%		

Table 4. Sunlight results to amenity spaces.

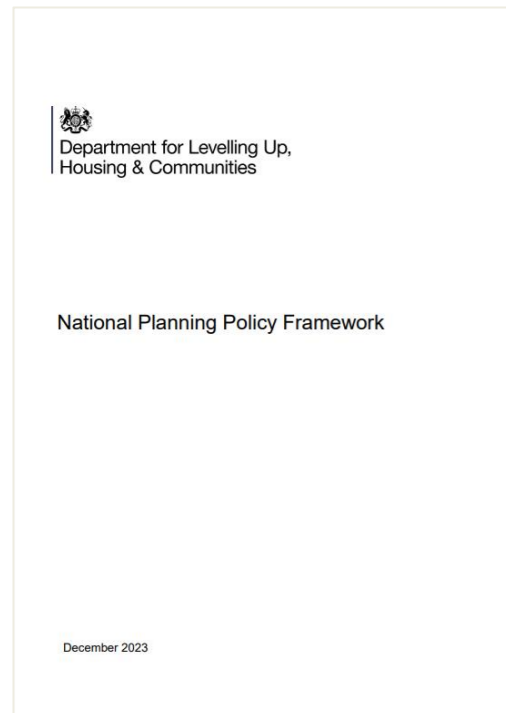
Floor Ref		Amenity Area	Lit Area Existing	Lit Area Proposed	Pr/Ex	Meets BRE Criteria
1 Ellison Road	Area m2	87.90   84.83	65.58	0.77	Yes	
	Percentage		97%	75%		
40 Cleveland Road	Area m2	132.73	98.42	98.33	1.00	Yes
	Percentage		74%	74%		
5 Ellison Road	Area m2	47.62	34.00	34.00	1.00	Yes
	Percentage		71%	71%		

**Appendix C – Planning Policies**

**National Planning Policy Framework (2023)**

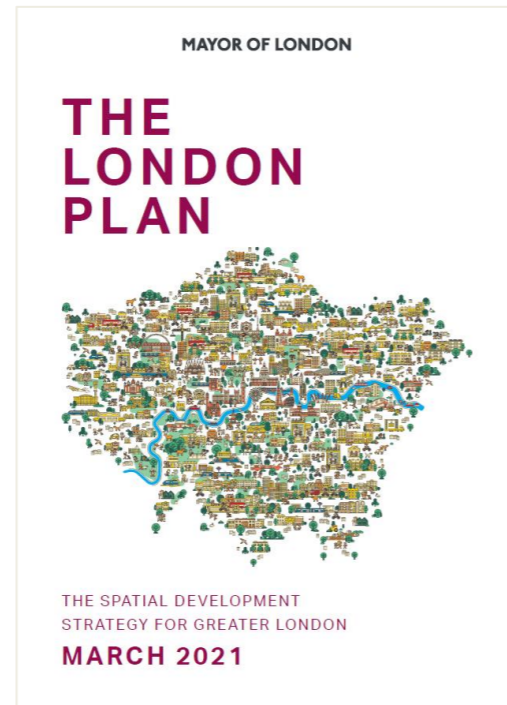
This document provides a framework within which locally prepared plans for housing and other development can be produced.

For example, it sets out how the planning system could achieve sustainable development, effective use of land, well-designed places, protecting the green belt, meeting the challenge of climate change, among several other aspects which precipitate with more specificity into local planning policies.



**London Plan (March 2021)**

The London Plan is part of the statutory development plan for London and sets out a framework for how for how the city will develop sustainably over the next 20-25 years. Policies which are directly or indirectly linked to daylight / sunlight amenity are summarised below.



**Policy GG2 Making the best use of land**

- enable the development of brownfield land, particularly in Opportunity Areas, on surplus public sector land, and sites within and on the edge of town centres, as well as utilising small sites.
- proactively explore the potential to intensify the use of land, promoting higher density development.

**Policy D9 Tall Buildings**

- wind, daylight, sunlight penetration and temperature conditions around the building(s) and neighbourhood must be carefully considered and not compromise comfort and the enjoyment of open spaces, including water spaces, around the building.

**Policy H2 Small sites**

- Boroughs should pro-actively support well-designed new homes on small sites (below 0.25 hectares in size) through both planning decisions and plan-making.

**Policy SI4 Managing heat risk**

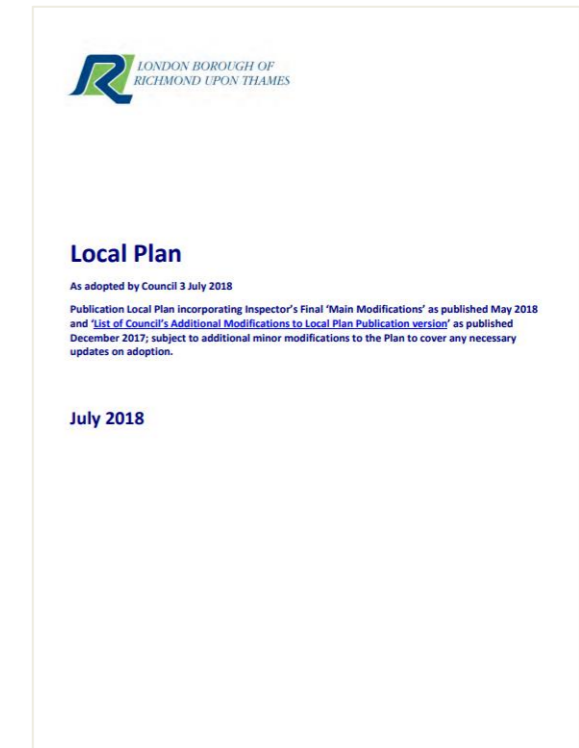
- minimise adverse impacts on the urban heat island through design, layout, orientation, materials and the incorporation of green infrastructure.

**Housing SPG (March 2016)**

The need to protect the amenity of neighbours is reflected within publications from the Mayor of London. These documents highlight that current guidance needs to be used flexibly where developments are in urban areas with higher densities and suggest that the nationally applicable criteria given within the BRE guidance needs to be applied carefully.

- Policy 7.6Bd requires new development to avoid causing 'unacceptable harm' to the amenity of surrounding land and buildings, particularly in relation to privacy and overshadowing and where tall buildings are proposed. An appropriate degree of flexibility needs to be applied when using BRE guidelines to assess the daylight and sunlight impacts of new development on surrounding properties.

**Richmond upon Thames Local Plan (2018)**



**Policy LP8 Amenity and Living Conditions::**

- Protect amenity and living conditions of new occupants and neighbouring properties
- ensure the design and layout of buildings enables good standards of daylight and sunlight to be achieved in new development and in existing properties affected by new development.
- ensure balconies do not raise unacceptable overlooking or noise or disturbance to nearby occupiers.
- ensure that proposals are not visually intrusive or have an overbearing impact as a result of their height, massing or siting, including through creating a sense of enclosure.
- ensure there is no harm to the reasonable enjoyment of the use of buildings, gardens and other spaces due to increases in traffic, servicing, parking, noise, light, disturbance, air pollution, odours or vibration or local micro-climatic effects.



**Appendix D – BRE Guidance**

**Daylight**

A series of tests are recommended by BRE's guide (2022) to evaluate whether daylight levels on existing surrounding properties would be noticeably reduced when new development comes forward.

**Window proximity**

If a neighbouring window is more than 3 times the development height away from the scheme, then it does not need to be assessed for daylight or sunlight impacts.

**25-degree plane**

For windows directly facing towards the proposed development, a 25-degree plane is drawn to review whether the proposed scheme intersects it. If it does, daylight levels may be reduced and further analysis is required, detailed below.

**45-degree plane**

For windows that are not directly facing the development, which is often more applicable for rear extensions to buildings, two different 45-degree planes are drawn as shown in the images below (Figure 10) which are taken directly from the BRE guide. If the development intersects one of those planes, then further analysis is required for daylight, as discussed below. These planes can often be used to evaluate windows of buildings which are adjacent to a development but not directly facing it.

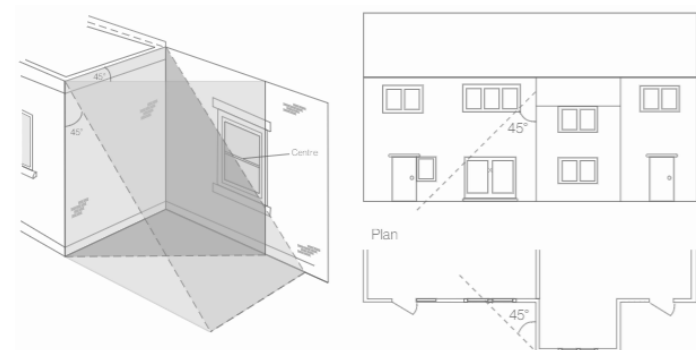


Figure 10: 45-degree plane tests for extensions (source: BRE guide 2022)

**Vertical sky component (VSC)**

VSC is the first detailed test carried out for windows that do not meet the aforementioned initial tests. It is a measure of the illuminance on the window compared to an unobstructed horizontal plane. If the VSC of an existing window is 27% or higher, then it is not considered to be affected by the proposed development. If not, and its VSC is more than 0.8 of its former pre-development value, then the BRE guide suggests that the daylight reduction to this window would not be noticeable by the occupants.

**No sky line (NSL)**

NSL is the area of the working plane of the room, usually taken at 850mm from finished floor level, that can have a direct view of the sky. It is often referred to as the Daylight Distribution (DD) test. The BRE guide suggests that daylight levels to a neighbouring room would not be noticeable if the area of the working plane that receives direct skylight is more than 0.8 of its former pre-development value. The guide notes that this assessment can be carried out when neighbouring property layouts are available (e.g. from the planning portal).

**Alternative daylight criteria**

The above numerical criteria are the standard tests used to evaluate impacts on neighbouring properties. In certain circumstances, the BRE guide recommends the use of alternative targets, taking into account the specific site context.

One method is establishing the obstruction angle of the context to derive the target VSC which should be met by neighbouring windows with the development in place. Figure 11 illustrates the example of a mews. When the obstruction angle of the context is 40 degrees, then a VSC target of 18%, rather than 27% could be considered applicable. Alternative sunlight criteria could also be derived using this approach.

In other situations, such as when neighbouring windows are close to the site boundary and are taking more than their 'fair share of light' over the application site, the BRE guide recommends the use of the mirror image approach. The existing

building is mirrored into the application site and a simulation is run to derive target daylight and sunlight values (Figure 12).

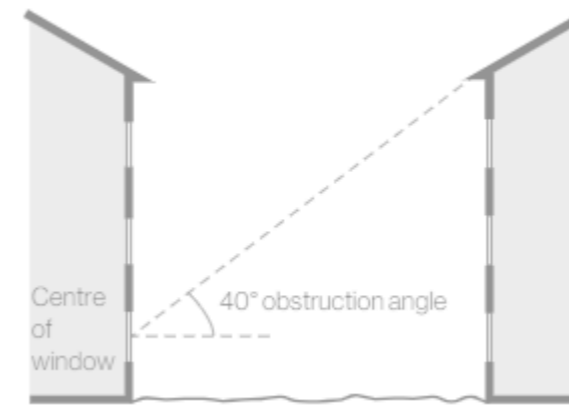


Figure 11: Use of obstruction angle and Appendix F to establish target values for daylight and sunlight (source: BRE guide 2022)



Figure 12: Mirror image methodology (source BRE guide 2022)

**Sunlight**

Sunlight access should be safeguarded for existing dwellings and non-residential buildings with a particular expectation for sunlight. The BRE guide suggests that main living rooms and conservatories should be checked if they have a window within 90° south. If such windows do not meet the initial 25/45-degree plane test, then the Annual (APSH) and Winter (WPSH) Probable Sunlight Hours should be calculated. Sunlight access may be adversely affected if the window achieves less than 25% APSH and less than 0.8 times its former annual value; or

less than 5% of WPSH and less than 0.8 its former value; and also has a reduction of more than 4% in APSH over the whole year.

**Overshadowing**

Sunlight access to existing surrounding amenity spaces may potentially be affected by a proposed development situated to the south of the amenity space. The BRE guide suggests that the amenity space would be reasonably sunlit throughout the year if it receives at least 2 hours of sunlight over at least 50% of its area during the 21 of March. If that's not satisfied, the reduction in sunlight access would not be noticeable if the open space attains 2 hours of sunlight to at least 0.8 time the area of its former pre-development value.



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