



# Abbey Gardens, Abbey Street, Reading, RG1

## Internal Daylight Assessment

Job No: 6908

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# Contents

1.0 Introduction..... 3

2.0 Project Summary..... 4

3.0 Methodology..... 5

4.0 Room Schedules..... 6

5.0 Daylight Results..... 8

6.0 Conclusions..... 10

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## 1.0 Introduction

- 1.1 This internal daylight assessment has been prepared in relation to a planning application for the proposed conversion of the lower and upper areas of the 5<sup>th</sup>, and 6<sup>th</sup> floors of Abbey Gardens, Abbey Street, Reading, RG1.
- 1.2 The report assesses the proposals in respect of daylight matters within habitable rooms in the proposed scheme, 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 requirements for daylight levels for proposed developments,
- 1.5 However, the NPPF (Para 129) does refer to daylight and sunlight in relation to density, encouraging Local Planning Authorities to take a flexible approach to applying policies and guidance relating to proposals where they would otherwise inhibit making effective use of the site.
- 1.6 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 and sunlight in the environs of the site and the assessment of light within proposed new dwellings.
- 1.7 It refers in turn to the daylight and sunlight recommendations in BS EN 17037: 2018+A1:2021 (with UK Annexe): 'Daylight in Buildings'
- 1.8 These reference documents are accepted as the authoritative works in the field on daylight and the BRE guidance specifically referred to in many Local Authorities' planning policy guidance for daylighting.
- 1.9 The methodology therein has been used in numerous lighting analyses and the standards lighting are accepted as the industry standards.

## 2.0 Project Summary

- 2.1 The site is located at Abbey Gardens, Abbey Street, Reading and it is currently occupied by an 8 storey office block.
- 2.2 The proposal involves the conversion and extension of the 5<sup>th</sup> and 6<sup>th</sup> floors to provide 17 residential units.
- 2.3 The developer wishes to ensure that the new dwellings will receive sufficient daylight for its intended use, in excess of the minimum values prescribed by BS EN 17037: 2018+A1:2021.
- 2.4 Particular concern was raised regarding the window arrangement for unit 12 as can be seen from the results the window design has allowed the bedrooms on the lower floor to receive an acceptable level of daylight.
- 2.5 2D CAD drawings and a 3D CAD model 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.
- 2.6 Computer simulation modelling has been used to produce the results, presented below.



Site Location as Existing

## 3.0 Methodology

3.1 The BRE and BS EN 17037 guidance allows for two alternative methods to assess daylight within new dwellings. This report uses the following method:

- 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.

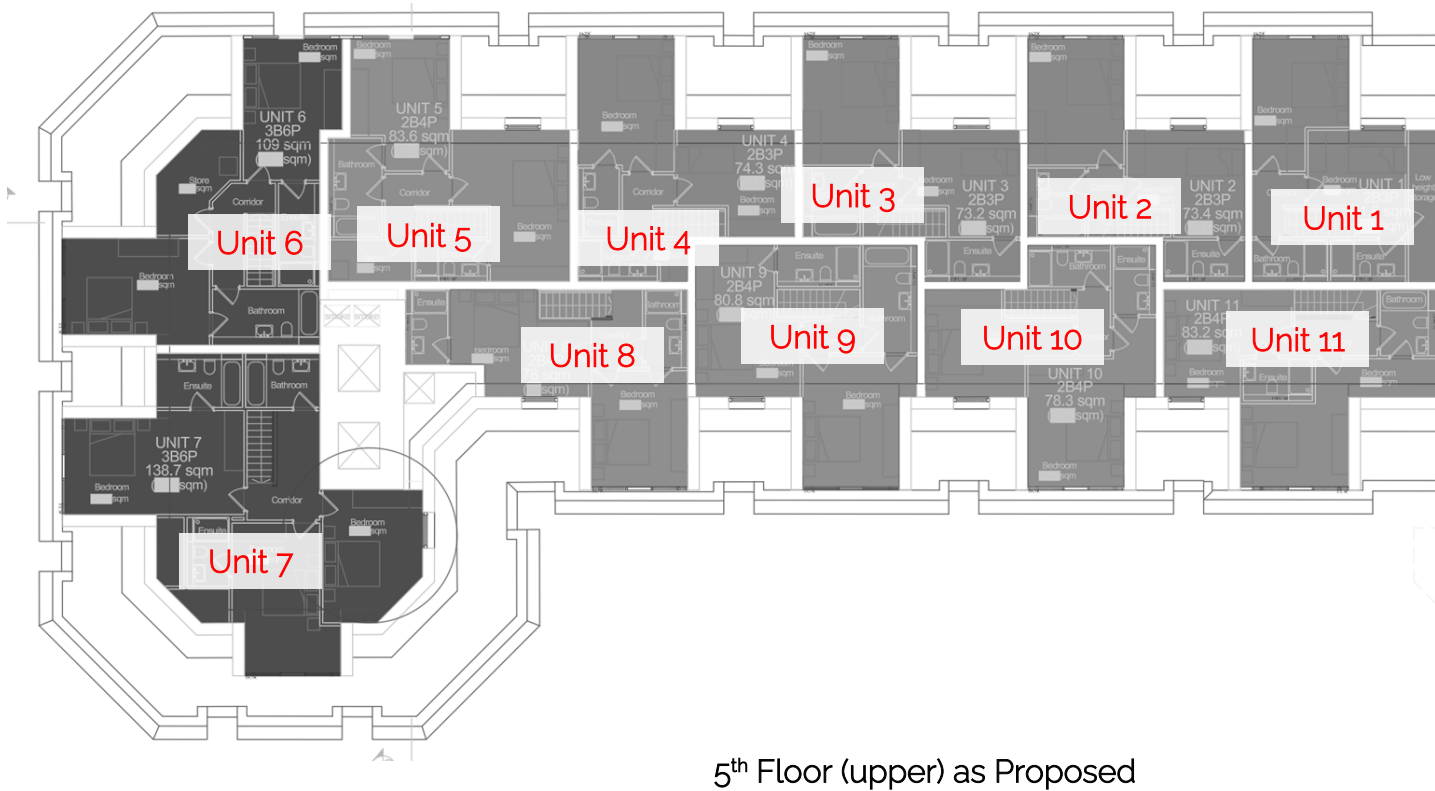
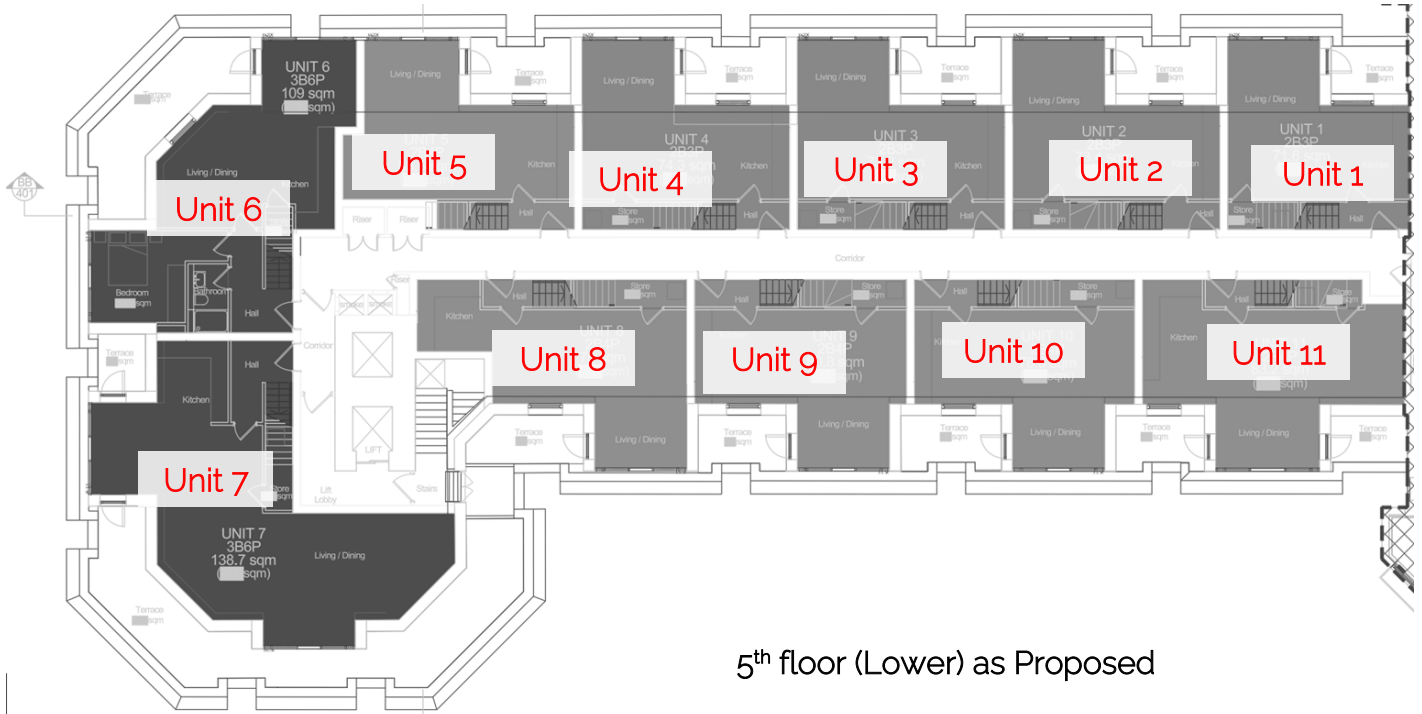
3.4 The calculations have assumed a white ceiling, cream walls and mid-grey carpet or wooden floor using reflectance values taken from the BS EN 170437 Guidance.

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:

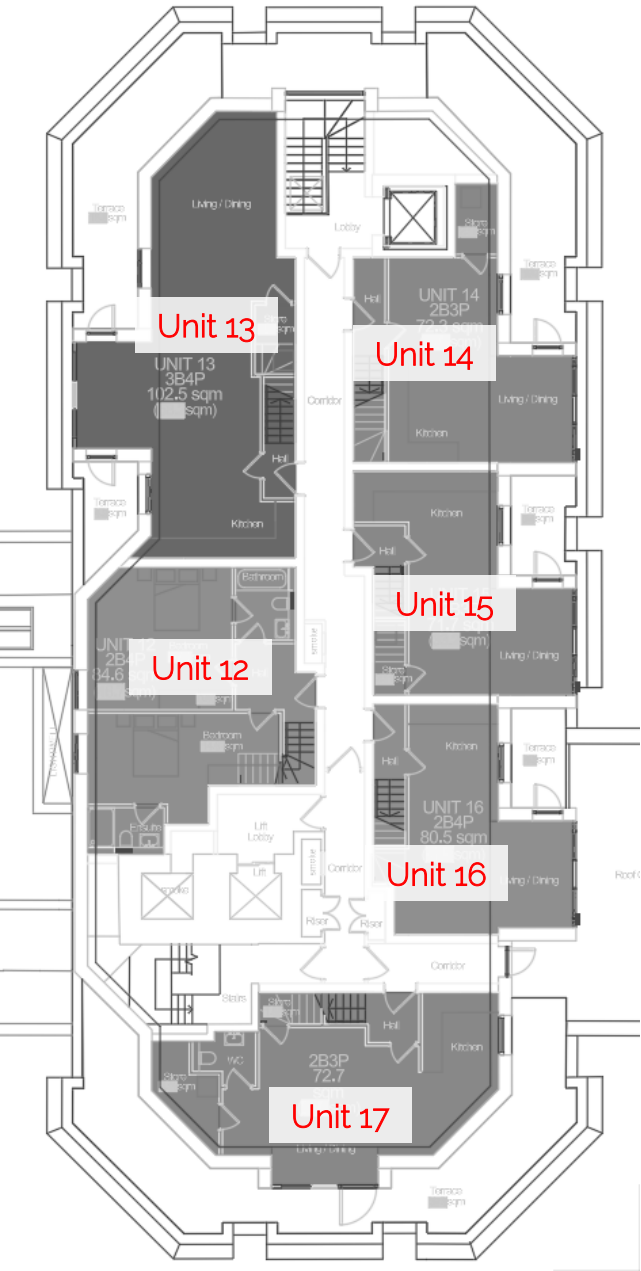
| Table C3 – Target daylight factors ( $D_T$ ) to achieve over at least 50% of the assessment grid in UK domestic habitable rooms with vertical and/or inclined daylight apertures |                            |                                |                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------------------------------|----------------------------|
| 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 occupants of the dwelling will have sufficient daylight. As can be seen from the results below that all assessed habitable rooms meet and exceed the minimum levels of internal daylight.

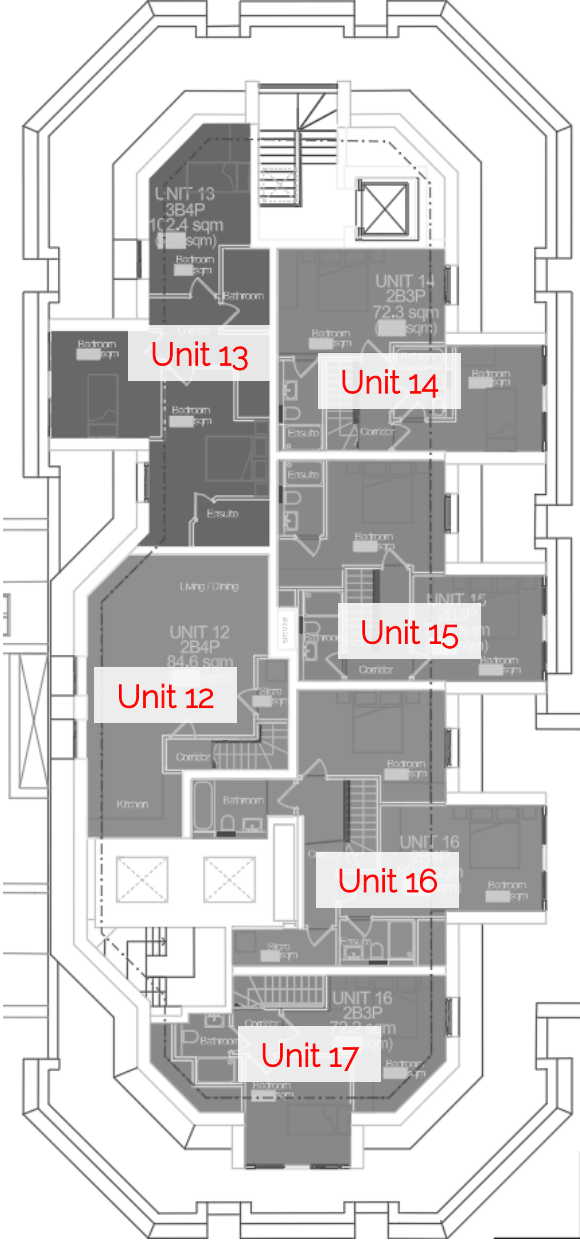
## 4.0 Room Schedules



# 4.0 Room Schedules



6<sup>th</sup> floor (Lower) as Proposed



6<sup>th</sup> Floor (Upper) as Proposed

## 5.0 Daylight Results

| Minimum Target Daylight Factor 5 <sup>th</sup> floor |                       |                                                |                                                 |                  |
|------------------------------------------------------|-----------------------|------------------------------------------------|-------------------------------------------------|------------------|
| Unit                                                 | Room                  | Required DF <sub>T</sub> Over 50% of Room Area | Area Of Room Receiving Required DF <sub>T</sub> | Meets Standards? |
| 1                                                    | Kitchen/Living/Dining | 1.4%                                           | 71.4%                                           | Yes              |
| 1                                                    | Bedroom 1             | 0.7%                                           | 88.9%                                           | Yes              |
| 1                                                    | Bedroom 2             | 0.7%                                           | 74.5%                                           | Yes              |
| 2                                                    | Kitchen/Living/Dining | 1.4%                                           | 73.2%                                           | Yes              |
| 2                                                    | Bedroom 1             | 0.7%                                           | 89.4%                                           | Yes              |
| 2                                                    | Bedroom 2             | 0.7%                                           | 75.2%                                           | Yes              |
| 3                                                    | Kitchen/Living/Dining | 1.4%                                           | 73.5%                                           | Yes              |
| 3                                                    | Bedroom 1             | 0.7%                                           | 89.5%                                           | Yes              |
| 3                                                    | Bedroom 2             | 0.7%                                           | 75.4%                                           | Yes              |
| 4                                                    | Kitchen/Living/Dining | 1.4%                                           | 73.7%                                           | Yes              |
| 4                                                    | Bedroom 1             | 0.7%                                           | 89.5%                                           | Yes              |
| 4                                                    | Bedroom 2             | 0.7%                                           | 75.5%                                           | Yes              |
| 5                                                    | Kitchen/Living/Dining | 1.4%                                           | 74.2%                                           | Yes              |
| 5                                                    | Bedroom 1             | 0.7%                                           | 89.8%                                           | Yes              |
| 5                                                    | Bedroom 2             | 0.7%                                           | 73.1%                                           | Yes              |
| 6                                                    | Kitchen/Living/Dining | 1.4%                                           | 67.8%                                           | Yes              |
| 6                                                    | Bedroom 1             | 0.7%                                           | 89.8%                                           | Yes              |
| 6                                                    | Bedroom 2             | 0.7%                                           | 90.4%                                           | Yes              |
| 6                                                    | Bedroom 3             | 0.7%                                           | 92.1%                                           | Yes              |
| 7                                                    | Kitchen/Living/Dining | 1.4%                                           | 72.2%                                           | Yes              |
| 7                                                    | Bedroom 1             | 0.7%                                           | 85.6%                                           | Yes              |
| 7                                                    | Bedroom 2             | 0.7%                                           | 84.8%                                           | Yes              |
| 7                                                    | Bedroom 3             | 0.7%                                           | 80.3%                                           | Yes              |
| 8                                                    | Kitchen/Living/Dining | 1.4%                                           | 71.4%                                           | Yes              |
| 8                                                    | Bedroom 1             | 0.7%                                           | 89.5%                                           | Yes              |
| 8                                                    | Bedroom 2             | 0.7%                                           | 75.1%                                           | Yes              |
| 9                                                    | Kitchen/Living/Dining | 1.4%                                           | 70.8%                                           | Yes              |
| 9                                                    | Bedroom 1             | 0.7%                                           | 89.4%                                           | Yes              |
| 9                                                    | Bedroom 2             | 0.7%                                           | 74.8%                                           | Yes              |
| 10                                                   | Kitchen/Living/Dining | 1.4%                                           | 71.3%                                           | Yes              |
| 10                                                   | Bedroom 1             | 0.7%                                           | 89.2%                                           | Yes              |
| 10                                                   | Bedroom 2             | 0.7%                                           | 75.1%                                           | Yes              |
| 11                                                   | Kitchen/Living/Dining | 1.4%                                           | 70.5%                                           | Yes              |
| 11                                                   | Bedroom 1             | 0.7%                                           | 89.3%                                           | Yes              |
| 11                                                   | Bedroom 2             | 0.7%                                           | 72.4%                                           | Yes              |

## 5.0 Daylight Results

### Minimum Target Daylight Factor 6<sup>th</sup> Floor

| Unit | Room                  | Required DF <sub>T</sub> Over 50% of Room Area | Area Of Room Receiving Required DF <sub>T</sub> | Meets Standards? |
|------|-----------------------|------------------------------------------------|-------------------------------------------------|------------------|
| 12   | Kitchen/Living/Dining | 1.4%                                           | 67.4%                                           | Yes              |
| 12   | Bedroom 1             | 0.7%                                           | 68.9%                                           | Yes              |
| 12   | Bedroom 2             | 0.7%                                           | 64.1%                                           | Yes              |
| 13   | Kitchen/Living/Dining | 1.4%                                           | 75.4%                                           | Yes              |
| 13   | Bedroom 1             | 0.7%                                           | 90.4%                                           | Yes              |
| 13   | Bedroom 2             | 0.7%                                           | 70.5%                                           | Yes              |
| 13   | Bedroom 3             | 0.7%                                           | 67.8%                                           | Yes              |
| 14   | Kitchen/Living/Dining | 1.4%                                           | 76.9%                                           | Yes              |
| 14   | Bedroom 1             | 0.7%                                           | 91.2%                                           | Yes              |
| 14   | Bedroom 2             | 0.7%                                           | 73.2%                                           | Yes              |
| 15   | Kitchen/Living/Dining | 1.4%                                           | 77.9%                                           | Yes              |
| 15   | Bedroom 1             | 0.7%                                           | 91.4%                                           | Yes              |
| 15   | Bedroom 2             | 0.7%                                           | 73.4%                                           | Yes              |
| 16   | Kitchen/Living/Dining | 1.4%                                           | 78.2%                                           | Yes              |
| 16   | Bedroom 1             | 0.7%                                           | 88.9%                                           | Yes              |
| 16   | Bedroom 2             | 0.7%                                           | 73.1%                                           | Yes              |
| 17   | Kitchen/Living/Dining | 1.4%                                           | 74.5%                                           | Yes              |
| 17   | Bedroom 1             | 0.7%                                           | 92.8%                                           | Yes              |
| 17   | Bedroom 2             | 0.7%                                           | 76.1%                                           | Yes              |

## 6.0 Conclusions

- 6.1 The proposed development of the site located at Abbey Gardens, Abbey Street, RG1 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 and all habitable rooms are provided with adequate natural light.
- 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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