Daylight and Sunlight Assessment (Proposed Scheme)

97 York Road, Reading

For Blue Infinity SSAS Pension

August 2025

ecolytik

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1 Executive Summary

Daylight and Sunlight analysis was carried out for the proposed development at 97 York Road in Reading, within the jurisdiction of Reading Borough Council. This report outlines the results of the analysis for the planning application, evaluating daylight and sunlight access within the development.

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 suggested within the BRE guidelines have been applied to the assessment and it is important to note that these guidelines are not a rigid set of rules but are advisory and often need to be applied flexibly according to the specific context of a site.

To carry out the assessment, a 3D computer model of the proposed scheme and key surrounding properties was generated. Using this model and specialist software, daylight and sunlight levels for all habitable spaces within the proposed development have been calculated.

The results show that all habitable rooms within the proposed development will meet the recommended daylight and sunlight targets set out by the BRE.

The first-floor terrace proposed at the front of the scheme for Unit 2 meets the BRE targets for sunlight to external amenity. The rear courtyard of Unit 2 is surrounded by an existing boundary wall of 1.8m in height. Due to the limited size of the courtyard, its orientation and the existing boundary treatment, the BRE sunlight target is not met for this space. Nevertheless, the courtyard provides valuable private amenity in addition to the first-floor terrace even though sunlight levels fall short of the BRE target.

Overall, the proposed development is considered to provide satisfactory levels of daylight and sunlight to the dwellings when assessed against BRE's recommended guidance levels. It can be concluded that the scheme meets relevant policies and will provide good quality of accommodation to the future residents from a daylight and sunlight perspective.

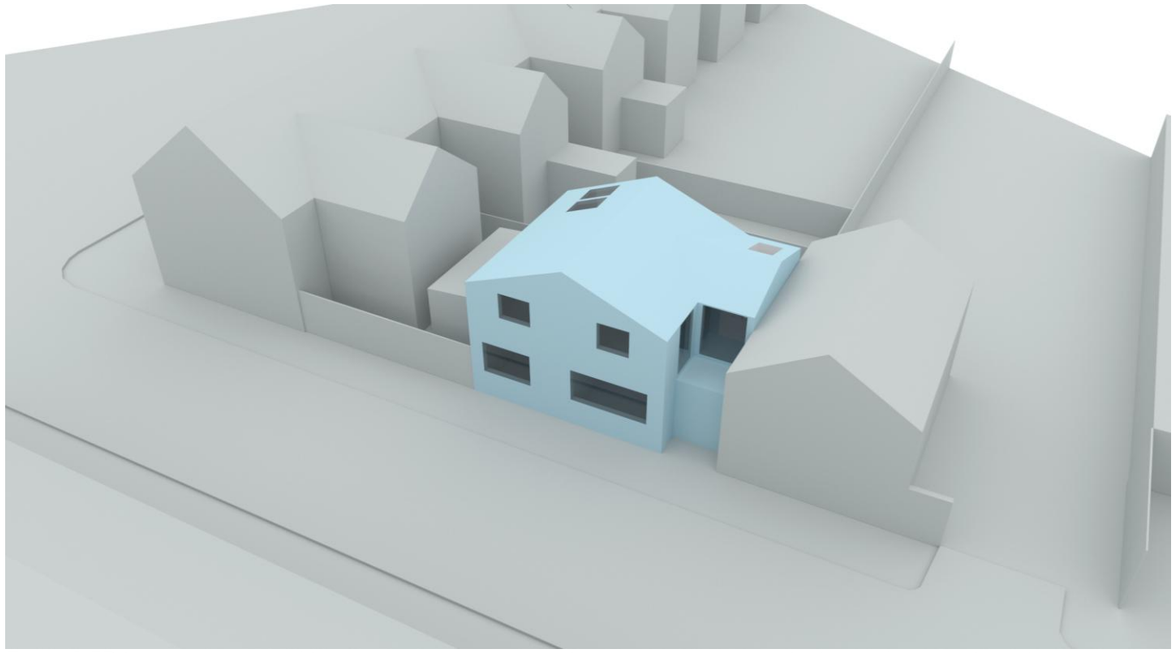


Figure 1: 3D technical model of the proposed development and surrounding context, view from southeast.

Table 1. Summary of proposed scheme daylight and sunlight results.

Daylight to buildings	**No.**	**%**
Habitable rooms assessed	6	-
Assessed rooms meeting the Spatial Daylight Autonomy (SDA) target	6	100%
Assessed rooms with SDA levels below the BRE target	0	0%
Sunlight to buildings	**No.**	**%**
Habitable rooms assessed	6	-
Assessed rooms meeting the BRE sunlight target	6	100%
Assessed rooms not meeting BRE sunlight target	0	0%
Sunlight to amenity	**No.**	**%**
Amenity spaces assessed	2	-
Assessed amenity spaces meeting the BRE sunlight target on 21 March	1	50%
Assessed amenity spaces not meeting the BRE sunlight target for amenity, dwelling has access to another amenity space with good sunlight levels.	1	50%

2 Introduction

Ecolytik have been instructed to evaluate daylight and sunlight access within the proposed development at 97 York Road in Reading. The assessment considers the latest proposal for the site, dated August 2025.

2.1 Site

The application site is located on the north side of York Road, just off Caversham Road (the A4155), to the north of Reading town centre.

The site currently comprises a workshop and storage space. The prior approval application is for the conversion and refurbishment of the existing building into 2no. one-bedroom homes. A separate full planning application has been submitted to seek permission for external changes and extension to the existing building.

The approximate site location is presented in Figure 2.

2.2 Planning policies

Local, regional and national planning policies relating to daylight and sunlight have been considered. In general terms, planning policy advises that new development should be making the best use of land and be designed in a way that enables appropriate levels of daylight and sunlight amenity. Provision of daylight and sunlight should be balanced against potential overheating risks. BRE's latest "Site layout planning for daylight and sunlight" document published in 2022 provides a set of recommendations for daylight and sunlight in new developments. It builds on British Standard EN 17037 (2018) and sets out criteria to evaluate both the quantity and quality of daylight and sunlight within new developments. A full summary of the relevant policy landscape is presented in Appendix B.

2.3 Application of BRE's guidance

The BRE guidelines advise that the quality, quantity and distribution of daylight and sunlight within a habitable space would be notably affected if building obstructions are large in relation to their distance away. When assessing a proposed residential development, only those windows and rooms that have a reasonable expectation of daylight and sunlight need to be considered.

Sunlight specifically is mainly sought in living rooms and external amenity spaces, although the BRE guide recognises that for housing specifically, at least one room of the dwelling should meet the minimum sunlight recommendation. It is therefore considered that any dwellings that have at least one habitable room receiving adequate sunlight to be performing satisfactorily.

In addition, it is worth highlighting the following excerpt 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."*

It Is therefore important to apply the BRE guidance flexibly, with careful consideration of the specific site context. Its numerical targets theoretically apply to any built environment, from city centres to rural villages. However, in more tightly constrained environments, achieving the default BRE targets can be very challenging and conflict with other beneficial factors of site layout design. With the above in mind, rigid adherence to the BRE in certain situations could result in an inappropriate form of development. The specific criteria and recommendations of the BRE guidance are presented in Appendix C of this report.

Figure 2. Approximate site location of 97 York Road.

3 Technical model

3.1 Sources of information and assumptions

Architectural drawings and publicly available satellite images have been used to create a 3D computer model of the proposed development in the context of the site and surrounding buildings.

The full list of sources of information used in this assessment is as follows:

- Proposed plans:
  - YR_P_100 P05 YORK ROAD PROPOSED GROUND FLOOR GA
  - YR_P_110 P05 YORK ROAD PROPOSED FIRST FLOOR GA
  - YR_P_120 P05 YORK ROAD PROPOSED ROOF GA
- Proposed elevations
  - YR_P_300 P04 YORK ROAD PROPOSED ELEVATIONS
- Site location plan:
  - EYR_P_050 P01 YORK ROAD SITE LOCATION PLAN
- 3D satellite images from Google Maps (accessed August 2025).

Where survey and architectural information was not available, surrounding building heights and massing were approximated based on brick counts and available satellite images. Given the low density of the surrounding context, this method is considered to provide sufficient approximation to determine daylight and sunlight performance of the proposed dwellings.

3.2 Scope of assessment

The images to the right show the technical 3D model developed for the analysis. Daylight and sunlight access to all dwellings was assessed using specialist simulation software.

The model includes the following inputs with regards to surface reflectance which can influence the calculations:

- External walls 0.2
- Internal walls 0.7
- Floors 0.3
- Ceiling 0.8

The above surface reflectance parameters are enhanced values over the typical BRE guidelines and will be achieved through specification of light colour finishes to all internal surfaces within the proposed development.

A maintenance factor for dirt of 92% has been applied to all glazing, which is modelled as double-glazed units, with a light transmission of 68%. These parameters were taken from the BRE guidelines.

The working plane of each habitable room has been set in line with BRE's guidance. Where there is an entrance corridor of less than 1.5m wide to reach the main occupied zone of the room, this was excluded from the assessed working plane.

To enable good daylight penetration from the rooflights and windows into the living areas to the rear of both homes, balustrades of staircases were modelled as wired balustrades which are mainly voided to effectively let light through.

There are no existing or proposed trees within or in close proximity to the application site.

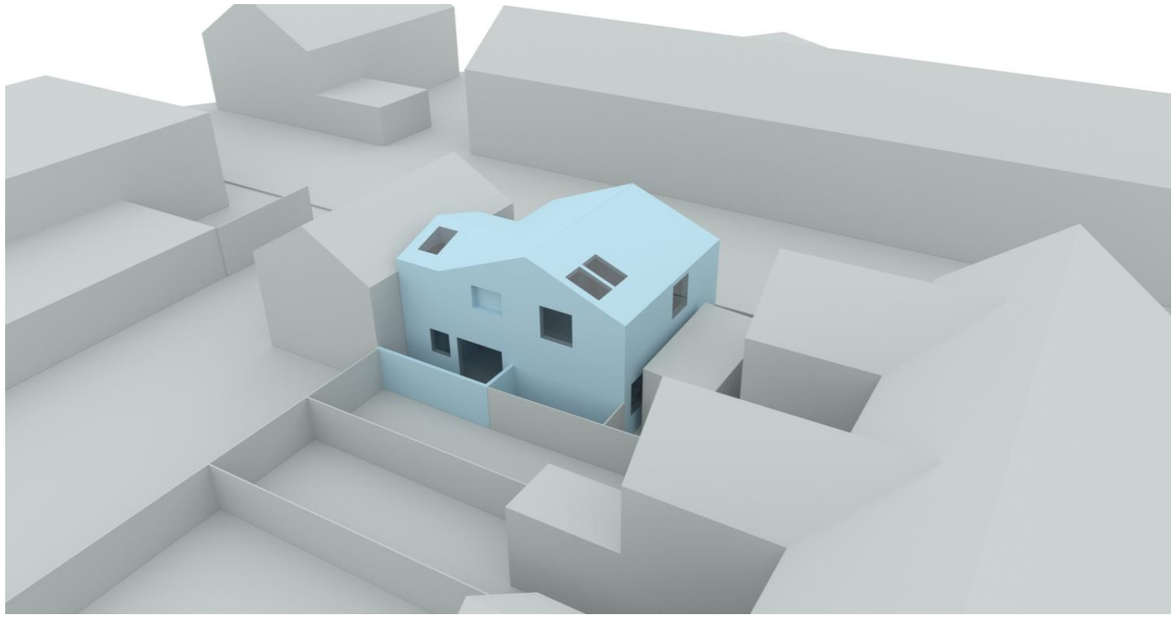


Figure 3: 3D technical model of the proposed development and surrounding context, view from northwest

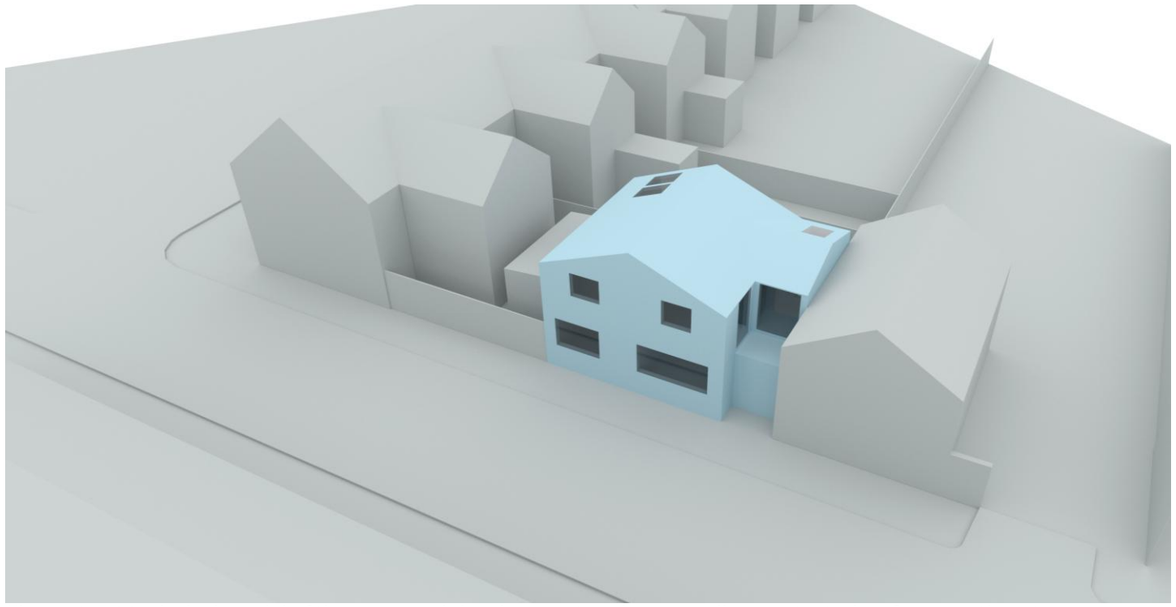


Figure 4. 3D technical model of the proposed development and surrounding context, view from southeast.

4 Assessment results

4.1 Daylight to rooms

All habitable rooms from the two. homes have been included in the analysis.

The target daylight illuminance levels for rooms have been applied in line with the BRE guidelines, as follows:

- Kitchen, living and dining rooms: 200 lux;
- Studies: 200 lux.
- Bedrooms: 100 lux.

Figure 5 illustrates the results of the climate-based daylight analysis. The yellow colour shows where a room achieves the required daylight illuminance for over 50% of the daylight hours of the year. If this area is more than 50% of the room's area, then the room exceeds BRE's daylight recommendations.

The results show that all habitable rooms will meet the BRE daylight targets.

Detailed numerical results are presented in Appendix A (Daylight to rooms) of this report.

4.2 Sunlight to rooms

Both homes assessed will have their main kitchen/living/dining spaces and bedrooms meeting the BRE's sunlight target. Detailed results are presented in Appendix A (Sunlight to rooms) of the report.

Figure 5. Spatial Daylight Autonomy (SDA) results for all habitable rooms on ground floor (left) and first floor (right) (with window and room references).

4.3 Sunlight to amenity

The ground floor courtyard and first floor terrace to Unit 2 have been included within the sunlight assessment.

The assessment result for 21 March is illustrated in Figure 6, with full numerical results presented in Appendix A (Sunlight to amenity).

The assessment results show that the first floor south facing terrace will receive a good level of sunlight on 21 March, exceeding the BRE sunlight targets for amenity spaces.

The rear courtyard of Unit 2 is surrounded by an existing boundary wall of 1.8m in height, sunlight levels at this space are therefore lower. Future residents at Unit 2 can utilise the first-floor terrace throughout the year should sunlight exposure be desired. The rear courtyard provides additional private amenity, which can be particularly useful on warm summer days when shade is perceived to be favourable.

Figure 6. Sunlight access analysis for the development's amenity spaces on 21 March. Right for ground floor rear courtyard; left for first floor terrace (with amenity space references).

5 Conclusions

Based on the findings, it can be concluded that the proposed scheme at 97 York Road will provide satisfactory levels of daylight and sunlight to future residents and their homes when assessed against BRE's recommended guidance levels. It can be concluded that the scheme meets relevant policies and will provide good quality of accommodation to the future residents from a daylight and sunlight perspective.

Appendix A – Detailed numerical results

Daylight to rooms

Floor Ref	Room Ref	Room Use	Room Area m2	Effective Area	Median Lux	Area Meeting Req Lux	% of Area Meeting Req Lux	Criteria				Meets Criteria
								Req Lux	Req % of Effective Area	Req % of Daylight Hours	Daylight Hours	
Ground	R1	LKD	23.62	16.84	623	16.84	100%	200	50%	50%	4380	Yes
	R2	LKD	24.02	16.74	264	10.40	62%	200	50%	50%	4380	Yes
First	R1	Bedroom	11.58	7.49	591	7.49	100%	100	50%	50%	4380	Yes
	R2	Bedroom	13.30	9.20	524	9.20	100%	100	50%	50%	4380	Yes
	R3	Study	7.56	3.88	1287	3.88	100%	200	50%	50%	4380	Yes
	R4	Study	6.04	3.39	796	3.39	100%	200	50%	50%	4380	Yes

Sunlight to rooms

Floor Ref	Room Ref	Room Use	Window Ref	Window Orientation	Proposed Sunlight Exposure (Hours)	Meets BRE Criteria
Ground	R1	LKD	W1	146°	6.5	
			W4	326°N	0	
			W5	326°N	0	
					6.5	Yes
Ground	R2	LKD	W2	146°	6.2	
			W3	235°	0	
					6.2	Yes
First	R1	Bedroom	W1	146°	6.3	
			W8	56°N	1.1	
					6.3	Yes
First	R2	Bedroom	W2	146°	6.4	
			W3	235°	3.3	
					7.6	Yes
First	R3	Study	W4	326°N	0	
			W9	235° Inc	5.2	
			W10	235° Inc	5.4	
					5.4	Yes
First	R4	Study	W6	326°N Inc	3.4	
			W7	146°	5.4	
					5.7	Yes

Sunlight to amenity (21 March)

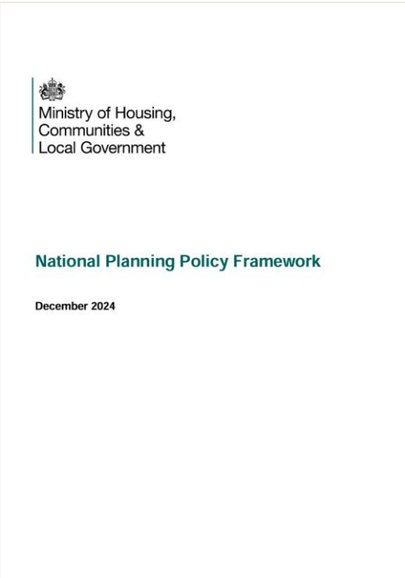
Amenity Ref		Amenity Area	Lit Area Proposed on 21 March	Meets BRE Criteria
A1	Area m2	7.54	0.00	No
	Percentage		0%	
A2	Area m2	3.00	2.93	Yes
	Percentage		97%	

Appendix B – Planning Policies

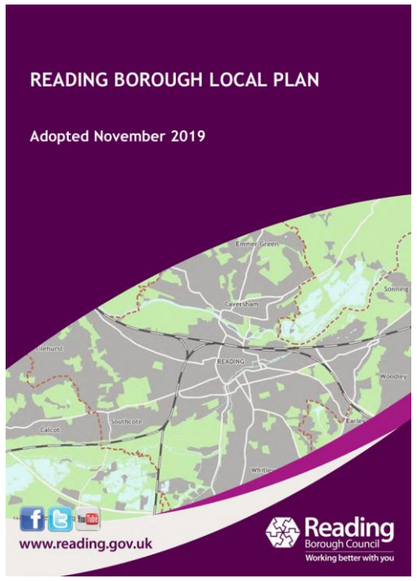
National Planning Policy Framework (2024)

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.



Reading Borough Local Plan (November 2019)



Planning policy within Reading's Local Plan related to daylight and sunlight access at proposed developments is summarised below.

CC8: Safeguarding Amenity

Development will not cause a detrimental impact on the living environment of existing residential properties or unacceptable living conditions for new residential properties, in terms of … access to sunlight and daylight.

Appendix C – BRE Guidance

Daylight

The illuminance method is one of the approaches that could be adopted to determine whether a development meets daylight recommendations set out within the BRE guide (2022) and BS EN 17037 (2022).

It entails the use of climatic data for the location of the site and the evaluation of the illuminance levels, measured in lux, over the working plane or assessment grid. The following should be achieved for at least 50% of the assessment grid:

- Bedrooms 100 lux
- Living rooms 150 lux
- Kitchens 200 lux

Where a room has a shared use, the higher target should apply although local authorities could use discretion. The target for living room could be used for a kitchen / living / dining area for example to avoid having small separate kitchens in a design. Conversely, a higher illuminance target may be set for a room in homes for the elderly.

Sunlight to windows

The BRE guide stipulates that in general, a dwelling or non-residential building that has a particular requirement for sunlight, will appear reasonably sunlit provided that:

- At least one window wall faces 90 degrees south.
- A habitable room, preferably a living room, can receive a total of 1.5 hours of sunlight on 21st of March. This analysis is carried out at the centre of the window(s) and sunlight received by different windows can be added provided they occur at different times and sunlight hours are not double counted.

Where groups of dwellings are planned, the design should aim to maximise the number of dwellings that have a main living room window that meets the above recommendations.

Sunlight to open spaces

For an open space to be adequately sunlit, the BRE guide recommends that at least half of the amenity area receives at least 2 hours of sunlight during the 21st of March.

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