



DAYLIGHT AND SUNLIGHT ANALYSIS

PROJECT:

Stowell House, Haringey

PROJECT NUMBER:

P2972

DOCUMENT REF:

P2972-DAYL-R02

Revision	Date	Details	Authored	Checked
R1	09.10.2024	Issued for comment	J. Seager	C. Armstrong
R2	15.01.2025	Revised LG layout	J. Seager	C. Armstrong

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CONTENTS

1.0 EXECUTIVE SUMMARY	3
2.0 INTRODUCTION	4
3.0 CRTIERIA FOR COMPLIANCE	5
4.0 DAYLIGHT SIMULATION MODELLING SOFTWARE	5
5.0 BUILDING INPUT DATA	6
5.01 Geometry & Layout	6
5.02 Surface Reflectance's	7
5.03 Glazing Light Transmittance.....	7
6.0 RESULTS	8
7.0 CONCLUSION	8
8.0 APPENDICES.....	9
Appendix A: Proposed Lower Ground Layout.....	9
Appendix B: DF Images.....	10

1.0 EXECUTIVE SUMMARY

QuinnRoss Energy was commissioned to analyse all occupied spaces in the refurbished *Stowell House, Haringey*, where the existing lower ground amenity space is being converted to provide an additional residential unit. This study will analyse the daylight received by the bedroom and living / kitchen / dining room using the criteria in Appendix C of the BRE *Sunlight & Daylight Guide 2022*, which provides the daylight factor targets for side-lit homes in London from BS EN 17037 *Daylight in buildings*.

The daylight criteria for such spaces are as follows, where both criteria must be met:

- 95% of the room area should achieve a Daylight Factor (DF) of 0.7.
- 50% of the room area should achieve a Daylight Factor (DF) of 2.1.

A 3D model of the building will be built for the proposed development and each applicable space will be simulated for daylight using an approved daylight simulating software. These calculations will be used to ascertain the Daylight Factors which will define daylight provision.

The computer modelling software used to carry out this study is the Integrated Environmental Solutions (IES) <Virtual Environment>. IES was used to produce 3D models of the proposed development, and specialist software integrated within IES, Radiance, have been used to carry out this assessment. Radiance Lighting Simulation is the most widely used daylight simulation software available and is commonly used for all manner of daylight and sunlight calculations.

Using the input data outlined in this report the following results were achieved:

Room	DF		DF	
	Target % > DF of 0.7	Actual % > DF of 0.7	Target % > DF of 2.1	Actual % > DF of 2.1
Lower Ground: Flat 2 Bedroom	95%	100%	50%	53%
Lower Ground: Flat 2 LKD	95%	100%	50%	68%

Table 01: Daylight Factor results

The above shows that all applicable rooms are compliant with the daylight criteria.

2.0 INTRODUCTION

QuinnRoss Energy was commissioned to analyse all occupied spaces in the refurbished *Stowell House, Haringey*, where the existing amenity space will be repurposed to provide an additional residential unit. The 1-bedroom apartment is shown below.

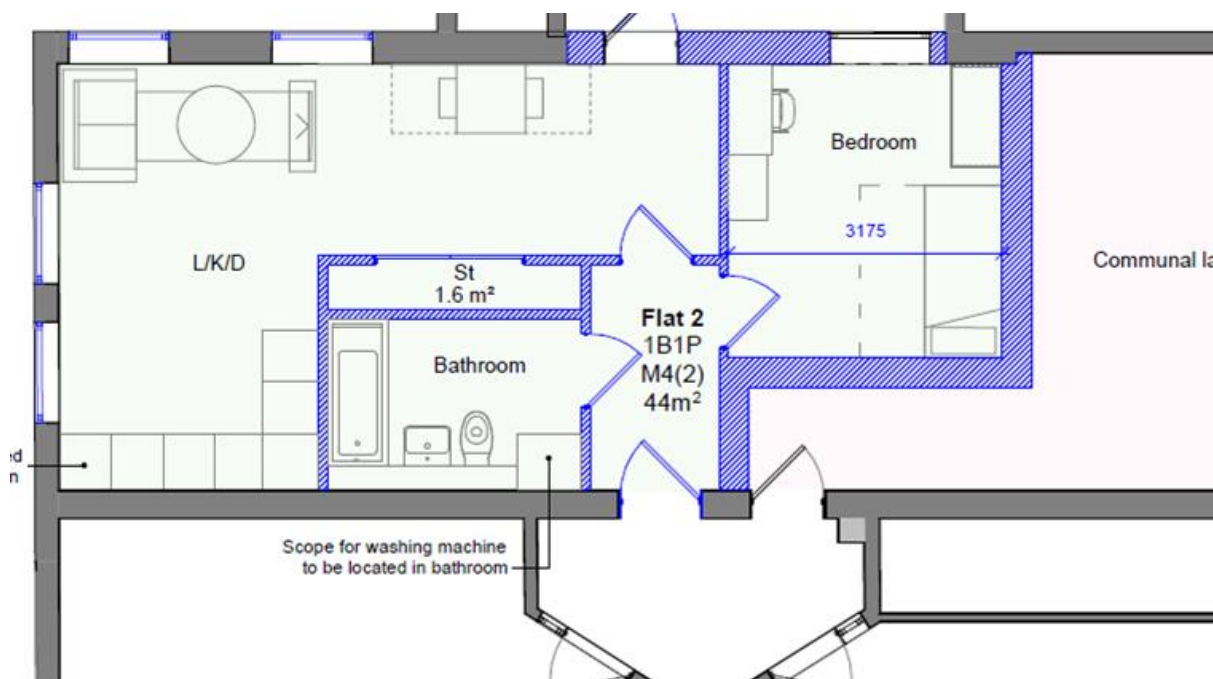


Figure 01: Lower ground floor plan

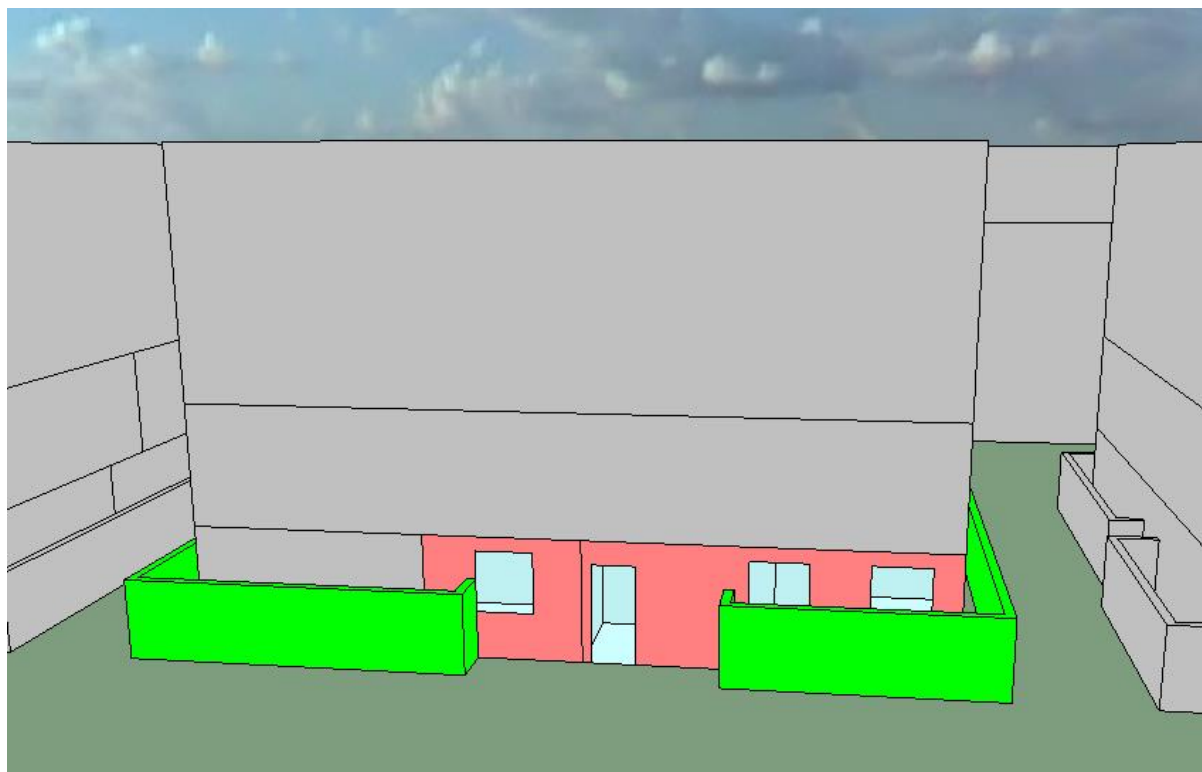


Figure 02: 3D model image of the proposed developments.

3.0 CRITERIA FOR COMPLIANCE

The following criteria, derived from Appendix C of the BRE *Sunlight & Daylight Guide 2022*, must be met for the development to demonstrate adequate internal daylight.

- 95% of the room area should achieve a Daylight Factor of 0.7.
- 50% of the room area should achieve a Daylight Factor of 2.1.

4.0 DAYLIGHT SIMULATION MODELLING SOFTWARE

The computer modelling software used to carry out this study is the Integrated Environmental Solutions (IES) <Virtual Environment>. IES was used to produce 3D models of the proposed development, and specialist software integrated within IES, Radiance, have been used to carry out this assessment.

Radiance Lighting Simulation is the most widely used daylight simulation software available and is commonly used for all manner of daylight and sunlight calculations.

5.0 BUILDING INPUT DATA

The following section highlights the key inputs that were used to model the development.

5.01 Geometry & Layout

Proposed layout: The proposed layout comprises of an additional 1-bedroom residential unit on the lower ground floor as shown below:

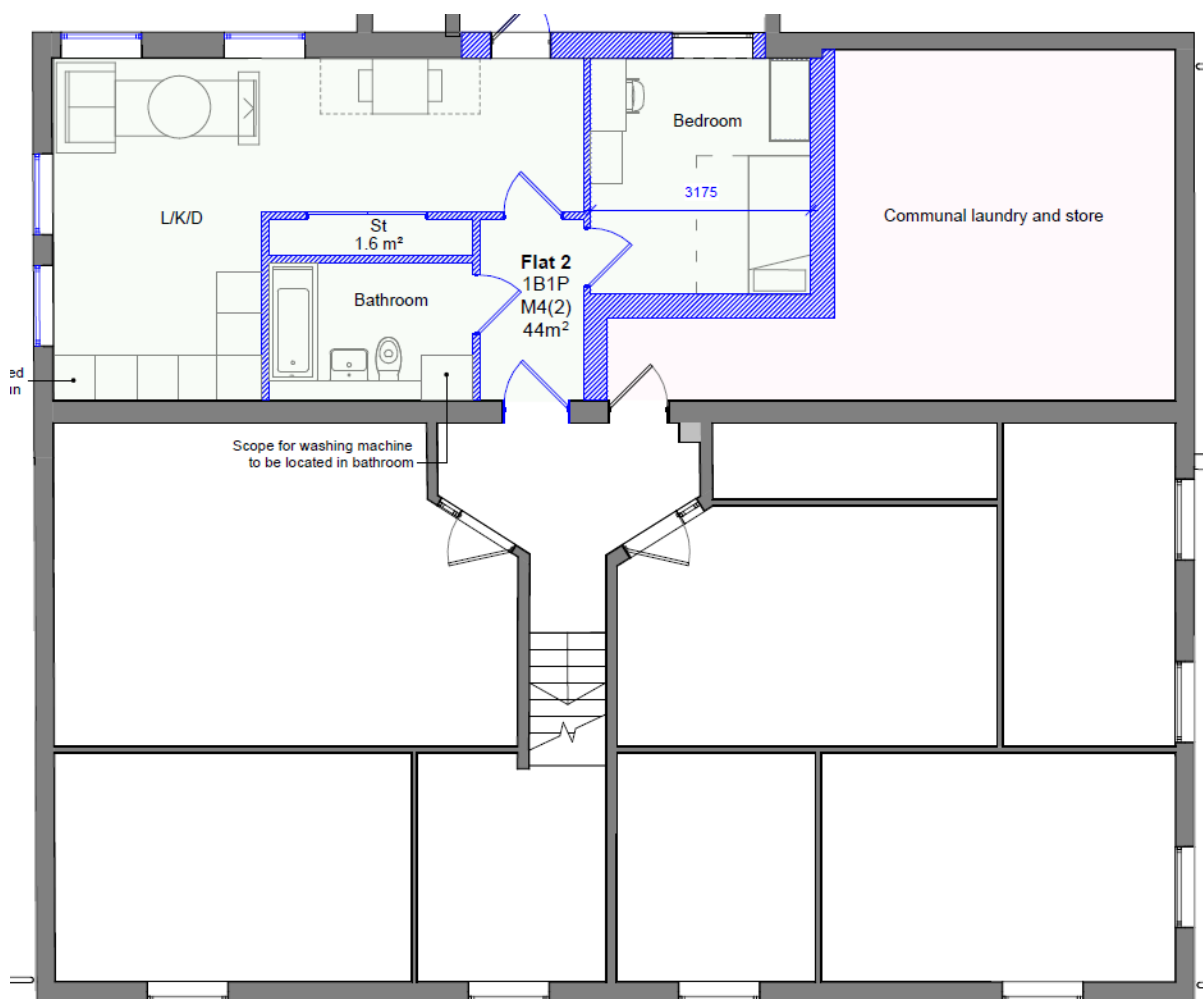


Figure 03: Lower ground floor plan

The complete issued drawing can be found in the appendices.

5.02 Surface Reflectance's

The following surface reflectance's are used:

Surface Reflectance's	
Surface	Reflectance
External wall	20%
Internal partition	50%
External roof	20%
Internal ceiling	70%
External floor	20%
Internal floor	25%
Door	30%

Table 02: Surface Reflectance's

5.03 Glazing Light Transmittance

The external windows and roof lights will be treated as having a high reflectance and good solar control. The external glazing will be treated as having a light transmittance of 60% and a transmissivity of 71%.

6.0 RESULTS

Using the input data outlined above, the daylight calculations were performed, and the following results were found:

Room	DF		DF	
	Target % > DF of 0.7	Actual % > DF of 0.7	Target % > DF of 2.1	Actual % > DF of 2.1
Lower Ground: Flat 2 Bedroom	95%	100%	50%	53%
Lower Ground: Flat 2 LKD	95%	100%	50%	68%

Table 03: DF results

See appendices for DF images of each analysed zone as verification of the above calculations.

7.0 CONCLUSION

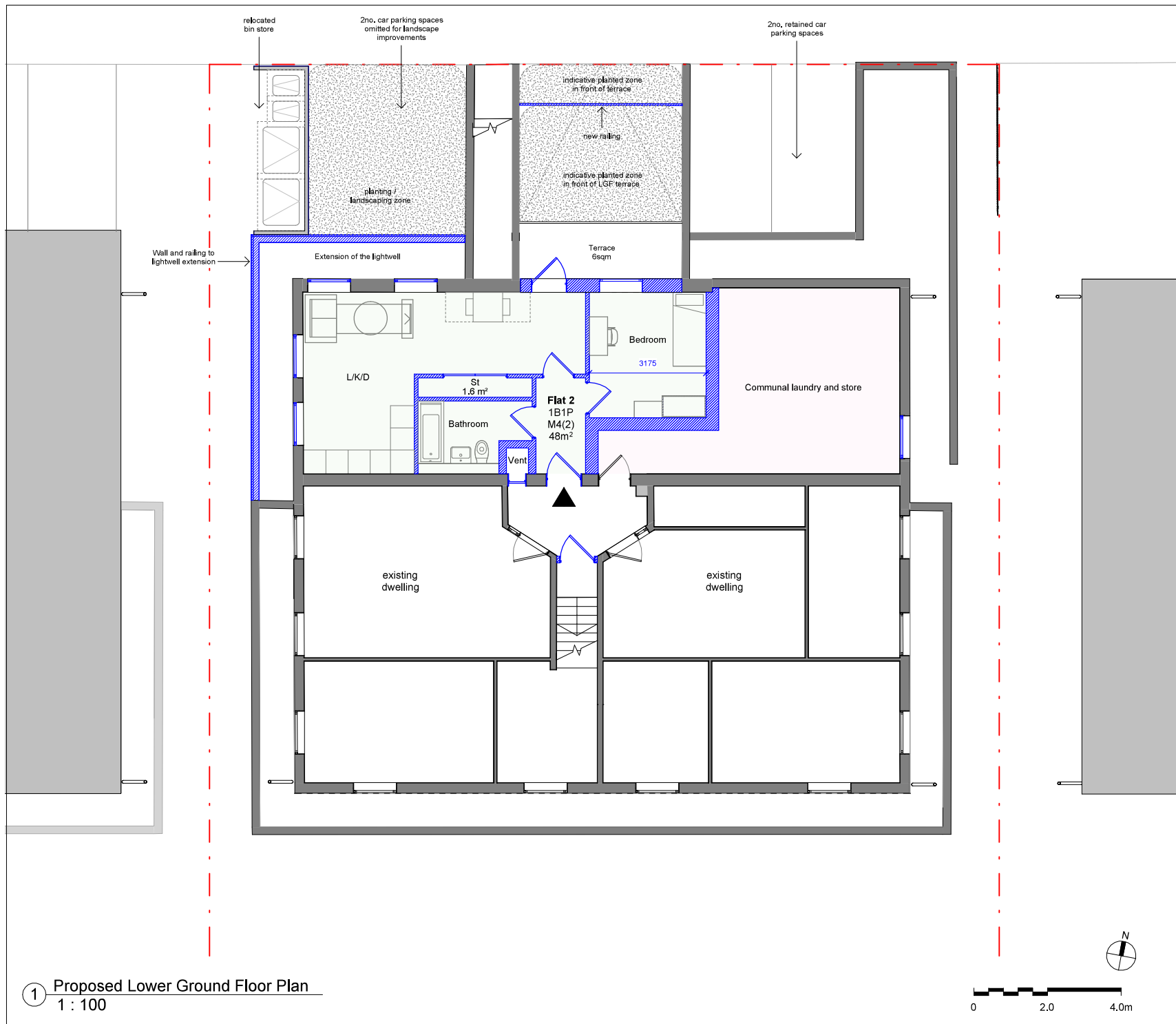
This study found the following conclusions:

- All assessed rooms are compliant with the BRE *Sunlight & Daylight Guide 2022* criteria.



8.0 APPENDICES

Appendix A: Proposed Lower Ground Layout



1 Proposed Lower Ground Floor Plan
1 : 100

Revisions				
Rev	Date	By	Description	Approved
C01	06.12.24	EB	Planning Issue	MH
C02	13.12.24	EB	Planning Issue	MH

This drawing is produced for the purposes stated below. Do not scale from this drawing, use figured dimensions only. Drawing to be read in conjunction with all other Architect's and Consultants' drawings and specifications. This drawing is copyright.

- Notes
- Key
- - - Site boundary
 - Proposed
 - Proposed dwelling
 - Proposed communal residential area
 - Communal access
 - Individual access to new dwelling
- Areas indicated the internal areas of the dwellings measured from the internal face of the external walls

Client
Hornsey Housing Trust

Project
Stowell House

Sheet
Proposed Lower Ground Floor Plan

Date of Origin	Project Number	Scale (A3)
09.05.24	622	1 : 100
Drawn By	Suitability	Dwg Status
EB	S3	Stage 3

01-For Coordination
02-For Information
03-For Review and Comment
04-For Review and Authorisation
05-For Review and Acceptance
06-For Review and Stage Complete
07-For Review and Stage Complete
08-For Review and Stage Complete
09-For Review and Stage Complete

Drawing Number						
Project	Originator	Code	Level	Type	Discipline	Revision
622	- ARC	- SH	- B1	- DR	- A	- 20201 - C02

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Appendix B: DF Images

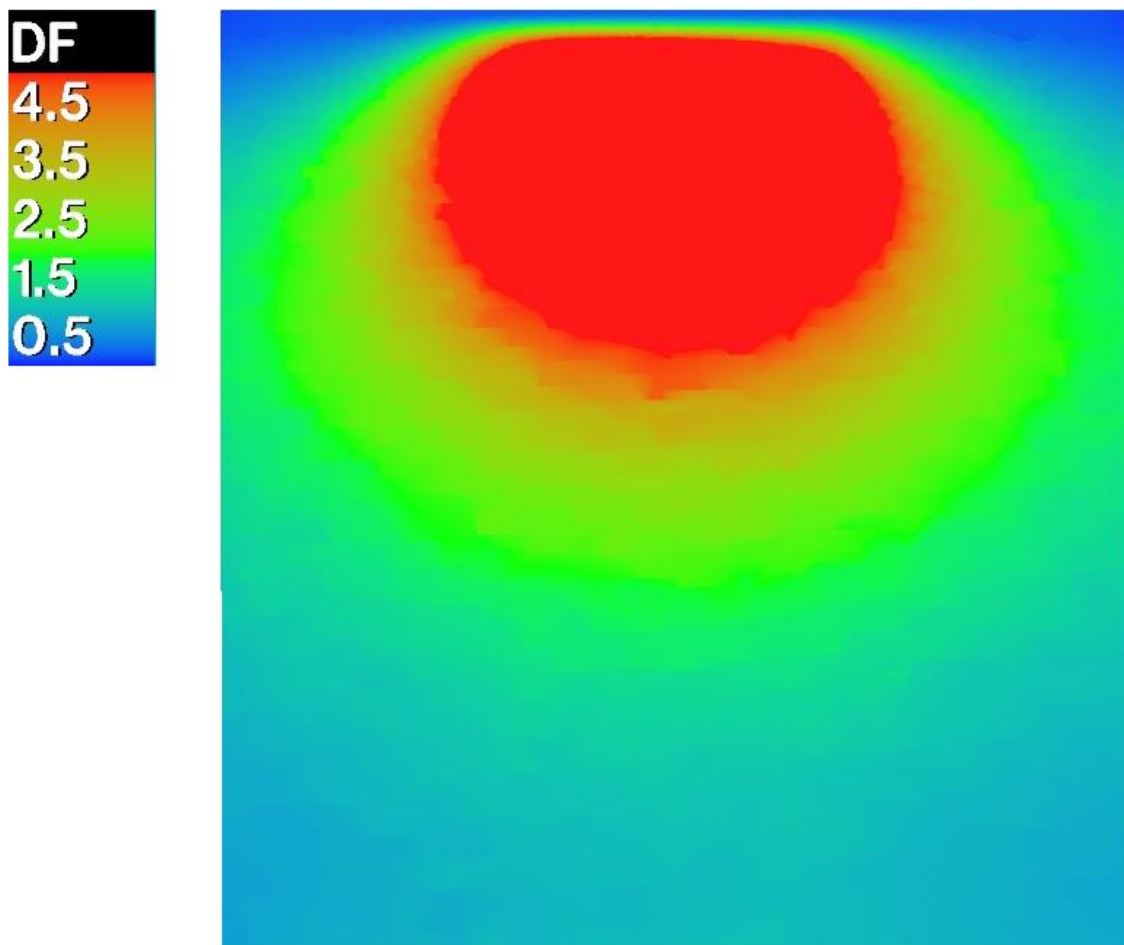


Figure 4: Bedroom

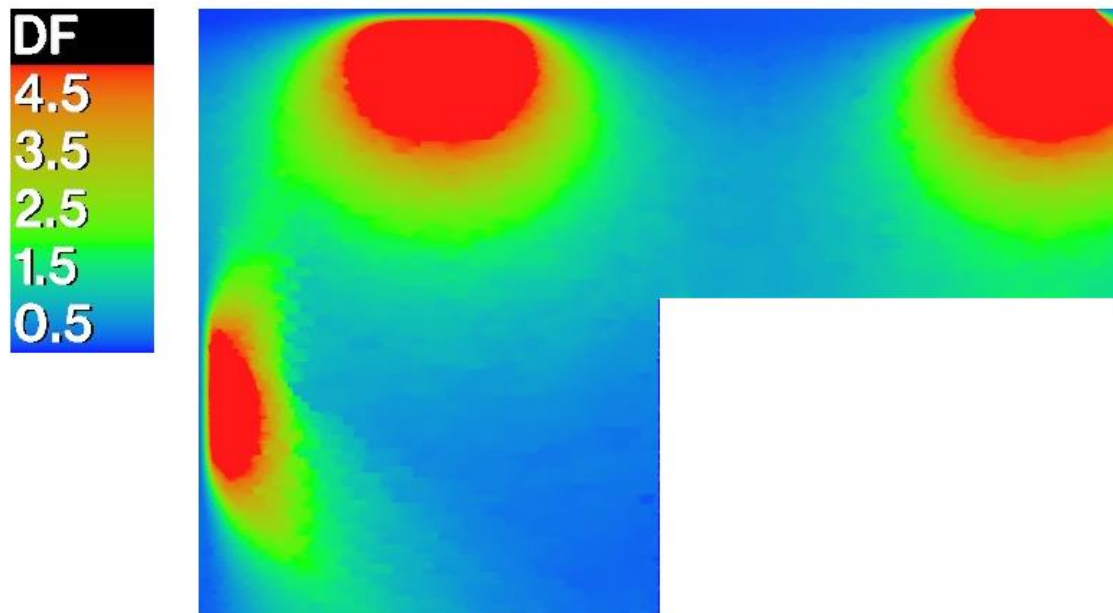


Figure 5: Living / kitchen / dining