2 Market Place Chippenham SN15 3HE

Internal Natural Light Report
Ground Floor Only

dpr

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PROJECT INFORMATION

Project Title:	2 Market Place, Chippenham
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ABOUT US

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Statements and opinions in this report are expressed on behalf of DPR.

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1.0 Introduction

1.1. The Applicant is proposing to develop the property known as 2 Market Place, Chippenham ("the Property"). The Property is located within Wiltshire Council planning jurisdiction.

1.2. Under Article 3(1) and Schedule 2 of the Town and Country Planning (General Permitted Development) (England) Order 2015, as amended[1], certain types of development are 'permitted development'.

1.3. The proposed development is permitted development and will comprise a change of use of the property from its existing use to dwellinghouses, under Schedule 2, Part 3, Class MA of the GPDO ("the Proposed Development").

1.4. Before beginning the Proposed Development, the Applicant must apply to the local planning authority ("LPA") for a determination whether the LPA's prior approval will be required as to the provision of adequate natural light in all habitable rooms of the proposed dwellinghouses.

1.5. DPR have been engaged by the Applicant to undertake an expert technical analysis of the levels of natural light in all habitable rooms of the proposed dwelling houses.

1.6. Proposed Development and its surrounding context are illustrated in Figure 1 below. For the purposes of this assessment, we have only tested the ground floor as the upper floors have already obtained consent.

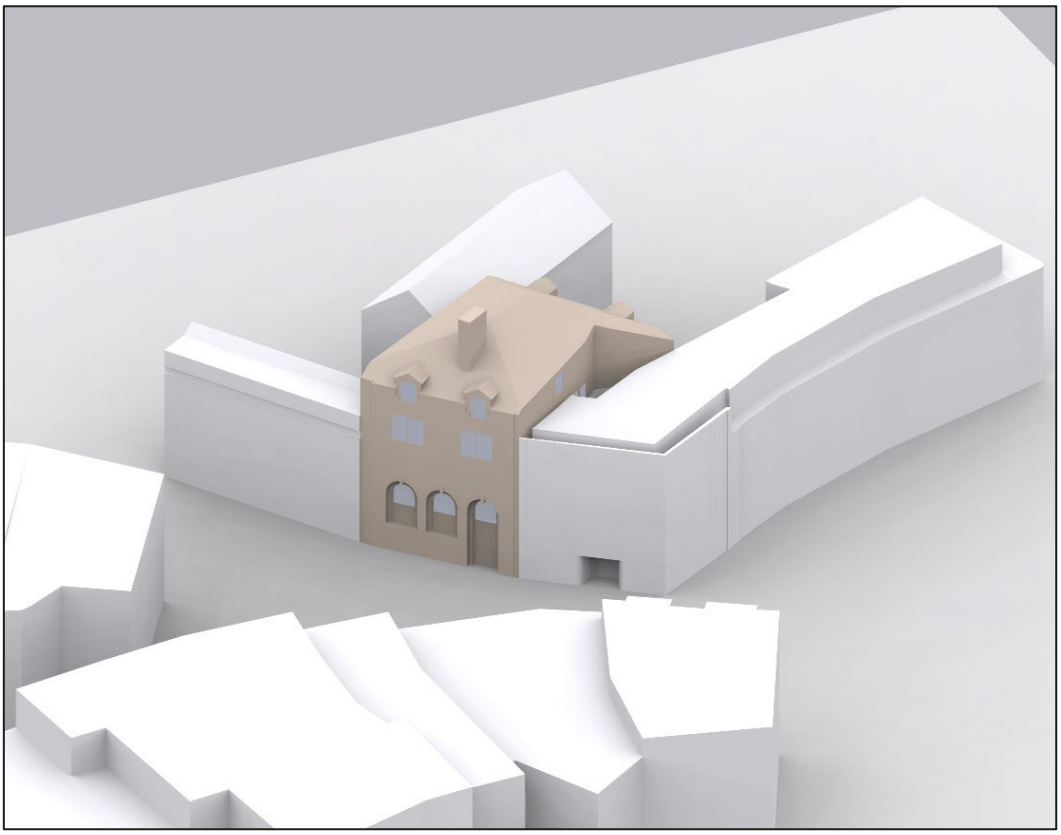


Figure 1 – 3D computer model of the Proposed Development and surrounding context

1.7. Our technical analysis has been carried out using the assessment methodology recommended in *'Site Layout Planning for Daylight and Sunlight: A guide to good practice'* (BR209) published by the Building Research Establishment ("the BRE guide").

[1] S.I. 2015/596 - https://www.legislation.gov.uk/uksi/2015/596

1.8. This report is accompanied by the Appendices listed on the Contents page, including an explanation of the BRE assessment methodology, a glossary of technical terms, drawings, and tabulated results.

2.0 GDPO and National Planning Policy Framework

GDPO

2.1. Article 3(1) and Schedule 2 of the GPDO provides permitted development rights for the various types of development that create new dwellinghouses, subject to the exceptions and conditions stated therein.

2.2. Before beginning such development, the developer must apply to the LPA for a determination as to whether the prior approval of the LPA will be required as to the provision of adequate natural light in all habitable rooms of the proposed dwellinghouses. The procedure and some points on interpretation are summarised below.

Procedure

In relation to development proposed under Class MA of Part 3, the application must be accompanied by, among other things: a plan indicating the site and showing the proposed development; a floor plan indicating the total floor space in square metres of each dwellinghouse; the dimensions and proposed use of each room; the position and dimensions of windows, doors and walls; and the elevations of the dwellinghouses.

2.3. The LPA may require the developer to submit such other information as the LPA may reasonably require in order to determine the application.

2.4. For applications for prior approval as to adequate natural light, the LPA must refuse prior approval if adequate natural light is not provided in all the habitable rooms of the dwellinghouses. (See below regarding interpretation.)

2.5. The LPA may also refuse an application where, in its opinion, the proposed development does not comply with, or the developer has provided insufficient information to enable the authority to establish whether the proposed development complies with, any relevant conditions, limitations or restrictions specified in the GPDO as being applicable to the development in question.

2.6. **The LPA must, when determining an application, have regard to the National Planning Policy Framework** issued by the Ministry of Housing, Communities and Local Government ("NPPF"), so far as relevant to the subject matter of the prior approval, **as if the application were a planning application**. The relevant part of the NPPF that is applicable to natural light is set out later in this section of our report.

2.7. Where prior approval is required, the development must be carried out in accordance with the details approved by the LPA, unless the LPA and the developer agree otherwise in writing.

2.8. It is evident from the above procedure that there is no express obligation for developers to submit a report and calculations confirming the amount of natural light that will be provided to habitable rooms in the proposed dwellings, although LPAs may require one. It is implicit that in many cases LPAs may base their opinion on such matters from the submitted drawings and professional judgment. There are a number of examples of this in practice.[2]

Interpretation

2.9. For the purpose of the above-mentioned condition relating to adequate natural light to dwellinghouses, the GPDO states that "habitable rooms" mean:

> *"any rooms used or intended to be used for sleeping or living which are not solely used for cooking purposes, but does not include bath or toilet facilities, service rooms, corridors, laundry rooms, hallways or utility rooms".*

[2] For example, Sovereign House, 361 King Street, London W6 9NA in the London Borough of Hammersmith and Fulham, reference 2024/01303/PMA56, approved on 22 July 2024

2.10. No interpretation is given to the meaning of the phrase "adequate natural light". In that case, the plain and ordinary meaning of the words should apply. For example, the Cambridge English Dictionary: "*adequate*" means "*enough or satisfactory for a particular purpose*".

2.11. Whether the condition is satisfied is a matter of judgment having regard for the NPPF. That requires a flexible approach to be taken in applying policies or guidance relating to daylight and sunlight, as explained below. Rigid adherence to daylight and sunlight numerical guidelines, which are only advisory, is not required.

NPPF

2.12. The NPPF sets out the Government's planning policies and how these should be applied. It provides a framework within which locally prepared plans for housing and other development can be produced. It places an emphasis on sustainable development and delivery of housing.

2.13. Chapter 11 of the NPPF, entitled "Making effective use of land", promotes the effective use of land in meeting the need for homes and other uses. It gives examples such as developing under-utilised land and buildings, especially if this would help to meet identified needs for housing where land supply is constrained and available sites could be used more effectively, and upward extensions to create new homes, where they would be consistent with the prevailing height and form of neighbouring properties and the overall street scene.

2.14. In particular, paragraph 130 of the NPPF (December 2024) states (emphasis added):

> *Area-based character assessments, design guides and codes and masterplans can be used to help ensure that land is used efficiently while also creating beautiful and sustainable places. Where there is an existing or anticipated shortage of land for meeting identified housing needs, it is especially important that planning policies and decisions avoid homes being built at low densities, and ensure that developments make optimal use of the potential of each site. In these circumstances:*
>
> *a) plans should contain policies to optimise the use of land in their area and meet as much of the identified need for housing as possible. This will be tested robustly at examination, and should include the use of minimum density standards for city and town centres and other locations that are well served by public transport. These standards should seek a significant uplift in the average density of residential development within these areas, unless it can be shown that there are strong reasons why this would be inappropriate;*
>
> *b) the use of minimum density standards should also be considered for other parts of the plan area. It may be appropriate to set out a range of densities that reflect the accessibility and potential of different areas, rather than one broad density range; and*
>
> *c) local planning authorities should refuse applications which they consider fail to make efficient use of land, taking into account the policies in this Framework. In this context, when considering applications for housing,* ***authorities should take a flexible approach in applying policies or guidance relating to daylight and sunlight, where they would otherwise inhibit making efficient use of a site (as long as the resulting scheme would provide acceptable living standards)****.*

Wiltshire Council Core Strategy (January 2015)

2.15. The Wiltshire Core Strategy provides the strategic planning policy for Wiltshire covering the period up to 2026.

2.16. Core Policy 27 states that a high standard of design is required to all new developments, including extensions, alterations and changes to the use of existing buildings. With Paragraph vii stating that new development should:

> *Having regard to the compatibility of adjoining buildings and uses,* ***ensuring appropriate levels of amenity*** *are achievable*

2.17. It is clear from the NPPF and Wiltshire Core Strategy that:

- An appropriate degree of flexibility needs to be applied when applying the BRE guidelines to natural lighting within new development.
- The use of alternative targets should be considered in areas of higher density such as in town centres and accessible locations.
- Account should be taken of local circumstances, the need to optimise housing capacity, and scope for the character and form of an area to change over time.

3.0 Natural lighting guidelines

BRE guide, BR 209, 'Site Layout Planning for Daylight and Sunlight: A guide to good practice'

3.1. The leading publication providing national guidance on the provision of natural light to new development, is 'Site Layout Planning for Daylight and Sunlight: A guide to good practice' (BR209) published by the Building Research Establishment ("the BRE guide").

3.2. The BRE guide is intended to be used in conjunction with the interior daylighting recommendations in BS EN17037:2018 'Daylight in buildings' and in CIBSE's lighting guide, LG 10 'Daylighting - a guide to designer'.

3.3. The BRE guide states:

> *Summary*
>
> *This guide gives advice on site layout planning to achieve good daylighting and sun lighting, within buildings and in the open spaces between them. It is intended to be used in conjunction with the interior daylight recommendations for new buildings in the British Standard, 'Daylight in buildings', BS EN 17037. It contains guidance on site layout to provide good natural lighting within a new development ... It is purely advisory and the numerical target values within it may be varied to meet the needs of the development and its location.*
>
> *Introduction*
>
> *(Its) main aim is ... to help to ensure good conditions in the local environment, considered broadly, with enough sunlight and daylight on or between the buildings for good interior and exterior conditions.*
>
> *The guide is intended for building designers and their clients, consultants and planning officials. The advice given is not mandatory and the guide should not be seen as an instrument of planning policy; its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly since natural lighting is only one of many factors in site layout design. In special circumstances the developer or planning authority may wish to use different target values. For example, in a historic city centre, or in an area with modern high-rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings... The calculation methods ... are entirely flexible in this respect...*

3.4. Evidently, the BRE guide's numerical guidelines <u>must not</u> be applied rigidly. Instead, they should be <u>applied flexibly</u>, having regard to local character, scale and massing. In some instances, it can be appropriate to apply alternative target values.

3.5. A glossary of terminology and an explanation of the BRE assessment methodology and numerical guidelines is attached at Appendix 1 of this report.

Evolution of the BRE daylight assessment methodology and numerical guidelines

3.6. When the GPDO was amended in 2021[3] to introduce conditions regarding the provision of adequate natural light, the current edition of the BRE guide was the second edition, published in 2011.

3.7. The 2011 edition gave the following minimum recommendations for daylight in dwellings, based on average daylight factor (ADF):

- 1% ADF in bedrooms
- 1.5% ADF in living rooms

[3] The Town and Country Planning (General Permitted Development etc.) (England) (Amendment) Order 2021

- 2% ADF in kitchens or multi-purpose spaces containing a kitchen, e.g., living/kitchen/dining areas (LKDs) and studios

3.8. The 2011 edition of the BRE guide was superseded by the third edition, published in 2022 to bring it in line with BS EN 17037:2018, 'Daylight in buildings' and the minimum recommendations for daylight in UK dwellings, as set out in its UK National Annex. This introduced more complex methods for assessing daylight to new accommodation, including 'median daylight illuminance' (MDI). MDI is the median illuminance (measured in 'lux') exceeded over at least 50% of the assessment grid of a room for at least half of the annual daylight hours. It is calculated using climate-based daylight modelling and weather data for the site location. (See Appendix 1 for further details.)

3.9. The 2022 edition of the BRE guide gives the following minimum recommendations for daylight (MDI) in dwellings:

- 100 lux in bedrooms
- 150 lux in living rooms
- 200 lux in kitchens or multi-purpose spaces containing a kitchen, e.g., living/kitchen/dining areas (LKDs) and studios

3.10. Important note: Despite an intention for the new MDI targets to equate broadly with the previous ADF targets, in practice the MDI targets are significantly more difficult to achieve. Consequently, urban development will almost always achieve a markedly lower percentage adherence to the 2022 guidelines than to the 2011 guidelines.

3.11. Under the GPDO, it is only necessary to assess "habitable rooms", i.e., those intended to be used for sleeping or living which are not solely used for cooking purposes. Kitchens used solely for cooking purposes, including non-daylit internal kitchens, do not require assessment.

3.12. Where a room has a shared use the highest target should apply; however, the BRE guide advises that the LPA could use discretion here:[4]

> *Local authorities could use discretion here. For example, the target for a living room could be used for a combined living/kitchen/dining area if the kitchens are not treated as habitable spaces, as it may avoid small separate kitchens in a design. The kitchen space would still need to be included in the assessment area."*

3.13. For this reason, we have adopted an alternative target of 150 lux in our assessment of any living/kitchen/dining areas (LKDs), kitchen/dining areas (KDs), or studios.

BRE sunlight assessment methodology and numerical guidelines

3.14. In housing, the main requirement for sunlight is in living rooms. It is viewed as less important in bedrooms and in kitchens.[5]

3.15. In general, a dwelling will appear reasonably sunlit if:[6]

- at least one main window wall faces within 90° of due south; and
- a habitable room, preferably a main living room, can receive a total of at least 1.5 hours of sunlight on 21 March.

3.16. Where groups of dwellings are planned, site layout design should aim to maximise the number of dwellings with a main living room that meets the above recommendations and minimise the number whose living rooms face solely north, northeast, or northwest, unless there is some compensating factor such as an appealing view.[7]

[4] BRE guide (2022 edition), paragraph C17
[5] BRE guide (2022 edition), paragraph 3.1.2
[6] BRE guide (2022 edition), paragraph 3.1.15
[7] BRE guide (2022 edition), paragraphs 3.1.16 and 3.1.7

4.0 Flexible application of the guidelines and alternative target values

4.1. The BRE guide explicitly states that its numerical guidelines are not mandatory and must be interpreted flexibly because natural lighting is only one of many factors in site layout design (see paragraphs 3.3 and 3.4 above).

4.2. For housing development, the NPPF requires local planning authorities to take a flexible approach in applying daylight and sunlight policies and guidance where they would otherwise inhibit making efficient use of a site, as long as the resulting scheme would provide acceptable living standards (see paragraph 2.14 onwards, above).

4.3. The need to interpret the BRE guidelines flexibly and for LPAs to take a flexible approach in applying policies or guidance relating to daylight and sunlight when considering applications for housing has been found to be correct in a number of appeal decisions cases concerning prior approval of adequate natural light.[8]

4.4. Ultimately, the LPA must judge whether adequate natural light will be provided to all habitable rooms in the dwellings, having regard to the NPPF as if this was a planning application. As explained at paragraphs 2.13 to 2.14 above, this requires an appropriate degree of flexibility and sensitivity to be applied when using BRE guidelines to assess natural light within the dwellings. That is especially true for higher density development or development in opportunity areas, town centres, large sites and accessible locations, where BRE advice suggests considering the use of alternative targets. What is an appropriate level of natural light within the proposed development should be assessed drawing on broadly comparable residential typologies within the area and of a similar nature across Wiltshire. Decision makers should recognise that fully optimising housing potential may necessitate standards which depart from those presently experienced, but which still achieve satisfactory levels of residential amenity.

[8] For example, ref: APP/F5540/W/22/3294272, Mulliner House, Flanders Road, Chiswick, London W4 1NN in the London Borough of Hounslow, dated 24 January 2023 and ref: APP/M5450/W/24/3341699, The Power House, Unit 5, Chantry Place, Harrow HA3 6NY in the London Borough of Harrow, dated 23 August 2024

5.0 Information used in our technical study

5.1. We have undertaken our technical study using a 3D computer model built in AutoCAD and specialist analysis software, which runs the assessments recommended in the BRE guide.

5.2. The 3D computer model includes rooms, window apertures, any external projections such as balconies, and nearby obstructions (existing and potential future obstructions, if other buildings are planned to be constructed nearby).

5.3. We compiled our 3D computer model from the 2D scheme and survey information provided to us by Armstrong Architects on 6 July 2026.

5.4. Our 3D computer model is illustrated in Figure 1 of Section 1.0, Introduction.

5.5. For the daylight assessment, we used the window and room parameters stated in Table 1.

Table 1 – Window and room parameters used in daylight calculations

Parameter	Value
Maintenance factor (dirt on glass)	0.92 for vertical windows with normal exposure in residential developments in urban locations with good maintenance
Diffuse light transmittance of glazing	0.68 for double glazing
Frame and glazing bar factor	0.7 for metal frames and large panes and 0.8 for the windows to the rear of the property at ground floor level
Surface reflectances	Reflectances from the guidelines: 0.8 for white ceilings (0.6 for balcony soffits) 0.8 for pale cream/light pastel walls 0.4 for light wood floors 0.2 for exterior surfaces

Limitations and assumptions

5.6. In compiling our 3D computer model for our technical study, we have sought to be as accurate as reasonably possible within the scope of our instruction. We have relied upon the information noted above. The surface reflectance of internal wall finishes has typically been applied to the soffits, reveals and cills of window apertures, except glazed door openings, where the reflectance of the floor finish has been applied to the cills.

5.7. We have used proven and trusted specialist computer software (Waldram Tools for AutoCAD® or Revit®) to run the calculations recommended in the BRE guide.

5.8. To the best of our knowledge, the information and advice contained in this report is accurate at the date of issue, based on the information provided to or procured by us prior to its production.

6.0 Daylight results

6.1. We assessed daylight to all six habitable rooms across all three dwellings in the Proposed Development at ground floor level.

6.2. The room uses and reference numbers of the rooms that are included in our assessment are shown on the room location plans at Appendix 2.

6.3. The assessment results are tabulated at Appendix 2. Coloured font has been used in the table to identify results that would be below the numerical guidelines, as follows:

- Orange font = proposed value is within 20% of the guideline
- Red font = proposed value is not within 20% of the guideline.

6.4. To recap, the numerical guidelines used in the study are: 100 lux in bedrooms, 150 lux in living rooms, or 150 lux in kitchens or multi-purpose rooms containing a kitchen, e.g., LKDs. 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 annual daylight hours.

Daylight to new dwellings

6.5. The level of adherence to the BRE daylight guidelines is summarised in Table 2 below.

Table 2 – Daylight illuminance summary table

Building	Daylight illuminance			
	No. of rooms tested	Meeting guideline		Below guideline
		No.	%	
2 Market Place	6	6	100%	0
Totals:	**6**	**6** 100%		**0** 0%

6.6. All six (100%) rooms assessed would satisfy the BRE guidelines.

6.7. Overall, the results indicate that all dwellings within the proposed scheme will benefit from levels of natural light that are commensurate with other residential schemes in Wiltshire.

7.0 Sunlight results

7.1. Our sunlight assessment was scoped to match our daylight assessment, as set out in paragraph 6.1 above. All rooms in our assessment have been assessed for sunlight regardless of orientation.

7.2. To recap, the BRE guide recommends site layout design should aim to maximise the number of dwellings with a main living room that has at least one main window wall facing within 90° of due south; and a habitable room, preferably a main living room, that can receive a total of at least 1.5 hours of sunlight on 21 March.

7.3. Table 3 below sets out the number and proportion of dwellings meeting these recommendations.

Table 3 - Sunlight exposure summary table – dwellings

Building	Sunlight exposure				
	No. of dwellings tested	Dwellings meeting the following criteria:			
		Has a window facing within 90° of due south		Has at least one room that can receive ≥ 1.5 hrs sunlight on 21 Mar	
		No.	%	No.	%
2 Market Place	3	2	*67%*	1	*33%*
Totals	**3**	**2**	***67%***	**1**	***33%***

7.4. Of the three dwellings assessed:

Two (67%) would have at least one window facing within 90° of due south; and

One (33%) would have at least one room that could receive at least 1.5 hours of sunlight on 21 March.

8.0 Summary and conclusion

8.1. To assess the provision of natural light to the habitable rooms in the proposed dwellings we calculated the daylight and sunlight levels to all new dwellings within the Proposed Development at Ground Floor level using the methodology recommended in the BRE guide.

8.2. In total, six habitable rooms have been assessed across three dwellings.

8.3. The daylight results indicate that all six (100%) habitable rooms comfortably satisfy the BRE guidelines.

8.4. Turning to sunlight, one of the three (33%) dwellings would contain at least one habitable room capable of receiving at least 1.5 hours of sunlight on 21 March.

8.5. The advice in the BRE guide is not mandatory, and its numerical guidelines should be interpreted flexibly. As noted in the NPPF and Wiltshire planning policy, and echoed in numerous appeal decisions, greater flexibility should be afforded when applying the guidelines in accessible urban locations.

8.6. Overall, the daylight provision to the new units should be considered acceptable for a residential conversion in a town centre location such as this.

8.7. It is submitted that the layout of the Proposed Development is consistent with the NPPF and policies and guidelines on daylight and sunlight, particularly having regard to paragraph 130 of the NPPF and Core Policy 27 of the Wiltshire Local Plan.

DPR
Chartered Surveyors

Appendix 1

Assessment methodology and glossary

1. This appendix explains the daylight and sunlight assessment methodology recommended in *'Site Layout Planning for Daylight and Sunlight: A guide to good practice'* (BR209, 2022 edition) ('the BRE guide') and provides a glossary of the terminology used.

Daylight to new dwellings

2. BS EN 17037 *'Daylight in Buildings'* ('the British Standard') and the BRE guide provide two alternative methods for calculating the overall amount of daylight in a space:

   - illuminance method, or
   - daylight factor method.

   Illuminance method

3. *Illuminance* is a measure of the amount of light falling on a surface, usually measured in lux (lumens per square metre). The illuminance method calculates the illuminance from daylight at each point on an assessment grid on the reference plane at hourly intervals for a typical year. It uses hourly climatic data for a typical year collected by a weather station near to the site's location and a mathematical model for the spatial distribution of real-world sky luminance (e.g., the Perez All-Weather Sky Model). Appropriate weather data files are available from various sources, including EnergyPlus and CIBSE.

4. The illuminance recommendations in the British Standard and BRE guide are based around the illuminances that would be met or exceeded over half of the room, over half of the annual daylight hours.

   Daylight factor method

5. *Daylight factor* is the ratio of daylight illuminance at a reference point on the working plane within a space to outdoor illuminance on a horizontal plane due to an unobstructed CIE standard overcast sky The daylight factor method calculates the daylight factor at each point on an assessment grid on the reference plane. The standard overcast sky model is independent of orientation and location. In order to account for different climatic conditions at different locations, the British Standard and BRE guide give equivalent different daylight factor targets for various locations in the UK.

6. The daylight factor recommendations in the British Standard and BRE guide are based on calculating the daylight factor that would be exceeded over half of the room. The recommended daylight factor values are location specific; a set of targets is provided for each of 10 locations in the UK. The target values for the reference location at the nearest latitude to the development location should be used.

   Calculation model

7. Both methodologies usually require assessment via detailed computer modelling to simulate the illuminance or daylight factor at calculation points within a proposed space. Appropriate simulation settings must be used. The calculation model should include all the room surfaces, and any surface outside the room that could affect the light received.

   Surface reflectance

8. Internal and exterior surfaces and obstructions need to be modelled including appropriate surface reflectances. Fixtures and fittings need not be included. Surface reflectances should represent real conditions.

9. Where reflectance values have not been measured or specified, default values to be used in the calculation are given in Table C4 of the BRE guide, as follows: ceilings, 0.7; interior walls, 0.5; floors, 0.2; exterior walls and obstructions, 0.2; exterior ground, 0.2.

10. 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 in the calculations should not exceed: white painted surfaces, 0.8 indoors and 0.6 outdoors; light pastel walls, 0.7; light wood floors, 0.4. Surface reflectances used should be presented in the assessment, along with a specification of the materials if non-default reflectances are used.

Glazing transmission

11. Glazing transmission factors, including maintenance factors, need to be included in the simulation along with account for, or modelling of, window framing. Where window frames are not specifically included in the model, frame factors should be applied based on the ratio of glass to overall window aperture area for the type of window to be used; this will generally vary with window size and whether the windows have opening lights. Where window types have not been specified, results for the overall window aperture should be multiplied by a default framing factor as given in Table C5 of the BRE guide, as follows: windows with small panes, 0.5; normal windows with opening lights, 0.6; patio doors, 0.7.

12. For clean, clear double glazing with a low emissivity coating, a value of 0.68 for diffuse transmittance can be used. For other types of glazing, the diffuse transmittance, if needed, can be found by multiplying the manufacturer's normal incidence light transmittance by 0.91. Care needs to be taken to apply the correct values within the calculation software; often software programs use the normal incidence transmittance, which is directly available from the glazing manufacturer, and have inbuilt correction for light coming from oblique angles.

13. An additional maintenance factor also needs to be applied to the glazing transmission to account for dirt on the windows. Full details are given in the National Annex to BS EN 17037. For the more common residential applications, values are given in Table C6 of the BRE guide and reproduced below. These assume the windows will be regularly cleaned.

Table C6 – Maintenance factors for different types of windows

Type of window	Maintenance factor	
	Rural/suburban	Urban
Vertical, no overhang	0.96	0.92
Vertical, sheltered from rain, e.g. by balcony or overhang	0.88	0.76
Sloping rooflight	0.92	0.84
Horizontal rooflight	0.88	0.76

Assessment grid

14. The daylight calculations need to be carried out on a grid of points on a reference plane within each room assessed. The plane should normally be 0.85m from the floor level (sometimes described as the working plane height). The British Standard states that the assessment grid should exclude a band of 0.5m from the walls, unless otherwise specified. The BRE guide recommends that in dwellings the width of the band to be excluded should be of 0.3 m, to avoid excluding parts of the room that are used by the occupants.

15. The BRE guide advises that professional judgement should be used when setting up the reference plane in irregularly shaped rooms or those with corridor or annex areas. Examples are given in Figures C2 to C5 of the guide and include the following:

- Where room layouts have small variations or alcoves along a wall's length, the inner or dominant section should be taken as a basis for the 0.3m gap to the assessment grid area. Fixed floor to ceiling cupboards can be excluded from the room area, but not kitchen units incorporating a worktop. Areas in bay windows may be included unless they are winter gardens separated from the room by a fixed partition.
- In a room with a corridor, or annexed entrance, the corridor need not be included in the assessment grid area (unless it is wide enough to be part of the usable space in a room, typically over 1.5m wide). The room layout and surfaces, including the corridor would still need to be included in the calculation model.

- For a combined living/kitchen/ dining area (LKD), the kitchen should always be included as part of the room area in the calculations, even in cases where the kitchen is deemed non-habitable and the living room criterion is applied to the whole space.

16. The British Standard gives an equation for maximum grid spacing. However, for domestic rooms this could potentially give only nine points in the room. The BRE guide therefore recommends a maximum grid spacing of 0.3m and preferably less.

17. Outdoor and semi-conditioned spaces, partitioned from the room, like balconies and winter gardens should not be included in the reference grid, but the effects of balconies and overhangs above a window should be modelled.

Presentation of results

18. It may not be necessary to analyse every room in a proposed development. For example, if a building has the same room and window layouts on each floor, and rooms on a lower floor meet the recommendations, then the corresponding rooms on upper floors would be expected to meet the recommendations too.

19. For each room, the median illuminance or median daylight factor (exceeded over 50% of the reference plane) should be presented, as this enables comparison with the different recommendations in BS EN 17037.

20. Contour plots showing illuminances or daylight factors throughout the room may also be presented.

21. The proportional area of the reference plane exceeding a particular target value may also be presented. This value is labelled as 'SDA % of Area' on our contour plots. ('SDA' is an acronym for 'spatial daylight autonomy', which is a yearly metric that describes the percentage of room area that receives sufficient daylight according to the specified criteria in a particular standard.)

Sunlight to new dwellings

22. When calculating the sunlight, the BRE guide advises that:

> *If window positions are already known, a reference point on the inside face of the window aperture at the centre of the opening width and at least 1.2 m above the floor and 0.3 m above the sill (whichever is the higher) is used. Sunlight blocked by window reveals and balconies or overhangs above the window should not be included, but the effect of window frames and bars can be discounted. Surrounding obstructions should be modelled in detail, and if this is done a minimum solar altitude, as suggested in BS EN 17037, need not apply. If a room has multiple windows, the amount of sunlight received by each can be added together provided they occur at different times and sunlight hours are not double counted.*

23. In a room with multiple windows, our computer software calculates the total sunlight hours across all its windows without double counting.

Glossary of terms

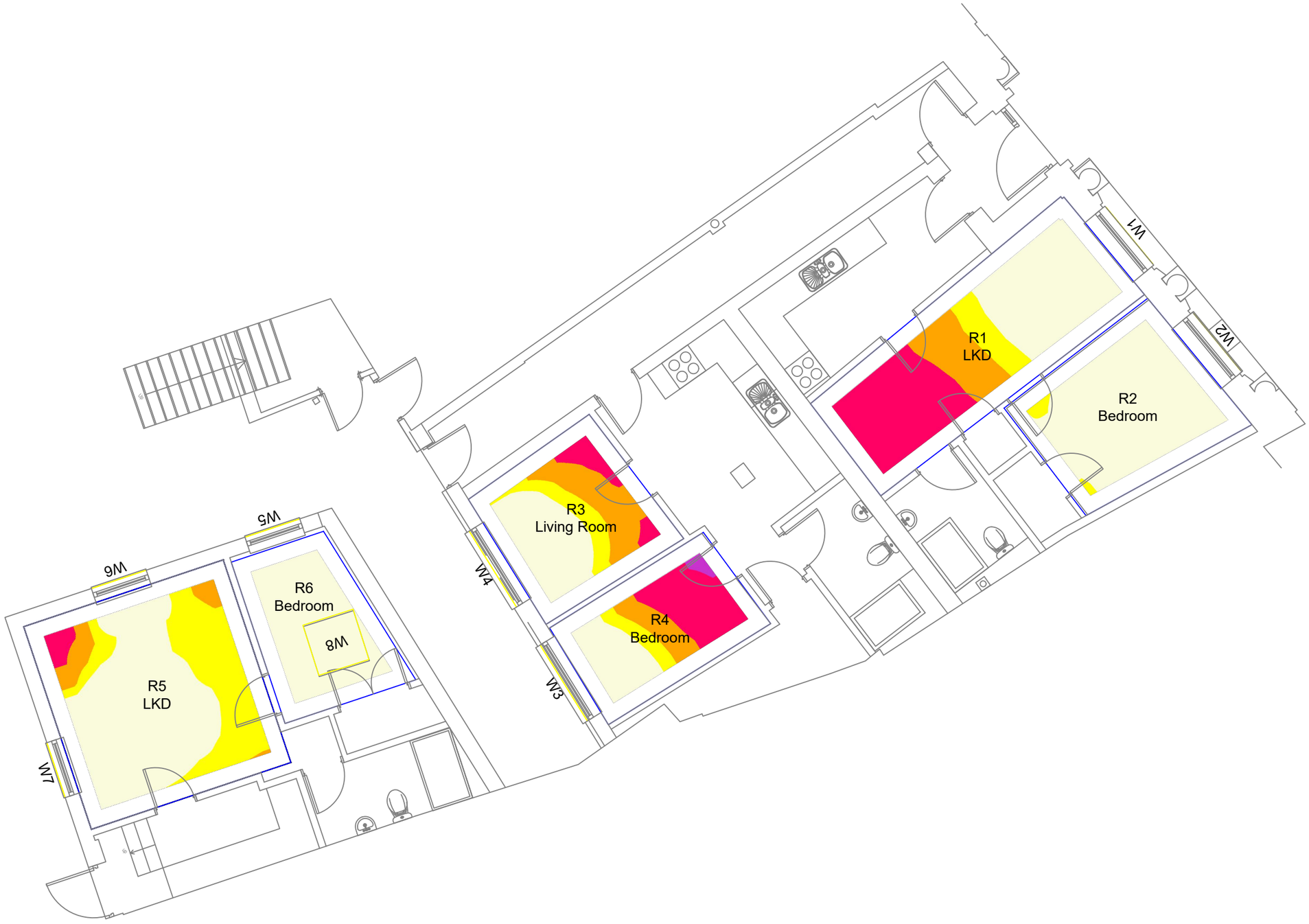
24. The daylight and sunlight terminology used in our report is explained below.

Term	Meaning
Daylight, natural light	Combined skylight and sunlight.
Illuminance	A measure of the amount of light falling on a surface, usually measured in lux.
Diffuse horizontal illuminance (from the sky)	Illuminance produced by skylight on a horizontal surface on the Earth.

Term	Meaning
Target illuminance	Illuminance from daylight that should be achieved for at least half of annual daylight hours across a specified fraction of the reference plane in a daylit space.
Climate-based daylight modelling	The prediction of daylight illuminance across a grid of points on the working plane inside a room at no greater than hourly intervals in a typical year using hourly climate data for a typical year collected by a weather station near to the site's location and a mathematical model for the spatial distribution of real-world sky luminance (e.g., the Perez All-Weather Sky Model).
Daylight factor	Ratio of total daylight illuminance at a reference point on the working plane within a space to outdoor illuminance on a horizontal plane due to an unobstructed CIE standard overcast sky.
Target daylight factor	Daylight factor value equivalent to the target illuminance to be exceeded for more than half of annual daylight hours over a specified fraction of the reference plane within a daylit space.
CIE standard overcast sky	A theoretical completely overcast sky whose luminance varies with angle of elevation, being three times brighter at the zenith (vertically overhead) than on the horizon, but not with orientation.
Obstruction angle	The angular altitude of the top of an obstruction above the horizontal, measured from a reference point in a vertical plane in a section perpendicular to the vertical plane.
Reference plane or working plane	Horizontal, vertical, or inclined plane in which a visual task lies. Normally the working plane may be taken to be horizontal, 0.85 m above the floor in housing.
Assessment grid or calculation grid	Grid of calculation points on the reference plane that is used to calculate daylight factor or illuminance from daylight.
Sunlight exposure	Sum of the time (hours) within a given period during which the sun is above the horizon with a cloudless sky, which may be limited by permanent obstructions like mountains, buildings, etc.

Appendix 2

Internal natural light results for proposed dwellings



Ground Floor

NO DIMENSIONS TO BE SCALED FROM THIS DRAWING

KEY:

Median illuminance (lux)
BRE 2022

- ≥ 200
- ≥ 150
- ≥ 100
- ≥ 50
- < 50

SOURCE DATA:

EXISTING AND SURROUNDING BUILDINGS:
Armstrong Architect
2D Drawing received on 07/10/2025
AA.22.60 Crook LIGHT.dwg
AA.24.46.Abel.dwg
AJ.14.07.dwg

PROPOSED SCHEME:
Armstrong Architect
2d drawings received on 06/07/2026
AA.25.23 Crook (3-7-26) PD

NOTES:

Illuminance level calculated in accordance with the BRE guide 2022:
"A space is considered to provide adequate daylight if a target illuminance level is achieved across a 50% of the space for at least half of the daylight hours (4,380) in the year."
SDA presents percentage of area achieves the target illuminance (lux) for at least half of daylight hours.

Reflectance List

Ground Plane	0.20
Surrounding Buildings	0.20
Proposed Building	0.20
Internal Walls	0.80
Internal Floors	0.50
Internal Ceilings	0.80

Rev	Description	Drawn	Date

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SN15 3HE

DRAWING:
DAYLIGHT ILLUMINANCE STUDY
Plan View

DRAWN: CC
SCALE: 1:80@A3
DATE: 07.07.2026
JOB NBR: 25425
DWG NO: S01-A09-IDS-001
REV:

Project: 25425 - 2 Market Place, Chippenham, SN15 3HE
Date: 07/07/2026
Scheme: S01/E05/2026/07/06
Analysis: A09 IDS

Daylight Sunlight
Self-test

Property & room attributes					BRE 2022				
					Daylight illuminance			Sun exp.	
Floor	Flat/Unit no.	Room ref.	Property type	Room use	Target (lx)	Result (lx)	% area ≥target	(Hrs)	Flat/unit satisfies?
2 Market Place									
F00	Flat 09	R1	Residential	LKD	150	162	55%	0.0	
	Flat 09	R2	Residential	Bedroom	100	336	100%	0.0	No
	Flat 08	R3	Residential	Living Room	150	179	62%	0.0	
	Flat 08	R4	Residential	Bedroom	100	120	56%	0.0	No
	Flat 07	R5	Residential	LKD	150	212	90%	3.8	
	Flat 07	R6	Residential	Bedroom	100	380	100%	0.4	Yes

Orange or Red = Below guidelines (Orange = within 20% of guideline)

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