



BRE DAYLIGHT ASSESSMENT

SEPTEMBER 2026, REF:2648/DA

CLIENT:

John Alonge

SITE ADDRESS:

St Mary's Sunday School,
No.35 St Mary's Street
Newport NP20 4DA

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AUTHOR:

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REVISIONS:

None to date



1. Who We Are

- 1.1. The Daylight Lab works closely with architects, planning agents and private clients throughout the UK, assisting with daylight and sunlight matters related to architectural design and planning. We take a proactive approach, engaging with all parties involved and providing input throughout the design process when necessary, to ensure that sites reach their fullest potential while not unduly impacting neighbouring amenity.
- 1.2. We aim for our assessments to be as clear and accessible as possible, and welcome enquiries from anyone who might be affected by the issues discussed via hello@thedaylightlab.co.uk.

2. Executive Summary

- 2.1. The proposed basement bedroom achieves a median Daylight Factor of 0.60%, meeting the applicable BRE/BS EN 17037 target of 0.60% for a bedroom in a “*hard to light*” dwelling (such as those formed through the conversion of existing buildings and basements).
- 2.2. Furthermore, the rear zone of the room, which benefits from a large north-facing window overlooking a rear courtyard, achieves 1.46% Daylight Factor when tested in isolation.
- 2.3. It is therefore recommended that the sleeping area be positioned within the rear zone and ancillary/dressing space to the front zone, and that they are served by separate lighting circuits, so that the principal habitable area enjoys the highest level of daylight and the ancillary/dressing area can have its light levels boosted independently when required.
- 2.4. The proposed basement bedroom at St Mary’s Sunday School has therefore been found to enjoy acceptable levels of daylight and sunlight, when assessed in accordance with the BRE’s *Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice*, third edition, 2022.



3. Introduction & Site Description

- 3.1. This report has been commissioned by the applicant, Mr John Alonge, to assess the level of daylight within the proposed basement bedroom at St Mary's Sunday School, No.35 St Mary's Street, Newport NP20 4DA.
- 3.2. The existing site comprises a former Sunday School building, currently in Class D1 (non-residential institution) use, fronting St Mary's Street to the south. Attached to the west is St Mary's Church and to the east is No.36 St Mary's Street, a 2 storey plus basement dwelling.
- 3.3. It is proposed to convert the building to Class C4 (small HMO) use under ongoing application reference [26/0540](#). The proposed bedroom formed within the basement is the sole subject of this study, this being the only room where daylight has been specifically raised as a concern by the Local Planning Authority. The bedroom comprises two zones: a front zone with no glazing, and a rear zone served by a large north-facing window overlooking a rear courtyard area. The two zones were formerly separated by a spine wall, understood to have been removed at an unknown date.
- 3.4. Copies of the proposed drawing set referred to in this study, prepared by Architect Designs, can be found in Appendix 1 for reference.



Fig 1. Location Plan. North to top. Not to scale.





Fig 2. Aerial view of existing property from south (Bing). Note that some trees visible have been removed prior to this application being submitted so are not included in the test models.



Fig 3. Aerial view of existing property from north (Bing). Note that some trees visible have been removed prior to this application being submitted so are not included in the test models.



4. Summary of Applicable Guidance

- 4.1. The following methods set out in this report are based on the BRE's "Site layout planning for daylight and sunlight: A guide to good practice", third edition, 2022, which is generally accepted as good practice by local planning authorities in the UK.
- 4.2. It is important to note that the advice given in the guide *"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"* (page 7, paragraph 1.6).

5. Key Definitions

- 5.1. It is important to note the key difference between daylight and sunlight, which are defined as follows:

Daylight

- 5.2. Daylight is the combination of all direct and indirect sunlight (see following definition of sunlight) during the daytime. This includes direct sunlight, diffuse sky radiation, and (often) both of these reflected by Earth and terrestrial objects, like landforms and buildings.

Sunlight

- 5.3. Sunlight is direct light that reaches Earth on an uninterrupted path from the sun.

6. Methodology

- 6.1. A 3D model of the proposed application site and surroundings was prepared by The Daylight Lab to a level of detail suitable for testing, based on the supplied drawings, OS data, photographs and Bing/Google imagery.
- 6.2. Detailed survey information on the trees adjacent to the plot was unavailable, so approximate dimensions were established via photographs and the canopies set to a typical transparency of 20% for deciduous trees in full leaf.
- 6.3. The test environment is therefore accurate to the best of The Daylight Lab's knowledge and any apparent discrepancies that might affect results should be reported to The Daylight Lab via hello@thedaylightlab.co.uk.
- 6.4. Tests were then carried out in accordance with the relevant BRE guidance using specialist analysis software. These were limited to daylight provision and not sunlight, as BRE guidance places primary emphasis on sunlight provision within living rooms and given the north-facing orientation of the bedroom window testing none will be provided.

Daylight – Daylight Factor

- 6.5. The BRE guidance refers to BS EN 17037 Daylight in Buildings, which states that daylight in new buildings may be checked either by making a direct prediction of illuminance levels using hourly climate data, or use of the daylight factor. Both are measures of the overall amount of daylight in a space. This report is based on measurements of the daylight factor.
- 6.6. This method involves the computation of the daylight factor at each calculation point on an assessment grid, known as the working plane, which for housing is set at 850mm above floor level and 300mm in from a room's perimeter, ignoring any corridors or nooks within the space that are



≤1.5m wide. The daylight factor is the illuminance at a point on the reference plane in a space, divided by the illuminance on an unobstructed horizontal surface outdoors, under the CIE standard overcast sky. The ratio is expressed as a percentage.

- 6.7. Since the calculation uses an overcast sky model, the daylight factor is independent of orientation and location. To account for different climatic conditions at different locations, BS EN 17037 gives equivalent daylight factor targets for each capital city in Europe.
- 6.8. For spaces with side windows, equivalent daylight factor targets to achieve a target illuminance over at least half of the daylight hours in a year are based on the formula; $D = \text{Target illuminance} / \text{Median external diffuse horizontal illuminance} \times 100 (\%)$, where the median external diffuse horizontal illuminance is the illuminance from the sky on an unobstructed horizontal surface achieved for half of the yearly daylight hours at a particular location.
- 6.9. The recommendations for side lit rooms are met if both target daylight factors (the median daylight factor over 50% of the reference plane, and the minimum daylight factor over 95% of the reference plane) are achieved.
- 6.10. Table 1 provides daylight factor targets for side lit rooms in Birmingham (the closest city to the application site for which targets are provided).

Table 1. Applicable target daylight factors for side-lit rooms, as set out in the UK National Annex to BS EN 17037.

Level of recommendation	Target daylight factor (D) for 50% of assessment grid	Target daylight factor (D) for 95% of assessment grid
Minimum	1.8%	0.6%
Medium	3.1%	1.8%
High	4.6%	3.1%

- 6.11. The UK National Annex to BS EN 17037 also gives alternative minimum recommendations for habitable rooms in “*hard to light*” dwellings in the UK, such as those with “*basement rooms or those with significant external obstructions (for example, dwellings situated in a dense urban area or with tall trees outside), or for existing buildings being refurbished or converted into dwellings*”. These only need to be achieved over at least 50% of the assessment grid. The resulting Daylight Factor targets for Birmingham (the closest city to the application site for which targets are provided) are set out in Table 2 below. Where a room has a shared use the highest applicable target figure usually applies.

Table 2. Applicable target daylight factors for rooms in “*hard to light*” dwellings, as set out in the UK National Annex to BS EN 17037.

Room type	Target daylight factor (D) for 50% of assessment grid	Target daylight factor (D) for 95% of assessment grid
Bedrooms	0.6%	n/a
Living rooms	0.9%	n/a
Kitchens	1.2%	n/a

- 6.12. To provide an accurate testing environment, surface/material reflectance values should be set to match materials specified (or the default figures provided in Appendix C of the BRE Guide, page 74).
- 6.13. In this instance the following materials were specified, with light reflectance values established using the methods set out in the Chartered Institution of Building Services Engineers (CIBSE)



Table 3. Site/project specific surface reflectance values.

Surface	Material specified	Specific reflectance
Interior walls & ceilings	White painted	0.8
Interior floors	Light coloured timber boards	0.4
Window frames	White painted	0.6
External walls	Cement render/Stone	0.3
All other surfaces	n/a	0.2 (BRE default)

- 6.14. Glazing transmission factors must also be included in the simulation along with modelling of the window framing. The Daylight Lab therefore modelled all windows with appropriate/accurate glazing bars and frame thicknesses then set a value of 0.68 for diffuse transmission, which is typical for clean, clear double glazing with a low emissivity coating.
- 6.15. An additional maintenance factor was then applied to each proposed window according to the figures set out in Table 4 below, resulting in a test figure of 0.626 (the window serving the bedroom is vertically inclined with no overhang = 0.68×0.92).

Table 4. Maintenance factors for different window types.

Window type	Maintenance factor	
	Rural/suburban	Urban
Vertical, no overhang	0.96	0.92
Vertical, sheltered from rain by balcony or overhang	0.88	0.76
Sloping rooflight	0.92	0.84
Horizontal rooflight	0.88	0.76

7. 3D Model & Reference Images

7.1. The following figures show the proposed 3D model as tested. Specifically:

- Figures 4-7 provide external views of the proposed site and surrounding context.
- Figure 8 provides a horizontal section cut/plan view through proposed basement level with the bedroom tested for daylight labelled. All other areas are shaded solid.
- Figure 9 provides a vertical section through the proposed basement level with the bedroom tested for daylight labelled. All other areas are shaded solid.



Fig 4. Aerial view of proposed 3D model from south.



Fig 5. Aerial view of proposed 3D model from east.





Fig 6. Aerial view of proposed 3D model from north.



Fig 7. Aerial view of proposed 3D model from west.





Fig 8. Horizontal section cut/plan view through proposed basement level with bedroom tested for daylight labelled. All other areas shaded solid. North to top.



Fig 9. Vertical section cut through proposed basement level with bedroom tested for daylight labelled. All other areas shaded solid.



8. Results

- 8.1. The following table compares the daylight factor achieved over 50% of the assessment grid for the basement bedroom, considered as a whole, against the applicable minimum recommendation for “*hard to light*” dwellings, as appropriate for those formed within existing buildings and/or basements.
- 8.2. In addition, assessment of the room’s rear area has been undertaken in isolation, to help demonstrate the distribution of daylight within the room and inform its internal arrangement.
- 8.3. Accompanying diagrams and further data showing the daylight distribution can be found in Appendix 2.

Table 5. Daylight factor results.

Room	Target daylight factor (D) for 50% of assessment grid	Daylight factor achieved (D) for 50% of assessment grid (%)
Bedroom - whole room	0.6%	0.60%
Bedroom – rear zone only	0.6%	1.46%

9. Conclusion

- 9.1. The proposed basement bedroom achieves a median Daylight Factor of 0.60%, meeting the applicable BRE/BS EN 17037 target of 0.60% for a bedroom in a “*hard to light*” dwelling (such as those formed through the conversion of existing buildings and basements).
- 9.2. Furthermore, the rear zone of the room, which benefits from a large north-facing window overlooking a rear courtyard, achieves 1.46% Daylight Factor when tested in isolation.
- 9.3. It is therefore recommended that the sleeping area be positioned within the rear zone and ancillary/dressing space to the front zone, and that they are served by separate lighting circuits, so that the principal habitable area enjoys the highest level of daylight and the ancillary/dressing area can have its light levels boosted independently when required.
- 9.4. The proposed basement bedroom at St Mary’s Sunday School has therefore been found to enjoy acceptable levels of daylight and sunlight, when assessed in accordance with the BRE’s *Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice*, third edition, 2022.



William Pottinger, The Daylight Lab, September 2026



APPENDIX 1

Proposed application drawings. Not to scale.



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PROJECT TITLE

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DRAWING TITLE:

Proposed Plans

CLIENT NAME:

John Alonge

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Newport, NP20 4DG

DRAWING No.

04

REVISION No.

06

DRAWN BY:

LT

DESIGNED BY:

NB

Rev.No

DATE

REV. NOTE

01

08/04/26

design progress

02

30/04/26

design changes

03

05/05/26

design changes

04

01/07/26

design changes

05

09/07/26

client's revision

06

07/09/26

client's revision

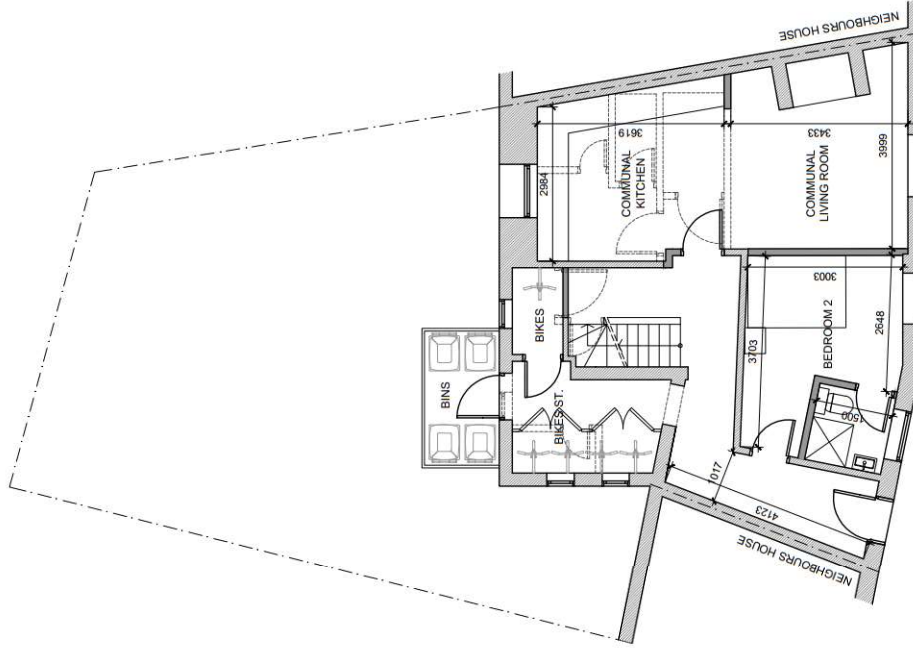
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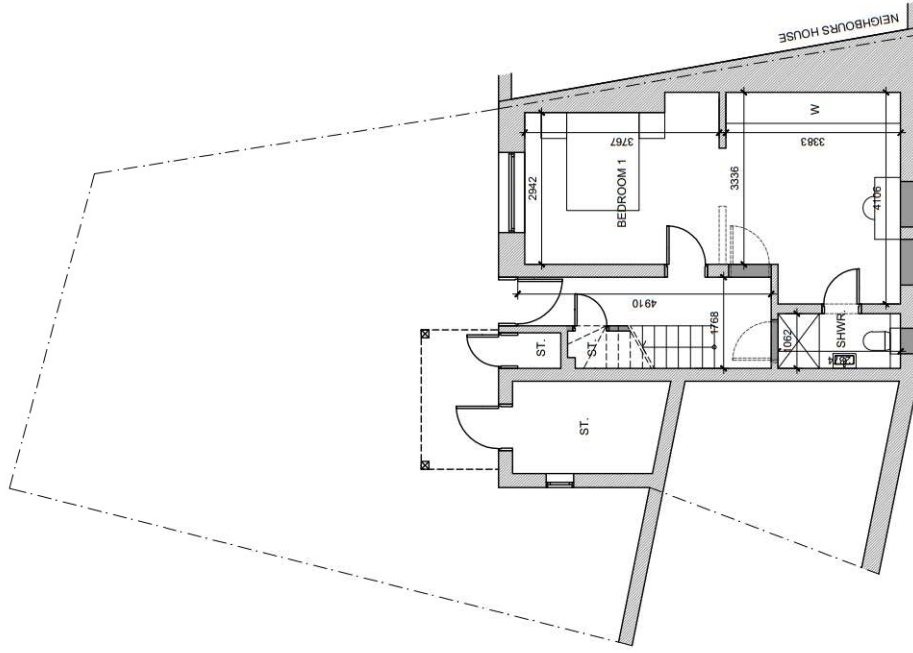
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07/09/2026

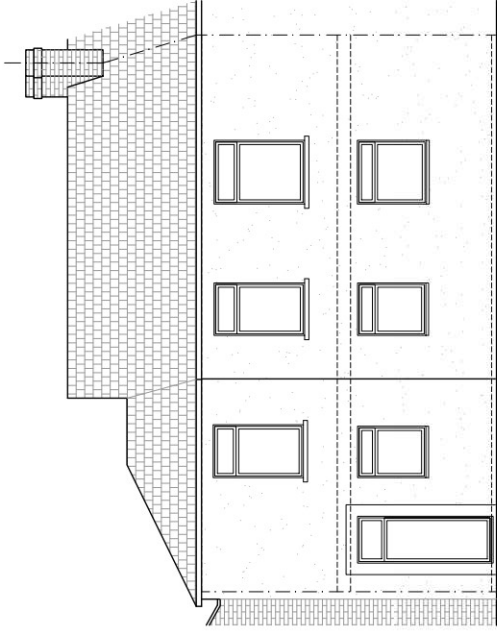
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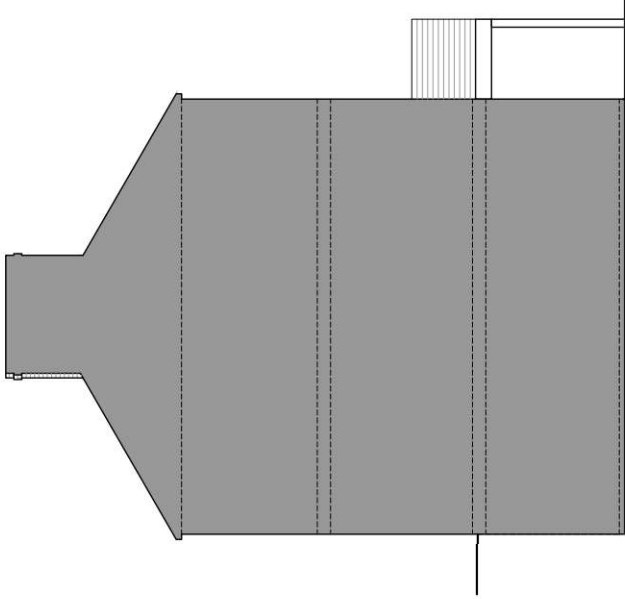
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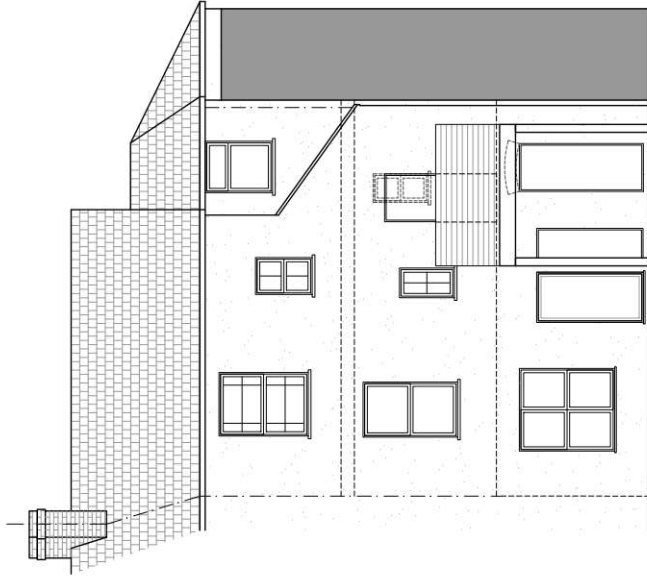
PROPOSED BASEMENT FLOOR PLAN



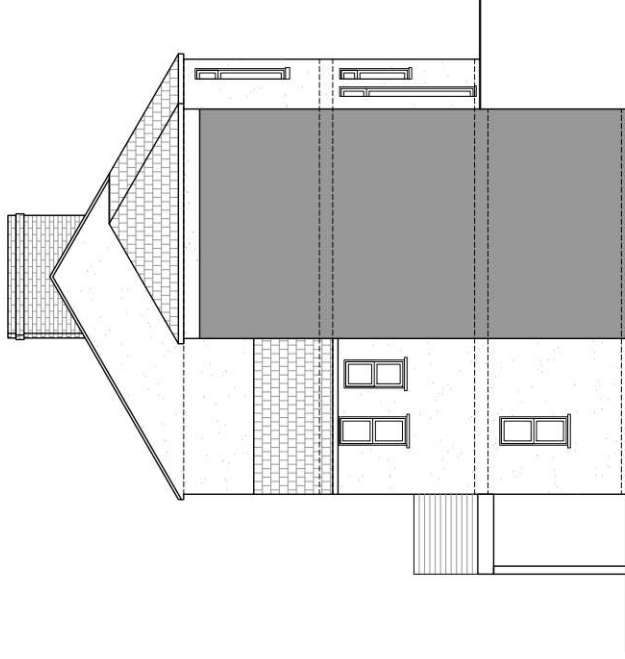
PROPOSED FRONT ELEVATION



PROPOSED RIGHT SIDE ELEVATION



PROPOSED REAR ELEVATION



PROPOSED LEFT SIDE ELEVATION

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PROJECT TITLE

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DRAWING TITLE:
Proposed Elevations

CLIENT NAME:
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DRAWING No. 06

REVISION No. 03

DRAWN BY: LT

DESIGNED BY: NB

Rev.No	DATE	REV. NOTE
01	08/04/26	design progress
02	30/04/26	design changes
03	01/07/26	design changes

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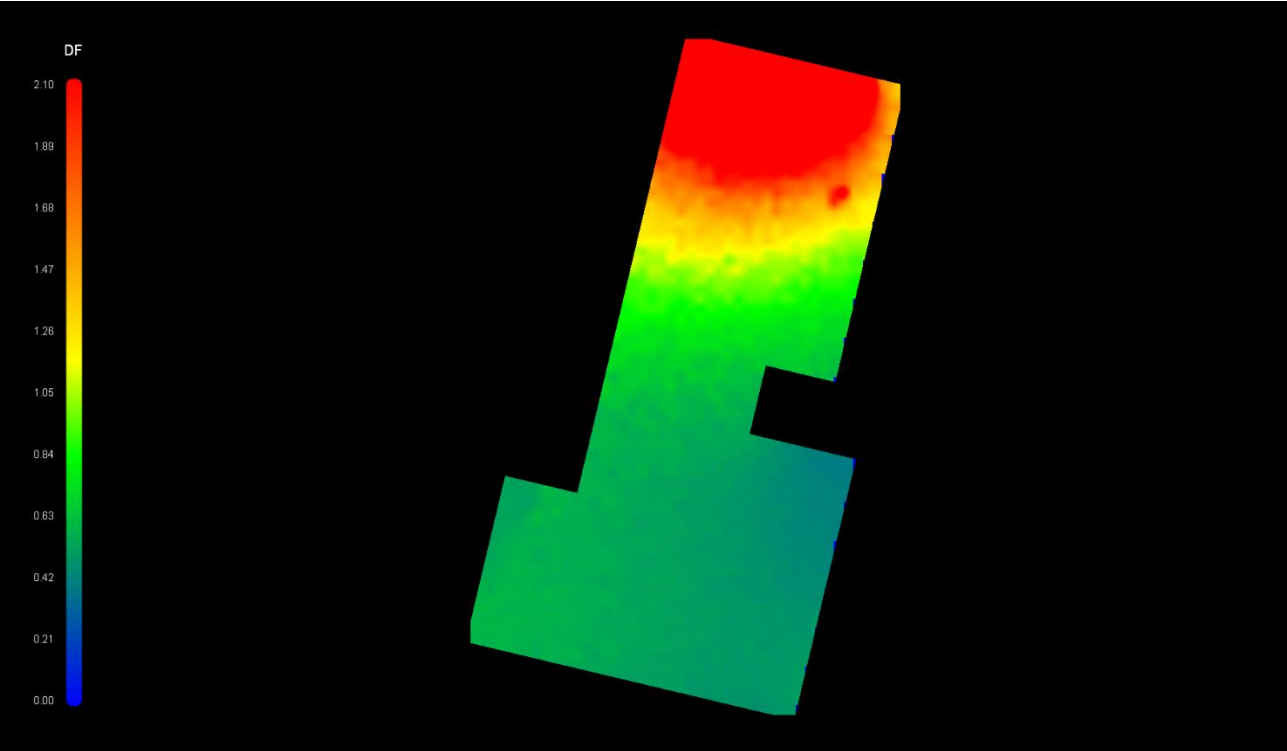
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APPENDIX 2

Daylight factor gradient maps for proposed habitable rooms.



Bedroom - whole

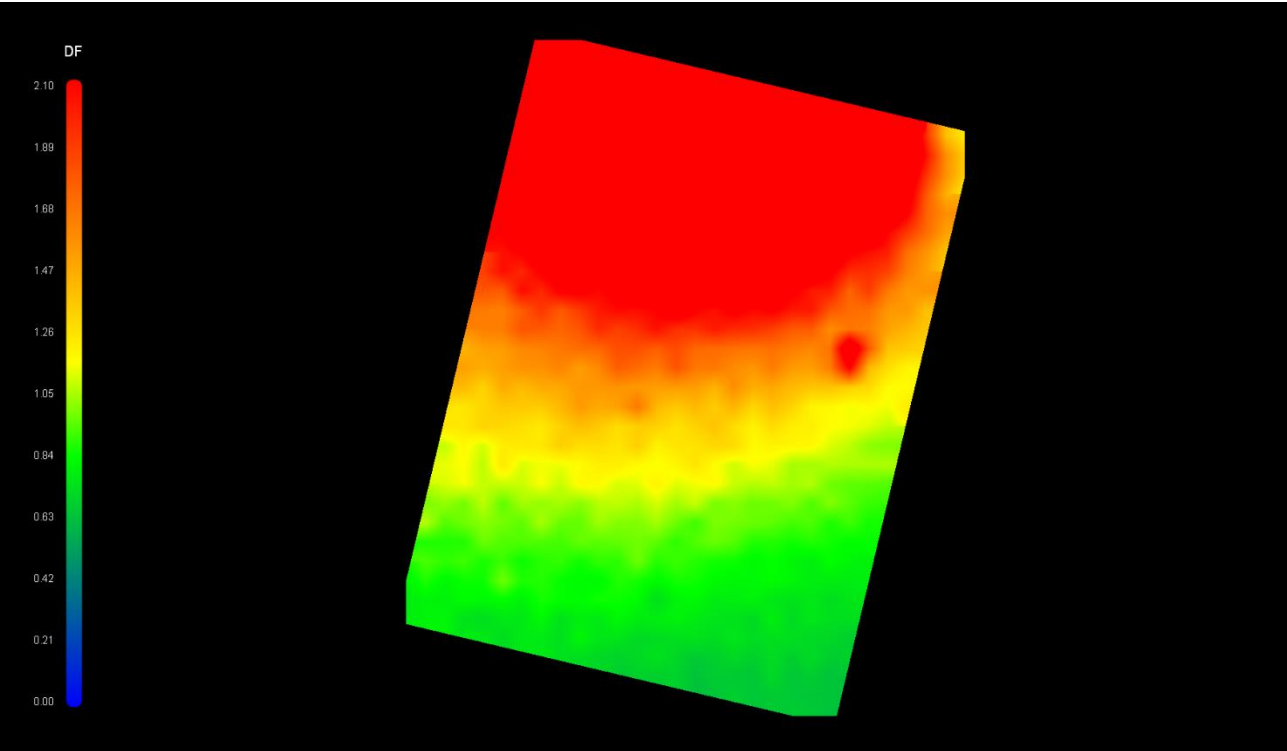


Median

D

0.60%

Bedroom – rear zone only



Median

D

1.46%