



# Joynes House, Gravesend

## Internal Daylight Assessment

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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' (3<sup>rd</sup> 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 5-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 28 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

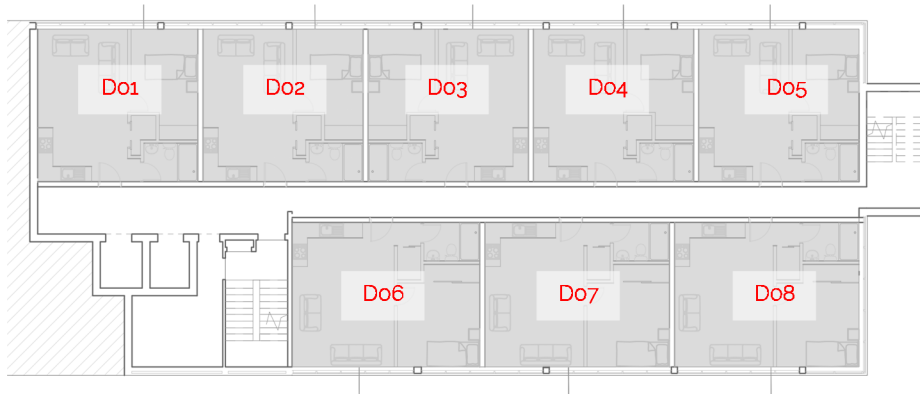
- 3.1 This BRE and BS EN 17037 guidance allows for two alternative methods to assess daylight within new dwellings. This report uses the following method as it is considered to provide the most detailed analysis of the internal light levels in the dwellings:
- Target Daylight Factor ( $DF_T$ )
- 3.2 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:

**Table C3 – Target daylight factors ( $D_t$ ) to achieve over at least 50% of the assessment grid in UK domestic habitable rooms with vertical and/or inclined daylight apertures**

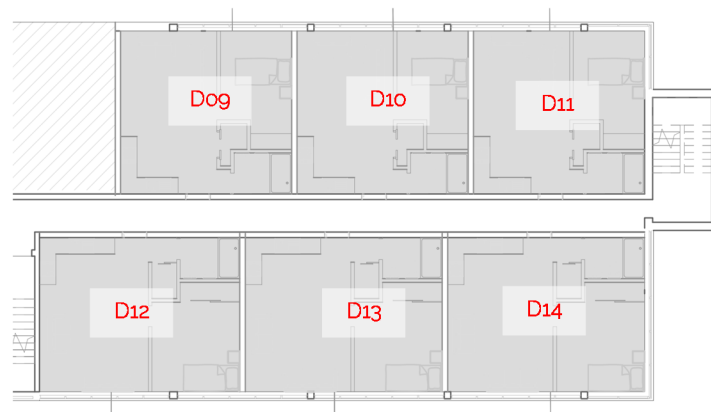
| Location                 | $D_t$ for 100 lx (Bedroom) | $D_t$ for 150 lx (Living room) | $D_t$ for 200 lx (Kitchen) |
|--------------------------|----------------------------|--------------------------------|----------------------------|
| St Peter (Jersey)        | 0.6%                       | 0.9%                           | 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.

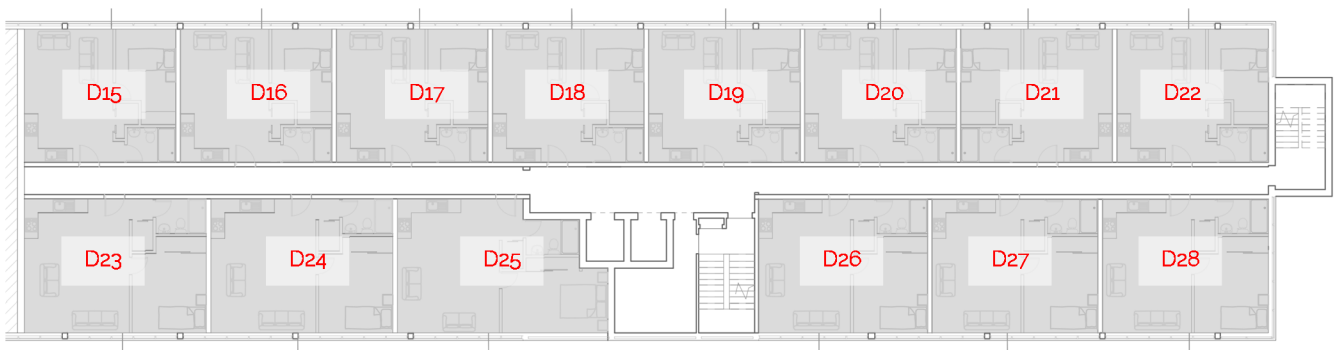
## 4.0 Room Schedules



First Floor as Proposed



2<sup>nd</sup> Floor as Proposed



4<sup>th</sup> Floor as Proposed

## 5.0 Daylight Results

| Minimum Target Daylight Factor |                       |                                                |                                                 |                  |
|--------------------------------|-----------------------|------------------------------------------------|-------------------------------------------------|------------------|
| Unit                           | Room                  | Required DF <sub>T</sub> Over 50% of Room Area | Area Of Room Receiving Required DF <sub>T</sub> | 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%                                           | 59.3%                                           | Yes              |
| D09                            | Bedroom 1             | 0.7%                                           | 100.0%                                          | Yes              |
| D10                            | Kitchen/Living/Dining | 1.4%                                           | 80.7%                                           | Yes              |
| D10                            | Bedroom 1             | 0.7%                                           | 100.0%                                          | Yes              |
| D11                            | Kitchen/Living/Dining | 1.4%                                           | 80.9%                                           | Yes              |
| D11                            | Bedroom 1             | 0.7%                                           | 100.0%                                          | Yes              |
| D12                            | Kitchen/Living/Dining | 1.4%                                           | 85.4%                                           | Yes              |
| D12                            | Bedroom 1             | 0.7%                                           | 100.0%                                          | Yes              |
| D13                            | Kitchen/Living/Dining | 1.4%                                           | 86.1%                                           | Yes              |
| D13                            | Bedroom 1             | 0.7%                                           | 100.0%                                          | Yes              |
| D14                            | Kitchen/Living/Dining | 1.4%                                           | 86.2%                                           | Yes              |
| D14                            | Bedroom 1             | 0.7%                                           | 100.0%                                          | Yes              |

## 5.0 Daylight Results

| Minimum Target Daylight Factor |                       |                                                |                                                 |                  |
|--------------------------------|-----------------------|------------------------------------------------|-------------------------------------------------|------------------|
| Unit                           | Room                  | Required DF <sub>T</sub> Over 50% of Room Area | Area Of Room Receiving Required DF <sub>T</sub> | Meets Standards? |
| D15                            | Kitchen/Living/Dining | 1.4%                                           | 85.3%                                           | Yes              |
| D15                            | Bedroom 1             | 0.7%                                           | 100.0%                                          | Yes              |
| D16                            | Kitchen/Living/Dining | 1.4%                                           | 85.1%                                           | Yes              |
| D16                            | Bedroom 1             | 0.7%                                           | 100.0%                                          | Yes              |
| D17                            | Kitchen/Living/Dining | 1.4%                                           | 85.3%                                           | Yes              |
| D17                            | Bedroom 1             | 0.7%                                           | 100.0%                                          | Yes              |
| D18                            | Kitchen/Living/Dining | 1.4%                                           | 85.0%                                           | Yes              |
| D18                            | Bedroom 1             | 0.7%                                           | 100.0%                                          | Yes              |
| D19                            | Kitchen/Living/Dining | 1.4%                                           | 85.4%                                           | Yes              |
| D19                            | Bedroom 1             | 0.7%                                           | 100.0%                                          | Yes              |
| D20                            | Kitchen/Living/Dining | 1.4%                                           | 85.4%                                           | Yes              |
| D20                            | Bedroom 1             | 0.7%                                           | 100.0%                                          | Yes              |
| D21                            | Kitchen/Living/Dining | 1.4%                                           | 85.5%                                           | Yes              |
| D21                            | Bedroom 1             | 0.7%                                           | 100.0%                                          | Yes              |
| D22                            | Kitchen/Living/Dining | 1.4%                                           | 85.6%                                           | Yes              |
| D22                            | Bedroom 1             | 0.7%                                           | 79.6%                                           | Yes              |
| D23                            | Kitchen/Living/Dining | 1.4%                                           | 85.1%                                           | Yes              |
| D23                            | Bedroom 1             | 0.7%                                           | 100.0%                                          | Yes              |
| D24                            | Kitchen/Living/Dining | 1.4%                                           | 85.0%                                           | Yes              |
| D24                            | Bedroom 1             | 0.7%                                           | 100.0%                                          | Yes              |
| D25                            | Kitchen/Living/Dining | 1.4%                                           | 83.7%                                           | Yes              |
| D25                            | Bedroom 1             | 0.7%                                           | 100.0%                                          | Yes              |
| D26                            | Kitchen/Living/Dining | 1.4%                                           | 84.9%                                           | Yes              |
| D26                            | Bedroom 1             | 0.7%                                           | 100.0%                                          | Yes              |
| D27                            | Kitchen/Living/Dining | 1.4%                                           | 84.8%                                           | Yes              |
| D27                            | Bedroom 1             | 0.7%                                           | 100.0%                                          | Yes              |
| D28                            | Kitchen/Living/Dining | 1.4%                                           | 83.7%                                           | Yes              |
| D28                            | 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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