



Joynes House, Gravesend

Internal Daylight Assessment

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Contents

1.0	Introduction	3
2.0	Project Summary	4
3.0	Methodology	5
4.0	Room Schedules and Results	6
5.0	Conclusions	9

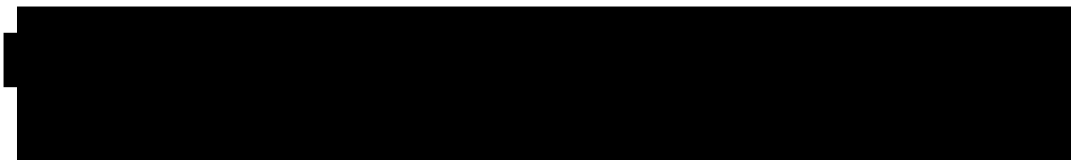
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1.0 Introduction

- 1.1 This internal daylight assessment has been prepared to support a Class MA application for the proposed partial conversion of the first, second and fourth level of Joynes House, Gravesend to residential use.
- 1.2 The report assesses the proposals in respect of daylight matters within habitable rooms in the proposed dwellings, having regard to industry standard guidance.
- 1.3 The report concludes that the proposal is acceptable and in accordance with planning policy requirements in relation to daylight for those rooms assessed.
- 1.4 There is no existing specific National Planning Policy relating to the prospective impacts of developments on daylight and sunlight on their surrounding environment.
- 1.5 However, the BRE Report 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice' (3rd edition, 2022) is the established National guidance to aid the developer to prevent and/or minimise the impact of a new development on the availability of daylight within new proposals.
- 1.6 It has been developed in conjunction with daylight and sunlight recommendations in BS EN 17037: 2018+A1:2021 (with UK Annex): 'Daylight in Buildings'
- 1.7 This reference document is accepted as the authoritative work in the field on daylight, sunlight and overshadowing and is specifically referred to in many Local Authorities' planning policy guidance for daylighting.
- 1.8 The methodology therein has been used in numerous lighting analyses and the standards of permissible reduction in light are accepted as the industry standards.

2.0 Project Summary

- 2.1 The site is occupied by Joynes House, a 6-storey office building in Gravesend.
- 2.2 The proposal is for the partial conversion of the first, second and fourth floors to residential use, creating 30 new dwellings.
- 2.3 The design team wish to ensure that habitable rooms in the residential units will receive sufficient daylight.
- 2.4 2D CAD drawings have been provided to us by the design team. These have been used to construct a 3D analysis model in order to assess the internal daylight levels within each room.
- 2.5 Computer simulation modelling has been used to produce the results, presented below.



Site Location

3.0 Methodology

- 3.1 This BRE and BS EN 17037 guidance allows for two alternative methods to assess daylight within new dwellings. This report uses the following method as it is considered to provide the most detailed analysis of the internal light levels in the dwellings:
- Target Daylight Factor (DF_T)
- 3.2 The DF_T method is a complex and representative calculation to determine natural internal luminance.
- 3.3 It takes into account such factors as window size, number of windows available to the room, room size and layout, room surface reflectance, and the angle of visible sky reaching the window.
- 3.4 The calculations have assumed a white ceiling, cream walls and mid-grey carpet or wooden floor using reflectance values taken from the BS EN 170437 Guidance.
- 3.5 As this is a conversion scheme, it falls under the category of "hard to light" dwellings and therefore an alternative target can be used. The minimum DF_T values for various UK locations and room types are provided below:

Location	D_t for 100 lx (Bedroom)	D_t for 150 lx (Living room)	D_t for 200 lx (Kitchen)
St Peter (Jersey)	0.6%	0.9%	1.2%
London (Gatwick Airport)	0.7%	1.1%	1.4%
Birmingham	0.6%	0.9%	1.2%
Hemsby (Norfolk)	0.6%	0.9%	1.3%
Finningley (Yorkshire)	0.7%	1.0%	1.3%
Aughton (Lancashire)	0.7%	1.1%	1.4%
Belfast	0.7%	1.0%	1.4%
Leuchars (Fife)	0.7%	1.1%	1.4%
Oban	0.8%	1.1%	1.5%
Aberdeen	0.7%	1.1%	1.4%

- 3.6 It is deemed by the guidance that if the minimum DF_T criteria are met, then the occupiers of the dwelling will have sufficient daylight. As can be seen from the results below, all assessed habitable rooms meet and exceed the minimum levels of internal daylight.

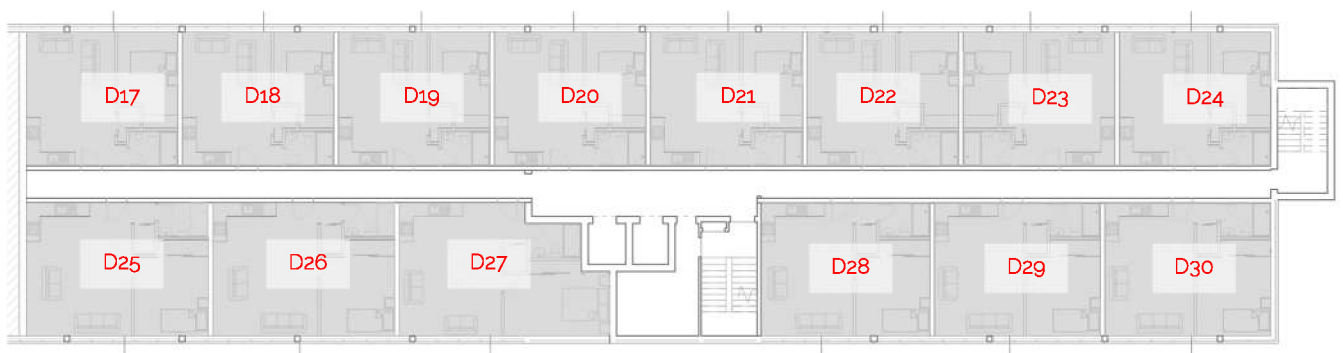
4.0 Room Schedules



First Floor as Proposed



2nd Floor as Proposed



4th Floor as Proposed

5.0 Daylight Results

Minimum Target Daylight Factor				
Unit	Room	Required DF _T Over 50% of Room Area	Area Of Room Receiving Required DF _T	Meets Standards?
D01	Kitchen/Living/Dining	1.4%	77.1%	Yes
D01	Bedroom 1	0.7%	100.0%	Yes
D02	Kitchen/Living/Dining	1.4%	77.3%	Yes
D02	Bedroom 1	0.7%	100.0%	Yes
D03	Kitchen/Living/Dining	1.4%	77.4%	Yes
D03	Bedroom 1	0.7%	100.0%	Yes
D04	Kitchen/Living/Dining	1.4%	77.4%	Yes
D04	Bedroom 1	0.7%	100.0%	Yes
D05	Kitchen/Living/Dining	1.4%	77.7%	Yes
D05	Bedroom 1	0.7%	74.1%	Yes
D06	Kitchen/Living/Dining	1.4%	77.6%	Yes
D06	Bedroom 1	0.7%	100.0%	Yes
D07	Kitchen/Living/Dining	1.4%	77.4%	Yes
D07	Bedroom 1	0.7%	100.0%	Yes
D08	Kitchen/Living/Dining	1.4%	69.1%	Yes
D08	Bedroom 1	0.7%	74.5%	Yes
D09	Kitchen/Living/Dining	1.4%	80.5%	Yes
D09	Bedroom 1	0.7%	100.0%	Yes
D10	Kitchen/Living/Dining	1.4%	80.4%	Yes
D10	Bedroom 1	0.7%	100.0%	Yes
D11	Kitchen/Living/Dining	1.4%	80.1%	Yes
D11	Bedroom 1	0.7%	100.0%	Yes
D12	Kitchen/Living/Dining	1.4%	80.0%	Yes
D12	Bedroom 1	0.7%	100.0%	Yes
D13	Kitchen/Living/Dining	1.4%	80.6%	Yes
D13	Bedroom 1	0.7%	74.1%	Yes
D14	Kitchen/Living/Dining	1.4%	80.5%	Yes
D14	Bedroom 1	0.7%	100.0%	Yes
D15	Kitchen/Living/Dining	1.4%	80.3%	Yes
D15	Bedroom 1	0.7%	100.0%	Yes
D16	Kitchen/Living/Dining	1.4%	80.1%	Yes
D16	Bedroom 1	0.7%	74.5%	Yes

5.0 Daylight Results

Minimum Target Daylight Factor				
Unit	Room	Required DF _T Over 50% of Room Area	Area Of Room Receiving Required DF _T	Meets Standards?
D17	Kitchen/Living/Dining	1.4%	85.3%	Yes
D17	Bedroom 1	0.7%	100.0%	Yes
D18	Kitchen/Living/Dining	1.4%	85.1%	Yes
D18	Bedroom 1	0.7%	100.0%	Yes
D19	Kitchen/Living/Dining	1.4%	85.3%	Yes
D19	Bedroom 1	0.7%	100.0%	Yes
D20	Kitchen/Living/Dining	1.4%	85.0%	Yes
D20	Bedroom 1	0.7%	100.0%	Yes
D21	Kitchen/Living/Dining	1.4%	85.4%	Yes
D21	Bedroom 1	0.7%	100.0%	Yes
D22	Kitchen/Living/Dining	1.4%	85.4%	Yes
D22	Bedroom 1	0.7%	100.0%	Yes
D23	Kitchen/Living/Dining	1.4%	85.5%	Yes
D23	Bedroom 1	0.7%	100.0%	Yes
D24	Kitchen/Living/Dining	1.4%	85.6%	Yes
D24	Bedroom 1	0.7%	79.6%	Yes
D25	Kitchen/Living/Dining	1.4%	85.1%	Yes
D25	Bedroom 1	0.7%	100.0%	Yes
D26	Kitchen/Living/Dining	1.4%	85.0%	Yes
D26	Bedroom 1	0.7%	100.0%	Yes
D27	Kitchen/Living/Dining	1.4%	83.7%	Yes
D27	Bedroom 1	0.7%	100.0%	Yes
D28	Kitchen/Living/Dining	1.4%	84.9%	Yes
D28	Bedroom 1	0.7%	100.0%	Yes
D29	Kitchen/Living/Dining	1.4%	84.8%	Yes
D29	Bedroom 1	0.7%	100.0%	Yes
D30	Kitchen/Living/Dining	1.4%	83.7%	Yes
D30	Bedroom 1	0.7%	80.1%	Yes

6.0 Conclusions

- 6.1 The proposed partial conversion of the first, second and fourth floors of Joynes House, Gravesend has been assessed for internal daylight levels using the Target Daylight Factor (DF_T) test as prescribed by the BRE guidance and BS EN 17037:2018.
- 6.2 The design team has endeavoured to ensure that the proposed habitable rooms have levels of natural light in excess of the minimum standards prescribed by the standards.
- 6.3 This has been successfully achieved, as demonstrated by the positive results presented within this report.
- 6.4 The assessed rooms meet the recommendations using the DF_T test.
- 6.5 This means the future occupants will enjoy a well-lit environment, with reduced reliance on artificial lighting.
- 6.6 It is therefore the conclusion of this report that the proposals meet the guidance levels for daylight and are therefore acceptable in planning terms.



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