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ASSESSMENT REPORT

Daylight and sunlight assessment for a proposed development at 105 Brantwood Road, London

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1. Introduction

It is proposed to develop 105 Brantwood Road, London. The development includes a conversion of the building from offices to flats.

This report assesses daylight and sunlight provision to the proposal using the methodologies in BS EN17037 'Daylight in buildings' and the BRE Report 'Site layout planning for daylight and sunlight: a guide to good practice'.

The calculations are based on drawings 240503 -01 A100 and A105 to A109 dated May 2024, all by ADP London. These were used in conjunction with a BRE site visit to inspect the site on 31 July 2024.

2. Methodology

2.1 Daylight and sunlight provision to rooms in the proposed development

Guidance on daylight and sunlight to new dwellings is given in the latest edition of the BRE Report 'Site layout planning for daylight and sunlight: a guide to good practice', June 2022 and BS EN17037:2018 'Daylight in buildings'. This standard supersedes BS8206 Part 2:2008 'Lighting for Buildings, Code of Practice for Daylighting'.

2.1.1. Daylight provision to proposed rooms

BS EN17037 recommends minimum, medium and high target daylight illuminances over at least 50% of a room area for at least 50% of annual daylight hours. Equivalent values of daylight factor for locations in Europe are also given. The daylight factor is the ratio of the illuminance at a point in on the working plane in a room divided by the illuminance of an unobstructed surface outside. It is measured using the CIE standard overcast sky and takes into account factors such as surface reflectances and glazing transmittance.

The UK National Annex gives further advice for proposed dwellings in the UK. It recommends minimum target illuminances and equivalent daylight factors for a room to achieve over at least 50% of the reference plane at various places in the UK.

Table 1 - Daylighting targets in UK National Annex of BS EN17037.

Room type	Target illuminance over at least 50% of a reference plane 0.85m from the floor, for at least half of annual daylight hours (lx)	Equivalent Daylight Factor (D, %) for London area
Bedroom	100	0.7%
Living Room	150	1.1%
Kitchen	200	1.4%

The standard states that where a room has a shared use, the higher target value should apply. However, in practice, many local authorities will accept the target value for living rooms in a shared kitchen space. This was common practice for the equivalent situation with the superseded BS8206 Part 2.

The assessment can be undertaken using either the illuminance or daylight factor methods. This report uses the illuminance method.

The daylight illuminance was calculated at hourly intervals across the year at a series of points (0.2m apart) on the reference plane (0.85m from the floor) of each proposed habitable room using software based on a Radiance ray tracing engine. A weather file for London was used. The reference plane excluded areas within 0.3m of the wall and annex areas of the room, in line with the guidance in the BRE Report.

The minimum recommendations are met if the daylight illuminance achieved over at least 50% of the reference plane for at least 50% of daylight hours meets, or exceeds, the targets in Table 1.

Table 2 gives the reflectance values used in the daylight illuminance calculations for internal and external surfaces. Surface reflectances used are based on the default values as given in Appendix C of the BRE Report.

Window framing has been taken into account directly using the framing as shown in the proposed drawings.

Table 2 - Factors used in daylight illuminance calculations.

Object / surface	Values used in calculations
Internal walls	Reflectance: 0.5
Internal floors	Reflectance: 0.2
Internal ceilings	Reflectance: 0.7
External walls and surrounding buildings	Reflectance: 0.2
Ground	Reflectance: 0.2
Clear glazing	Transmittance based on a value of 0.68 based on Pilkington data for low emissivity double glazing.
Maintenance factors (accounting for dirt on the windows)	Additional maintenance factors based on data in the UK National Annex of BS EN 17037 and the BRE Report (based on suburban setting): 0.96 – Vertical no overhang
Window frames	Reflectance: 0.5

2.1.2. Sunlight to proposed dwellings

BS EN17037 gives minimum, medium and high recommended levels for sunlight exposure. This is measured via the duration received at a point on the inside of a window on a selected date (the BRE Report suggests 21 March). This assessment assumes a cloudless sky and therefore represents a maximum possible amount of sunlight.

Table 3 gives the recommended values of sunlight exposure.

Table 3 - Sunlighting targets in BS EN17037.

Level of recommendation	Sunlight exposure
Minimum	1.5 Hours
Medium	3 Hours
High	4 Hours

The standard states that at least one habitable room in a dwelling should receive at least the recommended exposure to sunlight. However, the BRE Report suggests that sunlight provision to living areas may be seen as more important than bedrooms.

The targets apply to rooms / facades of all orientations, however those facing northerly will be naturally limited and if a room faces significantly north of due east or west the targets are unlikely to be met. The numerical targets are therefore most relevant for rooms facing within 90° of due south.

3. Daylight and sunlight provision to the proposed development

All habitable rooms have been assessed for daylight provision. The below figure shows the layout of the rooms analysed. The calculations include obstruction to daylight and sunlight caused by existing buildings surrounding the site. There are no nearby existing trees which could impact daylight and sunlight provision.



Figure 1. Floor plans of the proposed development. Adapted from drawings by ADP London.

3.1 Daylight provision

The daylight illuminance at hourly intervals across the year has been calculated at points on the working plane (0.85m from the floor) in habitable rooms in the proposed development. The UK National Annex of BS EN17037 gives recommended minimum values of illuminance to achieve over at least 50% of the assessment area over at least 50% of annual daylight hours of 100 lux for bedrooms, 150 lux for living rooms and 200 lux for kitchens.

Kitchen/dining/living (KDL) areas are compared to both the living room and kitchen recommendations.

The daylight illuminance results are shown in Table 4.

Table 4 - Daylight illuminance results for proposed rooms.

Floor	Unit	Room	Daylight illuminance (lx) achieved over 50% of plane and 50% of annual hours
Ground	Flat 1	Kitchen/dining/living	283
		Bedroom	157
	Flat 2	Kitchen/dining/living	283
		Bedroom	162
First	Flat 3	Kitchen/dining/living	352
		Bedroom	186
	Flat 4	Kitchen/dining/living	322
		Bedroom 1	237
		Bedroom 2	223
Second	Flat 5	Kitchen/dining/living	340
		Bedroom	176
	Flat 6	Kitchen/dining/living	317
		Bedroom 1	281
		Bedroom 2	215

All eight bedrooms across the scheme exceed the 100 lux daylight illuminance target over at least 50% of the assessment area for at least 50% of annual daylight hours.

All six combined kitchen/dining/living rooms would exceed both the 150 lux daylight illuminance target for a living room and the higher 200 lux target for a kitchen.

The rooms therefore comfortably exceed the minimum daylight provision targets in the UK National Annex of BS EN17037 and the BRE Report.

3.2 Sunlight provision

The potential hours of sunlight received to each room on 21 March has been calculated. The values can be compared against the minimum (1.5 hours), medium (3 hours) and high (4 hours) targets.

All rooms habitable are included in the analysis. The rooms face southerly across Brantwood Road.

The results are shown in Table 5.

Table 5 - Sunlight hours on 21 March.

Floor	Unit	Room	Potential sunlight hours on 21 March
Ground	Flat 1	Kitchen/dining/living	8.8
		Bedroom	6.9
	Flat 2	Kitchen/dining/living	8.8
		Bedroom	7.0
First	Flat 3	Kitchen/dining/living	8.8
		Bedroom	6.9
	Flat 4	Kitchen/dining/living	8.7
		Bedroom 1	7.8
		Bedroom 2	7.1
Second	Flat 5	Kitchen/dining/living	8.8
		Bedroom	6.9
	Flat 6	Kitchen/dining/living	8.7
		Bedroom 1	7.8
		Bedroom 2	7.1

All rooms would comfortably exceed the high sunlight provision target and therefore the recommendations in BS EN17037 and the BRE Report would be met.

4. Conclusions

Daylight and sunlight provision to habitable rooms in a proposal development at 105 Brantwood Road, London has been assessed.

The results have been compared to the minimum recommendations in the UK National Annex of BS EN17037 'Daylight in buildings' and the BRE Report 'Site layout planning for daylight and sunlight: a guide to good practice'.

All rooms comfortably exceed the minimum daylight recommendations in the UK National Annex of BS EN17037 and the BRE Report. Combined kitchen/dining/living areas would exceed both the living room recommendation and higher kitchen target.

All rooms comfortably exceed the sunlight targets in BS EN17037 and the BRE Report.

The daylight and sunlight recommendations in the UK National Annex of BS EN17037 and the BRE Report would therefore be met.