



daylight&sunlight

Daylight and Sunlight Report
for the Proposed Development at
137 Percy Road, Twickenham, TW2 6HT

Prepared for: GA & A Design
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1. Introduction

1.1 Scope of Service

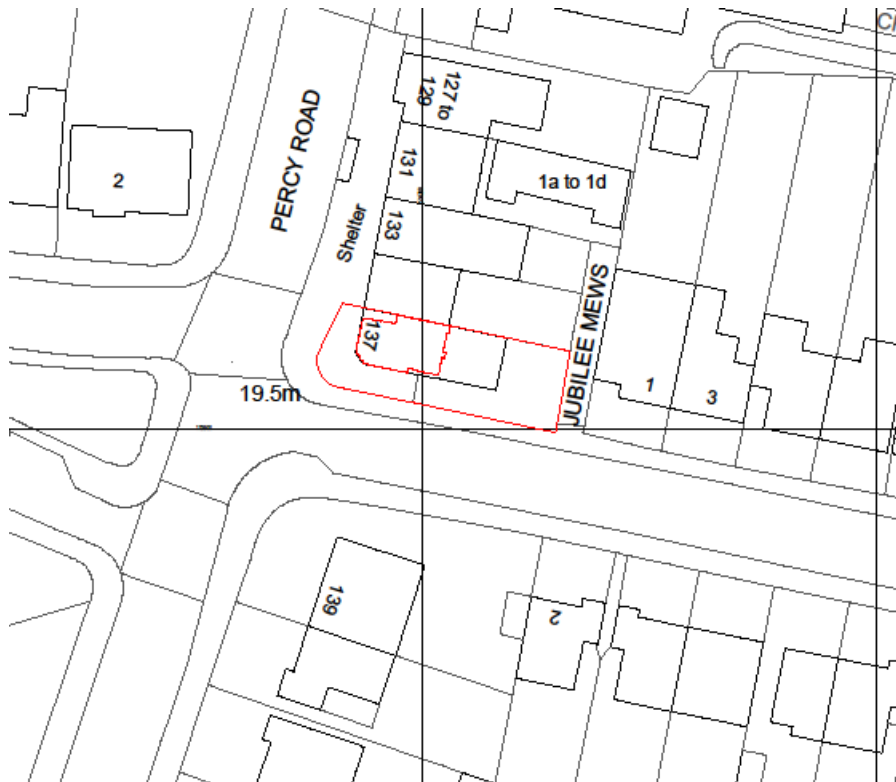
1.1.1 We have been instructed by GA & A Design to consider the potential daylighting availability of the ground floor proposed studio at 137 Percy Road, Twickenham, TW2 6HT.

1.2 BRE Assessment Criteria

1.2.1 To ensure that this assessment has been appropriately considered, daylight and sunlight assessments have been undertaken in accordance with the Building Research Establishment Report ‘Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice’ 2022 (the “BRE guide”). It is intended to be used with BS EN 17037, and its UK National Annex, which gives specific minimum recommendations for habitable rooms in dwellings in the United Kingdom.

1.2.2 The standards and tests applied within this assessment are briefly described in Appendix A.

Site Location Plan





1.3 Limitations

- 1.3.1 Our assessment is based on the proposed development drawings by GA & A Design.
- 1.3.2 Topographical survey information was provided for the existing building on site. Where buildings were not surveyed, the locations and heights were derived from site photographs and oblique aerial photography.
- 1.3.3 We refer you to the drawings which accompany this report for a list of the third party information relied upon which our 3D computer model and resultant analyses are based.

2. Assessment, Results and Consideration

2.1 Proposed Accommodation

- 2.1.1 The proposed studio at ground floor level will comprise a combined main living area (KLD) and a bedroom area, see accompanying drawing 2049/DSO/01.
- 2.1.2 The habitable rooms are served by existing windows that face south over Jubilee Avenue.
- 2.1.3 For our 3D assessment model, we have modelled the studio flats in detail, along with the surrounding buildings. This is because although some obstructions to the south are relatively far away, they would still represent a potential obstruction to light entering the proposed flat.
- 2.1.4 GA & A Design have carefully considered this site and have incorporated elements within the designs to maximise ambient daylighting potential. These include: -
 - Multiple windows to rooms where appropriate
 - Light coloured internal finishes
- 2.1.5 We have also been supplied with technical specifications of those light coloured internal finishes. The Floor will be a Karndean White Painted Oak Floor KP105 (gloss), which comes with a high Light Reflectance Value (LRV), (equivalent specifications of white floors are at least 0.76) and a Benjamin Moore Chantilly Lace white paint, which comes with a LRV of 92.2.
- 2.1.6 The BRE guidelines, however, states at paragraph C24 –

“Where surface finishes have been specified or measured on site, they can be used in the calculations with appropriate factors for maintenance and furniture. To allow for these factors, maximum reflectances for white painted surfaces in the calculations should not exceed 0.8 indoors... and maximum reflectances for light wood floors should not exceed 0.4.”
- 2.1.7 We have therefore reduced the LRV of the internal surface finishes accordingly.
- 2.1.8 For the window glass, we have used a generic glass transmission of 0.64, a value of 0.2 reflectance for the



ground, and 0.2 for exterior obstructions.

- 2.1.9 Turning now to the Spatial Daylight Autonomy (SDA) assessment results: -
- 2.1.10 We undertook the Illuminance Method of assessment per the BS EN 17037, and its UK National Annex. It states that illuminance recommendations of 100 lux in bedrooms, 150 lux in living rooms and 200 lux in kitchens are the median illuminances, to be exceeded over at least 50% of the assessment points in the room for at least half of the daylight hours.
- 2.1.11 We now refer you to the accompanying drawing 2049/DSO/01 at Appendix B and the results table at Appendix C.
- 2.1.12 We found that the proposed studio achieved 200 lux over 73% of its area for at least half of the daylight hours in a typical year.

3. Conclusion

3.1 Spatial Daylight Autonomy

- 3.1.1 The proposed accommodation will be compliant with BS EN 17037 and its UK National Annex.

Appendix A

BRE Assessments

BRE Assessments

Daylighting Compliance in Proposed Accommodation

The BRE guidelines states at paragraphs C2 and C15:

“C2...For daylight provision in buildings, BS EN 17037 provides two methodologies...” - the Illuminance Method, and the Daylight factor Method. Only one of these methods is required to comply with BS EN 17037 and its UK National Annex.

“C15 A UK National Annex gives specific minimum recommendations for habitable rooms in dwellings in the United Kingdom. These are intended for ‘hard to light’ dwellings, for example in basements or with significant external obstructions or with tall trees outside, or for existing buildings being refurbished or converted into dwellings. The National Annex therefore provides the UK guidance on minimum daylight provision in all UK dwellings.”

The Illuminance Method - BRE Guidelines paragraphs C2, C4 and C16

The illuminance method is based on “C2...target illuminances from daylight to be achieved over specified fractions of the reference plane (a plane at table top height covering the room) for at least half of the daylight hours in a typical year.”

“C4 This method involves using climatic data for the location of the site (via the use of an appropriate, typical or average year, weather file within the software) to calculate the illuminance from daylight at each point on an assessment grid on the reference plane at an at least hourly interval for a typical year.”

“C16 The UK National Annex gives illuminance recommendations of 100 lux in bedrooms, 150 lux in living rooms and 200 lux in kitchens. These are the median illuminances, to be exceeded over at least 50% of the assessment points in the room for at least half of the daylight hours. The recommended levels over 95% of a reference plane need not apply to dwellings in the UK.”

The Daylight Factor Method – BRE Guidelines paragraphs C2, C18, C19 and Table C3

The daylight factor method is based on “C2...calculating the daylight factors achieved over specified fractions of the reference plane.”

“C18 The UK National Annex gives the latitude, median external diffuse and global illuminances for various UK locations, as well the daylight factor targets corresponding to the target illuminances as shown in Table C3. The targets for the latitude nearest to the assessment site should be used.”

“C19 Table C3 shows the daylight factor targets to be achieved over at least 50% of the assessment grid in domestic habitable rooms with vertical and/or inclined daylight apertures. The UK National Annex[C1] gives alternative target values for rooms with diffusing horizontal rooflights.”

Table C3 states, for example, that target Daylight Factors D_T for London to be achieved over at least 50% of the assessment grid are as follows.

Location	D_T for 100lx (Bedroom)	D_T for 100lx (Living room)	D_T for 100lx (Kitchen)
London (Gatwick Airport)	0.7%	1.1%	1.4%

Appendix B

Context Drawings

Appendix C

Daylight Results



Spatial Daylight Autonomy Assessment (BS_EN17037) - Illuminance Method

Floor Ref	Room Ref	Property Type	Room Use	Room Area m2	Effective Area	Median Lux	Area Meeting Req Lux	% of Area Meeting Req Lux	Req Lux	Req % of Effective Area	Req % of Daylight Hours	Daylight Hours	Meets Criteria
Proposed Accommodation													
Ground	R1	Residential	LKD	30.78	23.24	259	16.95	73%	200	50%	50%	4380	YES