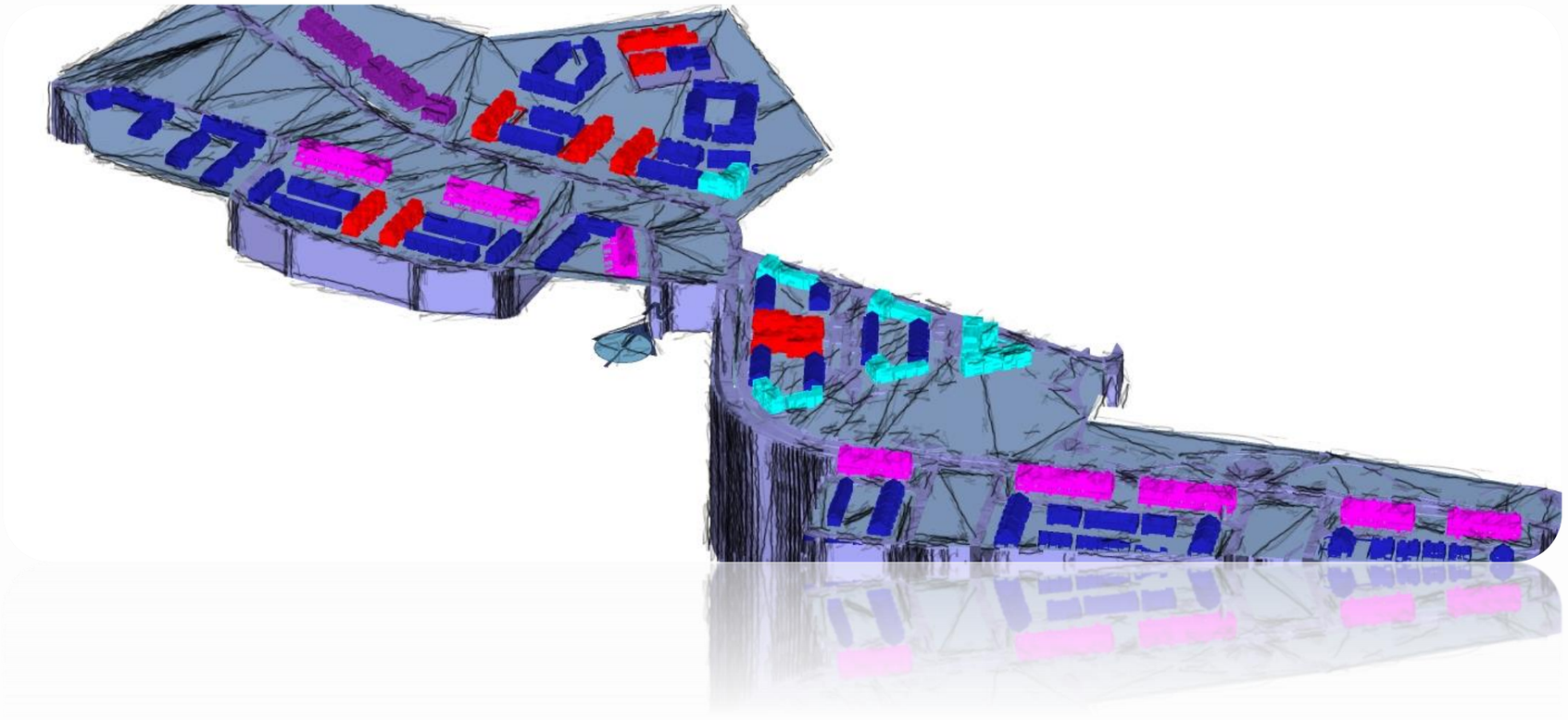
OLDCOURT LRD, OLDCOURT ROAD, BALLYCULLEN

Sunlight, Daylight & Shadow Assessment (Development Performance)

V1



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Executive Summary

This report examines how the proposed development performs in terms of light. The report is, in accordance with Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice - Third Edition - 2022.

It should be noted at the outset that the BRE document sets out in its introduction that:

> *"Summary Page . . . It is purely advisory and the numerical target values within it may be varied to meet the needs of the development and its location."*
>
> *" 1.6 . . . The advice given here 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. . . . "*

Change/Impact to neighbouring buildings in the adjoining residential areas.

- The development is generally low rise and there are no neighbouring properties close enough to the proposed development to be impacted

Performance of the proposed design

- **Target Illuminance E_T**
  - **99%** *(100% including marginals)* of rooms comply with the BS/EN 17037 Annex NA room targets for 50% of the floor area tested.
  - The average compliant areas achieving the relevant target Lx for
    - all bedrooms is **96%** and
    - all Living/Kitchen spaces **85%**
    - both are well in excess of the required 50%
- **Sunlight to rooms:**
  - **94%** of Living rooms *(97% if we include marginals)* receive 1.5hrs of sunlight on the test day of the 21st March
  - 87% of these living rooms are in the high-quality range.
  - This is consistent with the BRE defined "careful layout design" 80% target.
- **Sunlight on the Ground SOG (Shadow)**
  - **75%** *(85% including marginal)* of new provided communal and public amenity spaces pass the BRE requirement.
  - There are compensatory factors relating to those that do not.

The application (in terms of Development Performance) generally complies with the recommendations and guidelines of Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice (BR209 - 2022).

This development has been successfully designed to maximise the occupant's access to light.

Architects' & Planners' Commentary / Compensatory Measures.

The design of this an urban/suburban scheme with competing design constraints and objectives covered by clauses 6.6/6.7 of the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities – amended July 2023:

6.7 Where an applicant cannot fully meet all of the requirements of the daylight provisions above, this must be clearly identified and a rationale for any alternative, compensatory design solutions must be set out, which planning authorities should apply their discretion in accepting taking account of its assessment of specific. This may arise due to a design constraints associated with the site or location and the balancing of that assessment against the desirability of achieving wider planning objectives. Such objectives might include securing comprehensive urban regeneration and or an effective urban design and streetscape solution.

Similarly, department document "Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities" suggests in relation to drawing conclusions 5.3.7:

In drawing conclusions in relation to daylight performance, planning authorities must weigh up the overall quality of the design and layout of the scheme and the measures proposed to maximise daylight provision, against the location of the site and the general presumption in favour of increased scales of urban residential development. Poor performance may arise due to design constraints associated with the site or location and there is a need to balance that assessment against the desirability of achieving wider planning objectives. Such objectives might include securing comprehensive urban regeneration and or an effective urban design and streetscape solution.

The architect has endeavoured to design apartment units with good access to light. Where constraints have made attaining the relevant standards unachievable, compensatory measures have been made. The Architect has identified all non-compliance items and provided project Specific Comments / Compensatory Design Solutions.

See main body of this report and the Architect's Design Statement for details.

Introduction

Chris Shackleton Consulting (CSC) have been asked to examine how the proposed development performs in terms of light.

This analysis has been carried out in accordance with the recommendations of Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice - Third Edition (BRE 2022).

> ***All references quoted in this report are from BRE document "Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice – Third Edition – 2022 (BR 209) by Paul Littlefair et al." unless specifically noted otherwise.***

Preliminary Overview

The aerial view shows the context for the site and the closest neighbour groups.

Google Earth extract © Google 2024

Design Model

A 3D model of the proposed development and the surrounding neighbouring properties was provided by the Architect. These had been modelled from survey information and drawings provided in plan, elevation and section formats. The model was geo-referenced to its correct location and an accurate solar daylight system was introduced.

The analysis is based on the information provided.

Proposed Model

Scope of this Report

We have been asked to address the following specific items in this report and our scope is limited to the same:

Impact on Existing Neighbours

The development is generally low rise and there are no neighbouring properties close enough to the proposed development to be impacted.

Development Performance

For the proposed development we will examine the performance of the development under the following headings:

- Target Illuminance – E_T – All habitable rooms
- Sunlight to rooms – A room preferably a living space.
- Sunlight on the Ground SOG (Shadow) - Proposed Public & Shared amenity spaces

When examining the internal performance of the development we follow best practice and analyse all rooms on all floors on all blocks for apartments (which includes duplexes).

Compact Settlements

As noted above we will examine the Performance of all apartments which includes Duplexs as per the Department Apartment Guidelines. However, we don't believe that all low-rise traditional houses which comply with recommended separation distance need detailed technical assessment as per clause 5.3.7(a) of the **Compact Settlement Guidelines** 2024.

5.3.7 (a) … Planning authorities do not need to undertake a detailed technical assessment in relation to daylight performance in all cases. It should be clear from the assessment of architectural drawings (including sections) in the case of low-rise housing with good separation from existing and proposed buildings that undue impact would not arise, and planning authorities may apply a level of discretion in this regard.

Development Performance

Development Performance - Target Illuminance E_T Metric

National Standards Authority of Ireland have adopted EN 17037 to directly become IS/EN 17037. There are no amendments made to this document and no national Annex localising the same was developed as can be found in BS/EN 17037. The standard document provides only a single target for rooms of new buildings and does not include specific usage targets for spaces for commercial, office and residential (living, bedroom, Kitchen).

The UK variant referenced is more suitable to use in temperate climates where the median external diffuse illuminance is low. We would concur with the UK committee that the recommendations for daylight provision in a space may not be achievable for some buildings, particularly dwellings, which are the subject of this report.

We note the reasoning put forward by the UK committee and concur with their conclusions that different room usage should be assigned different light requirements/targets. Design in Ireland quite often follows the practice and precedent set in the UK. With similar climates, light and receiving environments it is reasonable to adopt BS/EN 17037 / Annex NA which itself was derived from the now withdrawn BS 8206-2:2008 Lighting for buildings – Part 2: Code of practice for daylighting, Subclause 5.6. This provides alignment between the new and old standards and with the levels of light we are used to and deemed acceptable in new developments.

> ***Target illuminance (ET) :***
> ***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***

Reference in Irish Government Publications:

Clause 6.6 of the Department Apartment Guidelines "Sustainable Urban Housing: Design Standards for New Apartments" directly reference this annex and the BRE guide (Emphasis Added):

Planning authorities should ensure appropriate expert advice and input where necessary, and have regard to quantitative performance approaches to daylight provision outlined in guides like A New European Standard for Daylighting in Buildings EN17037 or ***UK National Annex BS EN17037 and the associated BRE Guide 209 2022*** *Edition (June 2022), or any relevant future guidance specific to the Irish context, when undertaken by development proposers which offer the capability to satisfy minimum standards of daylight provision.*

Clause 5.3.7 (b) of "Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities" also directly reference this annex the BRE guide (Emphasis Added):

In cases where a technical assessment of daylight performance is considered by the planning authority to be necessary regard should be had to quantitative performance approaches to daylight provision outlined in guides like A New European Standard for Daylighting in Buildings IS EN17037:2018, ***UK National Annex BS EN17037:2019 and the associated BRE Guide 209 2022 Edition (June 2022)****, or any relevant future standards or guidance specific to the Irish context.*

NA.2 - Minimum daylight provision in UK dwellings

Even if a predominantly daylit appearance is not achievable for a room in a UK dwelling, the UK committee recommends that the target illuminance values given in Table NA.1 are exceeded over at least 50 % of the points on a reference plane 0.85 m above the floor, for at least half of the daylight hours.

Table NA.1 — Values of target illuminance for room types in UK dwellings

Room type	Target illuminance E_T (lx)
Bedroom	100
Living room	150
Kitchen	200

Derived from BS 8206-2:2008 Lighting for buildings – Part 2: Code of practice for daylighting

Where one room in a UK dwelling serves more than a single purpose, the UK committee recommends that the target illuminance is that for the room type with the highest value – for example, in a space that combines a living room and a kitchen the target illuminance is recommended to be 200 lx.

It is the opinion of the UK committee that the recommendation in Clause A.2 – that a target illuminance level should be achieved across the entire (i.e. 95 %) fraction of the reference plane within a space – need not be applied to rooms in dwellings.

This is echoed in The BRE Guidelines

> ***C16 The UK National Annex gives illuminance recommendations of 100 lux in bedrooms, 150 lux in living rooms and 200 lux in kitchens. 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 daylight hours. The recommended levels over 95% of a reference plane need not apply to dwellings in the UK.***
>
> ***C17 Where a room has a shared use, the highest target should apply. For example in a bed sitting room in student accommodation, the value for a living room should be used if students would often spend time in their rooms during the day. Local authorities could use discretion here. For example, the target for a living room could be used for a combined living/dining/kitchen 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 … in rooms with a particular requirement for daylight, such as bed sitting rooms in homes for the elderly, higher values … may be taken.***

Analysis Parameters

Analysis parameters are as per Annex B (and/or as revised by Annex NA), analysis method 1 was used. The following Parameters were used which are within the recommended ranges and reflect the materials/finishes specified in this application. The Median External Diffuse Illuminance used is noted in the relevant results tables.

Surface	Description	Reflectance
External Plane	Earth	0.2
External Walls	Grey Render / Concrete	0.4
Floor	Light wood/ cream Carpet	0.4
Internal Wall	Cream	0.7
Ceiling	White	0.8
Frames	Medium Grey	0.5
	Transmittance	
Glazing clear	0.63 (incls. Maintenance Factor)	
Glazing Translucent	0.4 (incls. Maintenance Factor)	

Light distribution was computed by modelling the internal configuration of rooms and windows placed within the existing topography and the adjacent buildings and then running an analysis on the same. This analysis was based on a standard working plane for in this case residential of 0.850m.

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 houses and factories, 0.7 m above the floor in offices.*

Legend for Radiance Plots

In the radiances plots provided below we shall use the following demarcation of Lx results which is compatible with the target values from Annex NA

Assessment Areas

Where rooms have small annexed entrances or corridors they 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).

Fig C2 – Fixed floor to ceiling units

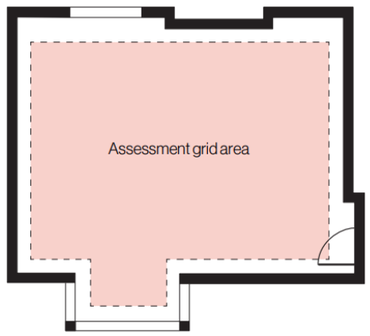


Figure C2: Where room layouts have small variations or alcoves along a wall's length, the inner or dominant section should be taken as a basis for the 0.3m gap to the assessment grid area. Fixed floor to ceiling cupboards can be excluded from the room area, but not kitchen units incorporating a worktop. Areas in bay windows may be included unless they are winter gardens separated from the room by a fixed partition.

Fig C3 - Corridors/entrances

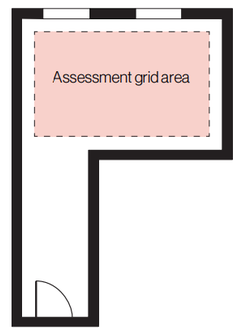


Figure C3: In a room with a corridor, or annexed entrance, the corridor need not be included in the assessment grid area (unless it is wide enough to be part of the usable space in a room, typically over 1.5m wide). The room layout and surfaces, including the corridor would still need to be included in the calculation model.

Fig C2 also notes that: Fixed floor to ceiling cupboards can be excluded from the room area, but not kitchen units incorporating a worktop. And also The BRE guidelines note the following in relation to the assessment grid.

> *The standard states that the assessment grid should exclude a band of 0.5m from the walls, unless otherwise specified. In dwellings it is recommended that a band of 0.3m should be excluded, to avoid excluding parts of the room that are used by the occupants. Professional judgement should be used in cases with irregular shaped spaces or rooms with corridor or annex areas.*

Room referencing

- Rooms tested are referenced specifically for this report.
- This referencing is used to identify rooms rather than apartments.
- Numbering is generally sequential but may vary to keep similar room types on different floors consistent.
- Graphics are provided on a floor-by-floor basis to show the referencing for this project.
- Room numbers are coloured orange = Living/Kitchen/Dining room and Blue = Bedroom.
- Where Living and Kitchens are separated Green = Living room and yellow = Kitchens.

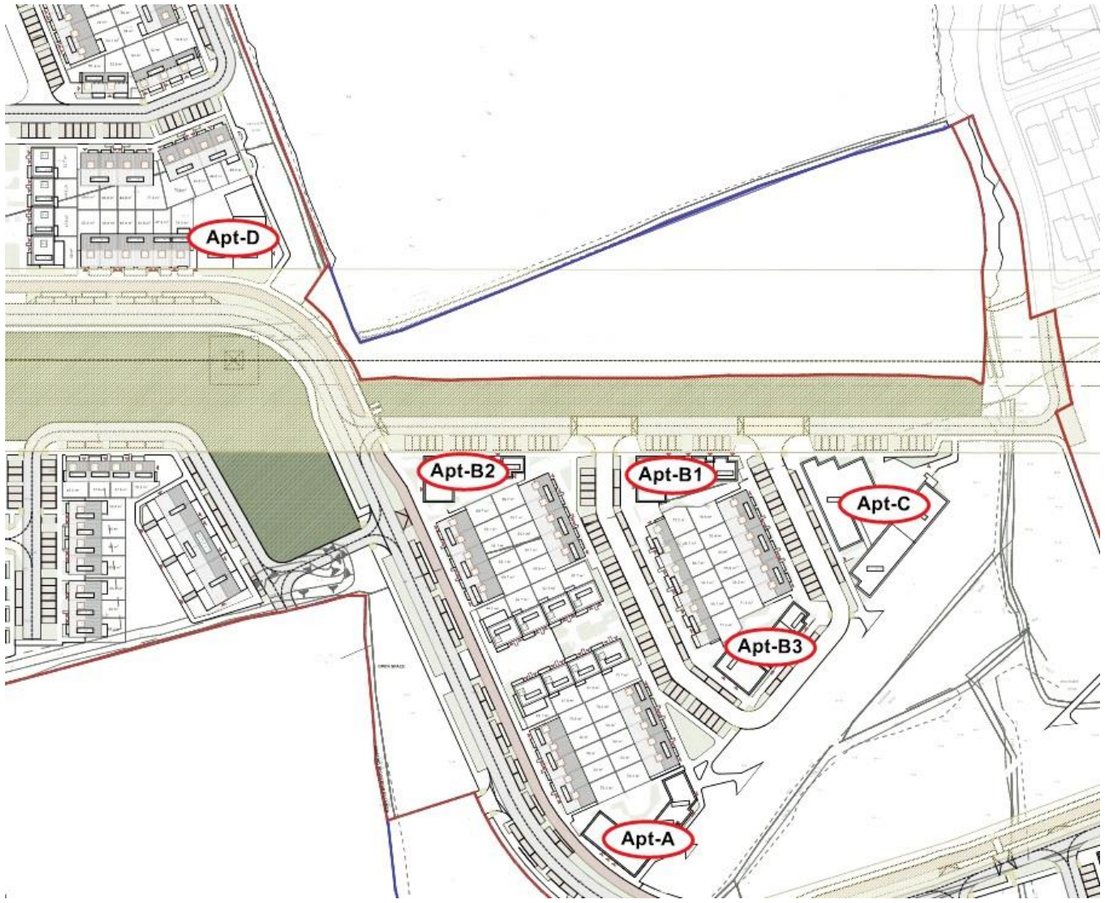
In the result tables the following referencing is used.

- Two-digit Floor reference 00=GFL, 01=1st Floor
- A two/three digit block reference
- Two-digit room reference (as per layout naming in the plans below
  Combined Living/Kitchen/Dining rooms have the suffix “c” added to the name
  This would also be the reference for a Studio apartment.

Typical Example of the naming, not specifically project related:

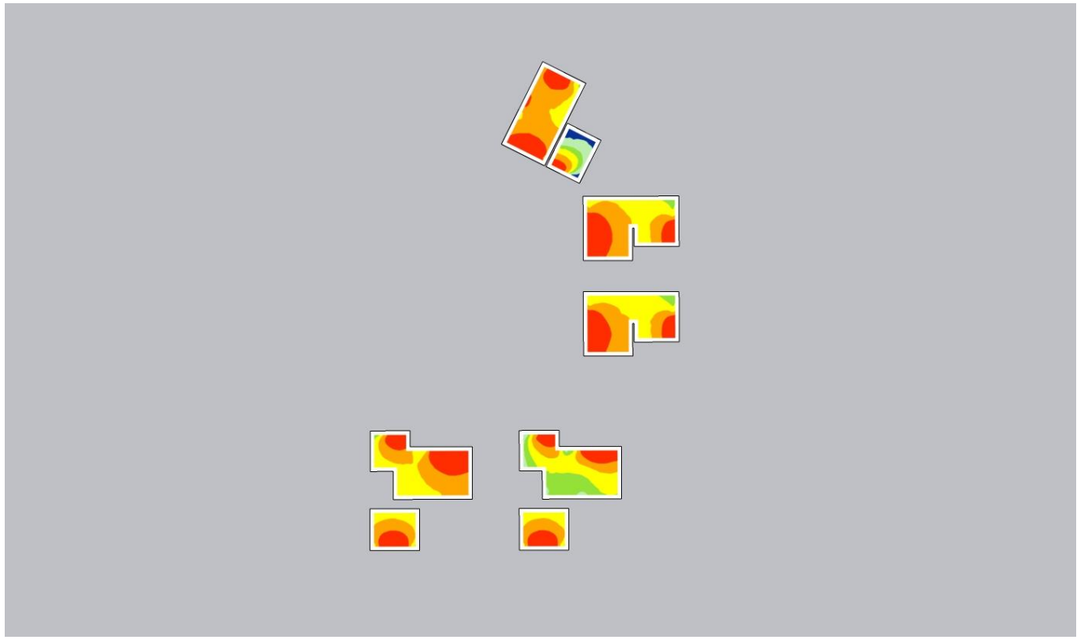
01A-02c = 1st Floor, Block A, room 2 which is an LKD (Living/Kitchen/Dining room).
00B104 = Ground Floor, Block B1, room 4 which is a bedroom.

Apartments layout



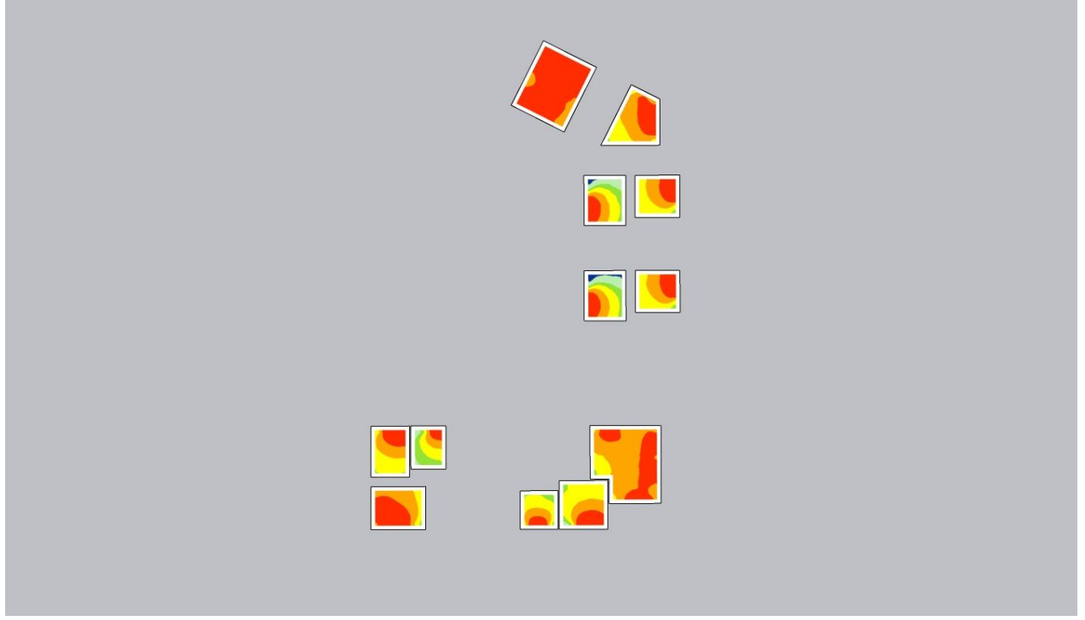
GFL Floor Layout – Block A - Naming Convention

Radiance Plot

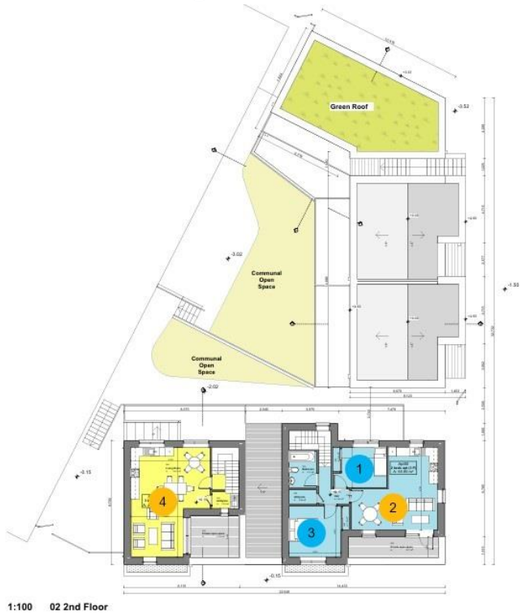


1st Floor Layout – Block A - Naming Convention

Radiance Plot



2nd Floor Layout – Block A - Naming Convention



Radiance Plot

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

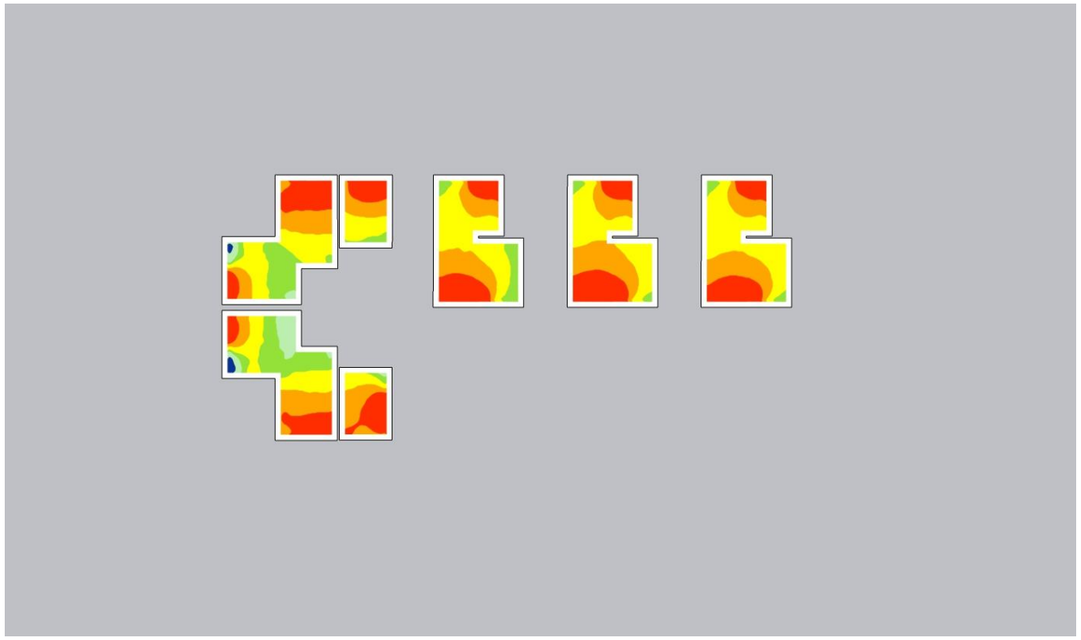
>50 % of the points on a reference plane to exceed

A-v2	Type			
Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00A-01c	Living/Kitchen	99	200	Pass
00A-02	Bedroom	73	100	Pass
00A-03c	Living/Kitchen	97	200	Pass
00A-04c	Living/Kitchen	96	200	Pass
00A-05c	Living/Kitchen	62	200	Pass
00A-06	Bedroom	100	100	Pass
00A-07c	Living/Kitchen	98	200	Pass
00A-08	Bedroom	100	100	Pass
01A-01c	Living/Kitchen	100	200	Pass
01A-02	Bedroom	100	100	Pass
01A-03	Bedroom	95	100	Pass
01A-04	Bedroom	100	100	Pass
01A-05	Bedroom	88	100	Pass
01A-06	Bedroom	100	100	Pass
01A-07c	Living/Kitchen	99	200	Pass
01A-08	Bedroom	100	100	Pass
01A-09	Bedroom	100	100	Pass
01A-10	Bedroom	100	100	Pass
01A-11	Bedroom	100	100	Pass
01A-12	Bedroom	100	100	Pass
02A-01	Bedroom	100	100	Pass
02A-02c	Living/Kitchen	100	200	Pass
02A-03	Bedroom	100	100	Pass
02A-04c	Living/Kitchen	100	200	Pass

100% compliant - Apartment Block A.

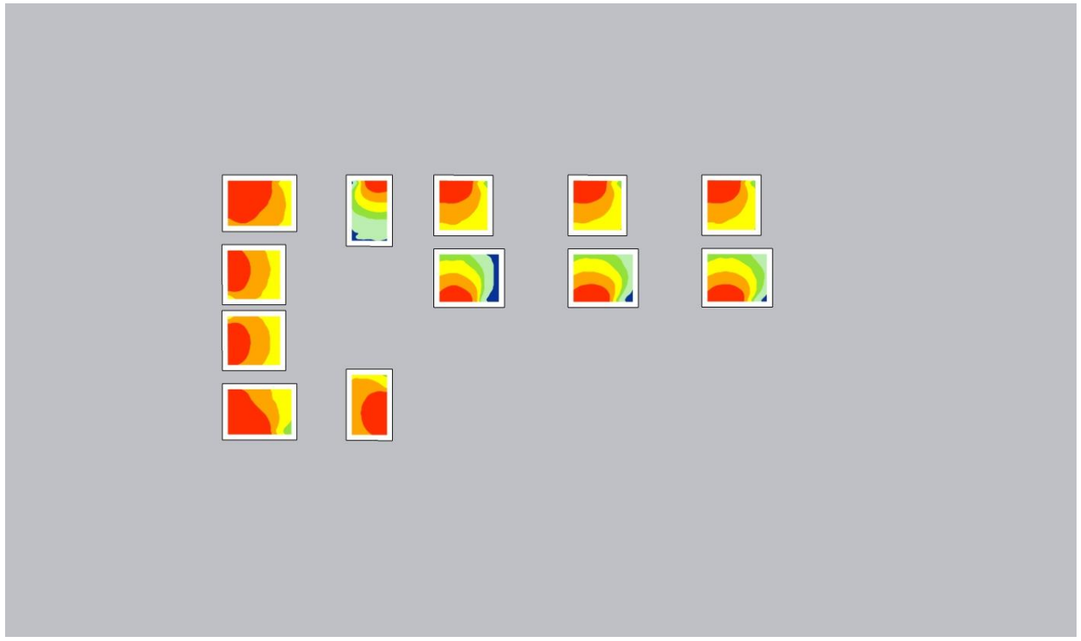
GFL Floor Layout – Block B1 - Naming Convention also B1 Mirror B3

Radiance Plot

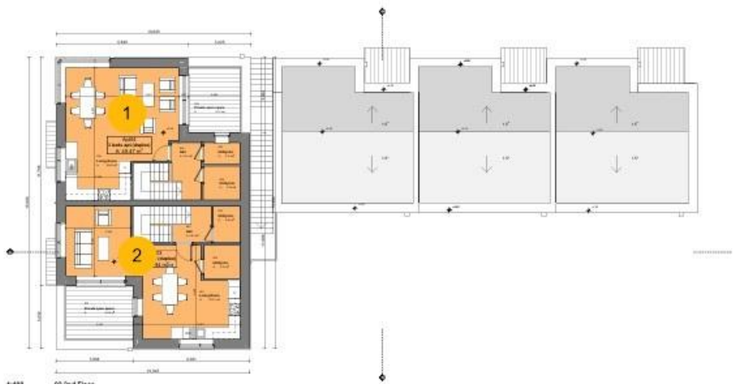


1st Floor Layout – Block B1 - Naming Convention

Radiance Plot



2nd Floor Layout – Block B1 - Naming Convention



Radiance Plot

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

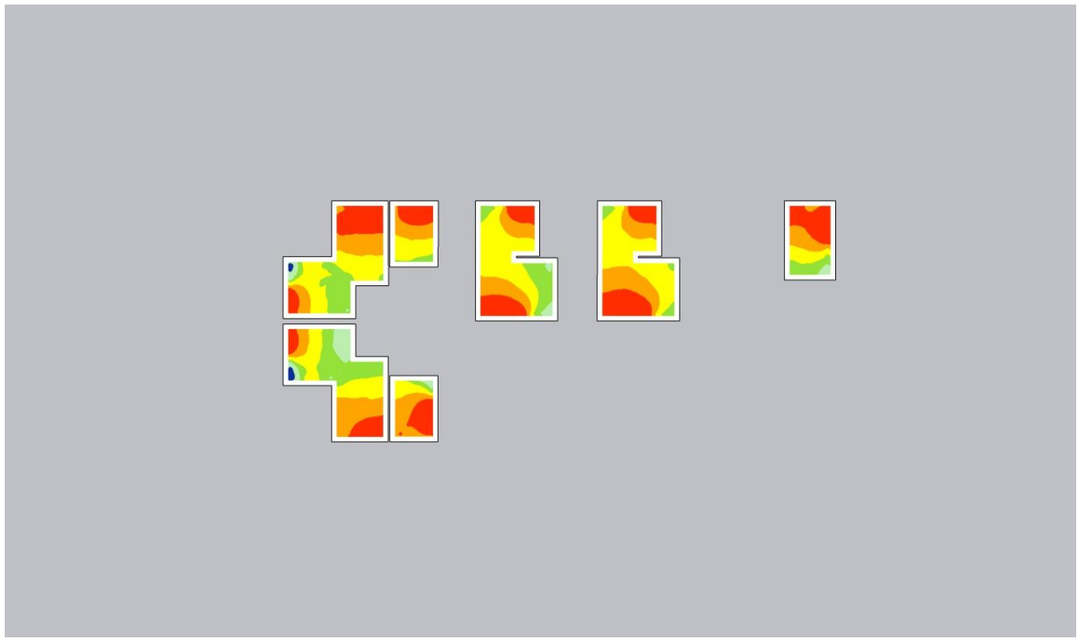
>50 % of the points on a reference plane to exceed

B1-v2 / B3	Type			
Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00B101c	Living/Kitchen	96	200	Pass
00B102c	Living/Kitchen	96	200	Pass
00B103c	Living/Kitchen	86	200	Pass
00B104	Bedroom	100	100	Pass
00B105c	Living/Kitchen	74	200	Pass
00B106c	Living/Kitchen	60	200	Pass
00B107	Bedroom	100	100	Pass
01B101	Bedroom	100	100	Pass
01B102	Bedroom	98	100	Pass
01B103	Bedroom	100	100	Pass
01B104	Bedroom	95	100	Pass
01B105	Bedroom	100	100	Pass
01B106	Bedroom	83	100	Pass
01B107	Bedroom	92	100	Pass
01B108	Bedroom	100	100	Pass
01B109	Bedroom	100	100	Pass
01B110	Bedroom	100	100	Pass
01B111	Bedroom	100	100	Pass
01B112	Bedroom	100	100	Pass
02B101c	Living/Kitchen	100	200	Pass
02B102c	Living/Kitchen	89	200	Pass
00B301c	Living/Kitchen	95	200	Pass
00B302c	Living/Kitchen	96	200	Pass
00B303c	Living/Kitchen	88	200	Pass
00B304	Bedroom	100	100	Pass
00B305c	Living/Kitchen	72	200	Pass
00B306c	Living/Kitchen	58	200	Pass
00B307	Bedroom	100	100	Pass
01B301	Bedroom	100	100	Pass
01B302	Bedroom	98	100	Pass
01B303	Bedroom	100	100	Pass
01B304	Bedroom	96	100	Pass
01B305	Bedroom	100	100	Pass
01B306	Bedroom	83	100	Pass
01B307	Bedroom	94	100	Pass
01B308	Bedroom	100	100	Pass
01B309	Bedroom	100	100	Pass
01B310	Bedroom	100	100	Pass
01B311	Bedroom	100	100	Pass
01B312	Bedroom	100	100	Pass
02B301c	Living/Kitchen	100	200	Pass
02B302c	Living/Kitchen	91	200	Pass

100% compliant - Apartment Blocks B1 & B3 (Mirror of B1).

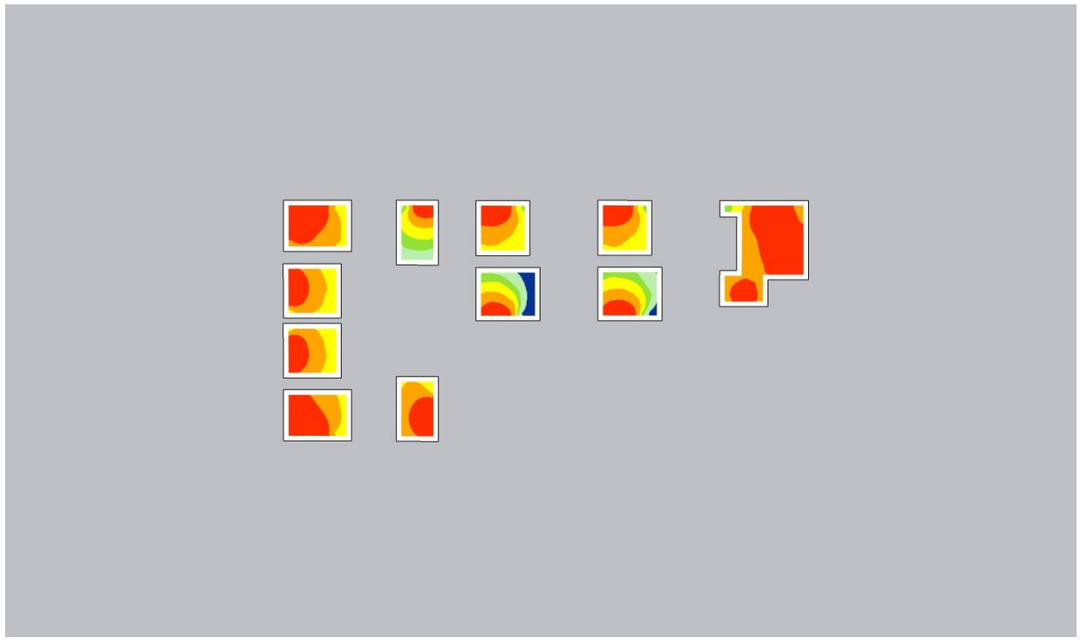
GFL Floor Layout – Block B2 - Naming Convention

Radiance Plot

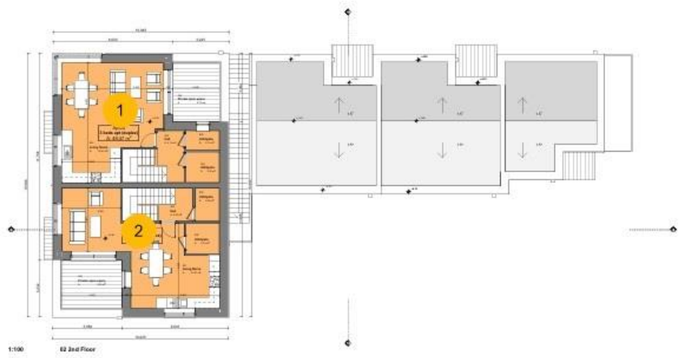


1st Floor Layout – Block B2 - Naming Convention

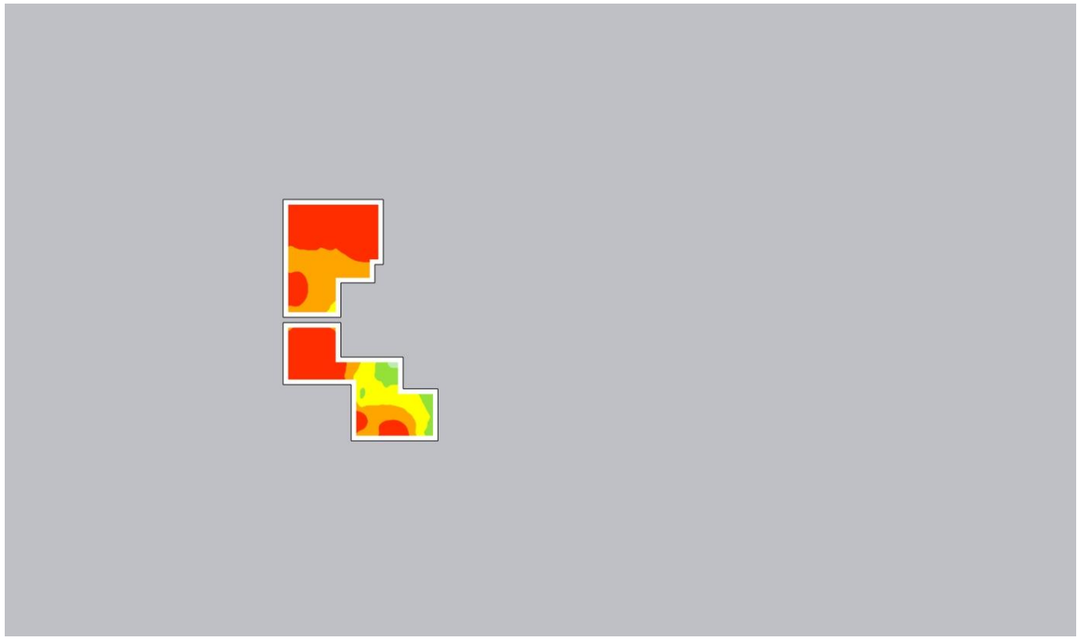
Radiance Plot



2nd Floor Layout – Block B2 - Naming Convention



Radiance Plot



NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

B2-v2	Type			
Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00B201	Bedroom	100	100	Pass
00B202c	Living/Kitchen	92	200	Pass
00B203c	Living/Kitchen	78	200	Pass
00B204	Bedroom	100	100	Pass
00B205c	Living/Kitchen	76	200	Pass
00B206c	Living/Kitchen	62	200	Pass
00B207	Bedroom	100	100	Pass
01B201c	Living/Kitchen	97	200	Pass
01B202	Bedroom	100	100	Pass
01B203	Bedroom	95	100	Pass
01B204	Bedroom	100	100	Pass
01B205	Bedroom	75	100	Pass
01B206	Bedroom	100	100	Pass
01B207	Bedroom	100	100	Pass
01B208	Bedroom	100	100	Pass
01B209	Bedroom	100	100	Pass
01B210	Bedroom	100	100	Pass
01B211	Bedroom	100	100	Pass
02B201	Bedroom	100	100	Pass
02B202	Bedroom	100	100	Pass

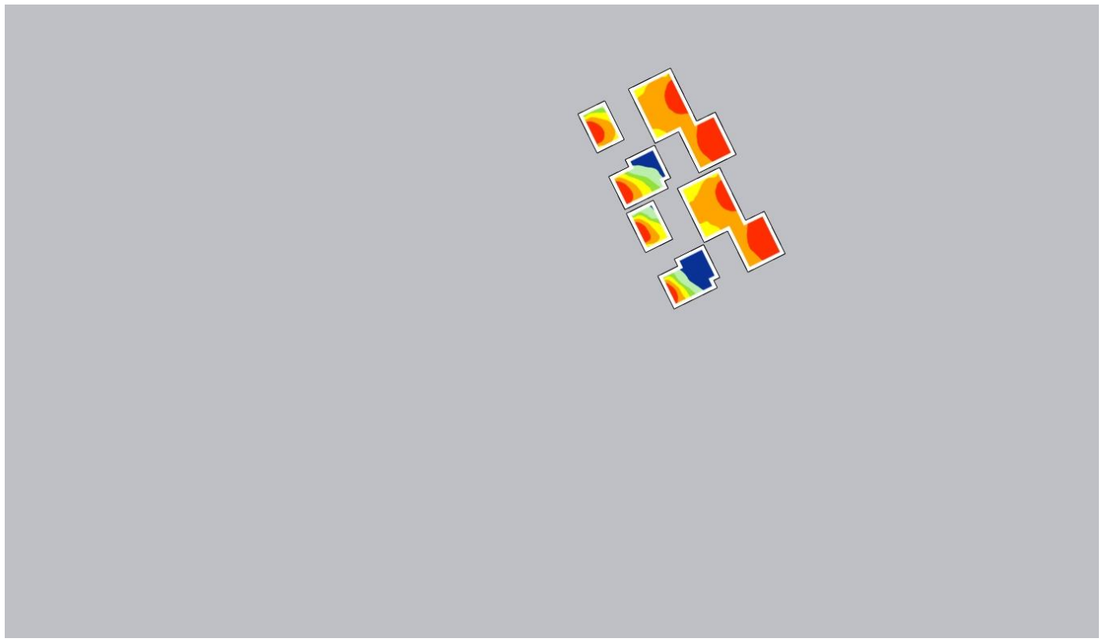
100% compliant - Apartment Block B2.

.

LGFL Floor Layout – Block C - Naming Convention

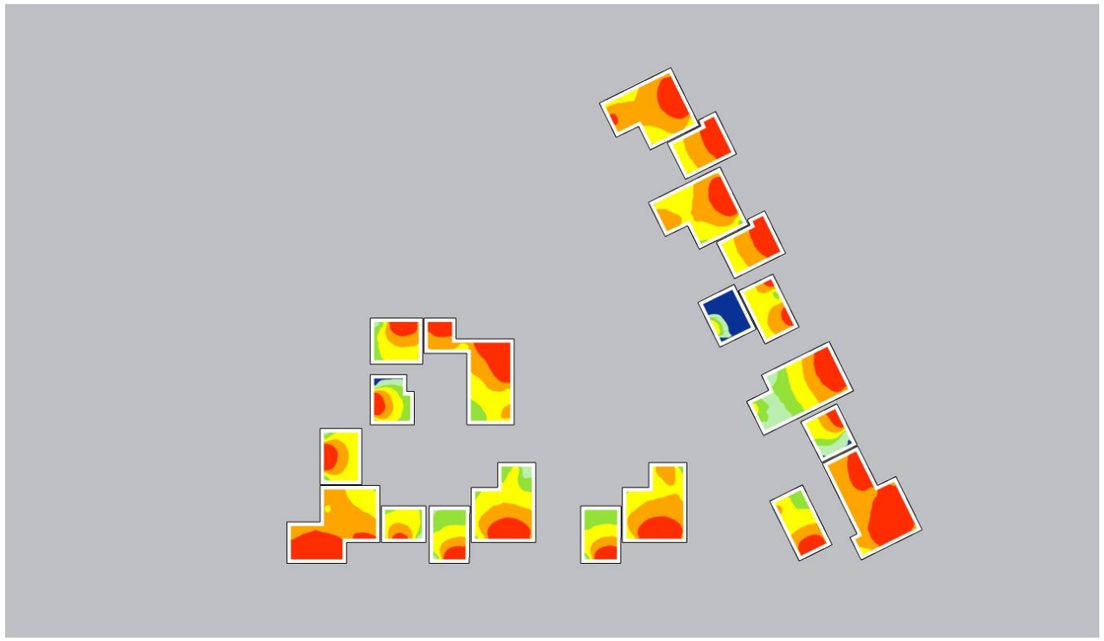
1:100 LF Lower Floor

Radiance Plot



GFL Floor Layout – Block C - Naming Convention

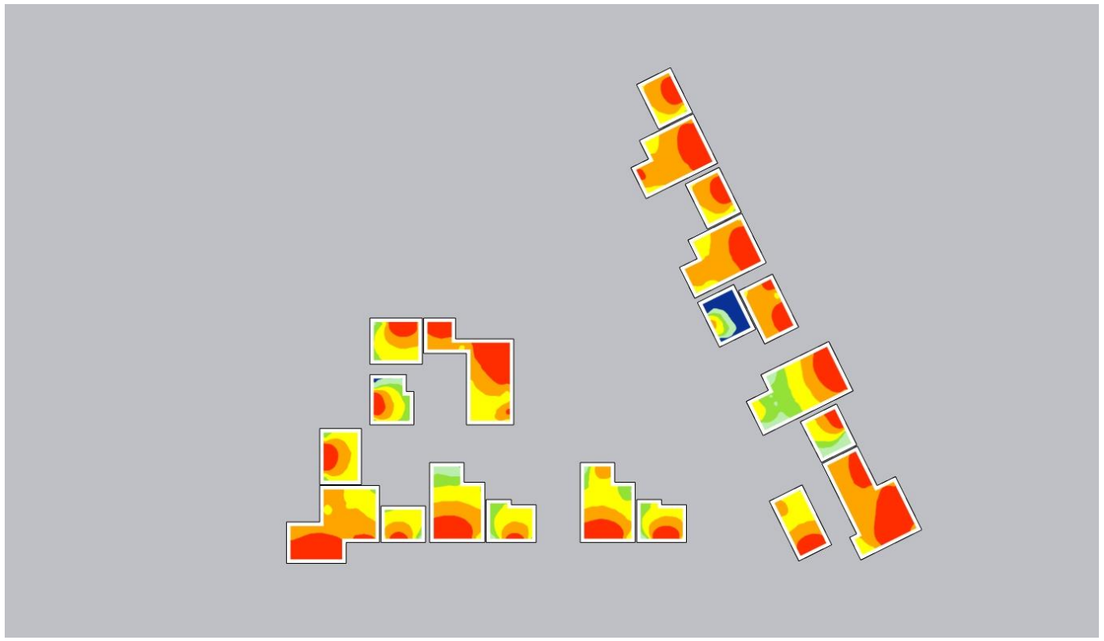
Radiance Plot



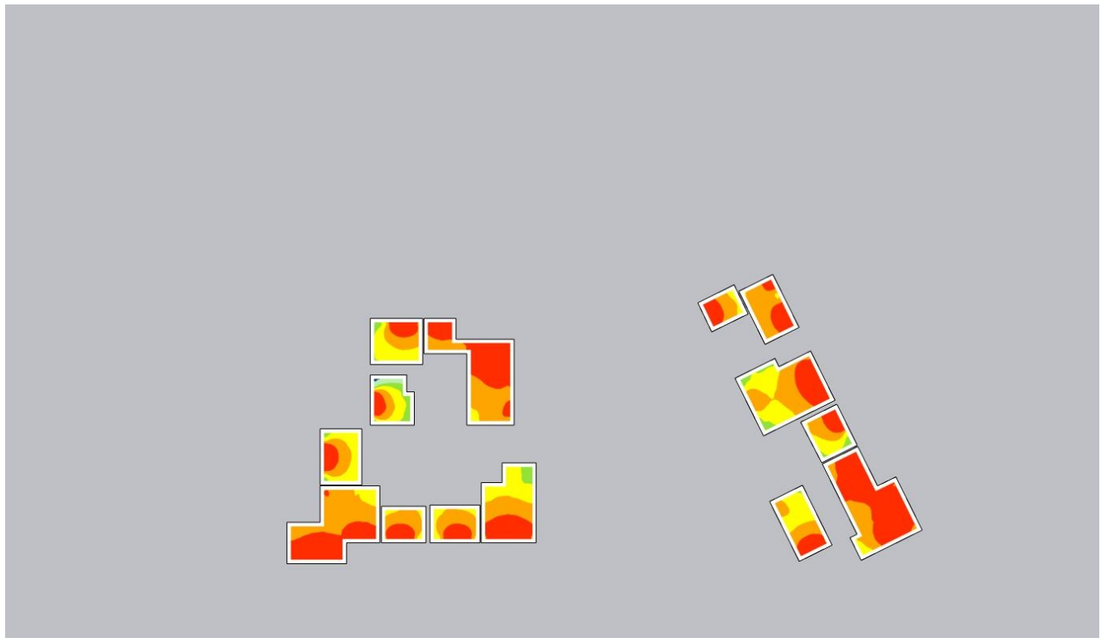
1st Floor Layout – Block C - Naming Convention

2nd Floor Layout – Block C - Naming Convention

Radiance Plot



Radiance Plot



NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

C-v2	Type			
Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
0XC-01	Bedroom	90	100	Pass
0XC-02	Bedroom	100	100	Pass
0XC-03c	Living/Kitchen	100	200	Pass
0XC-04	Bedroom	54	100	Pass
0XC-05	Bedroom	97	100	Pass
0XC-06c	Living/Kitchen	99	200	Pass
00C01c	Living/Kitchen	100	200	Pass
00C02	Bedroom	100	100	Pass
00C03c	Living/Kitchen	96	200	Pass
00C04	Bedroom	100	100	Pass
00C05	Bedroom	27	100	Fail
00C06	Bedroom	100	100	Pass
00C07c	Living/Kitchen	57	200	Pass
00C08	Bedroom	97	100	Pass
00C09c	Living/Kitchen	97	200	Pass
00C10	Bedroom	100	100	Pass
00C11c	Living/Kitchen	96	200	Pass
00C12	Bedroom	100	100	Pass
00C13c	Living/Kitchen	80	200	Pass
00C14	Bedroom	100	100	Pass
00C15	Bedroom	100	100	Pass
00C16c	Living/Kitchen	98	200	Pass
00C17	Bedroom	100	100	Pass
00C18	Bedroom	96	100	Pass
00C19	Bedroom	100	100	Pass
00C20c	Living/Kitchen	93	200	Pass
01C01	Bedroom	100	100	Pass
01C02c	Living/Kitchen	100	200	Pass
01C03	Bedroom	100	100	Pass
01C04c	Living/Kitchen	100	200	Pass
01C05	Bedroom	44	100	Marginal
01C06	Bedroom	100	100	Pass
01C07c	Living/Kitchen	63	200	Pass
01C08	Bedroom	100	100	Pass
01C09c	Living/Kitchen	93	200	Pass
01C10	Bedroom	100	100	Pass
01C11	Bedroom	100	100	Pass
01C12c	Living/Kitchen	88	200	Pass
01C13	Bedroom	100	100	Pass
01C14c	Living/Kitchen	81	200	Pass
01C15	Bedroom	100	100	Pass
01C16c	Living/Kitchen	98	200	Pass
01C17	Bedroom	100	100	Pass
01C18	Bedroom	98	100	Pass
01C19	Bedroom	100	100	Pass
01C20c	Living/Kitchen	100	200	Pass

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

C-v2	Type			
Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
02C01	Bedroom	100	100	Pass
02C02	Bedroom	100	100	Pass
02C03c	Living/Kitchen	89	200	Pass
02C04	Bedroom	100	100	Pass
02C05c	Living/Kitchen	100	200	Pass
02C06	Bedroom	100	100	Pass
02C07c	Living/Kitchen	100	200	Pass
02C08	Bedroom	100	100	Pass
02C09	Bedroom	100	100	Pass
02C10c	Living/Kitchen	100	200	Pass
02C11	Bedroom	100	100	Pass
02C12	Bedroom	98	100	Pass
02C13	Bedroom	100	100	Pass
02C14c	Living/Kitchen	100	200	Pass

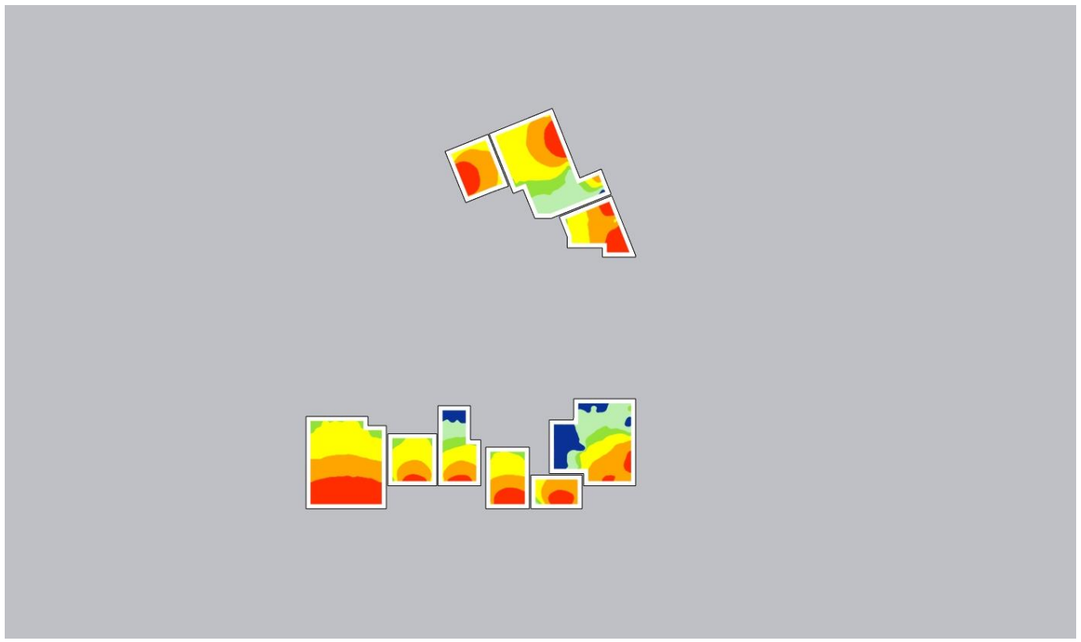
97% compliant, **98%** if we include marginals - Apartment Block C.

GFL Floor Layout – Block D - Naming Convention

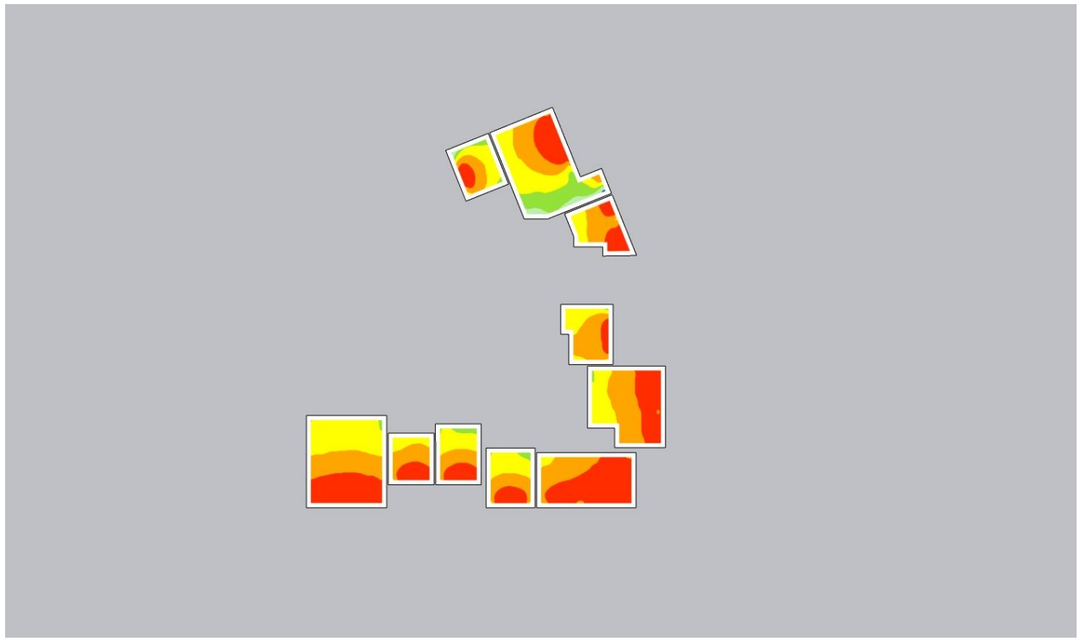
1st Floor Layout – Block D - Naming Convention

1:100 01 First Floor

Radiance Plot

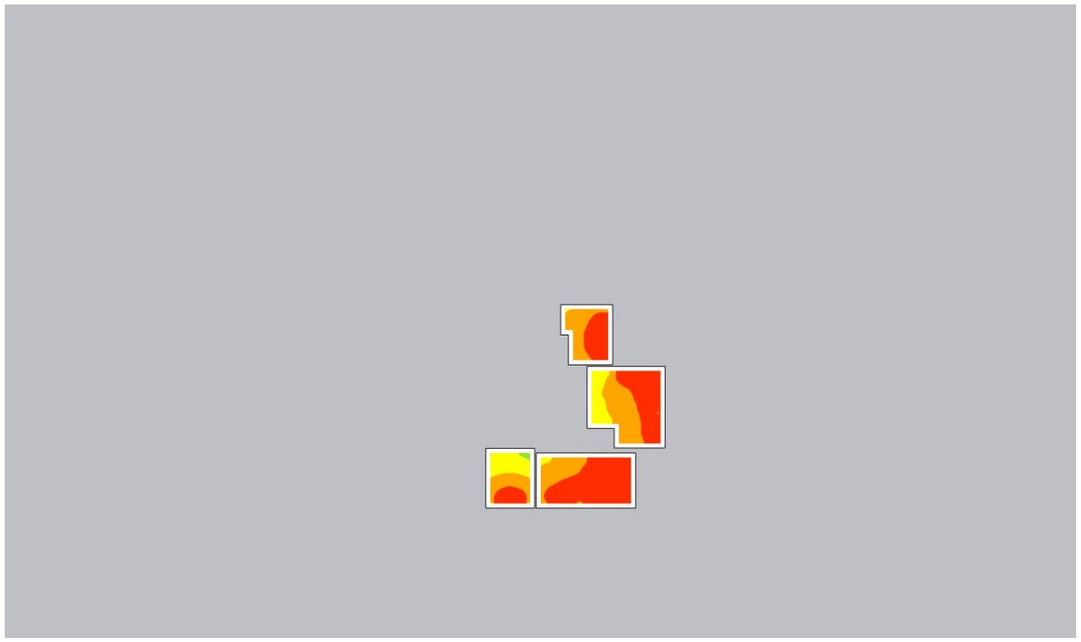


Radiance Plot



2nd Floor Layout – Block D - Naming Convention

Radiance Plot



NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

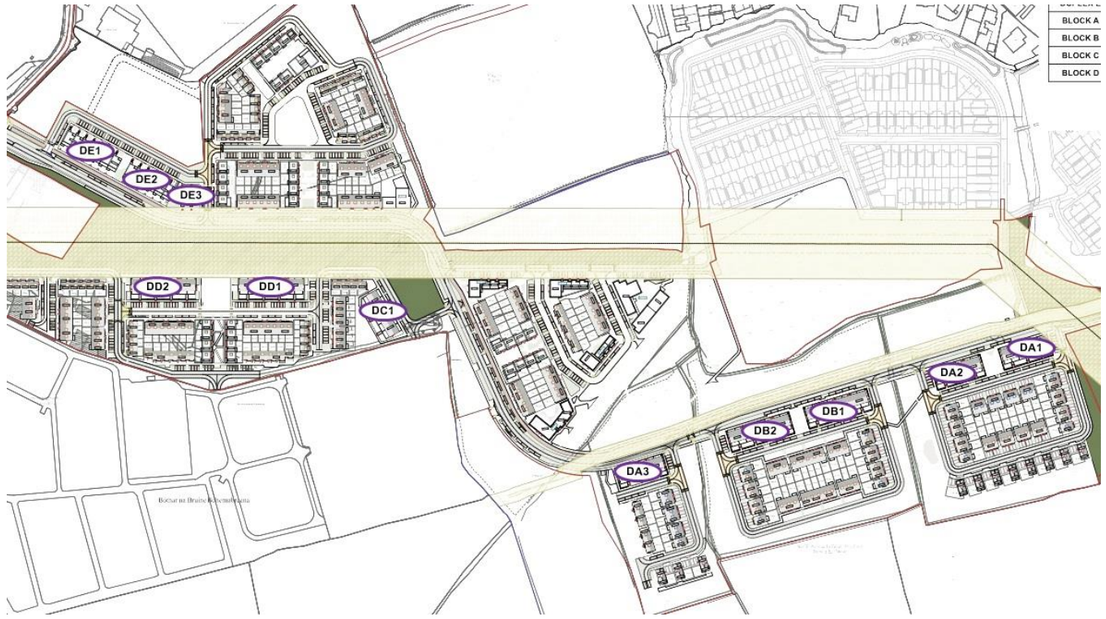
>50 % of the points on a reference plane to exceed

D-v2 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00D-01	Bedroom	100	100	Pass
00D-02c	Living/Kitchen	63	200	Pass
00D-03	Bedroom	100	100	Pass
00D-04c	Living/Kitchen	39	200	Fail
00D-05	Bedroom	100	100	Pass
00D-06	Bedroom	100	100	Pass
00D-07	Bedroom	83	100	Pass
00D-08	Bedroom	100	100	Pass
00D-09c	Living/Kitchen	91	200	Pass
01D-01	Bedroom	100	100	Pass
01D-02c	Living/Kitchen	70	200	Pass
01D-03	Bedroom	100	100	Pass
01D-04	Bedroom	100	100	Pass
01D-05c	Living/Kitchen	99	200	Pass
01D-06c	Living/Kitchen	100	200	Pass
01D-07	Bedroom	100	100	Pass
01D-08	Bedroom	100	100	Pass
01D-09	Bedroom	100	100	Pass
01D-10c	Living/Kitchen	97	200	Pass
02D-01	Bedroom	100	100	Pass
02D-02c	Living/Kitchen	100	200	Pass
02D-03c	Living/Kitchen	100	200	Pass
02D-04	Bedroom	100	100	Pass

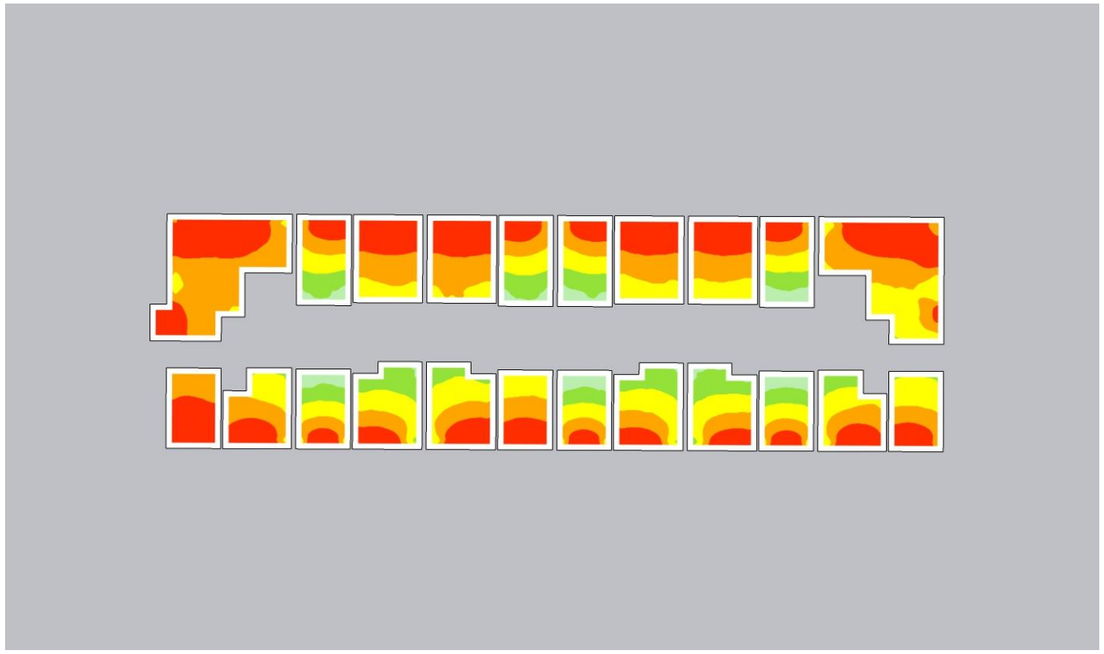
96% compliant – Apartment Block D.

Duplex A,B,C,D, E Locations

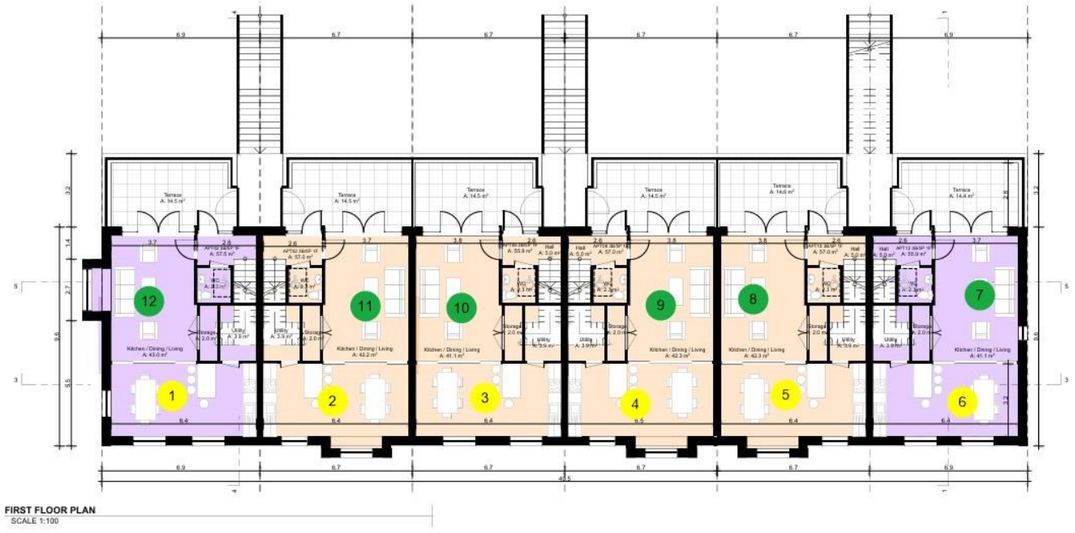


GFL Floor Layout – Duplex A - Naming Convention (Typical for A,B,C,D)

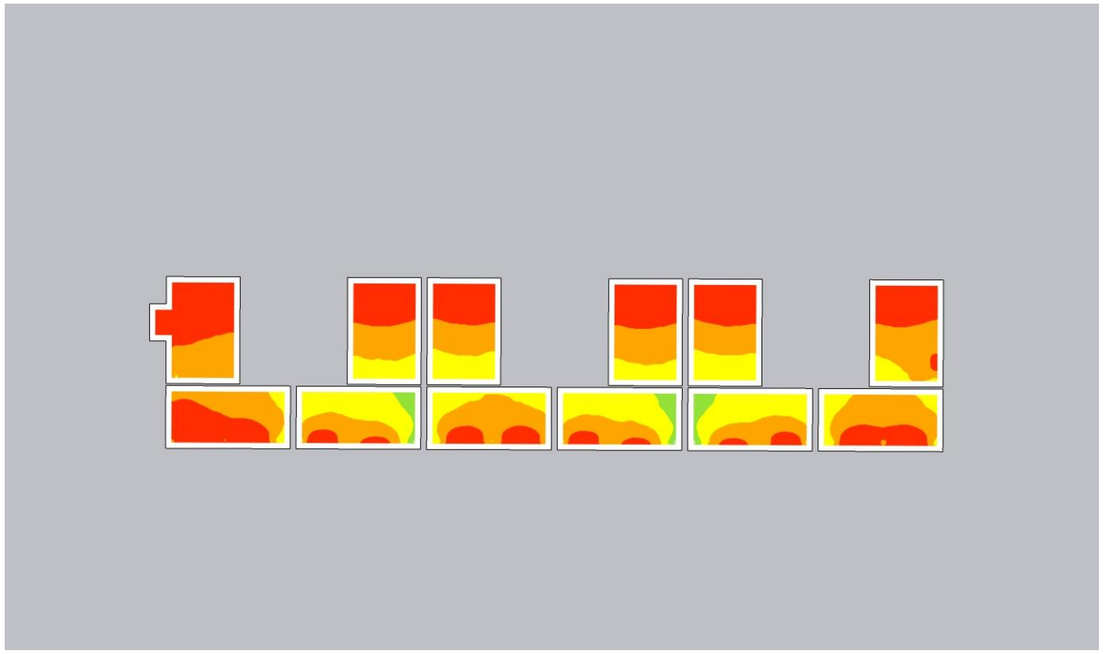
Radiance Plot



1st Floor Layout – Duplex A1 - Naming Convention

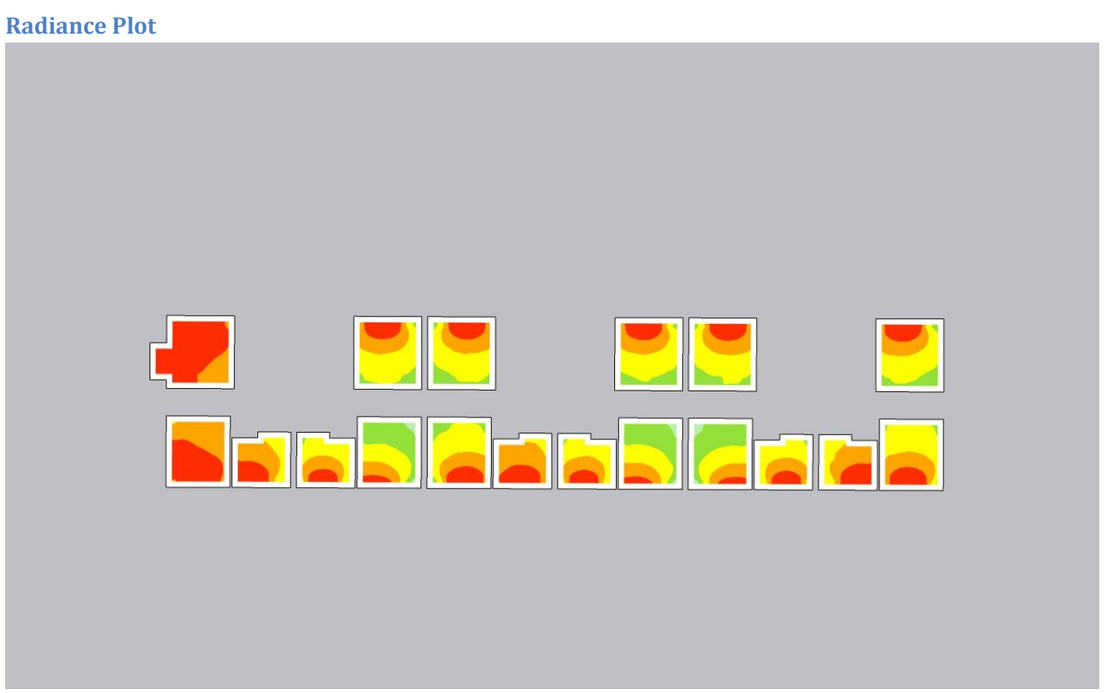


Radiance Plot



2nd Floor Layout – Duplex A1 - Naming Convention

Radiance Plot



NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

DupA1-v2 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00DA101	Bedroom	100	100	Pass
00DA102	Bedroom	100	100	Pass
00DA103	Bedroom	100	100	Pass
00DA104k	Kitchen	64	200	Pass
00DA105k	Kitchen	82	200	Pass
00DA106	Bedroom	100	100	Pass
00DA107	Bedroom	100	100	Pass
00DA108k	Kitchen	64	200	Pass
00DA109k	Kitchen	66	200	Pass
00DA110	Bedroom	100	100	Pass
00DA111	Bedroom	100	100	Pass
00DA112	Bedroom	100	100	Pass
00DA113c	Living/Kitchen	100	200	Pass
00DA114	Bedroom	100	100	Pass
00DA115L	Living	100	150	Pass
00DA116L	Living	100	150	Pass
00DA117	Bedroom	100	100	Pass
00DA118	Bedroom	100	100	Pass
00DA119L	Living	100	150	Pass
00DA121	Bedroom	100	100	Pass
00DA122	Bedroom	100	100	Pass
00DA20L	Living	100	150	Pass
01DA101k	Kitchen	100	200	Pass
01DA102k	Kitchen	87	200	Pass
01DA103k	Kitchen	100	200	Pass
01DA104k	Kitchen	87	200	Pass
01DA105k	Kitchen	87	200	Pass
01DA106k	Kitchen	99	200	Pass
01DA107L	Living	100	150	Pass
01DA108L	Living	100	150	Pass
01DA109L	Living	100	150	Pass
01DA110L	Living	100	150	Pass
01DA111L	Living	100	150	Pass
01DA112L	Living	100	150	Pass
02DA101	Bedroom	100	100	Pass
02DA102	Bedroom	100	100	Pass
02DA103	Bedroom	100	100	Pass
02DA104	Bedroom	100	100	Pass
02DA105	Bedroom	100	100	Pass
02DA106	Bedroom	100	100	Pass
02DA107	Bedroom	100	100	Pass
02DA108	Bedroom	100	100	Pass
02DA109	Bedroom	100	100	Pass
02DA110	Bedroom	100	100	Pass
02DA111	Bedroom	100	100	Pass
02DA112	Bedroom	100	100	Pass
02DA113	Bedroom	100	100	Pass
02DA114	Bedroom	100	100	Pass
02DA115	Bedroom	100	100	Pass
02DA116	Bedroom	100	100	Pass
02DA117	Bedroom	100	100	Pass
02DA118	Bedroom	100	100	Pass

100% compliant - Duplex A1.

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

DupA2-v2 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00DA201	Bedroom	100	100	Pass
00DA202	Bedroom	100	100	Pass
00DA203	Bedroom	100	100	Pass
00DA204k	Kitchen	64	200	Pass
00DA205k	Kitchen	64	200	Pass
00DA206	Bedroom	100	100	Pass
00DA207	Bedroom	100	100	Pass
00DA208k	Kitchen	82	200	Pass
00DA209k	Kitchen	64	200	Pass
00DA210	Bedroom	100	100	Pass
00DA211	Bedroom	100	100	Pass
00DA212	Bedroom	100	100	Pass
00DA213lc	Living/Kitchen	100	200	Pass
00DA214	Bedroom	100	100	Pass
00DA215l	Living	100	150	Pass
00DA216l	Living	100	150	Pass
00DA217	Bedroom	100	100	Pass
00DA218	Bedroom	100	100	Pass
00DA219l	Living	100	150	Pass
00DA220l	Living	100	150	Pass
00DA221	Bedroom	100	100	Pass
00DA222c	Living/Kitchen	100	200	Pass
01DA201k	Kitchen	99	200	Pass
01DA202k	Kitchen	86	200	Pass
01DA203k	Kitchen	86	200	Pass
01DA204k	Kitchen	100	200	Pass
01DA205k	Kitchen	87	200	Pass
01DA206k	Kitchen	100	200	Pass
01DA207l	Living	100	150	Pass
01DA208l	Living	100	150	Pass
01DA209l	Living	100	150	Pass
01DA210l	Living	100	150	Pass
01DA211l	Living	100	150	Pass
01DA212l	Living	100	150	Pass
02DA201	Bedroom	100	100	Pass
02DA202	Bedroom	100	100	Pass
02DA203	Bedroom	100	100	Pass
02DA204	Bedroom	100	100	Pass
02DA205	Bedroom	100	100	Pass
02DA206	Bedroom	100	100	Pass
02DA207	Bedroom	100	100	Pass
02DA208	Bedroom	100	100	Pass
02DA209	Bedroom	100	100	Pass
02DA210	Bedroom	100	100	Pass
02DA211	Bedroom	100	100	Pass
02DA212	Bedroom	100	100	Pass
02DA213	Bedroom	100	100	Pass
02DA214	Bedroom	100	100	Pass
02DA215	Bedroom	100	100	Pass
02DA216	Bedroom	100	100	Pass
02DA217	Bedroom	100	100	Pass
02DA218	Bedroom	100	100	Pass

100% compliant - Duplex A2.

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

DupA3-v2 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00DA301	Bedroom	100	100	Pass
00DA302	Bedroom	100	100	Pass
00DA303	Bedroom	100	100	Pass
00DA304k	Kitchen	62	200	Pass
00DA305k	Kitchen	75	200	Pass
00DA306	Bedroom	100	100	Pass
00DA307	Bedroom	100	100	Pass
00DA308k	Kitchen	58	200	Pass
00DA309k	Kitchen	57	200	Pass
00DA310	Bedroom	100	100	Pass
00DA311	Bedroom	100	100	Pass
00DA312	Bedroom	100	100	Pass
00DA313c	Living/Kitchen	100	200	Pass
00DA314	Bedroom	100	100	Pass
00DA315L	Living	100	150	Pass
00DA316L	Living	100	150	Pass
00DA317	Bedroom	100	100	Pass
00DA318	Bedroom	100	100	Pass
00DA319L	Living	100	150	Pass
00DA321	Bedroom	100	100	Pass
00DA322	Bedroom	100	100	Pass
00DA20L	Living	100	150	Pass
01DA301k	Kitchen	100	200	Pass
01DA302k	Kitchen	86	200	Pass
01DA303k	Kitchen	99	200	Pass
01DA304k	Kitchen	86	200	Pass
01DA305k	Kitchen	85	200	Pass
01DA306k	Kitchen	99	200	Pass
01DA307L	Living	100	150	Pass
01DA308L	Living	100	150	Pass
01DA309L	Living	100	150	Pass
01DA310L	Living	100	150	Pass
01DA311L	Living	100	150	Pass
01DA312L	Living	100	150	Pass
02DA301	Bedroom	100	100	Pass
02DA302	Bedroom	100	100	Pass
02DA303	Bedroom	100	100	Pass
02DA304	Bedroom	100	100	Pass
02DA305	Bedroom	100	100	Pass
02DA306	Bedroom	100	100	Pass
02DA307	Bedroom	100	100	Pass
02DA308	Bedroom	100	100	Pass
02DA309	Bedroom	100	100	Pass
02DA310	Bedroom	100	100	Pass
02DA311	Bedroom	100	100	Pass
02DA312	Bedroom	100	100	Pass
02DA313	Bedroom	100	100	Pass
02DA314	Bedroom	100	100	Pass
02DA315	Bedroom	100	100	Pass
02DA316	Bedroom	100	100	Pass
02DA317	Bedroom	100	100	Pass
02DA318	Bedroom	100	100	Pass

100% compliant - Duplex A3.

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

DupB1-v2 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00DB101	Bedroom	100	100	Pass
00DB102	Bedroom	100	100	Pass
00DB103	Bedroom	100	100	Pass
00DB104k	Kitchen	64	200	Pass
00DB105k	Kitchen	85	200	Pass
00DB106	Bedroom	100	100	Pass
00DB107	Bedroom	100	100	Pass
00DB108k	Kitchen	64	200	Pass
00DB109k	Kitchen	64	200	Pass
00DB110	Bedroom	100	100	Pass
00DB111	Bedroom	100	100	Pass
00DB112k	Kitchen	100	200	Pass
00DB113k	Kitchen	64	200	Pass
00DB114	Bedroom	100	100	Pass
00DB115	Bedroom	100	100	Pass
00DB116	Bedroom	100	100	Pass
00DB117c	Living/Kitchen	98	200	Pass
00DB118	Bedroom	100	100	Pass
00DB119l	Living	100	150	Pass
00DB120l	Living	79	150	Pass
00DB121	Bedroom	100	100	Pass
00DB122	Bedroom	100	100	Pass
00DB123l	Living	100	150	Pass
00DB124l	Living	100	150	Pass
00DB125	Bedroom	100	100	Pass
00DB126	Bedroom	100	100	Pass
00DB127l	Living	100	150	Pass
00DB128l	Living	100	150	Pass
00DB129	Bedroom	100	100	Pass
00DB130c	Living/Kitchen	100	200	Pass
01DB101lk	Kitchen	100	200	Pass
01DB102k	Kitchen	87	200	Pass
01DB103k	Kitchen	100	200	Pass
01DB104k	Kitchen	86	200	Pass
01DB105k	Kitchen	86	200	Pass
01DB106k	Kitchen	100	200	Pass
01DB107k	Kitchen	85	200	Pass
01DB108k	Kitchen	99	200	Pass
01DB109l	Living	100	150	Pass
01DB110l	Living	100	150	Pass
01DB111l	Living	100	150	Pass
01DB112l	Living	100	150	Pass
01DB113l	Living	100	150	Pass
01DB114l	Living	100	150	Pass
01DB115l	Living	100	150	Pass
01DB116l	Living	100	150	Pass

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

DupB1-v2 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
02DB101	Bedroom	100	100	Pass
02DB102	Bedroom	100	100	Pass
02DB103	Bedroom	100	100	Pass
02DB104	Bedroom	100	100	Pass
02DB105	Bedroom	100	100	Pass
02DB106	Bedroom	100	100	Pass
02DB107	Bedroom	100	100	Pass
02DB108	Bedroom	100	100	Pass
02DB109	Bedroom	100	100	Pass
02DB110	Bedroom	100	100	Pass
02DB111	Bedroom	100	100	Pass
02DB112	Bedroom	100	100	Pass
02DB113	Bedroom	100	100	Pass
02DB114	Bedroom	100	100	Pass
02DB115	Bedroom	100	100	Pass
02DB116	Bedroom	100	100	Pass
02DB117	Bedroom	100	100	Pass
02DB118	Bedroom	100	100	Pass
02DB119	Bedroom	100	100	Pass
02DB120	Bedroom	100	100	Pass
02DB121	Bedroom	100	100	Pass
02DB122	Bedroom	100	100	Pass
02DB123	Bedroom	100	100	Pass
02DB124	Bedroom	100	100	Pass

100% compliant - Duplex B1.

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

DupB2-v2 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00DB201	Bedroom	100	100	Pass
00DB202	Bedroom	100	100	Pass
00DB203	Bedroom	100	100	Pass
00DB204k	Kitchen	66	200	Pass
00DB205k	Kitchen	100	200	Pass
00DB206	Bedroom	100	100	Pass
00DB207	Bedroom	100	100	Pass
00DB208k	Kitchen	64	200	Pass
00DB209k	Kitchen	64	200	Pass
00DB210	Bedroom	100	100	Pass
00DB211	Bedroom	100	100	Pass
00DB212k	Kitchen	85	200	Pass
00DB213k	Kitchen	62	200	Pass
00DB214	Bedroom	100	100	Pass
00DB215	Bedroom	100	100	Pass
00DB216	Bedroom	100	100	Pass
00DB217c	Living/Kitchen	100	200	Pass
00DB218	Bedroom	100	100	Pass
00DB219l	Living	100	150	Pass
00DB220l	Living	100	150	Pass
00DB221	Bedroom	100	100	Pass
00DB222	Bedroom	100	100	Pass
00DB223l	Living	100	150	Pass
00DB224l	Living	100	150	Pass
00DB225	Bedroom	100	100	Pass
00DB226	Bedroom	100	100	Pass
00DB227l	Living	94	150	Pass
00DB228l	Living	100	150	Pass
00DB229	Bedroom	100	100	Pass
00DB230c	Living/Kitchen	100	200	Pass
01DB201lk	Kitchen	99	200	Pass
01DB202k	Kitchen	86	200	Pass
01DB203k	Kitchen	100	200	Pass
01DB204k	Kitchen	85	200	Pass
01DB205k	Kitchen	86	200	Pass
01DB206k	Kitchen	100	200	Pass
01DB207k	Kitchen	85	200	Pass
01DB208k	Kitchen	100	200	Pass
01DB209l	Living	100	150	Pass
01DB210l	Living	100	150	Pass
01DB211l	Living	100	150	Pass
01DB212l	Living	100	150	Pass
01DB213l	Living	100	150	Pass
01DB214l	Living	100	150	Pass
01DB215l	Living	100	150	Pass
01DB216l	Living	100	150	Pass

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

DupB2-v2 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
02DB201	Bedroom	100	100	Pass
02DB202	Bedroom	100	100	Pass
02DB203	Bedroom	100	100	Pass
02DB204	Bedroom	100	100	Pass
02DB205	Bedroom	100	100	Pass
02DB206	Bedroom	100	100	Pass
02DB207	Bedroom	100	100	Pass
02DB208	Bedroom	100	100	Pass
02DB209	Bedroom	100	100	Pass
02DB210	Bedroom	100	100	Pass
02DB211	Bedroom	100	100	Pass
02DB212	Bedroom	100	100	Pass
02DB213	Bedroom	100	100	Pass
02DB214	Bedroom	100	100	Pass
02DB215	Bedroom	100	100	Pass
02DB216	Bedroom	100	100	Pass
02DB217	Bedroom	100	100	Pass
02DB218	Bedroom	100	100	Pass
02DB219	Bedroom	100	100	Pass
02DB220	Bedroom	100	100	Pass
02DB221	Bedroom	100	100	Pass
02DB222	Bedroom	100	100	Pass
02DB223	Bedroom	100	100	Pass
02DB224	Bedroom	100	100	Pass

100% compliant - Duplex B2.

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

DupC1-v2 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00DC101	Bedroom	100	100	Pass
00DC102	Bedroom	100	100	Pass
00DC103	Bedroom	100	100	Pass
00DC104k	Kitchen	100	200	Pass
00DC105k	Kitchen	87	200	Pass
00DC106	Bedroom	100	100	Pass
00DC107	Bedroom	100	100	Pass
00DC108k	Kitchen	100	200	Pass
00DC109k	Kitchen	83	200	Pass
00DC110	Bedroom	100	100	Pass
00DC111	Bedroom	100	100	Pass
00DC112	Bedroom	100	100	Pass
00DC113c	Living/Kitchen	100	200	Pass
00DC114	Bedroom	100	100	Pass
00DC115l	Living	100	150	Pass
00DC116l	Living	100	150	Pass
00DC117	Bedroom	100	100	Pass
00DC118	Bedroom	100	100	Pass
00DC119l	Living	100	150	Pass
00DC120l	Living	100	150	Pass
00DC121	Bedroom	100	100	Pass
00DC122c	Living/Kitchen	100	200	Pass
01DC101k	Kitchen	100	200	Pass
01DC102k	Kitchen	100	200	Pass
01DC103k	Kitchen	100	200	Pass
01DC104k	Kitchen	100	200	Pass
01DC105k	Kitchen	100	200	Pass
01DC106k	Kitchen	99	200	Pass
01DC107l	Living	100	150	Pass
01DC108l	Living	100	150	Pass
01DC109l	Living	100	150	Pass
01DC110l	Living	100	150	Pass
01DC111l	Living	100	150	Pass
01DC112l	Living	100	150	Pass
02DC101	Bedroom	100	100	Pass
02DC102	Bedroom	100	100	Pass
02DC103	Bedroom	100	100	Pass
02DC104	Bedroom	100	100	Pass
02DC105	Bedroom	100	100	Pass
02DC106	Bedroom	100	100	Pass
02DC107	Bedroom	100	100	Pass
02DC108	Bedroom	100	100	Pass
02DC109	Bedroom	100	100	Pass
02DC110	Bedroom	100	100	Pass
02DC111	Bedroom	100	100	Pass
02DC112	Bedroom	100	100	Pass
02DC113	Bedroom	100	100	Pass
02DC114	Bedroom	100	100	Pass
02DC115	Bedroom	100	100	Pass
02DC116	Bedroom	100	100	Pass
02DC117	Bedroom	100	100	Pass
02DC118	Bedroom	100	100	Pass

100% compliant - Duplex C.

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

DupD1-v2 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00DD101	Bedroom	100	100	Pass
00DD102	Bedroom	100	100	Pass
00DD103	Bedroom	100	100	Pass
00DD104k	Kitchen	100	200	Pass
00DD105k	Kitchen	100	200	Pass
00DD106	Bedroom	100	100	Pass
00DD107	Bedroom	100	100	Pass
00DD108k	Kitchen	100	200	Pass
00DD109k	Kitchen	98	200	Pass
00DD110	Bedroom	100	100	Pass
00DD111	Bedroom	100	100	Pass
00DD112k	Kitchen	100	200	Pass
00DD113k	Kitchen	97	200	Pass
00DD114	Bedroom	100	100	Pass
00DD115	Bedroom	100	100	Pass
00DD116	Bedroom	100	100	Pass
00DD117c	Living/Kitchen	100	200	Pass
00DD118	Bedroom	100	100	Pass
00DD119l	Living	100	150	Pass
00DD120l	Living	100	150	Pass
00DD121	Bedroom	100	100	Pass
00DD122	Bedroom	100	100	Pass
00DD123l	Living	100	150	Pass
00DD124l	Living	100	150	Pass
00DD125	Bedroom	100	100	Pass
00DD126	Bedroom	100	100	Pass
00DD127l	Living	100	150	Pass
00DD128l	Living	100	150	Pass
00DD129	Bedroom	100	100	Pass
00DD130c	Living/Kitchen	100	200	Pass
01DD101k	Kitchen	100	200	Pass
01DD102k	Kitchen	100	200	Pass
01DD103k	Kitchen	100	200	Pass
01DD104k	Kitchen	100	200	Pass
01DD105k	Kitchen	100	200	Pass
01DD106k	Kitchen	100	200	Pass
01DD107k	Kitchen	100	200	Pass
01DD108k	Kitchen	100	200	Pass
01DD109l	Living	100	150	Pass
01DD110l	Living	100	150	Pass
01DD111l	Living	100	150	Pass
01DD112l	Living	100	150	Pass
01DD113l	Living	100	150	Pass
01DD114l	Living	100	150	Pass
01DD115l	Living	100	150	Pass
01DD116l	Living	100	150	Pass

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

DupD1-v2 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
02DD101	Bedroom	100	100	Pass
02DD102	Bedroom	100	100	Pass
02DD103	Bedroom	100	100	Pass
02DD104	Bedroom	100	100	Pass
02DD105	Bedroom	100	100	Pass
02DD106	Bedroom	100	100	Pass
02DD107	Bedroom	100	100	Pass
02DD108	Bedroom	100	100	Pass
02DD109	Bedroom	100	100	Pass
02DD110	Bedroom	100	100	Pass
02DD111	Bedroom	100	100	Pass
02DD112	Bedroom	100	100	Pass
02DD113	Bedroom	100	100	Pass
02DD114	Bedroom	100	100	Pass
02DD115	Bedroom	100	100	Pass
02DD116	Bedroom	100	100	Pass
02DD117	Bedroom	100	100	Pass
02DD118	Bedroom	100	100	Pass
02DD119	Bedroom	100	100	Pass
02DD120	Bedroom	100	100	Pass
02DD121	Bedroom	100	100	Pass
02DD122	Bedroom	100	100	Pass
02DD123	Bedroom	100	100	Pass
02DD124	Bedroom	100	100	Pass

100% compliant - Duplex D1.

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

DupD2-v2 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00DD201	Bedroom	100	100	Pass
00DD202	Bedroom	100	100	Pass
00DD203	Bedroom	100	100	Pass
00DD204k	Kitchen	97	200	Pass
00DD205k	Kitchen	100	200	Pass
00DD206	Bedroom	100	100	Pass
00DD207	Bedroom	100	100	Pass
00DD208k	Kitchen	97	200	Pass
00DD209k	Kitchen	100	200	Pass
00DD210	Bedroom	100	100	Pass
00DD211	Bedroom	100	100	Pass
00DD212k	Kitchen	95	200	Pass
00DD213k	Kitchen	100	200	Pass
00DD214	Bedroom	100	100	Pass
00DD215	Bedroom	100	100	Pass
00DD216	Bedroom	100	100	Pass
00DD217c	Living/Kitchen	100	200	Pass
00DD218	Bedroom	100	100	Pass
00DD219l	Living	100	150	Pass
00DD220l	Living	100	150	Pass
00DD221	Bedroom	100	100	Pass
00DD222	Bedroom	100	100	Pass
00DD223l	Living	100	150	Pass
00DD224l	Living	100	150	Pass
00DD225	Bedroom	100	100	Pass
00DD226	Bedroom	100	100	Pass
00DD227l	Living	100	150	Pass
00DD228l	Living	100	150	Pass
00DD229	Bedroom	100	100	Pass
00DD230c	Living/Kitchen	100	200	Pass
01DD201k	Kitchen	100	200	Pass
01DD202k	Kitchen	100	200	Pass
01DD203k	Kitchen	100	200	Pass
01DD204k	Kitchen	100	200	Pass
01DD205k	Kitchen	100	200	Pass
01DD206k	Kitchen	100	200	Pass
01DD207k	Kitchen	100	200	Pass
01DD208k	Kitchen	100	200	Pass
01DD209l	Living	100	150	Pass
01DD210l	Living	100	150	Pass
01DD211l	Living	100	150	Pass
01DD212l	Living	100	150	Pass
01DD213l	Living	100	150	Pass
01DD214l	Living	100	150	Pass
01DD215l	Living	100	150	Pass
01DD216l	Living	100	150	Pass

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

DupD2-v2 **Type**

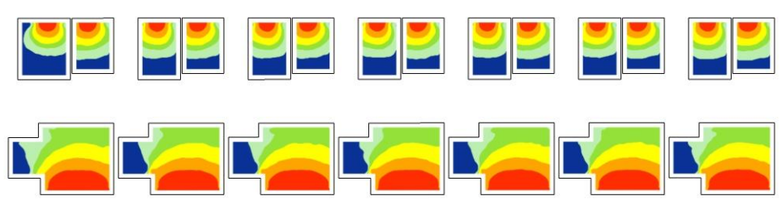
Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
02DD201	Bedroom	100	100	Pass
02DD202	Bedroom	100	100	Pass
02DD203	Bedroom	100	100	Pass
02DD204	Bedroom	100	100	Pass
02DD205	Bedroom	100	100	Pass
02DD206	Bedroom	100	100	Pass
02DD207	Bedroom	100	100	Pass
02DD208	Bedroom	100	100	Pass
02DD209	Bedroom	100	100	Pass
02DD210	Bedroom	100	100	Pass
02DD211	Bedroom	100	100	Pass
02DD212	Bedroom	100	100	Pass
02DD213	Bedroom	100	100	Pass
02DD214	Bedroom	100	100	Pass
02DD215	Bedroom	100	100	Pass
02DD216	Bedroom	100	100	Pass
02DD217	Bedroom	100	100	Pass
02DD218	Bedroom	100	100	Pass
02DD219	Bedroom	100	100	Pass
02DD220	Bedroom	100	100	Pass
02DD221	Bedroom	100	100	Pass
02DD222	Bedroom	100	100	Pass
02DD223	Bedroom	100	100	Pass
02DD224	Bedroom	100	100	Pass

100% compliant - Duplex D2.

GFL Floor Layout – Duplex E1 - Naming Convention

Ground Floor Plan
Scale 1:100

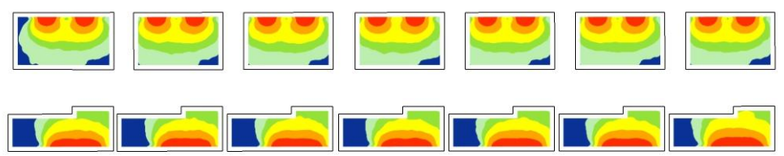
Radiance Plot



1st Floor Layout – Duplex E1 - Naming Convention

First Floor Plan
Scale 1:100

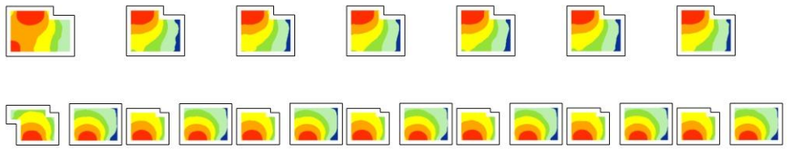
Radiance Plot



2nd Floor Layout – Duplex E1 - Naming Convention

Second Floor Plan
Scale 1:100

Radiance Plot



NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

DupE1-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00DE101c	Living/Kitchen	53	200	Pass
00DE102c	Living/Kitchen	53	200	Pass
00DE103c	Living/Kitchen	54	200	Pass
00DE104c	Living/Kitchen	53	200	Pass
00DE105c	Living/Kitchen	53	200	Pass
00DE106c	Living/Kitchen	53	200	Pass
00DE107c	Living/Kitchen	53	200	Pass
00DE108	Bedroom	75	100	Pass
00DE109	Bedroom	63	100	Pass
00DE110	Bedroom	71	100	Pass
00DE111	Bedroom	63	100	Pass
00DE112	Bedroom	66	100	Pass
00DE113	Bedroom	63	100	Pass
00DE114	Bedroom	68	100	Pass
00DE115	Bedroom	63	100	Pass
00DE116	Bedroom	69	100	Pass
00DE117	Bedroom	63	100	Pass
00DE118	Bedroom	68	100	Pass
00DE119	Bedroom	63	100	Pass
00DE120	Bedroom	69	100	Pass
00DE121	Bedroom	51	100	Pass
01DE101k	Kitchen	50	200	Pass
01DE102k	Kitchen	47	200	Marginal
01DE103k	Kitchen	47	200	Marginal
01DE104k	Kitchen	55	200	Pass
01DE105k	Kitchen	57	200	Pass
01DE106k	Kitchen	50	200	Pass
01DE107k	Kitchen	60	200	Pass
01DE108L	Living	62	150	Pass
01DE109L	Living	63	150	Pass
01DE110L	Living	63	150	Pass
01DE111L	Living	62	150	Pass
01DE112L	Living	61	150	Pass
01DE113L	Living	61	150	Pass
01DE114L	Living	50	150	Pass
02DE101	Bedroom	100	100	Pass
02DE102	Bedroom	88	100	Pass
02DE103	Bedroom	100	100	Pass
02DE104	Bedroom	91	100	Pass
02DE105	Bedroom	100	100	Pass
02DE106	Bedroom	91	100	Pass
02DE107	Bedroom	100	100	Pass
02DE108	Bedroom	94	100	Pass
02DE109	Bedroom	100	100	Pass
02DE110	Bedroom	91	100	Pass
02DE111	Bedroom	100	100	Pass
02DE112	Bedroom	91	100	Pass
02DE113	Bedroom	100	100	Pass
02DE114	Bedroom	91	100	Pass
02DE115	Bedroom	90	100	Pass
02DE116	Bedroom	90	100	Pass
02DE117	Bedroom	90	100	Pass
02DE118	Bedroom	91	100	Pass
02DE119	Bedroom	91	100	Pass
02DE120	Bedroom	91	100	Pass
02DE121	Bedroom	100	100	Pass

96% compliant, 100% if we include marginals - Duplex E1.

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

DupE2-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00DE201c	Living/Kitchen	53	200	Pass
00DE202c	Living/Kitchen	51	200	Pass
00DE203c	Living/Kitchen	53	200	Pass
00DE204c	Living/Kitchen	53	200	Pass
00DE205c	Living/Kitchen	54	200	Pass
00DE206c	Living/Kitchen	52	200	Pass
00DE207	Bedroom	72	100	Pass
00DE208	Bedroom	63	100	Pass
00DE209	Bedroom	70	100	Pass
00DE210	Bedroom	60	100	Pass
00DE211	Bedroom	69	100	Pass
00DE212	Bedroom	61	100	Pass
00DE213	Bedroom	71	100	Pass
00DE214	Bedroom	63	100	Pass
00DE215	Bedroom	71	100	Pass
00DE216	Bedroom	63	100	Pass
00DE217	Bedroom	70	100	Pass
00DE218	Bedroom	62	100	Pass
01DE201k	Kitchen	49	200	Marginal
01DE202k	Kitchen	50	200	Pass
01DE203k	Kitchen	46	200	Marginal
01DE204k	Kitchen	50	200	Pass
01DE205k	Kitchen	46	200	Marginal
01DE206k	Kitchen	58	200	Pass
01DE207l	Living	62	150	Pass
01DE208l	Living	63	150	Pass
01DE209l	Living	60	150	Pass
01DE210l	Living	62	150	Pass
01DE211l	Living	61	150	Pass
01DE212l	Living	60	150	Pass
02DE201	Bedroom	100	100	Pass
02DE202	Bedroom	91	100	Pass
02DE203	Bedroom	100	100	Pass
02DE204	Bedroom	91	100	Pass
02DE205	Bedroom	100	100	Pass
02DE206	Bedroom	91	100	Pass
02DE207	Bedroom	100	100	Pass
02DE208	Bedroom	91	100	Pass
02DE209	Bedroom	100	100	Pass
02DE210	Bedroom	91	100	Pass
02DE211	Bedroom	86	100	Pass
02DE212	Bedroom	90	100	Pass
02DE213	Bedroom	88	100	Pass
02DE214	Bedroom	91	100	Pass
02DE215	Bedroom	90	100	Pass
02DE216	Bedroom	90	100	Pass
02DE217	Bedroom	88	100	Pass
02DE218	Bedroom	91	100	Pass

94% compliant, 100% if we include marginals - Duplex E2.

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

DupE3-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00DE301c	Living/Kitchen	50	200	Pass
00DE302c	Living/Kitchen	52	200	Pass
00DE303	Bedroom	71	100	Pass
00DE304	Bedroom	61	100	Pass
00DE305	Bedroom	68	100	Pass
00DE306	Bedroom	61	100	Pass
01DE301k	Kitchen	46	200	Marginal
01DE302k	Kitchen	54	200	Pass
01DE303l	Living	59	150	Pass
01DE304l	Living	58	150	Pass
02DE301	Bedroom	100	100	Pass
02DE302	Bedroom	90	100	Pass
02DE303	Bedroom	100	100	Pass
02DE304	Bedroom	91	100	Pass
02DE305	Bedroom	91	100	Pass
02DE306	Bedroom	90	100	Pass

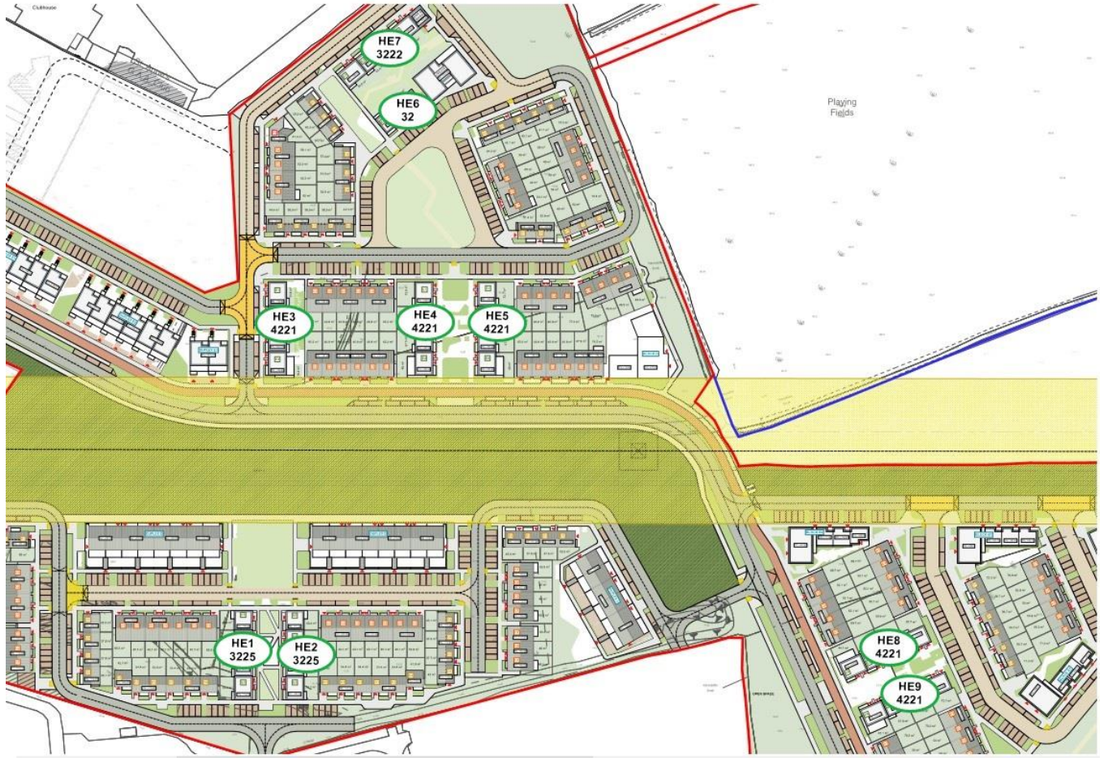
94% compliant, 100% if we include marginals - Duplex E3.

House Type E naming

House Type E are actually Duplexes made of a variety of unit E types.

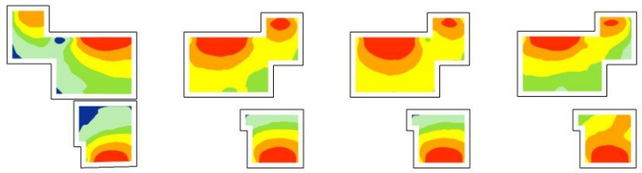
These have been grouped as detailed below into HE numbered blocks.
The Numbering used in this report and the makeup of units in each is detailed in the graphic below.

e.g. HE2 comprises of unit types 3, 2, 2, and 5 which is similar to HE1 but mirrored.

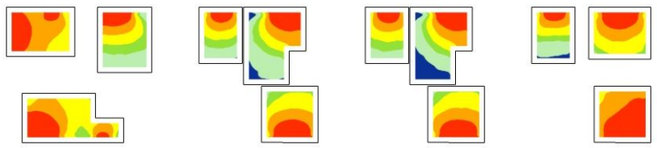


Typical Block HE2 comprising of unit types 3225

GFL



1st



2nd

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

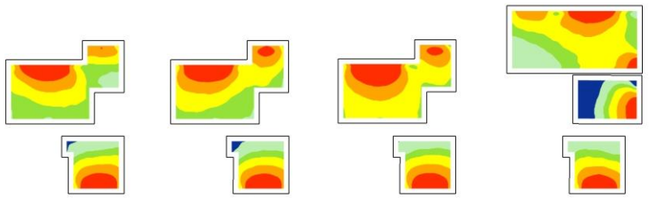
>50 % of the points on a reference plane to exceed

HE2-v1	Type			
Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00-HE2-01	Bedroom	100	100	Pass
00-HE2-02	Bedroom	96	100	Pass
00-HE2-03	Bedroom	94	100	Pass
00-HE2-04l	Living	49	150	Marginal
00-HE2-05k	Kitchen	43	200	Marginal
00-HE2-06c	Living/Kitchen	82	200	Pass
00-HE2-07c	Living/Kitchen	97	200	Pass
00-HE2-08c	Living/Kitchen	58	200	Pass
01-HE2-01	Bedroom	100	100	Pass
01-HE2-02	Bedroom	100	100	Pass
01-HE2-03	Bedroom	100	100	Pass
01-HE2-04	Bedroom	100	100	Pass
01-HE2-05	Bedroom	100	100	Pass
01-HE2-06	Bedroom	100	100	Pass
01-HE2-07	Bedroom	100	100	Pass
01-HE2-08	Bedroom	98	100	Pass
01-HE2-09	Bedroom	100	100	Pass
01-HE2-10	Bedroom	86	100	Pass
01-HE2-11	Bedroom	87	100	Pass
01-HE2-12	Bedroom	100	100	Pass
02-HE2-01c	Living/Kitchen	100	200	Pass
02-HE2-01c	Living/Kitchen	100	200	Pass
02-HE2-01c	Living/Kitchen	100	200	Pass

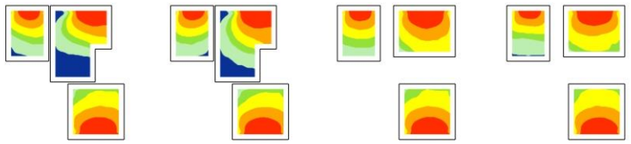
91% compliant, 100% if we include marginals - House Duplex HE2.

Typical Block HE5 comprising of unit types 4221

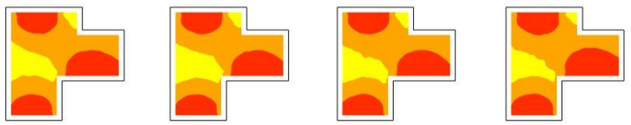
GFL



1st



2nd



NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

HE5-v1	Type			
Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00-HE5-01	Bedroom	100	100	Pass
00-HE5-02	Bedroom	99	100	Pass
00-HE5-03	Bedroom	90	100	Pass
00-HE5-04	Bedroom	94	100	Pass
00-HE5-05c	Living/Kitchen	56	200	Pass
00-HE5-06c	Living/Kitchen	67	200	Pass
00-HE5-07c	Living/Kitchen	91	200	Pass
00-HE5-08c	Living/Kitchen	64	200	Pass
00-HE5-09	Bedroom	56	100	Pass
01-HE5-01	Bedroom	100	100	Pass
01-HE5-02	Bedroom	100	100	Pass
01-HE5-03	Bedroom	100	100	Pass
01-HE5-04	Bedroom	100	100	Pass
01-HE5-05	Bedroom	93	100	Pass
01-HE5-06	Bedroom	65	100	Pass
01-HE5-07	Bedroom	97	100	Pass
01-HE5-08	Bedroom	73	100	Pass
01-HE5-09	Bedroom	100	100	Pass
01-HE5-11	Bedroom	97	100	Pass
01-HE5-12	Bedroom	100	100	Pass
02-HE5-01c	Living/Kitchen	100	200	Pass
02-HE5-02c	Living/Kitchen	100	200	Pass
02-HE5-03c	Living/Kitchen	100	200	Pass
02-HE5-04c	Living/Kitchen	100	200	Pass

100% compliant - House Duplex HE5.

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

HE1-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00-HE1-01	Bedroom	100	100	Pass
00-HE1-02	Bedroom	94	100	Pass
00-HE1-03	Bedroom	94	100	Pass
00-HE1-04l	Living	53	150	Pass
00-HE1-05k	Kitchen	47	200	Marginal
00-HE1-06c	Living/Kitchen	83	200	Pass
00-HE1-07c	Living/Kitchen	92	200	Pass
00-HE1-08c	Living/Kitchen	55	200	Pass
01-HE1-01	Bedroom	100	100	Pass
01-HE1-02	Bedroom	100	100	Pass
01-HE1-03	Bedroom	100	100	Pass
01-HE1-04	Bedroom	100	100	Pass
01-HE1-05	Bedroom	100	100	Pass
01-HE1-06	Bedroom	100	100	Pass
01-HE1-07	Bedroom	100	100	Pass
01-HE1-08	Bedroom	98	100	Pass
01-HE1-09	Bedroom	100	100	Pass
01-HE1-10	Bedroom	70	100	Pass
01-HE1-11	Bedroom	83	100	Pass
01-HE1-12	Bedroom	100	100	Pass
02-HE1-01c	Living/Kitchen	100	200	Pass
02-HE1-01c	Living/Kitchen	100	200	Pass
02-HE1-01c	Living/Kitchen	100	200	Pass

96% compliant, 100% if we include marginals - House Duplex HE1.

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

HE3-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00-HE3-01	Bedroom	100	100	Pass
00-HE3-02	Bedroom	100	100	Pass
00-HE3-03	Bedroom	100	100	Pass
00-HE3-04	Bedroom	100	100	Pass
00-HE3-05c	Living/Kitchen	96	200	Pass
00-HE3-06c	Living/Kitchen	98	200	Pass
00-HE3-07c	Living/Kitchen	83	200	Pass
00-HE3-08c	Living/Kitchen	60	200	Pass
00-HE3-09	Bedroom	57	100	Pass
01-HE3-01	Bedroom	100	100	Pass
01-HE3-02	Bedroom	100	100	Pass
01-HE3-03	Bedroom	100	100	Pass
01-HE3-04	Bedroom	100	100	Pass
01-HE3-05	Bedroom	100	100	Pass
01-HE3-06	Bedroom	91	100	Pass
01-HE3-07	Bedroom	100	100	Pass
01-HE3-08	Bedroom	97	100	Pass
01-HE3-09	Bedroom	100	100	Pass
01-HE3-10	Bedroom	100	100	Pass
01-HE3-11	Bedroom	95	100	Pass
01-HE3-12	Bedroom	100	100	Pass
02-HE3-01c	Living/Kitchen	100	200	Pass
02-HE3-02c	Living/Kitchen	100	200	Pass
02-HE3-03c	Living/Kitchen	100	200	Pass
02-HE3-04c	Living/Kitchen	100	200	Pass

100% compliant - House Duplex HE3.

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

HE4-v1	Type			
Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00-HE4-01	Bedroom	100	100	Pass
00-HE4-02	Bedroom	100	100	Pass
00-HE4-03	Bedroom	96	100	Pass
00-HE4-04	Bedroom	100	100	Pass
00-HE4-05c	Living/Kitchen	72	200	Pass
00-HE4-06c	Living/Kitchen	81	200	Pass
00-HE4-07c	Living/Kitchen	98	200	Pass
00-HE4-08c	Living/Kitchen	70	200	Pass
00-HE4-09	Bedroom	60	100	Pass
01-HE4-01	Bedroom	100	100	Pass
01-HE4-02	Bedroom	100	100	Pass
01-HE4-03	Bedroom	100	100	Pass
01-HE4-04	Bedroom	100	100	Pass
01-HE4-05	Bedroom	100	100	Pass
01-HE4-06	Bedroom	72	100	Pass
01-HE4-07	Bedroom	100	100	Pass
01-HE4-08	Bedroom	88	100	Pass
01-HE4-09	Bedroom	100	100	Pass
01-HE4-10	Bedroom	100	100	Pass
01-HE4-11	Bedroom	100	100	Pass
01-HE4-12	Bedroom	100	100	Pass
02-HE4-01c	Living/Kitchen	100	200	Pass
02-HE4-02c	Living/Kitchen	100	200	Pass
02-HE4-03c	Living/Kitchen	100	200	Pass
02-HE4-04c	Living/Kitchen	100	200	Pass

100% compliant - House Duplex HE4.

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

HE8-v1	Type			
Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00-HE8-01	Bedroom	93	100	Pass
00-HE8-02	Bedroom	80	100	Pass
00-HE8-03	Bedroom	73	100	Pass
00-HE8-04	Bedroom	85	100	Pass
00-HE8-05c	Living/Kitchen	97	200	Pass
00-HE8-06c	Living/Kitchen	98	200	Pass
00-HE8-07c	Living/Kitchen	100	200	Pass
00-HE8-08c	Living/Kitchen	58	200	Pass
00-HE8-09	Bedroom	67	100	Pass
01-HE8-01	Bedroom	100	100	Pass
01-HE8-02	Bedroom	100	100	Pass
01-HE8-03	Bedroom	100	100	Pass
01-HE8-04	Bedroom	100	100	Pass
01-HE8-05	Bedroom	100	100	Pass
01-HE8-06	Bedroom	85	100	Pass
01-HE8-07	Bedroom	100	100	Pass
01-HE8-08	Bedroom	77	100	Pass
01-HE8-09	Bedroom	100	100	Pass
01-HE8-10	Bedroom	81	100	Pass
01-HE8-11	Bedroom	100	100	Pass
01-HE8-12	Bedroom	100	100	Pass
02-HE8-01c	Living/Kitchen	100	200	Pass
02-HE8-02c	Living/Kitchen	100	200	Pass
02-HE8-03c	Living/Kitchen	100	200	Pass
02-HE8-04c	Living/Kitchen	100	200	Pass

100% compliant - House Duplex HE8.

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

HE9-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00-HE9-01	Bedroom	96	100	Pass
00-HE9-02	Bedroom	80	100	Pass
00-HE9-03	Bedroom	71	100	Pass
00-HE9-04	Bedroom	87	100	Pass
00-HE9-05c	Living/Kitchen	71	200	Pass
00-HE9-06c	Living/Kitchen	95	200	Pass
00-HE9-07c	Living/Kitchen	99	200	Pass
00-HE9-08c	Living/Kitchen	58	200	Pass
00-HE9-09	Bedroom	62	100	Pass
01-HE9-01	Bedroom	100	100	Pass
01-HE9-02	Bedroom	100	100	Pass
01-HE9-03	Bedroom	100	100	Pass
01-HE9-04	Bedroom	100	100	Pass
01-HE9-05	Bedroom	100	100	Pass
01-HE9-06	Bedroom	79	100	Pass
01-HE9-07	Bedroom	100	100	Pass
01-HE9-08	Bedroom	74	100	Pass
01-HE9-09	Bedroom	100	100	Pass
01-HE9-10	Bedroom	78	100	Pass
01-HE9-11	Bedroom	100	100	Pass
01-HE9-12	Bedroom	100	100	Pass
02-HE9-01c	Living/Kitchen	100	200	Pass
02-HE9-02c	Living/Kitchen	100	200	Pass
02-HE9-03c	Living/Kitchen	100	200	Pass
02-HE9-04c	Living/Kitchen	100	200	Pass

100% compliant - House Duplex HE9.

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

HE6-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00HE601	Bedroom	100	100	Pass
00HE602	Bedroom	100	100	Pass
00HE603c	Living/Kitchen	69	200	Pass
00HE604c	Living/Kitchen	82	200	Pass
01HE601	Bedroom	100	100	Pass
01HE602	Bedroom	100	100	Pass
01HE603	Bedroom	100	100	Pass
01HE604	Bedroom	74	100	Pass
01HE605	Bedroom	100	100	Pass
01HE606	Bedroom	100	100	Pass
02HE601c	Living/Kitchen	100	200	Pass
02HE602c	Living/Kitchen	100	200	Pass

100% compliant - House Duplex HE6.

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

HE7-v1	Type			
Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00-HE7-01	Bedroom	100	100	Pass
00-HE7-02	Bedroom	100	100	Pass
00-HE7-03	Bedroom	100	100	Pass
00-HE7-04	Bedroom	100	100	Pass
00-HE7-05c	Living/Kitchen	58	200	Pass
00-HE7-06c	Living/Kitchen	55	200	Pass
00-HE7-07c	Living/Kitchen	54	200	Pass
00-HE7-08c	Living/Kitchen	60	200	Pass
01-HE7-01	Bedroom	100	100	Pass
01-HE7-02	Bedroom	100	100	Pass
01-HE7-03	Bedroom	100	100	Pass
01-HE7-04	Bedroom	100	100	Pass
01-HE7-05	Bedroom	100	100	Pass
01-HE7-06	Bedroom	76	100	Pass
01-HE7-07	Bedroom	100	100	Pass
01-HE7-08	Bedroom	72	100	Pass
01-HE7-09	Bedroom	100	100	Pass
01-HE7-10	Bedroom	73	100	Pass
01-HE7-11	Bedroom	100	100	Pass
01-HE7-12	Bedroom	100	100	Pass
02-HE7-01c	Living/Kitchen	100	200	Pass
02-HE7-02c	Living/Kitchen	100	200	Pass
02-HE7-03c	Living/Kitchen	100	200	Pass
02-HE7-04c	Living/Kitchen	100	200	Pass

100% compliant - House Duplex HE7.

	Annex NA E_T % Pass	
	BRE v3	Incl Marginal
	Pass %	Pass %
AptA	100%	100%
AptB1/3	100%	100%
AptB2	100%	100%
AptC	97%	98%
AptD	96%	96%
DupA1	100%	100%
DupA2	100%	100%
DupA3	100%	100%
DupB1	100%	100%
DupB2	100%	100%
DupC1	100%	100%
DupD1	100%	100%
DupD2	100%	100%
DupE1	96%	100%
DupE2	94%	100%
DupE3	94%	100%
HseE2	91%	100%
HseE5	100%	100%
HseE1	96%	100%
HseE3	100%	100%
HseE4	100%	100%
HseE8	100%	100%
HseE9	100%	100%
HseE6	100%	100%
HseE7	100%	100%
Total	**99%**	**100%**

Development Performance - Sunlight to rooms (living spaces)

Clause 3.1.2 of the guidance document BRE indicates that special checks should be applied to living rooms to ensure that these core rooms receive the necessary sunlight.

> *In Housing, the main requirement for sunlight is in living rooms. where it is valued at any time of day but especially in the afternoon.*

Check Clauses

> *3.1.15 In general a dwelling, or non-domestic building that has a particular requirement for sunlight, will appear reasonably sunlit provided:*
> *- 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. This is assessed at the inside centre of the window(s); sunlight received by different windows can be added provided they occur at different times and sunlight hours are not double counted.*

> *3.1.16 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*

The guidelines accept the difficulty imposed by this requirement and that it will not always be possible to achieve this requirement for ALL living spaces. While it is preferred to have sunlight the guidelines are pragmatic in this regard. The guidelines note that:

> *3.1.8……. For larger developments of flats, especially those with site constraints, it may not be possible to have every living room facing within 90° of south…….*

A view or similar may be considered a compensating factor to North facing windows

> *3.1.7 …. compensating factor such as an appealing view to the north.*

It then follows with an example of a careful layout for a relatively small block where 4/5 flats have south facing living rooms, and one North which would receive no sunlight at all. From this layout and results we can conclude or infer that an 80% pass rate is considered careful layout design.

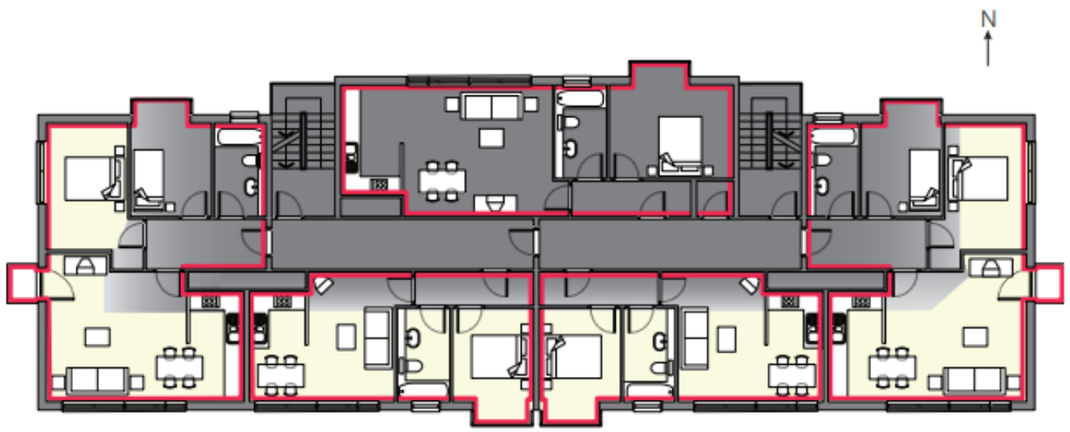


Figure 26: Careful layout design means that four out of the five flats shown have a south-facing living room

Quality of light minimum/medium/high is defined in clause 3.1.10

> *3.1.10 … For interiors, access to sunlight can be quantified. BS EN 17037 recommends that a space should receive a minimum of 1.5 hours of direct sunlight on a selected date between 1 February and 21 March with cloudless conditions. It is suggested that 21 March (equinox) be used. The medium level of recommendation is three hours and the high level of recommendation four hours. For dwellings, at least one habitable room, preferably a main living room, should meet at least the minimum criterion. …..*

Sunlight to living rooms

Receives 1.5 hours of sunlight on 21st March

Block	Floor	Window/Room	Ref	Hrs of Sun	Pass		Quality	
AA	F0	R01	00.AA.01	3.5	Pass		*Medium*	
AA	F0	R03	00.AA.03	7.2	Pass			*High*
AA	F0	R04	00.AA.04	7.0	Pass			*High*
AA	F0	R05	00.AA.05	2.2	Pass	*Min*		
AA	F0	R07	00.AA.07	0.0	Fail			
AA	F1	R01	01.AA.01	4.3	Pass			*High*
AA	F1	R07	01.AA.07	5.8	Pass			*High*
AA	F2	R02	02.AA.02	8.5	Pass			*High*
AA	F2	R04	02.AA.04	8.3	Pass			*High*
AB1	F0	R01	00.AB1.01	5.2	Pass			*High*
AB1	F0	R02	00.AB1.02	6.5	Pass			*High*
AB1	F0	R03	00.AB1.03	5.7	Pass			*High*
AB1	F0	R05	00.AB1.05	7.7	Pass			*High*
AB1	F0	R06	00.AB1.06	4.0	Pass			*High*
AB1	F2	R01	02.AB1.01	6.7	Pass			*High*
AB1	F2	R02	02.AB1.02	5.0	Pass			*High*
AB3	F0	R01	00.AB3.01	7.5	Pass			*High*
AB3	F0	R02	00.AB3.02	7.5	Pass			*High*
AB3	F0	R03	00.AB3.03	7.5	Pass			*High*
AB3	F0	R05	00.AB3.05	7.7	Pass			*High*
AB3	F0	R06	00.AB3.06	6.8	Pass			*High*
AB3	F2	R01	02.AB3.01	8.5	Pass			*High*
AB3	F2	R02	02.AB3.02	7.5	Pass			*High*
AB2	F0	R02	00.AB2.02	7.0	Pass			*High*
AB2	F0	R03	00.AB2.03	5.8	Pass			*High*
AB2	F0	R05	00.AB2.05	5.8	Pass			*High*
AB2	F0	R06	00.AB2.06	4.8	Pass			*High*
AB2	F1	R01	01.AB2.01	8.0	Pass			*High*
AB2	F2	R01	02.AB2.01	6.7	Pass			*High*
AB2	F2	R02	02.AB2.02	5.7	Pass			*High*
AC	FX	R03	X.AC.03	7.7	Pass			*High*
AC	FX	R06	X.AC.06	7.7	Pass			*High*
AC	F0	R01	00.AC.01	6.2	Pass			*High*
AC	F0	R03	00.AC.03	6.2	Pass			*High*
AC	F0	R07	00.AC.07	8.0	Pass			*High*
AC	F0	R09	00.AC.09	7.0	Pass			*High*
AC	F0	R11	00.AC.11	4.8	Pass			*High*
AC	F0	R13	00.AC.13	5.2	Pass			*High*
AC	F0	R16	00.AC.16	5.7	Pass			*High*
AC	F0	R20	00.AC.20	3.0	Pass		*Medium*	

Sunlight to living rooms

Receives 1.5 hours of sunlight on 21st March

Block	Floor	Window/Room	Ref	Hrs of Sun	Pass		Quality	
AC	F1	R02	01.AC.02	8.0	Pass			*High*
AC	F1	R04	01.AC.04	7.7	Pass			*High*
AC	F1	R07	01.AC.07	8.0	Pass			*High*
AC	F1	R09	01.AC.09	7.7	Pass			*High*
AC	F1	R12	01.AC.12	5.7	Pass			*High*
AC	F1	R14	01.AC.14	4.2	Pass			*High*
AC	F1	R16	01.AC.16	5.8	Pass			*High*
AC	F1	R20	01.AC.20	5.5	Pass			*High*
AC	F2	R03	02.AC.03	7.7	Pass			*High*
AC	F2	R05	02.AC.05	7.8	Pass			*High*
AC	F2	R07	02.AC.07	6.0	Pass			*High*
AC	F2	R10	02.AC.10	6.2	Pass			*High*
AC	F2	R14	02.AC.14	9.0	Pass			*High*
AD	F0	R02	00.AD.02	3.0	Pass		*Medium*	
AD	F0	R04	00.AD.04	5.2	Pass			*High*
AD	F0	R09	00.AD.09	10.7	Pass			*High*
AD	F1	R02	01.AD.02	3.0	Pass		*Medium*	
AD	F1	R05	01.AD.05	5.3	Pass			*High*
AD	F1	R06	01.AD.06	10.7	Pass			*High*
AD	F1	R10	01.AD.10	10.7	Pass			*High*
AD	F2	R02	02.AD.02	5.3	Pass			*High*
AD	F2	R03	02.AD.03	10.7	Pass			*High*
DA1	F0	R13	00.DA1.13	10.0	Pass			*High*
DA1	F0	R15	00.DA1.15	10.5	Pass			*High*
DA1	F0	R16	00.DA1.16	10.7	Pass			*High*
DA1	F0	R19	00.DA1.19	10.5	Pass			*High*
DA1	F0	R20	00.DA1.20	10.5	Pass			*High*
DA1	F0	R22	00.DA1.22	10.7	Pass			*High*
DA1	F1	R07	01.DA1.07	10.7	Pass			*High*
DA1	F1	R08	01.DA1.08	10.7	Pass			*High*
DA1	F1	R09	01.DA1.09	10.7	Pass			*High*
DA1	F1	R10	01.DA1.10	10.7	Pass			*High*
DA1	F1	R11	01.DA1.11	10.7	Pass			*High*
DA1	F1	R12	01.DA1.12	10.7	Pass			*High*
DA2	F0	R13	00.DA2.13	9.5	Pass			*High*
DA2	F0	R15	00.DA2.15	9.5	Pass			*High*
DA2	F0	R16	00.DA2.16	9.3	Pass			*High*
DA2	F0	R19	00.DA2.19	9.5	Pass			*High*
DA2	F0	R20	00.DA2.20	9.3	Pass			*High*
DA2	F0	R22	00.DA2.22	9.7	Pass			*High*
DA2	F1	R07	01.DA2.07	10.0	Pass			*High*
DA2	F1	R08	01.DA2.08	10.3	Pass			*High*
DA2	F1	R09	01.DA2.09	10.2	Pass			*High*
DA2	F1	R10	01.DA2.10	10.2	Pass			*High*
DA2	F1	R11	01.DA2.11	10.2	Pass			*High*
DA2	F1	R12	01.DA2.12	10.3	Pass			*High*

Sunlight to living rooms

Receives 1.5 hours of sunlight on 21st March

Block	Floor	Window/Room	Ref	Hrs of Sun	Pass	Quality
DA3	F0	R13	00.DA3.13	9.2	Pass	High
DA3	F0	R15	00.DA3.15	9.3	Pass	High
DA3	F0	R16	00.DA3.16	9.3	Pass	High
DA3	F0	R19	00.DA3.19	10.0	Pass	High
DA3	F0	R20	00.DA3.20	10.0	Pass	High
DA3	F0	R22	00.DA3.22	10.0	Pass	High
DA3	F1	R07	01.DA3.07	10.3	Pass	High
DA3	F1	R08	01.DA3.08	10.3	Pass	High
DA3	F1	R09	01.DA3.09	10.3	Pass	High
DA3	F1	R10	01.DA3.10	10.3	Pass	High
DA3	F1	R11	01.DA3.11	10.3	Pass	High
DA3	F1	R12	01.DA3.12	10.3	Pass	High
DB1	F0	R17	00.DB1.17	9.3	Pass	High
DB1	F0	R19	00.DB1.19	9.3	Pass	High
DB1	F0	R20	00.DB1.20	9.5	Pass	High
DB1	F0	R23	00.DB1.23	10.0	Pass	High
DB1	F0	R24	00.DB1.24	10.0	Pass	High
DB1	F0	R27	00.DB1.27	9.8	Pass	High
DB1	F0	R28	00.DB1.28	9.8	Pass	High
DB1	F0	R30	00.DB1.30	9.8	Pass	High
DB1	F1	R09	01.DB1.09	10.3	Pass	High
DB1	F1	R10	01.DB1.10	10.2	Pass	High
DB1	F1	R11	01.DB1.11	10.2	Pass	High
DB1	F1	R12	01.DB1.12	10.2	Pass	High
DB1	F0	R13	00.DB1.13	10.2	Pass	High
DB1	F0	R14	00.DB1.14	10.2	Pass	High
DB1	F0	R15	00.DB1.15	10.2	Pass	High
DB1	F0	R16	00.DB1.16	10.2	Pass	High
DB2	F0	R17	00.DB2.17	9.7	Pass	High
DB2	F0	R19	00.DB2.19	9.7	Pass	High
DB2	F0	R20	00.DB2.20	9.7	Pass	High
DB2	F0	R23	00.DB2.23	9.7	Pass	High
DB2	F0	R24	00.DB2.24	9.7	Pass	High
DB2	F0	R27	00.DB2.27	9.7	Pass	High
DB2	F0	R28	00.DB2.28	9.7	Pass	High
DB2	F0	R30	00.DB2.30	10.0	Pass	High
DB2	F1	R09	01.DB2.09	10.2	Pass	High
DB2	F1	R10	01.DB2.10	10.2	Pass	High
DB2	F1	R11	01.DB2.11	10.2	Pass	High
DB2	F1	R12	01.DB2.12	10.3	Pass	High
DB2	F0	R13	00.DB2.13	10.3	Pass	High
DB2	F0	R14	00.DB2.14	10.3	Pass	High
DB2	F0	R15	00.DB2.15	10.3	Pass	High
DB2	F0	R16	00.DB2.16	10.3	Pass	High

Sunlight to living rooms

Receives 1.5 hours of sunlight on 21st March

Block	Floor	Window/Room	Ref	Hrs of Sun	Pass	Quality
DC1	F0	R13	00.DC1.13	5.5	Pass	High
DC1	F0	R15	00.DC1.15	6.0	Pass	High
DC1	F0	R16	00.DC1.16	6.3	Pass	High
DC1	F0	R19	00.DC1.19	6.2	Pass	High
DC1	F0	R20	00.DC1.20	6.3	Pass	High
DC1	F0	R22	00.DC1.22	6.5	Pass	High
DC1	F1	R07	01.DC1.07	6.7	Pass	High
DC1	F1	R08	01.DC1.08	6.7	Pass	High
DC1	F1	R09	01.DC1.09	6.8	Pass	High
DC1	F1	R10	01.DC1.10	7.2	Pass	High
DC1	F1	R11	01.DC1.11	7.2	Pass	High
DC1	F1	R12	01.DC1.12	7.0	Pass	High
DD1	F0	R17	00.DD1.17	10.7	Pass	High
DD1	F0	R19	00.DD1.19	10.7	Pass	High
DD1	F0	R20	00.DD1.20	10.5	Pass	High
DD1	F0	R23	00.DD1.23	10.7	Pass	High
DD1	F0	R24	00.DD1.24	10.7	Pass	High
DD1	F0	R27	00.DD1.27	10.5	Pass	High
DD1	F0	R28	00.DD1.28	10.3	Pass	High
DD1	F0	R30	00.DD1.30	10.0	Pass	High
DD1	F1	R09	01.DD1.09	11.0	Pass	High
DD1	F1	R10	01.DD1.10	11.0	Pass	High
DD1	F1	R11	01.DD1.11	11.0	Pass	High
DD1	F1	R12	01.DD1.12	11.0	Pass	High
DD1	F1	R13	01.DD1.13	10.8	Pass	High
DD1	F1	R14	01.DD1.14	10.8	Pass	High
DD1	F1	R15	01.DD1.15	10.7	Pass	High
DD1	F1	R16	01.DD1.16	10.5	Pass	High
DD2	F0	R17	00.DD2.17	10.3	Pass	High
DD2	F0	R19	00.DD2.19	10.5	Pass	High
DD2	F0	R20	00.DD2.20	10.5	Pass	High
DD2	F0	R23	00.DD2.23	10.7	Pass	High
DD2	F0	R24	00.DD2.24	10.8	Pass	High
DD2	F0	R27	00.DD2.27	10.8	Pass	High
DD2	F0	R28	00.DD2.28	10.8	Pass	High
DD2	F0	R30	00.DD2.30	11.0	Pass	High
DD2	F1	R09	01.DD2.09	11.0	Pass	High
DD2	F1	R10	01.DD2.10	11.2	Pass	High
DD2	F1	R11	01.DD2.11	11.2	Pass	High
DD2	F1	R12	01.DD2.12	11.2	Pass	High
DD2	F1	R13	01.DD2.13	11.2	Pass	High
DD2	F1	R14	01.DD2.14	11.2	Pass	High
DD2	F1	R15	01.DD2.15	11.0	Pass	High
DD2	F1	R16	01.DD2.16	11.0	Pass	High

Sunlight to living rooms

Receives 1.5 hours of sunlight on 21st March

Block	Floor	Window/Room	Ref	Hrs of Sun	Pass			Quality	
DE1	F0	R01	00.DE1.01	6.0	Pass				High
DE2	F0	R02	00.DE2.02	6.0	Pass				High
DE3	F0	R03	00.DE3.03	6.0	Pass				High
DE4	F0	R04	00.DE4.04	6.0	Pass				High
DE5	F0	R05	00.DE5.05	6.0	Pass				High
DE6	F0	R06	00.DE6.06	6.0	Pass				High
DE7	F0	R07	00.DE7.07	6.0	Pass				High
DE8	F1	R08	01.DE8.08	1.5	Pass		Min		
DE9	F1	R09	01.DE9.09	1.7	Pass		Min		
DE10	F1	R10	01.DE10.10	1.7	Pass		Min		
DE11	F1	R11	01.DE11.11	1.7	Pass		Min		
DE12	F1	R12	01.DE12.12	1.7	Pass		Min		
DE13	F1	R13	01.DE13.13	1.7	Pass		Min		
DE14	F1	R14	01.DE14.14	1.7	Pass		Min		
DE2	F0	R01	00.DE2.01	6.0	Pass				High
DE2	F0	R02	00.DE2.02	6.0	Pass				High
DE2	F0	R03	00.DE2.03	6.0	Pass				High
DE2	F0	R04	00.DE2.04	6.0	Pass				High
DE2	F0	R05	00.DE2.05	6.0	Pass				High
DE2	F0	R06	00.DE2.06	6.0	Pass				High
DE2	F1	R07	01.DE2.07	0.2	Fail	*1			
DE2	F1	R08	01.DE2.08	1.2	Marginal	*1			
DE2	F1	R09	01.DE2.09	1.3	Marginal	*1			
DE2	F1	R10	01.DE2.10	1.3	Marginal	*1			
DE2	F1	R11	01.DE2.11	1.3	Marginal	*1			
DE2	F1	R12	01.DE2.12	1.3	Marginal	*1			
DE3	F0	R01	00.DE3.01	5.8	Pass				High
DE3	F0	R02	00.DE3.02	6.0	Pass				High
DE3	F1	R03	01.DE3.03	0.0	Fail	*1			
DE3	F1	R04	01.DE3.04	0.0	Fail	*1			
HE1	F0	R01	00.HE1.01	4.7	Pass				High
HE1	F0	R02	00.HE1.02	0.3	Fail				
HE1	F0	R03	00.HE1.03	3.8	Pass			Medium	
HE1	F0	R04	00.HE1.04	1.5	Pass		Min		
HE1	F1	R01	01.HE1.01	10.2	Pass				High
HE1	F1	R02	01.HE1.02	5.3	Pass				High
HE1	F1	R03	01.HE1.03	5.3	Pass				High

Sunlight to living rooms

Receives 1.5 hours of sunlight on 21st March

Block	Floor	Window/Room	Ref	Hrs of Sun	Pass		Quality	
HE2	F0	R01	00.HE2.01	5.3	Pass			High
HE2	F0	R02	00.HE2.02	1.3	Marginal			
HE2	F0	R03	00.HE2.03	4.8	Pass			High
HE2	F0	R04	00.HE2.04	1.5	Pass	Min		
HE2	F2	R01	02.HE2.01	10.2	Pass			High
HE2	F2	R02	02.HE2.02	5.3	Pass			High
HE2	F2	R03	02.HE2.03	5.2	Pass			High
HE3	F0	R01	00.HE3.01	7.0	Pass			High
HE3	F0	R02	00.HE3.02	2.0	Pass	Min		
HE3	F0	R03	00.HE3.03	4.7	Pass			High
HE3	F0	R04	00.HE3.04	4.2	Pass			High
HE3	F2	R01	02.HE3.01	4.8	Pass			High
HE3	F2	R02	02.HE3.02	5.2	Pass			High
HE3	F2	R03	02.HE3.03	5.2	Pass			High
HE3	F2	R04	02.HE3.04	5.3	Pass			High
HE4	F0	R01	00.HE4.01	6.8	Pass			High
HE4	F0	R02	00.HE4.02	2.0	Pass	Min		
HE4	F0	R03	00.HE4.03	4.7	Pass			High
HE4	F0	R04	00.HE4.04	2.8	Pass	Min		
HE4	F2	R01	02.HE4.01	5.0	Pass			High
HE4	F2	R02	02.HE4.02	5.3	Pass			High
HE4	F2	R03	02.HE4.03	5.3	Pass			High
HE4	F2	R04	02.HE4.04	5.3	Pass			High
HE5	F0	R01	00.HE5.01	6.8	Pass			High
HE5	F0	R02	00.HE5.02	2.0	Pass	Min		
HE5	F0	R03	00.HE5.03	4.0	Pass			High
HE5	F0	R04	00.HE5.04	2.8	Pass	Min		
HE5	F2	R01	02.HE5.01	4.3	Pass			High
HE5	F2	R02	02.HE5.02	4.8	Pass			High
HE5	F2	R03	02.HE5.03	4.7	Pass			High
HE5	F2	R04	02.HE5.04	4.2	Pass			High
HE8	F0	R01	00.HE8.01	5.3	Pass			High
HE8	F0	R02	00.HE8.02	0.0	Fail			
HE8	F0	R03	00.HE8.03	0.8	Fail			
HE8	F0	R04	00.HE8.04	0.5	Fail			
HE8	F2	R01	02.HE8.01	9.5	Pass			High
HE8	F2	R02	02.HE8.02	9.5	Pass			High
HE8	F2	R03	02.HE8.03	9.5	Pass			High
HE8	F2	R04	02.HE8.04	9.5	Pass			High

Sunlight to living rooms

Receives 1.5 hours of sunlight on 21st March

Block	Floor	Window/Room	Ref	Hrs of Sun	Pass	Quality
HE9	F0	R01	00.HE9.01	5.7	Pass	*High*
HE9	F0	R02	00.HE9.02	6.5	Pass	*High*
HE9	F0	R03	00.HE9.03	6.8	Pass	*High*
HE9	F0	R04	00.HE9.04	5.7	Pass	*High*
HE9	F2	R01	02.HE9.01	9.5	Pass	*High*
HE9	F2	R02	02.HE9.02	9.5	Pass	*High*
HE9	F2	R03	02.HE9.03	9.3	Pass	*High*
HE9	F2	R04	02.HE9.04	9.3	Pass	*High*
HE6	F0	R01	00.HE6.01	0.0	Fail	
HE6	F0	R02	00.HE6.02	1.3	Marginal	
HE6	F2	R03	02.HE6.03	8.5	Pass	*High*
HE6	F2	R04	02.HE6.04	8.5	Pass	*High*
HE7	F0	R01	00.HE7.01	5.5	Pass	*High*
HE7	F0	R02	00.HE7.02	5.8	Pass	*High*
HE7	F0	R03	00.HE7.03	5.3	Pass	*High*
HE7	F0	R04	00.HE7.04	6.0	Pass	*High*
HE7	F2	R05	02.HE7.05	8.3	Pass	*High*
HE7	F2	R06	02.HE7.06	8.3	Pass	*High*
HE7	F2	R07	02.HE7.07	8.5	Pass	*High*

Rooms referenced *1 relate to Living rooms which face North. These apartments also have separate kitchen dining spaces which face south. While it is desirable that living rooms receive sunlight the EN and BRE guides/standards focus on sunlight to the apartment as a whole. These kitchens receive a high quality of sunlight.

This is consistent with the guidelines example of “careful layout” design 80%.

Please refer to the Architects comments for compensatory factors.

Summary

Sunlight to living rooms:

94% of all Living rooms *(97% if we include marginals)* receive 1.5hrs of sunlight on the test day of the 21st March 87% of rooms are in the high-quality range.

This is consistent with the BRE defined “careful layout design” 80% target.

		Shadow / Sunlight Amenity			
		>50% receives 2 hours of sunlight on 21st March)			
Usage	Type	Ref	Ref	% 2hr Sunlight	Check
Public	Pub	A1	Pub.A1	97%	Pass
Public	Pub	A2	Pub.A2	100%	Pass
Communal	Apt	A	Apt.A	28%	Fail
Communal	Apt	B1	Apt.B1	94%	Pass
Communal	Apt	B2	Apt.B2	95%	Pass
Communal	Apt	B3	Apt.B3	6%	Fail
Communal	Apt	C	Apt.C	21%	Fail
Communal	Apt	D	Apt.D	40%	Marginal
Communal	Dup	A12	Dup.A12	100%	Pass
Communal	Dup	B12	Dup.B12	100%	Pass
Communal	Dup	A3	Dup.A3	100%	Pass
Communal	Dup	C1	Dup.C1	100%	Pass
Communal	Dup	D12	Dup.D12	100%	Pass
Communal	Dup	E1	Dup.E1	98%	Pass
Communal	Dup	E2	Dup.E2	92%	Pass
Communal	HE	12	HE.12	100%	Pass
Communal	HE	3	HE.3	45%	Marginal
Communal	HE	45	HE.45	98%	Pass
Communal	HE	67	HE.67	94%	Pass
Communal	HE	89	HE.89	66%	Pass

Please note that passing the BRE requirements does not imply that shadows will not be cast over an amenity space at all. Shadows which are transient by nature may not impact on the percentage of the space which receives 2 hours of sunlight on the 21st of March.

Conclusion

75% (85% including marginal) of new provided communal and public amenity spaces pass the BRE requirement. There are compensatory factors relating to those that do not.

The tested spaces generally comply with the requirements of the BRE guidelines

Development Performance - Sunlight on the Ground SOG (Shadow)
Gardens and Open spaces

Tests for the availability of sunlight in amenity areas.

> ***43.3.17 It is recommended that for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on 21 March. If as a result of new development an existing garden or amenity area does not meet the above, and the area that can receive two hours of sun on 21 March is less than 0.80 times its former value, then the loss of sunlight is likely to be noticeable. If a detailed calculation cannot be carried out, it is recommended that the centre of the area should receive at least two hours of sunlight on 21 March***
>
> ***3.3.3 The availability of sunlight should be checked for all open spaces where it will be required. This would normally include:***
> ***• gardens, such as the main back garden of a house or communal gardens including courtyards and roof terraces***
> ***• parks and playing fields***
> ***• children's playgrounds***
> ***• outdoor swimming pools and paddling pools, and other areas of recreational water such as marinas and boating lakes***
> ***• sitting out areas such as those between non-domestic buildings and in public squares***
> ***• nature reserves (which may have special requirements for sunlight if rare plants are growing there).***
>
> ***3.3.9 … Normally trees and shrubs need not be included, partly because their shapes are almost impossible to predict, and partly because the dappled shade of a tree is more pleasant than the deep shadow of a building (this applies especially to deciduous trees). …***

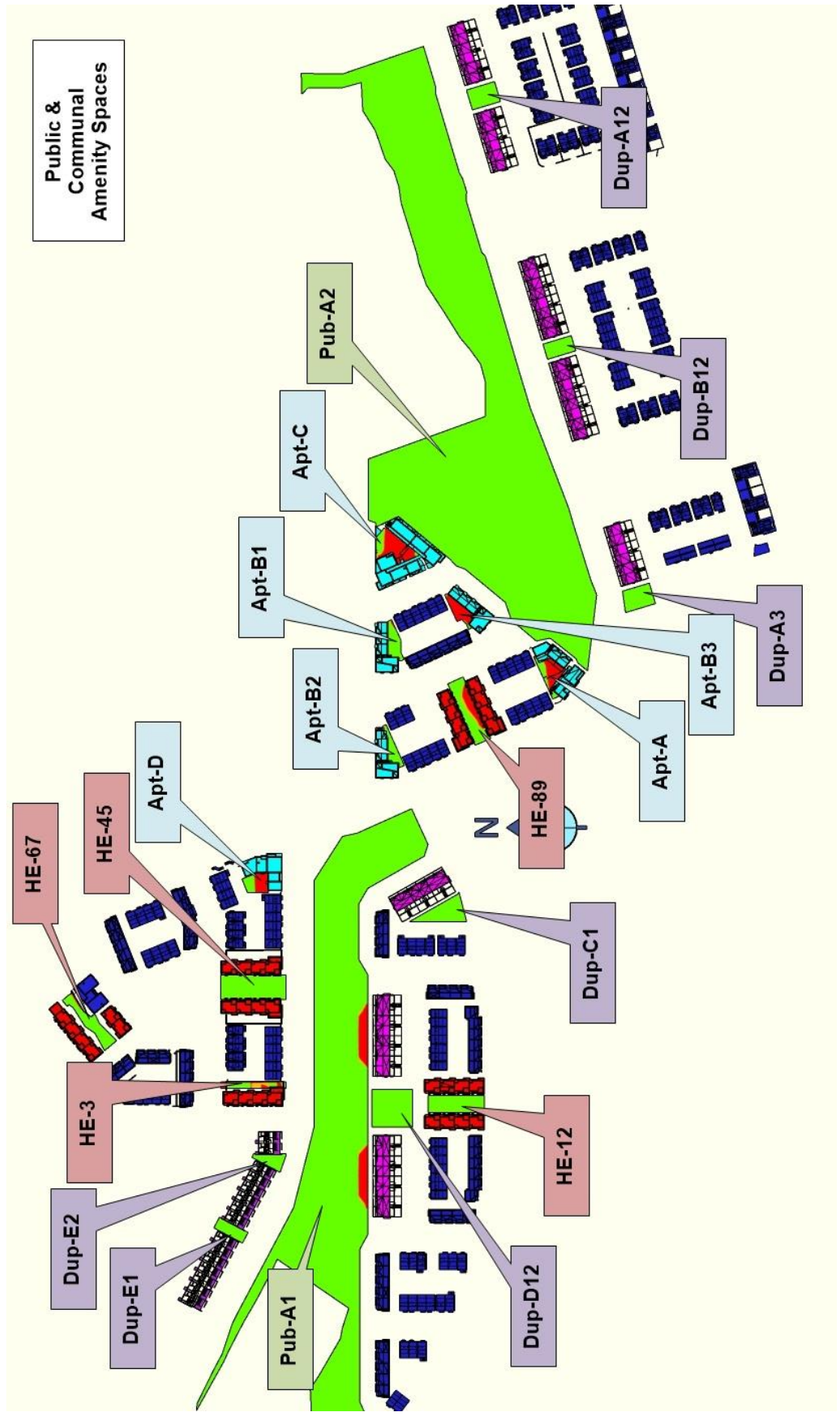
The amenities of the following Building Groups were tested.

- Public & Shared / communal Spaces but not Private balconies are tested.

BRE 2-hour Shadow Plots

The graphic below indicates the areas which receive 2 hours of sunlight on the 21st March in accordance with the BRE guidelines.

- **Green** represents areas which exceed the 2-hour requirement - pass
- **Red** is less than the 2-hour requirement - fail
- **Orange** are marginal or borderline - just below the 2-hour requirement



Proposed

The results are tabulated below:

		Shadow / Sunlight Amenity			
		>50% receives 2 hours of sunlight on 21st March)			
Usage	Type	Ref	Ref	% 2hr Sunlight	Check
Public	Pub	A1	Pub.A1	97%	Pass
Public	Pub	A2	Pub.A2	100%	Pass
Communal	Apt	A	Apt.A	28%	Fail
Communal	Apt	B1	Apt.B1	94%	Pass
Communal	Apt	B2	Apt.B2	95%	Pass
Communal	Apt	B3	Apt.B3	6%	Fail
Communal	Apt	C	Apt.C	21%	Fail
Communal	Apt	D	Apt.D	40%	Marginal
Communal	Dup	A12	Dup.A12	100%	Pass
Communal	Dup	B12	Dup.B12	100%	Pass
Communal	Dup	A3	Dup.A3	100%	Pass
Communal	Dup	C1	Dup.C1	100%	Pass
Communal	Dup	D12	Dup.D12	100%	Pass
Communal	Dup	E1	Dup.E1	98%	Pass
Communal	Dup	E2	Dup.E2	92%	Pass
Communal	HE	12	HE.12	100%	Pass
Communal	HE	3	HE.3	45%	Marginal
Communal	HE	45	HE.45	98%	Pass
Communal	HE	67	HE.67	94%	Pass
Communal	HE	89	HE.89	66%	Pass

Please note that passing the BRE requirements does not imply that shadows will not be cast over an amenity space at all. Shadows which are transient by nature may not impact on the percentage of the space which receives 2 hours of sunlight on the 21st of March.

Conclusion

75% (85% including marginal) of new provided communal and public amenity spaces pass the BRE requirement. There are compensatory factors relating to those that do not.

The tested spaces generally comply with the requirements of the BRE guidelines

Architects Commentary Compensatory Measures.

General

The design of this an urban/suburban scheme with competing design constraints and objectives covered by clauses 6.6/6.7 of the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities – amended July 2023:

6.6 Planning authorities should ensure appropriate expert advice and input where necessary, and have regard to quantitative performance approaches to daylight provision outlined in guides like A New European Standard for Daylighting in BuildingsEN17037 or UK National Annex BS EN17037 and the associated BRE Guide 209 2022 Edition (June 2022),or any relevant future guidance specific to the Irish context, when undertaken by development proposers which offer the capability to satisfy minimum standards of daylight provision.

6.7 Where an applicant cannot fully meet all of the requirements of the daylight provisions above, this must be clearly identified and a rationale for any alternative, compensatory design solutions must be set out, which planning authorities should apply their discretion in accepting taking account of its assessment of specific. This may arise due to a design constraints associated with the site or location and the balancing of that assessment against the desirability of achieving wider planning objectives. Such objectives might include securing comprehensive urban regeneration and or an effective urban design and streetscape solution.

Similarly, department document "Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities" which references the same guidelines notes:

5.3.7 Daylight The provision of acceptable levels of daylight in new residential developments is an important planning consideration, in the interests of ensuring a high quality living environment for future residents. It is also important to safeguard against a detrimental impact on the amenity of other sensitive occupiers of adjacent properties.

(a) The potential for poor daylight performance in a proposed development or for a material impact on neighbouring properties will generally arise in cases where the buildings are close together, where higher buildings are involved, or where there are other obstructions to daylight. Planning authorities do not need to undertake a detailed technical assessment in relation to daylight performance in all cases. It should be clear from the assessment of architectural drawings (including sections) in the case of low-rise housing with good separation from existing and proposed buildings that undue impact would not arise, and planning authorities may apply a level of discretion in this regard.

(b) In cases where a technical assessment of daylight performance is considered by the planning authority to be necessary regard should be had to quantitative performance approaches to daylight provision outlined in guides like A New European Standard for Daylighting in Buildings IS EN17037:2018, UK National Annex BS EN17037:2019 and the associated BRE Guide 209 2022 Edition (June 2022), or any relevant future standards or guidance specific to the Irish context.

In drawing conclusions in relation to daylight performance, planning authorities must weigh up the overall quality of the design and layout of the scheme and the measures proposed to maximise daylight provision, against the location of the site and the general presumption in favour of increased scales of urban residential development. Poor performance may arise due to design constraints associated with the site or location and there is a need to balance that assessment against the desirability of achieving wider planning objectives. Such objectives might include securing comprehensive urban regeneration and or an effective urban design and streetscape solution.

The architect has endeavoured to design apartment units with good access to light. Where constraints have made attaining the relevant standards unachievable, compensatory measures have been made. The Architect has identified all non-compliance items and provided project Specific Comments / Compensatory Design Solutions.

Compensatory Design measures/justification

Apartment 02, Block A, ground floor, Living room - Ref: 00.AA.07

1. The overall area of the apartment is 20% over the minimum standard requirement by the DOE (57.22m2).
2. The living room is 28.43% bigger than the minimum standard requirement by the DOE (29.45m2).
3. The width of the living room has a bigger width than the minimum standard requirement by the DOW (3.9m).

Communal Open Space/Amenity, Block A

1. The overall communal open space is almost triple the minimum standard requirement by the DOE (183.11m2).
2. Apartment have direct views and access to public amenities directly across public path.

Communal Open Space/Amenity, Block B1 - Ref: Apt-B3

1. The overall communal open space is almost triple the minimum standard requirement by the DOE (133.67 m2).
2. Apartment have direct views and access to public amenities directly across the road.

Apartment 07, Block C, ground floor, Bedroom 02 - Ref: 00-C05

1. The overall area of the apartment is 3.6% over the minimum standard requirement by the DOE (75.60m2).
2. The bedroom area is 3.6% bigger than the minimum standard requirement by the DOE (11.81m2) and the wardrobe is excluded from that area.
3. Floor to ceiling heights are 2700mm clear, 300mm above the minimum required.

Communal Open Space/Amenity, Block C - Ref: Apt-C

1. The overall communal open space is 2.6 times bigger than the minimum standard requirement by the DOE (377.94m2)
2. Apartment units have direct views and access to public amenities directly across, playground and other facilities are located there as well.

Apartment 02, Block D, ground floor, KLD - Ref: 00-D03

1. This apartment is double aspect providing a southern aspect to the living room.
2. Private open space is over the minimum required by the DOW (12.08m2).

Apartment 23, Duplex Block E2, first floor level, Living room (sunlight) - Ref: 01.DE2.07

1. The living room area is 24.7% bigger than the minimum standard requirement by the DOE (42.4m2)
2. The floor to ceiling height is 2.9m which is 500mm above the minimum height.

Apartment 29, Duplex Block E3, first floor level, Living room (sunlight) - Ref: 01.DE3.03

1. The living room area is 24.7% over the minimum standard requirement by the DOW (42.4m2)
2. The floor to ceiling height is 2.9m which is 500mm above the minimum height.

Apartment 30, Duplex Block E3, first floor level, Living room (sunlight) - Ref: 01.DE3.04

1. The living room area is 24.7% over the minimum standard requirement by the DOW (42.4m2)
2. The floor to ceiling height is 2.9m which is 500mm above the minimum height.

House Type E2 317/318, ground floor, Living room (sunlight) - Ref: 00.HE1.02

1. The overall area of the apartment is 12.7% over the minimum standard requirement by the DOE (50.72m2).
2. The living room area is 7.5% bigger than the minimum standard requirement by the DOE (24.74m2).
3. The width of the living room has a bigger width than the minimum standard requirement by the DOW (3.7m).

House Type E2 175/176, ground floor, Living room (sunlight) - Ref: 00.HE8.02

1. The overall area of the apartment is 12.7% over the minimum standard requirement by the DOE (50.72m2).
2. The living room area is 7.5% bigger than the minimum standard requirement by the DOE (24.74m2).
3. The width of the living room has a bigger width than the minimum standard requirement by the DOW (3.7m).

House Type E2 198/199, ground floor, Living room (sunlight) - Ref: 00.HE8.03

1. The overall area of the apartment is 12.7% over the minimum standard requirement by the DOE (50.72m2).
2. The living room area is 7.5% bigger than the minimum standard requirement by the DOE (24.74m2).
3. The width of the living room has a bigger width than the minimum standard requirement by the DOW (3.7m).

House Type E1 196/197, ground floor, Living room (sunlight)- Ref: 00.HE8.04

1. The overall area of the apartment is 12.7% over the minimum standard requirement by the DOE (50.72m2).
2. The living room area is 7.5% bigger than the minimum standard requirement by the DOE (24.74m2).
3. The width of the living room has a bigger width than the minimum standard requirement by the DOW (3.7m).

House Type E3 494/495, ground floor, Living room (sunlight) - Ref: 00.HE6.01

1. The overall area of the apartment is 12.7% over the minimum standard requirement by the DOE (50.72m2).
2. The living room area is 7.5% bigger than the minimum standard requirement by the DOE (24.74m2).
3. The width of the living room has a bigger width than the minimum standard requirement by the DOW (3.7m).

Summary – Development Performance

This report is in compliance with: "Site layout planning for daylight and sunlight a guide to good practice" - BR209". It also references EN 17037 and Annex NA (BS/EN 17037) as and where called for in the above BRE guidance document.

Performance of the proposed design

- **Target Illuminance E_T**
  - **99%** *(100% including marginals)* of rooms comply with the BS/EN 17037 Annex NA room targets for 50% of the floor area tested.
  - The average compliant areas achieving the relevant target Lx for
    - all bedrooms is **96%** and
    - all Living/Kitchen spaces **85%**
    - both are well in excess of the required 50%
- **Sunlight to rooms:**
  - **94%** of Living rooms *(97% if we include marginals)* receive 1.5hrs of sunlight on the test day of the 21st March
  - 87% of these living rooms are in the high-quality range.
  - This is consistent with the BRE defined "careful layout design" 80% target.
- **Sunlight on the Ground SOG (Shadow)**
  - **75%** *(85% including marginal)* of new provided communal and public amenity spaces pass the BRE requirement.
  - There are compensatory factors relating to those that do not.

The application (in terms of Development Performance) generally complies with the recommendations and guidelines of Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice (BR209 - 2022).

Appendix 1
Light Distribution
Alternative Target Illuminance ET Metric
Non-Annex Analysis

Comparison between the Annex and non-Annex results

And reasoning behind adoption and applicability of the BS/EN Annex

This is a supplementary analysis which does not reflect the performance of the proposed design in temperate climates such as Ireland / UK. There should be no expectation that the design would comply with these requirements.

The NA-annex results in the main body of this report reflect design in such conditions. This is as defined by the UK committee and directly referenced in Irish Department publications such "Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities" July 2023, the "Sustainable and Compact Settlements: Guidelines for Planning Authorities 2024" and many Development Plans.

Design Standards / Guidelines
Light Distribution.

BRE v2 – 2011 / BS 8206-2

The original BRE guidelines "Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice – Second Edition - 2011" was cross-referenced to and from the now withdrawn BS 8206-2 : 2008.

It looked at light distribution within a room based on Average Daylight Factor ADF (an average over the entire room surface) and was based off the CIE overcast sky and results of rooms were based on obstructions, room geometry, ope sizes, radiance and transmittance but was constant from location to location on the globe.

The guidelines and BS standard took into account room usage placing higher degrees of importance on living spaces than to bedrooms, which is a reasonable consideration, given that bedrooms are typically used more at night.

Given that these Standard and Guidelines are withdrawn tests such as ADF are no longer relevant.

BRE v3 – 2022 / EN 17037

The new BRE guidelines "Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice – Third Edition - 2022" provides best guidelines for analysing development while referencing relevant elements of EN 17037 similar to how the withdrawn BRE v2 – 2011 provided best guidelines for analysing development referencing relevant elements of withdrawn BS 8206- 2.

This best practice guideline has been considered the de-facto standard since 1991 and details how to apply EN 17037.

Impact on neighbours and shadow elements are handled only within the BRE guidelines but the EN standard covers some elements of development performance.

EN 17037 also looks at internal light distribution/daylight but in terms of target illuminance over a specific percentage of a room. Target illuminance is driven by the available external light which varies by location on the globe. However, the internal room lux targets Lx we strive to achieve remain unchanged.

There are various tables of requirements (minimum, medium and high), and these are defined for all rooms and do not consider the rooms usage. The minimum targets are:

Rooms	300lx over 50% of room area
AND	100lx over 95% of room area

Localisation

The EN 17037 is designed to be localised and a blank National Annex is provided in for that purpose.

This is an acknowledgement that design will vary in different countries and that adjustment will be needed to take into account available external light which itself drives the internal lux results and other design constraints / objectives. The Irish version of this standard IS EN17037 currently has no specific National Annex

The UK committee, in their examination of this provided recommendations which are pulled through to the National Annex in the UK variant of this document BS EN 17037

Given the similarity of weather, light and design patterns between Ireland and the UK in many areas and the absence of specific localisation Annex information in the IS version it is not unreasonable to apply the BS recommendations at this time. There is considerable precedence in the adoption of such technical recommendations in the engineering and indeed legal professions.

The UK committee acknowledged the difficulty of achieving the primary lux targets outlined in the main body of the report particularly in dwellings in our climates. The Annex recommendations are focused on dwellings which is the subject of the vast majority of our reports. The committee again re-affirmed their commitment that room usage should be considered and set lower target illuminance values accordingly for dwellings based on the same.

Bedroom	100lx over 50% of room area
Living Rooms	150lx over 50% of room area
Kitchens	200lx over 50% of room area

Dual usage rooms use the higher value.

These targets were derived from BS 8206-2:2008 Lighting for buildings – Part 2: Code of practice for daylighting, targets have served us well in the past and which have been the staple for design for years. We have dual run multiple projects BRE v2 (ADF) vs BRE v3 Annex (Et) and as expected they show very similar compliance rates.

Furthermore, the UK committee decided that the target illuminance across the entire (i.e. 95 %) **need not** be applied to rooms in dwellings.

Analysis

We concur with the UK committees' recommendations for daylight provision in a space may not be achievable for some buildings, particularly dwellings and that a target illuminance level should be achieved across the entire (i.e. 95 %) fraction of the reference plane within a space – need **not** be applied to rooms in dwellings.

The targets defined in the National Annex are linked to the targets have served us well in the past and have been the staple for design for years. The primary results have thus been compiled based on the UK Annex NA targets, tabulated in the report main body.

We have for the avoidance of doubt also provided results based on the non-annex Standard, in Appendix 1. The results for which show that the conclusions of the UK committee were justified and that the standard (non-Annex) targets are unlikely to be achieved in a more densely developed residential sites.

This is in accordance with the Departments "Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities" July 2023 and clause 6.6 which directly references the UK National Annex BS EN17037:2019.

Apartment A– E_T results – Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00A-01c	Living/Kitchen	84	Pass	100	Pass
00A-02	Bedroom	22	Fail	73	Fail
00A-03c	Living/Kitchen	65	Pass	100	Pass
00A-04c	Living/Kitchen	58	Pass	100	Pass
00A-05c	Living/Kitchen	31	Fail	100	Pass
00A-06	Bedroom	58	Pass	100	Pass
00A-07c	Living/Kitchen	64	Pass	100	Pass
00A-08	Bedroom	60	Pass	100	Pass
01A-01c	Living/Kitchen	100	Pass	100	Pass
01A-02	Bedroom	74	Pass	100	Pass
01A-03	Bedroom	39	Fail	95	Pass
01A-04	Bedroom	53	Pass	100	Pass
01A-05	Bedroom	34	Fail	88	Marginal
01A-06	Bedroom	52	Pass	100	Pass
01A-07c	Living/Kitchen	89	Pass	100	Pass
01A-08	Bedroom	44	Marginal	100	Pass
01A-09	Bedroom	38	Fail	100	Pass
01A-10	Bedroom	83	Pass	100	Pass
01A-11	Bedroom	52	Pass	100	Pass
01A-12	Bedroom	28	Fail	100	Pass
02A-01	Bedroom	97	Pass	100	Pass
02A-02c	Living/Kitchen	93	Pass	100	Pass
02A-03	Bedroom	48	Marginal	100	Pass
02A-04c	Living/Kitchen	91	Pass	100	Pass
		Count	24	Count	24
		Pass	16	Pass	22
		Pass Rate 300lx/50%	67%	Pass Rate 100lx/95%	92%
		Marginal	2	Marginal	1
		Pass Margina	75%	Pass Margina	96%

Apartment B1/B3– E_T results - Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00B101c	Living/Kitchen	48	Marginal	100	Pass
00B102c	Living/Kitchen	54	Pass	100	Pass
00B103c	Living/Kitchen	47	Marginal	100	Pass
00B104	Bedroom	56	Pass	100	Pass
00B105c	Living/Kitchen	45	Marginal	98	Pass
00B106c	Living/Kitchen	39	Fail	97	Pass
00B107	Bedroom	74	Pass	100	Pass
01B101	Bedroom	55	Pass	100	Pass
01B102	Bedroom	38	Fail	98	Pass
01B103	Bedroom	53	Pass	100	Pass
01B104	Bedroom	39	Fail	95	Pass
01B105	Bedroom	56	Pass	100	Pass
01B106	Bedroom	32	Fail	83	Marginal
01B107	Bedroom	25	Fail	92	Marginal
01B108	Bedroom	80	Pass	100	Pass
01B109	Bedroom	66	Pass	100	Pass
01B110	Bedroom	68	Pass	100	Pass
01B111	Bedroom	70	Pass	100	Pass
01B112	Bedroom	82	Pass	100	Pass
02B101c	Living/Kitchen	99	Pass	100	Pass
02B102c	Living/Kitchen	62	Pass	100	Pass
00B301c	Living/Kitchen	50	Pass	100	Pass
00B302c	Living/Kitchen	57	Pass	100	Pass
00B303c	Living/Kitchen	49	Marginal	100	Pass
00B304	Bedroom	58	Pass	100	Pass
00B305c	Living/Kitchen	44	Marginal	98	Pass
00B306c	Living/Kitchen	37	Fail	97	Pass
00B307	Bedroom	72	Pass	100	Pass
01B301	Bedroom	58	Pass	100	Pass
01B302	Bedroom	36	Fail	98	Pass
01B303	Bedroom	66	Pass	100	Pass
01B304	Bedroom	37	Fail	96	Pass
01B305	Bedroom	62	Pass	100	Pass
01B306	Bedroom	32	Fail	83	Marginal
01B307	Bedroom	25	Fail	94	Marginal
01B308	Bedroom	80	Pass	100	Pass
01B309	Bedroom	67	Pass	100	Pass
01B310	Bedroom	67	Pass	100	Pass
01B311	Bedroom	71	Pass	100	Pass
01B312	Bedroom	82	Pass	100	Pass
02B301c	Living/Kitchen	98	Pass	100	Pass
02B302c	Living/Kitchen	63	Pass	100	Pass
		Count	42	Count	42
		Pass	27	Pass	38
		Pass Rate 300lx/50%	64%	Pass Rate 100lx/95%	90%
		Marginal	5	Marginal	4
		Pass Margina	76%	Pass Margina	100%

Apartment B2– E_T results – Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00B201	Bedroom	60	Pass	100	Pass
00B202c	Living/Kitchen	49	Marginal	100	Pass
00B203c	Living/Kitchen	40	Marginal	100	Pass
00B204	Bedroom	57	Pass	100	Pass
00B205c	Living/Kitchen	46	Marginal	98	Pass
00B206c	Living/Kitchen	39	Fail	97	Pass
00B207	Bedroom	70	Pass	100	Pass
01B201c	Living/Kitchen	94	Pass	100	Pass
01B202	Bedroom	57	Pass	100	Pass
01B203	Bedroom	36	Fail	95	Pass
01B204	Bedroom	58	Pass	100	Pass
01B205	Bedroom	32	Fail	75	Fail
01B206	Bedroom	30	Fail	100	Pass
01B207	Bedroom	81	Pass	100	Pass
01B208	Bedroom	67	Pass	100	Pass
01B209	Bedroom	67	Pass	100	Pass
01B210	Bedroom	80	Pass	100	Pass
01B211	Bedroom	87	Pass	100	Pass
02B201	Bedroom	99	Pass	100	Pass
02B202	Bedroom	62	Pass	100	Pass
		Count	20	Count	20
		Pass	13	Pass	19
		Pass Rate 300lx/50%	65%	Pass Rate 100lx/95%	95%
		Marginal	3	Marginal	0
		Pass Margina	80%	Pass Margina	95%

Apartment C– E_T results - Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
0XC-01	Bedroom	35	Fail	90	Marginal
0XC-02	Bedroom	57	Pass	100	Pass
0XC-03c	Living/Kitchen	88	Pass	100	Pass
0XC-04	Bedroom	21	Fail	54	Fail
0XC-05	Bedroom	34	Fail	97	Pass
0XC-06c	Living/Kitchen	80	Pass	100	Pass
00C01c	Living/Kitchen	77	Pass	100	Pass
00C02	Bedroom	73	Pass	100	Pass
00C03c	Living/Kitchen	57	Pass	100	Pass
00C04	Bedroom	74	Pass	100	Pass
00C05	Bedroom	0	Fail	27	Fail
00C06	Bedroom	41	Marginal	100	Pass
00C07c	Living/Kitchen	39	Fail	99	Pass
00C08	Bedroom	30	Fail	97	Pass
00C09c	Living/Kitchen	82	Pass	100	Pass
00C10	Bedroom	42	Marginal	100	Pass
00C11c	Living/Kitchen	57	Pass	100	Pass
00C12	Bedroom	32	Fail	100	Pass
00C13c	Living/Kitchen	42	Marginal	100	Pass
00C14	Bedroom	31	Fail	100	Pass
00C15	Bedroom	25	Fail	100	Pass
00C16c	Living/Kitchen	70	Pass	100	Pass
00C17	Bedroom	40	Marginal	100	Pass
00C18	Bedroom	29	Fail	96	Pass
00C19	Bedroom	41	Marginal	100	Pass
00C20c	Living/Kitchen	64	Pass	100	Pass
01C01	Bedroom	72	Pass	100	Pass
01C02c	Living/Kitchen	88	Pass	100	Pass
01C03	Bedroom	70	Pass	100	Pass
01C04c	Living/Kitchen	83	Pass	100	Pass
01C05	Bedroom	6	Fail	44	Fail
01C06	Bedroom	93	Pass	100	Pass
01C07c	Living/Kitchen	40	Marginal	100	Pass
01C08	Bedroom	35	Fail	100	Pass
01C09c	Living/Kitchen	78	Pass	100	Pass
01C10	Bedroom	53	Pass	100	Pass
01C11	Bedroom	45	Marginal	100	Pass
01C12c	Living/Kitchen	50	Pass	100	Pass
01C13	Bedroom	28	Fail	100	Pass
01C14c	Living/Kitchen	53	Pass	100	Pass
01C15	Bedroom	36	Fail	100	Pass
01C16c	Living/Kitchen	80	Pass	100	Pass
01C17	Bedroom	41	Marginal	100	Pass
01C18	Bedroom	30	Fail	98	Pass
01C19	Bedroom	44	Marginal	100	Pass
01C20c	Living/Kitchen	74	Pass	100	Pass

Apartment C– E_T results – Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
02C01	Bedroom	80	Pass	100	Pass
02C02	Bedroom	94	Pass	100	Pass
02C03c	Living/Kitchen	61	Pass	100	Pass
02C04	Bedroom	51	Pass	100	Pass
02C05c	Living/Kitchen	85	Pass	100	Pass
02C06	Bedroom	57	Pass	100	Pass
02C07c	Living/Kitchen	66	Pass	100	Pass
02C08	Bedroom	87	Pass	100	Pass
02C09	Bedroom	84	Pass	100	Pass
02C10c	Living/Kitchen	95	Pass	100	Pass
02C11	Bedroom	43	Marginal	100	Pass
02C12	Bedroom	32	Fail	98	Pass
02C13	Bedroom	43	Marginal	100	Pass
02C14c	Living/Kitchen	96	Pass	100	Pass
		Count	60	Count	60
		Pass	33	Pass	56
		Pass Rate 300lx/50%	55%	Pass Rate 100lx/95%	93%
		Marginal	11	Marginal	1
		Pass Margina	73%	Pass Margina	95%

Apartment D– E_T results – Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00D-01	Bedroom	77	Pass	100	Pass
00D-02c	Living/Kitchen	26	Fail	99	Pass
00D-03	Bedroom	66	Pass	100	Pass
00D-04c	Living/Kitchen	26	Fail	73	Fail
00D-05	Bedroom	70	Pass	100	Pass
00D-06	Bedroom	51	Pass	100	Pass
00D-07	Bedroom	28	Fail	83	Marginal
00D-08	Bedroom	33	Fail	100	Pass
00D-09c	Living/Kitchen	56	Pass	100	Pass
01D-01	Bedroom	41	Marginal	100	Pass
01D-02c	Living/Kitchen	39	Fail	99	Pass
01D-03	Bedroom	75	Pass	100	Pass
01D-04	Bedroom	60	Pass	100	Pass
01D-05c	Living/Kitchen	75	Pass	100	Pass
01D-06c	Living/Kitchen	95	Pass	100	Pass
01D-07	Bedroom	50	Pass	100	Pass
01D-08	Bedroom	56	Pass	100	Pass
01D-09	Bedroom	69	Pass	100	Pass
01D-10c	Living/Kitchen	60	Pass	100	Pass
02D-01	Bedroom	96	Pass	100	Pass
02D-02c	Living/Kitchen	79	Pass	100	Pass
02D-03c	Living/Kitchen	97	Pass	100	Pass
02D-04	Bedroom	51	Pass	100	Pass
		Count	23	Count	23
		Pass	17	Pass	21
		Pass Rate 300lx/50%	74%	Pass Rate 100lx/95%	91%
		Marginal	1	Marginal	1
		Pass Margina	78%	Pass Margina	96%

Duplex A1 – E_T results – Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00DA101	Bedroom	100	Pass	100	Pass
00DA102	Bedroom	66	Pass	100	Pass
00DA103	Bedroom	34	Fail	100	Pass
00DA104k	Kitchen	34	Fail	100	Pass
00DA105k	Kitchen	46	Marginal	100	Pass
00DA106	Bedroom	68	Pass	100	Pass
00DA107	Bedroom	32	Fail	100	Pass
00DA108k	Kitchen	33	Fail	100	Pass
00DA109k	Kitchen	35	Fail	100	Pass
00DA110	Bedroom	34	Fail	100	Pass
00DA111	Bedroom	51	Pass	100	Pass
00DA112	Bedroom	55	Pass	100	Pass
00DA113c	Living/Kitchen	68	Pass	100	Pass
00DA114	Bedroom	40	Marginal	100	Pass
00DA115L	Living	70	Pass	100	Pass
00DA116L	Living	71	Pass	100	Pass
00DA117	Bedroom	39	Fail	100	Pass
00DA118	Bedroom	40	Marginal	100	Pass
00DA119L	Living	84	Pass	100	Pass
00DA121	Bedroom	73	Pass	100	Pass
00DA122	Bedroom	40	Marginal	100	Pass
00DA20L	Living	98	Pass	100	Pass
01DA101k	Kitchen	91	Pass	100	Pass
01DA102k	Kitchen	37	Fail	100	Pass
01DA103k	Kitchen	69	Pass	100	Pass
01DA104k	Kitchen	36	Fail	100	Pass
01DA105k	Kitchen	36	Fail	100	Pass
01DA106k	Kitchen	73	Pass	100	Pass
01DA107L	Living	81	Pass	100	Pass
01DA108L	Living	68	Pass	100	Pass
01DA109L	Living	70	Pass	100	Pass
01DA110L	Living	72	Pass	100	Pass
01DA111L	Living	72	Pass	100	Pass
01DA112L	Living	100	Pass	100	Pass
02DA101	Bedroom	98	Pass	100	Pass
02DA102	Bedroom	67	Pass	100	Pass
02DA103	Bedroom	45	Marginal	100	Pass
02DA104	Bedroom	22	Fail	100	Pass
02DA105	Bedroom	39	Fail	100	Pass
02DA106	Bedroom	84	Pass	100	Pass
02DA107	Bedroom	44	Marginal	100	Pass
02DA108	Bedroom	22	Fail	100	Pass
02DA109	Bedroom	22	Fail	100	Pass
02DA110	Bedroom	46	Marginal	100	Pass
02DA111	Bedroom	67	Pass	100	Pass
02DA112	Bedroom	43	Marginal	100	Pass
02DA113	Bedroom	36	Fail	100	Pass
02DA114	Bedroom	37	Fail	100	Pass
02DA115	Bedroom	37	Fail	100	Pass
02DA116	Bedroom	36	Fail	100	Pass
02DA117	Bedroom	40	Marginal	100	Pass
02DA118	Bedroom	100	Pass	100	Pass
		Count	52	Count	52
		Pass	25	Pass	52
		Pass Rate 300lx/50%	48%	Pass Rate 100lx/95%	100%
		Marginal	9	Marginal	0
		Pass Margina	65%	Pass Margina	100%

Duplex A2 – E_T results - Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00DA201	Bedroom	55	Pass	100	Pass
00DA202	Bedroom	50	Pass	100	Pass
00DA203	Bedroom	34	Fail	100	Pass
00DA204k	Kitchen	35	Fail	100	Pass
00DA205k	Kitchen	34	Fail	100	Pass
00DA206	Bedroom	34	Fail	100	Pass
00DA207	Bedroom	65	Pass	100	Pass
00DA208k	Kitchen	45	Marginal	100	Pass
00DA209k	Kitchen	35	Fail	100	Pass
00DA210	Bedroom	32	Fail	100	Pass
00DA211	Bedroom	66	Pass	100	Pass
00DA212	Bedroom	100	Pass	100	Pass
00DA213lc	Living/Kitchen	93	Pass	100	Pass
00DA214	Bedroom	40	Marginal	100	Pass
00DA215l	Living	73	Pass	100	Pass
00DA216l	Living	75	Pass	100	Pass
00DA217	Bedroom	40	Marginal	100	Pass
00DA218	Bedroom	40	Marginal	100	Pass
00DA219l	Living	74	Pass	100	Pass
00DA220l	Living	72	Pass	100	Pass
00DA221	Bedroom	40	Marginal	100	Pass
00DA222c	Living/Kitchen	74	Pass	100	Pass
01DA201k	Kitchen	73	Pass	100	Pass
01DA202k	Kitchen	36	Fail	100	Pass
01DA203k	Kitchen	37	Fail	100	Pass
01DA204k	Kitchen	65	Pass	100	Pass
01DA205k	Kitchen	38	Fail	100	Pass
01DA206k	Kitchen	88	Pass	100	Pass
01DA207l	Living	99	Pass	100	Pass
01DA208l	Living	71	Pass	100	Pass
01DA209l	Living	72	Pass	100	Pass
01DA210l	Living	71	Pass	100	Pass
01DA211l	Living	72	Pass	100	Pass
01DA212l	Living	86	Pass	100	Pass
02DA201	Bedroom	43	Marginal	100	Pass
02DA202	Bedroom	67	Pass	100	Pass
02DA203	Bedroom	46	Marginal	100	Pass
02DA204	Bedroom	22	Fail	100	Pass
02DA205	Bedroom	22	Fail	100	Pass
02DA206	Bedroom	46	Marginal	100	Pass
02DA207	Bedroom	83	Pass	100	Pass
02DA208	Bedroom	39	Fail	100	Pass
02DA209	Bedroom	22	Fail	100	Pass
02DA210	Bedroom	45	Marginal	100	Pass
02DA211	Bedroom	68	Pass	100	Pass
02DA212	Bedroom	98	Pass	100	Pass
02DA213	Bedroom	100	Pass	100	Pass
02DA214	Bedroom	36	Fail	100	Pass
02DA215	Bedroom	37	Fail	100	Pass
02DA216	Bedroom	38	Fail	100	Pass
02DA217	Bedroom	37	Fail	100	Pass
02DA218	Bedroom	36	Fail	100	Pass
		Count	52	Count	52
		Pass	25	Pass	52
		Pass Rate 300lx/50%	48%	Pass Rate 100lx/95%	100%
		Marginal	9	Marginal	0
		Pass Margina	65%	Pass Margina	100%

Duplex A3 – E_T results – Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00DA301	Bedroom	98	Pass	100	Pass
00DA302	Bedroom	62	Pass	100	Pass
00DA303	Bedroom	30	Fail	100	Pass
00DA304k	Kitchen	32	Fail	100	Pass
00DA305k	Kitchen	42	Marginal	100	Pass
00DA306	Bedroom	58	Pass	100	Pass
00DA307	Bedroom	29	Fail	100	Pass
00DA308k	Kitchen	30	Fail	100	Pass
00DA309k	Kitchen	30	Fail	100	Pass
00DA310	Bedroom	29	Fail	100	Pass
00DA311	Bedroom	43	Marginal	100	Pass
00DA312	Bedroom	51	Pass	100	Pass
00DA313c	Living/Kitchen	70	Pass	100	Pass
00DA314	Bedroom	38	Fail	100	Pass
00DA315L	Living	67	Pass	100	Pass
00DA316L	Living	65	Pass	100	Pass
00DA317	Bedroom	37	Fail	100	Pass
00DA318	Bedroom	38	Fail	100	Pass
00DA319L	Living	68	Pass	100	Pass
00DA321	Bedroom	65	Pass	100	Pass
00DA322	Bedroom	36	Fail	100	Pass
00DA20L	Living	95	Pass	100	Pass
01DA301k	Kitchen	94	Pass	100	Pass
01DA302k	Kitchen	37	Fail	100	Pass
01DA303k	Kitchen	62	Pass	100	Pass
01DA304k	Kitchen	37	Fail	100	Pass
01DA305k	Kitchen	36	Fail	100	Pass
01DA306k	Kitchen	71	Pass	100	Pass
01DA307L	Living	90	Pass	100	Pass
01DA308L	Living	74	Pass	100	Pass
01DA309L	Living	73	Pass	100	Pass
01DA310L	Living	73	Pass	100	Pass
01DA311L	Living	73	Pass	100	Pass
01DA312L	Living	100	Pass	100	Pass
02DA301	Bedroom	98	Pass	100	Pass
02DA302	Bedroom	67	Pass	100	Pass
02DA303	Bedroom	44	Marginal	100	Pass
02DA304	Bedroom	22	Fail	100	Pass
02DA305	Bedroom	36	Fail	100	Pass
02DA306	Bedroom	83	Pass	100	Pass
02DA307	Bedroom	44	Marginal	100	Pass
02DA308	Bedroom	22	Fail	100	Pass
02DA309	Bedroom	22	Fail	100	Pass
02DA310	Bedroom	41	Marginal	100	Pass
02DA311	Bedroom	67	Pass	100	Pass
02DA312	Bedroom	43	Marginal	100	Pass
02DA313	Bedroom	36	Fail	100	Pass
02DA314	Bedroom	37	Fail	100	Pass
02DA315	Bedroom	38	Fail	100	Pass
02DA316	Bedroom	36	Fail	100	Pass
02DA317	Bedroom	38	Fail	100	Pass
02DA318	Bedroom	100	Pass	100	Pass
		Count	52	Count	52
		Pass	24	Pass	52
		Pass Rate 300lx/50%	46%	Pass Rate 100lx/95%	100%
		Marginal	6	Marginal	0
		Pass Margina	58%	Pass Margina	100%

Duplex B1 – E_T results – Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00DB101	Bedroom	100	Pass	100	Pass
00DB102	Bedroom	66	Pass	100	Pass
00DB103	Bedroom	32	Fail	100	Pass
00DB104k	Kitchen	35	Fail	100	Pass
00DB105k	Kitchen	46	Marginal	100	Pass
00DB106	Bedroom	66	Pass	100	Pass
00DB107	Bedroom	32	Fail	100	Pass
00DB108k	Kitchen	35	Fail	100	Pass
00DB109k	Kitchen	35	Fail	100	Pass
00DB110	Bedroom	34	Fail	100	Pass
00DB111	Bedroom	46	Marginal	100	Pass
00DB112k	Kitchen	69	Pass	100	Pass
00DB113k	Kitchen	35	Fail	100	Pass
00DB114	Bedroom	34	Fail	100	Pass
00DB115	Bedroom	49	Marginal	100	Pass
00DB116	Bedroom	55	Pass	100	Pass
00DB117c	Living/Kitchen	63	Pass	100	Pass
00DB118	Bedroom	39	Fail	100	Pass
00DB119l	Living	70	Pass	100	Pass
00DB120l	Living	40	Marginal	100	Pass
00DB121	Bedroom	71	Pass	100	Pass
00DB122	Bedroom	40	Marginal	100	Pass
00DB123l	Living	72	Pass	100	Pass
00DB124l	Living	74	Pass	100	Pass
00DB125	Bedroom	40	Marginal	100	Pass
00DB126	Bedroom	40	Marginal	100	Pass
00DB127l	Living	80	Pass	100	Pass
00DB128l	Living	71	Pass	100	Pass
00DB129	Bedroom	38	Fail	100	Pass
00DB130c	Living/Kitchen	93	Pass	100	Pass
01DB101lk	Kitchen	91	Pass	100	Pass
01DB102k	Kitchen	37	Fail	100	Pass
01DB103k	Kitchen	64	Pass	100	Pass
01DB104k	Kitchen	37	Fail	100	Pass
01DB105k	Kitchen	36	Fail	100	Pass
01DB106k	Kitchen	65	Pass	100	Pass
01DB107k	Kitchen	36	Fail	100	Pass
01DB108k	Kitchen	71	Pass	100	Pass
01DB109l	Living	80	Pass	100	Pass
01DB110l	Living	69	Pass	100	Pass
01DB111l	Living	71	Pass	100	Pass
01DB112l	Living	69	Pass	100	Pass
01DB113l	Living	71	Pass	100	Pass

Duplex B1 – E_T results – Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
02DB101	Bedroom	98	Pass	100	Pass
02DB102	Bedroom	67	Pass	100	Pass
02DB103	Bedroom	43	Marginal	100	Pass
02DB104	Bedroom	22	Fail	100	Pass
02DB105	Bedroom	38	Fail	100	Pass
02DB106	Bedroom	80	Pass	100	Pass
02DB107	Bedroom	41	Marginal	100	Pass
02DB108	Bedroom	22	Fail	100	Pass
02DB109	Bedroom	22	Fail	100	Pass
02DB110	Bedroom	43	Marginal	100	Pass
02DB111	Bedroom	37	Fail	100	Pass
02DB112	Bedroom	80	Pass	100	Pass
02DB113	Bedroom	22	Fail	100	Pass
02DB114	Bedroom	41	Marginal	100	Pass
02DB115	Bedroom	67	Pass	100	Pass
02DB116	Bedroom	43	Marginal	100	Pass
02DB117	Bedroom	36	Fail	100	Pass
02DB118	Bedroom	38	Fail	100	Pass
02DB119	Bedroom	36	Fail	100	Pass
02DB120	Bedroom	37	Fail	100	Pass
02DB121	Bedroom	36	Fail	100	Pass
02DB122	Bedroom	35	Fail	100	Pass
02DB123	Bedroom	36	Fail	100	Pass
02DB124	Bedroom	100	Pass	100	Pass
		Count	70	Count	70
		Pass	31	Pass	70
		Pass Rate 300lx/50%	44%	Pass Rate 100lx/95%	100%
		Marginal	12	Marginal	0
		Pass Margina	61%	Pass Margina	100%

Duplex B2 – E_T results - Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00DB201	Bedroom	55	Pass	100	Pass
00DB202	Bedroom	52	Pass	100	Pass
00DB203	Bedroom	32	Fail	100	Pass
00DB204k	Kitchen	35	Fail	100	Pass
00DB205k	Kitchen	65	Pass	100	Pass
00DB206	Bedroom	45	Marginal	100	Pass
00DB207	Bedroom	34	Fail	100	Pass
00DB208k	Kitchen	33	Fail	100	Pass
00DB209k	Kitchen	34	Fail	100	Pass
00DB210	Bedroom	33	Fail	100	Pass
00DB211	Bedroom	65	Pass	100	Pass
00DB212k	Kitchen	46	Marginal	100	Pass
00DB213k	Kitchen	34	Fail	100	Pass
00DB214	Bedroom	32	Fail	100	Pass
00DB215	Bedroom	64	Pass	100	Pass
00DB216	Bedroom	98	Pass	100	Pass
00DB217c	Living/Kitchen	91	Pass	100	Pass
00DB218	Bedroom	40	Marginal	100	Pass
00DB219l	Living	76	Pass	100	Pass
00DB220l	Living	75	Pass	100	Pass
00DB221	Bedroom	40	Marginal	100	Pass
00DB222	Bedroom	40	Marginal	100	Pass
00DB223l	Living	73	Pass	100	Pass
00DB224l	Living	73	Pass	100	Pass
00DB225	Bedroom	40	Marginal	100	Pass
00DB226	Bedroom	74	Pass	100	Pass
00DB227l	Living	42	Marginal	100	Pass
00DB228l	Living	74	Pass	100	Pass
00DB229	Bedroom	46	Marginal	100	Pass
00DB230c	Living/Kitchen	75	Pass	100	Pass
01DB201lk	Kitchen	74	Pass	100	Pass
01DB202k	Kitchen	37	Fail	100	Pass
01DB203k	Kitchen	63	Pass	100	Pass
01DB204k	Kitchen	36	Fail	100	Pass
01DB205k	Kitchen	36	Fail	100	Pass
01DB206k	Kitchen	63	Pass	100	Pass
01DB207k	Kitchen	37	Fail	100	Pass
01DB208k	Kitchen	89	Pass	100	Pass
01DB209l	Living	95	Pass	100	Pass
01DB210l	Living	70	Pass	100	Pass
01DB211l	Living	71	Pass	100	Pass
01DB212l	Living	70	Pass	100	Pass
01DB213l	Living	74	Pass	100	Pass
01DB214l	Living	72	Pass	100	Pass
01DB215l	Living	75	Pass	100	Pass
01DB216l	Living	89	Pass	100	Pass

Duplex B2 – E_T results – Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
02DB201	Bedroom	43	Marginal	100	Pass
02DB202	Bedroom	67	Pass	100	Pass
02DB203	Bedroom	46	Marginal	100	Pass
02DB204	Bedroom	22	Fail	100	Pass
02DB205	Bedroom	80	Pass	100	Pass
02DB206	Bedroom	37	Fail	100	Pass
02DB207	Bedroom	45	Marginal	100	Pass
02DB208	Bedroom	22	Fail	100	Pass
02DB209	Bedroom	22	Fail	100	Pass
02DB210	Bedroom	41	Marginal	100	Pass
02DB211	Bedroom	83	Pass	100	Pass
02DB212	Bedroom	37	Fail	100	Pass
02DB213	Bedroom	22	Fail	100	Pass
02DB214	Bedroom	45	Marginal	100	Pass
02DB215	Bedroom	67	Pass	100	Pass
02DB216	Bedroom	98	Pass	100	Pass
02DB217	Bedroom	100	Pass	100	Pass
02DB218	Bedroom	37	Fail	100	Pass
02DB219	Bedroom	38	Fail	100	Pass
02DB220	Bedroom	38	Fail	100	Pass
02DB221	Bedroom	40	Marginal	100	Pass
02DB222	Bedroom	38	Fail	100	Pass
02DB223	Bedroom	38	Fail	100	Pass
02DB224	Bedroom	36	Fail	100	Pass
		Count	70	Count	70
		Pass	32	Pass	70
		Pass Rate 300lx/50%	46%	Pass Rate 100lx/95%	100%
		Marginal	14	Marginal	0
		Pass Margina	66%	Pass Margina	100%

Duplex C – E_T results – Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00DC101	Bedroom	100	Pass	100	Pass
00DC102	Bedroom	65	Pass	100	Pass
00DC103	Bedroom	46	Marginal	100	Pass
00DC104k	Kitchen	67	Pass	100	Pass
00DC105k	Kitchen	48	Marginal	100	Pass
00DC106	Bedroom	71	Pass	100	Pass
00DC107	Bedroom	44	Marginal	100	Pass
00DC108k	Kitchen	65	Pass	100	Pass
00DC109k	Kitchen	45	Marginal	100	Pass
00DC110	Bedroom	65	Pass	100	Pass
00DC111	Bedroom	49	Marginal	100	Pass
00DC112	Bedroom	55	Pass	100	Pass
00DC113c	Living/Kitchen	82	Pass	100	Pass
00DC114	Bedroom	50	Pass	100	Pass
00DC115l	Living	94	Pass	100	Pass
00DC116l	Living	48	Marginal	100	Pass
00DC117	Bedroom	93	Pass	100	Pass
00DC118	Bedroom	48	Marginal	100	Pass
00DC119l	Living	95	Pass	100	Pass
00DC120l	Living	48	Marginal	100	Pass
00DC121	Bedroom	95	Pass	100	Pass
00DC122c	Living/Kitchen	100	Pass	100	Pass
01DC101k	Kitchen	93	Pass	100	Pass
01DC102k	Kitchen	70	Pass	100	Pass
01DC103k	Kitchen	70	Pass	100	Pass
01DC104k	Kitchen	67	Pass	100	Pass
01DC105k	Kitchen	65	Pass	100	Pass
01DC106k	Kitchen	73	Pass	100	Pass
01DC107l	Living	100	Pass	100	Pass
01DC108l	Living	89	Pass	100	Pass
01DC109l	Living	95	Pass	100	Pass
01DC110l	Living	80	Pass	100	Pass
01DC111l	Living	83	Pass	100	Pass
01DC112l	Living	100	Pass	100	Pass
02DC101	Bedroom	98	Pass	100	Pass
02DC102	Bedroom	67	Pass	100	Pass
02DC103	Bedroom	38	Fail	100	Pass
02DC104	Bedroom	84	Pass	100	Pass
02DC105	Bedroom	38	Fail	100	Pass
02DC106	Bedroom	84	Pass	100	Pass
02DC107	Bedroom	37	Fail	100	Pass
02DC108	Bedroom	84	Pass	100	Pass
02DC109	Bedroom	39	Fail	100	Pass
02DC110	Bedroom	84	Pass	100	Pass
02DC111	Bedroom	68	Pass	100	Pass
02DC112	Bedroom	43	Marginal	100	Pass
02DC113	Bedroom	40	Marginal	100	Pass
02DC114	Bedroom	39	Fail	100	Pass
02DC115	Bedroom	41	Marginal	100	Pass
02DC116	Bedroom	40	Marginal	100	Pass
02DC117	Bedroom	38	Fail	100	Pass
02DC118	Bedroom	100	Pass	100	Pass
		Count	52	Count	52
		Pass	34	Pass	52
		Pass Rate 300lx/50%	65%	Pass Rate 100lx/95%	100%
		Marginal	12	Marginal	0
		Pass Margina	88%	Pass Margina	100%

Duplex D1 – E_T results – Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00DD101	Bedroom	100	Pass	100	Pass
00DD102	Bedroom	69	Pass	100	Pass
00DD103	Bedroom	53	Pass	100	Pass
00DD104k	Kitchen	72	Pass	100	Pass
00DD105k	Kitchen	53	Pass	100	Pass
00DD106	Bedroom	74	Pass	100	Pass
00DD107	Bedroom	53	Pass	100	Pass
00DD108k	Kitchen	75	Pass	100	Pass
00DD109k	Kitchen	53	Pass	100	Pass
00DD110	Bedroom	72	Pass	100	Pass
00DD111	Bedroom	53	Pass	100	Pass
00DD112k	Kitchen	85	Pass	100	Pass
00DD113k	Kitchen	53	Pass	100	Pass
00DD114	Bedroom	81	Pass	100	Pass
00DD115	Bedroom	61	Pass	100	Pass
00DD116	Bedroom	59	Pass	100	Pass
00DD117c	Living/Kitchen	80	Pass	100	Pass
00DD118	Bedroom	46	Marginal	100	Pass
00DD119l	Living	87	Pass	100	Pass
00DD120l	Living	47	Marginal	100	Pass
00DD121	Bedroom	89	Pass	100	Pass
00DD122	Bedroom	47	Marginal	100	Pass
00DD123l	Living	90	Pass	100	Pass
00DD124l	Living	46	Marginal	100	Pass
00DD125	Bedroom	85	Pass	100	Pass
00DD126	Bedroom	46	Marginal	100	Pass
00DD127l	Living	92	Pass	100	Pass
00DD128l	Living	45	Marginal	100	Pass
00DD129	Bedroom	88	Pass	100	Pass
00DD130c	Living/Kitchen	97	Pass	100	Pass
01DD101k	Kitchen	95	Pass	100	Pass
01DD102k	Kitchen	77	Pass	100	Pass
01DD103k	Kitchen	75	Pass	100	Pass
01DD104k	Kitchen	81	Pass	100	Pass
01DD105k	Kitchen	79	Pass	100	Pass
01DD106k	Kitchen	80	Pass	100	Pass
01DD107k	Kitchen	80	Pass	100	Pass
01DD108k	Kitchen	81	Pass	100	Pass
01DD109l	Living	92	Pass	100	Pass
01DD110l	Living	79	Pass	100	Pass
01DD111l	Living	79	Pass	100	Pass
01DD112l	Living	74	Pass	100	Pass
01DD113l	Living	77	Pass	100	Pass
01DD114l	Living	77	Pass	100	Pass
01DD115l	Living	78	Pass	100	Pass
01DD116l	Living	100	Pass	100	Pass

Duplex D1 – E_T results - Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
02DD101	Bedroom	100	Pass	100	Pass
02DD102	Bedroom	74	Pass	100	Pass
02DD103	Bedroom	41	Marginal	100	Pass
02DD104	Bedroom	100	Pass	100	Pass
02DD105	Bedroom	39	Fail	100	Pass
02DD106	Bedroom	92	Pass	100	Pass
02DD107	Bedroom	39	Fail	100	Pass
02DD108	Bedroom	95	Pass	100	Pass
02DD109	Bedroom	39	Fail	100	Pass
02DD110	Bedroom	90	Pass	100	Pass
02DD111	Bedroom	39	Fail	100	Pass
02DD112	Bedroom	92	Pass	100	Pass
02DD113	Bedroom	39	Fail	100	Pass
02DD114	Bedroom	92	Pass	100	Pass
02DD115	Bedroom	74	Pass	100	Pass
02DD116	Bedroom	47	Marginal	100	Pass
02DD117	Bedroom	38	Fail	100	Pass
02DD118	Bedroom	40	Marginal	100	Pass
02DD119	Bedroom	39	Fail	100	Pass
02DD120	Bedroom	40	Marginal	100	Pass
02DD121	Bedroom	38	Fail	100	Pass
02DD122	Bedroom	38	Fail	100	Pass
02DD123	Bedroom	40	Marginal	100	Pass
02DD124	Bedroom	100	Pass	100	Pass
		Count	70	Count	70
		Pass	50	Pass	70
		Pass Rate 300lx/50%	71%	Pass Rate 100lx/95%	100%
		Marginal	11	Marginal	0
		Pass Margina	87%	Pass Margina	100%

Duplex D2 – E_T results – Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00DD201	Bedroom	58	Pass	100	Pass
00DD202	Bedroom	60	Pass	100	Pass
00DD203	Bedroom	73	Pass	100	Pass
00DD204k	Kitchen	53	Pass	100	Pass
00DD205k	Kitchen	71	Pass	100	Pass
00DD206	Bedroom	53	Pass	100	Pass
00DD207	Bedroom	72	Pass	100	Pass
00DD208k	Kitchen	52	Pass	100	Pass
00DD209k	Kitchen	72	Pass	100	Pass
00DD210	Bedroom	53	Pass	100	Pass
00DD211	Bedroom	72	Pass	100	Pass
00DD212k	Kitchen	51	Pass	100	Pass
00DD213k	Kitchen	72	Pass	100	Pass
00DD214	Bedroom	54	Pass	100	Pass
00DD215	Bedroom	68	Pass	100	Pass
00DD216	Bedroom	100	Pass	100	Pass
00DD217c	Living/Kitchen	98	Pass	100	Pass
00DD218	Bedroom	91	Pass	100	Pass
00DD219l	Living	47	Marginal	100	Pass
00DD220l	Living	89	Pass	100	Pass
00DD221	Bedroom	47	Marginal	100	Pass
00DD222	Bedroom	92	Pass	100	Pass
00DD223l	Living	47	Marginal	100	Pass
00DD224l	Living	88	Pass	100	Pass
00DD225	Bedroom	47	Marginal	100	Pass
00DD226	Bedroom	88	Pass	100	Pass
00DD227l	Living	47	Marginal	100	Pass
00DD228l	Living	90	Pass	100	Pass
00DD229	Bedroom	47	Marginal	100	Pass
00DD230c	Living/Kitchen	81	Pass	100	Pass
01DD201k	Kitchen	79	Pass	100	Pass
01DD202k	Kitchen	75	Pass	100	Pass
01DD203k	Kitchen	78	Pass	100	Pass
01DD204k	Kitchen	78	Pass	100	Pass
01DD205k	Kitchen	77	Pass	100	Pass
01DD206k	Kitchen	77	Pass	100	Pass
01DD207k	Kitchen	77	Pass	100	Pass
01DD208k	Kitchen	94	Pass	100	Pass
01DD209l	Living	100	Pass	100	Pass
01DD210l	Living	74	Pass	100	Pass
01DD211l	Living	77	Pass	100	Pass
01DD212l	Living	78	Pass	100	Pass
01DD213l	Living	77	Pass	100	Pass
01DD214l	Living	80	Pass	100	Pass
01DD215l	Living	77	Pass	100	Pass
01DD216l	Living	92	Pass	100	Pass

Duplex D2 – E_T results – Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
02DD201	Bedroom	47	Marginal	100	Pass
02DD202	Bedroom	69	Pass	100	Pass
02DD203	Bedroom	90	Pass	100	Pass
02DD204	Bedroom	39	Fail	100	Pass
02DD205	Bedroom	88	Pass	100	Pass
02DD206	Bedroom	39	Fail	100	Pass
02DD207	Bedroom	86	Pass	100	Pass
02DD208	Bedroom	39	Fail	100	Pass
02DD209	Bedroom	88	Pass	100	Pass
02DD210	Bedroom	40	Marginal	100	Pass
02DD211	Bedroom	95	Pass	100	Pass
02DD212	Bedroom	39	Fail	100	Pass
02DD213	Bedroom	84	Pass	100	Pass
02DD214	Bedroom	39	Fail	100	Pass
02DD215	Bedroom	69	Pass	100	Pass
02DD216	Bedroom	100	Pass	100	Pass
02DD217	Bedroom	100	Pass	100	Pass
02DD218	Bedroom	38	Fail	100	Pass
02DD219	Bedroom	39	Fail	100	Pass
02DD220	Bedroom	38	Fail	100	Pass
02DD221	Bedroom	39	Fail	100	Pass
02DD222	Bedroom	41	Marginal	100	Pass
02DD223	Bedroom	39	Fail	100	Pass
02DD224	Bedroom	40	Marginal	100	Pass
		Count	**70**	**Count**	**70**
		Pass	**50**	**Pass**	**70**
		Pass Rate 300lx/50%	**71%**	**Pass Rate 100lx/95%**	**100%**
		Marginal	**10**	**Marginal**	**0**
		Pass Margina	**86%**	**Pass Margina**	**100%**

Duplex E1 – E_T results – Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00DE101c	Living/Kitchen	36	Fail	89	Marginal
00DE102c	Living/Kitchen	37	Fail	84	Marginal
00DE103c	Living/Kitchen	37	Fail	84	Marginal
00DE104c	Living/Kitchen	37	Fail	84	Marginal
00DE105c	Living/Kitchen	37	Fail	84	Marginal
00DE106c	Living/Kitchen	37	Fail	84	Marginal
00DE107c	Living/Kitchen	37	Fail	84	Marginal
00DE108	Bedroom	24	Fail	75	Fail
00DE109	Bedroom	16	Fail	63	Fail
00DE110	Bedroom	23	Fail	71	Fail
00DE111	Bedroom	16	Fail	63	Fail
00DE112	Bedroom	23	Fail	66	Fail
00DE113	Bedroom	16	Fail	63	Fail
00DE114	Bedroom	23	Fail	68	Fail
00DE115	Bedroom	16	Fail	63	Fail
00DE116	Bedroom	23	Fail	69	Fail
00DE117	Bedroom	16	Fail	63	Fail
00DE118	Bedroom	23	Fail	68	Fail
00DE119	Bedroom	16	Fail	63	Fail
00DE120	Bedroom	23	Fail	69	Fail
00DE121	Bedroom	13	Fail	51	Fail
01DE101k	Kitchen	27	Fail	75	Fail
01DE102k	Kitchen	26	Fail	74	Fail
01DE103k	Kitchen	27	Fail	74	Fail
01DE104k	Kitchen	27	Fail	76	Marginal
01DE105k	Kitchen	27	Fail	76	Marginal
01DE106k	Kitchen	26	Fail	75	Fail
01DE107k	Kitchen	28	Fail	78	Marginal
01DE108L	Living	20	Fail	94	Marginal
01DE109L	Living	21	Fail	94	Marginal
01DE110L	Living	21	Fail	95	Pass
01DE111L	Living	21	Fail	94	Marginal
01DE112L	Living	20	Fail	95	Pass
01DE113L	Living	20	Fail	95	Pass
01DE114L	Living	18	Fail	84	Marginal

Duplex E1– E_T results - Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
02DE101	Bedroom	33	Fail	100	Pass
02DE102	Bedroom	24	Fail	88	Marginal
02DE103	Bedroom	44	Marginal	100	Pass
02DE104	Bedroom	24	Fail	91	Marginal
02DE105	Bedroom	44	Marginal	100	Pass
02DE106	Bedroom	24	Fail	91	Marginal
02DE107	Bedroom	44	Marginal	100	Pass
02DE108	Bedroom	24	Fail	94	Marginal
02DE109	Bedroom	44	Marginal	100	Pass
02DE110	Bedroom	24	Fail	91	Marginal
02DE111	Bedroom	44	Marginal	100	Pass
02DE112	Bedroom	24	Fail	91	Marginal
02DE113	Bedroom	44	Marginal	100	Pass
02DE114	Bedroom	24	Fail	91	Marginal
02DE115	Bedroom	33	Fail	90	Marginal
02DE116	Bedroom	33	Fail	90	Marginal
02DE117	Bedroom	33	Fail	90	Marginal
02DE118	Bedroom	33	Fail	91	Marginal
02DE119	Bedroom	33	Fail	91	Marginal
02DE120	Bedroom	33	Fail	91	Marginal
02DE121	Bedroom	54	Pass	100	Pass
		Count	**56**	**Count**	**56**
		Pass	**1**	**Pass**	**11**
		Pass Rate 300lx/50%	**2%**	**Pass Rate 100lx/95%**	**20%**
		Marginal	**6**	**Marginal**	**27**
		Pass Margina	**13%**	**Pass Margina**	**68%**

Duplex E2 – E_T results – Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00DE201c	Living/Kitchen	37	Fail	84	Marginal
00DE202c	Living/Kitchen	37	Fail	84	Marginal
00DE203c	Living/Kitchen	37	Fail	84	Marginal
00DE204c	Living/Kitchen	37	Fail	84	Marginal
00DE205c	Living/Kitchen	37	Fail	85	Marginal
00DE206c	Living/Kitchen	37	Fail	84	Marginal
00DE207	Bedroom	23	Fail	72	Fail
00DE208	Bedroom	16	Fail	63	Fail
00DE209	Bedroom	23	Fail	70	Fail
00DE210	Bedroom	16	Fail	60	Fail
00DE211	Bedroom	23	Fail	69	Fail
00DE212	Bedroom	16	Fail	61	Fail
00DE213	Bedroom	23	Fail	71	Fail
00DE214	Bedroom	17	Fail	63	Fail
00DE215	Bedroom	23	Fail	71	Fail
00DE216	Bedroom	16	Fail	63	Fail
00DE217	Bedroom	23	Fail	70	Fail
00DE218	Bedroom	16	Fail	62	Fail
01DE201k	Kitchen	26	Fail	72	Fail
01DE202k	Kitchen	27	Fail	72	Fail
01DE203k	Kitchen	25	Fail	75	Fail
01DE204k	Kitchen	26	Fail	76	Marginal
01DE205k	Kitchen	27	Fail	74	Fail
01DE206k	Kitchen	27	Fail	78	Marginal
01DE207l	Living	20	Fail	94	Marginal
01DE208l	Living	20	Fail	94	Marginal
01DE209l	Living	21	Fail	94	Marginal
01DE210l	Living	21	Fail	94	Marginal
01DE211l	Living	21	Fail	94	Marginal
01DE212l	Living	21	Fail	94	Marginal
02DE201	Bedroom	44	Marginal	100	Pass
02DE202	Bedroom	24	Fail	91	Marginal
02DE203	Bedroom	44	Marginal	100	Pass
02DE204	Bedroom	24	Fail	91	Marginal
02DE205	Bedroom	44	Marginal	100	Pass
02DE206	Bedroom	24	Fail	91	Marginal
02DE207	Bedroom	44	Marginal	100	Pass
02DE208	Bedroom	24	Fail	91	Marginal
02DE209	Bedroom	46	Marginal	100	Pass
02DE210	Bedroom	24	Fail	91	Marginal
02DE211	Bedroom	18	Fail	86	Marginal
02DE212	Bedroom	24	Fail	90	Marginal
02DE213	Bedroom	33	Fail	88	Marginal
02DE214	Bedroom	33	Fail	91	Marginal
02DE215	Bedroom	33	Fail	90	Marginal
02DE216	Bedroom	33	Fail	90	Marginal
02DE217	Bedroom	33	Fail	88	Marginal
02DE218	Bedroom	33	Fail	91	Marginal
		Count	48	Count	48
		Pass	0	Pass	5
		Pass Rate 300lx/50%	0%	Pass Rate 100lx/95%	10%
		Marginal	5	Marginal	27
		Pass Margina	10%	Pass Margina	67%

Duplex E3 – E_T results – Tabulated

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00DE301c	Living/Kitchen	37	Fail	84	Marginal
00DE302c	Living/Kitchen	37	Fail	84	Marginal
00DE303	Bedroom	23	Fail	71	Fail
00DE304	Bedroom	16	Fail	61	Fail
00DE305	Bedroom	23	Fail	68	Fail
00DE306	Bedroom	16	Fail	61	Fail
01DE301k	Kitchen	25	Fail	74	Fail
01DE302k	Kitchen	27	Fail	77	Marginal
01DE303l	Living	20	Fail	97	Pass
01DE304l	Living	21	Fail	97	Pass
02DE301	Bedroom	90	Pass	100	Pass
02DE302	Bedroom	24	Fail	90	Marginal
02DE303	Bedroom	44	Marginal	100	Pass
02DE304	Bedroom	24	Fail	91	Marginal
02DE305	Bedroom	33	Fail	91	Marginal
02DE306	Bedroom	33	Fail	90	Marginal
		Count	16	Count	16
		Pass	1	Pass	4
		Pass Rate 300lx/50%	6%	Pass Rate 100lx/95%	25%
		Marginal	1	Marginal	7
		Pass Margina	13%	Pass Margina	69%

House/Duplex HE2 – E_T results

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00-HE2-01	Bedroom	62	Pass	100	Pass
00-HE2-02	Bedroom	40	Marginal	97	Pass
00-HE2-03	Bedroom	41	Marginal	98	Pass
00-HE2-04l	Living	27	Fail	85	Marginal
00-HE2-05k	Kitchen	27	Fail	97	Pass
00-HE2-06c	Living/Kitchen	41	Marginal	100	Pass
00-HE2-07c	Living/Kitchen	43	Marginal	100	Pass
00-HE2-08c	Living/Kitchen	31	Fail	100	Pass
01-HE2-01	Bedroom	95	Pass	100	Pass
01-HE2-02	Bedroom	54	Pass	100	Pass
01-HE2-03	Bedroom	51	Pass	100	Pass
01-HE2-04	Bedroom	56	Pass	100	Pass
01-HE2-05	Bedroom	74	Pass	100	Pass
01-HE2-06	Bedroom	28	Fail	100	Pass
01-HE2-07	Bedroom	27	Fail	100	Pass
01-HE2-08	Bedroom	35	Fail	90	Marginal
01-HE2-09	Bedroom	30	Fail	100	Pass
01-HE2-10	Bedroom	34	Fail	72	Fail
01-HE2-11	Bedroom	24	Fail	92	Marginal
01-HE2-12	Bedroom	44	Marginal	100	Pass
02-HE2-01c	Living/Kitchen	93	Pass	100	Pass
02-HE2-01c	Living/Kitchen	84	Pass	100	Pass
02-HE2-01c	Living/Kitchen	85	Pass	100	Pass
		Count	23	Count	23
		Pass	9	Pass	19
		Pass Rate 300lx/50%	39%	Pass Rate 100lx/95%	83%
		Marginal	5	Marginal	3
		Pass Margina	61%	Pass Margina	96%

House/Duplex HE5 – E_T results

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance **14,900** lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00-HE5-01	Bedroom	35	Fail	100	Pass
00-HE5-02	Bedroom	40	Marginal	98	Pass
00-HE5-03	Bedroom	38	Fail	92	Marginal
00-HE5-04	Bedroom	41	Marginal	94	Marginal
00-HE5-05c	Living/Kitchen	30	Fail	100	Pass
00-HE5-06c	Living/Kitchen	36	Fail	100	Pass
00-HE5-07c	Living/Kitchen	43	Marginal	100	Pass
00-HE5-08c	Living/Kitchen	26	Fail	100	Pass
00-HE5-09	Bedroom	21	Fail	58	Fail
01-HE5-01	Bedroom	50	Pass	100	Pass
01-HE5-02	Bedroom	48	Marginal	100	Pass
01-HE5-03	Bedroom	48	Marginal	100	Pass
01-HE5-04	Bedroom	50	Pass	100	Pass
01-HE5-05	Bedroom	27	Fail	93	Marginal
01-HE5-06	Bedroom	27	Fail	65	Fail
01-HE5-07	Bedroom	25	Fail	97	Pass
01-HE5-08	Bedroom	33	Fail	74	Fail
01-HE5-09	Bedroom	30	Fail	100	Pass
01-HE5-10	Bedroom	48	Marginal	100	Pass
01-HE5-11	Bedroom	26	Fail	100	Pass
01-HE5-12	Bedroom	41	Marginal	100	Pass
02-HE5-01c	Living/Kitchen	85	Pass	100	Pass
02-HE5-02c	Living/Kitchen	83	Pass	100	Pass
02-HE5-03c	Living/Kitchen	81	Pass	100	Pass
02-HE5-04c	Living/Kitchen	84	Pass	100	Pass
		Count	25	Count	25
		Pass	6	Pass	19
		Pass Rate 300lx/50%	24%	Pass Rate 100lx/95%	76%
		Marginal	7	Marginal	3
		Pass Margina	52%	Pass Margina	88%

House/Duplex HE1 – E_T results

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00-HE1-01	Bedroom	60	Pass	100	Pass
00-HE1-02	Bedroom	39	Fail	94	Marginal
00-HE1-03	Bedroom	40	Marginal	94	Marginal
00-HE1-04l	Living	28	Fail	89	Marginal
00-HE1-05k	Kitchen	29	Fail	97	Pass
00-HE1-06c	Living/Kitchen	40	Marginal	100	Pass
00-HE1-07c	Living/Kitchen	42	Marginal	100	Pass
00-HE1-08c	Living/Kitchen	27	Fail	100	Pass
01-HE1-01	Bedroom	92	Pass	100	Pass
01-HE1-02	Bedroom	49	Marginal	100	Pass
01-HE1-03	Bedroom	51	Pass	100	Pass
01-HE1-04	Bedroom	55	Pass	100	Pass
01-HE1-05	Bedroom	78	Pass	100	Pass
01-HE1-06	Bedroom	30	Fail	100	Pass
01-HE1-07	Bedroom	27	Fail	100	Pass
01-HE1-08	Bedroom	35	Fail	98	Pass
01-HE1-09	Bedroom	30	Fail	100	Pass
01-HE1-10	Bedroom	32	Fail	70	Fail
01-HE1-11	Bedroom	24	Fail	83	Marginal
01-HE1-12	Bedroom	42	Marginal	100	Pass
02-HE1-01c	Living/Kitchen	93	Pass	100	Pass
02-HE1-01c	Living/Kitchen	83	Pass	100	Pass
02-HE1-01c	Living/Kitchen	85	Pass	100	Pass
		Count	23	Count	23
		Pass	8	Pass	18
		Pass Rate 300lx/50%	35%	Pass Rate 100lx/95%	78%
		Marginal	5	Marginal	4
		Pass Margina	57%	Pass Margina	96%

House/Duplex HE3 – E_T results

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00-HE3-01	Bedroom	40	Marginal	100	Pass
00-HE3-02	Bedroom	42	Marginal	100	Pass
00-HE3-03	Bedroom	47	Marginal	100	Pass
00-HE3-04	Bedroom	48	Marginal	100	Pass
00-HE3-05c	Living/Kitchen	47	Marginal	100	Pass
00-HE3-06c	Living/Kitchen	47	Marginal	100	Pass
00-HE3-07c	Living/Kitchen	40	Marginal	100	Pass
00-HE3-08c	Living/Kitchen	26	Fail	100	Pass
00-HE3-09	Bedroom	21	Fail	57	Fail
01-HE3-01	Bedroom	53	Pass	100	Pass
01-HE3-02	Bedroom	54	Pass	100	Pass
01-HE3-03	Bedroom	54	Pass	100	Pass
01-HE3-04	Bedroom	57	Pass	100	Pass
01-HE3-05	Bedroom	30	Fail	100	Pass
01-HE3-06	Bedroom	35	Fail	91	Marginal
01-HE3-07	Bedroom	30	Fail	100	Pass
01-HE3-08	Bedroom	35	Fail	97	Pass
01-HE3-09	Bedroom	30	Fail	100	Pass
01-HE3-10	Bedroom	46	Marginal	100	Pass
01-HE3-11	Bedroom	26	Fail	95	Pass
01-HE3-12	Bedroom	42	Marginal	100	Pass
02-HE3-01c	Living/Kitchen	87	Pass	100	Pass
02-HE3-02c	Living/Kitchen	85	Pass	100	Pass
02-HE3-03c	Living/Kitchen	83	Pass	100	Pass
02-HE3-04c	Living/Kitchen	85	Pass	100	Pass
		Count	25	Count	25
		Pass	8	Pass	23
		Pass Rate 300lx/50%	32%	Pass Rate 100lx/95%	92%
		Marginal	9	Marginal	1
		Pass Margina	68%	Pass Margina	96%

House/Duplex HE4 – E_T results

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00-HE4-01	Bedroom	37	Fail	100	Pass
00-HE4-02	Bedroom	40	Marginal	100	Pass
00-HE4-03	Bedroom	41	Marginal	96	Pass
00-HE4-04	Bedroom	44	Marginal	100	Pass
00-HE4-05c	Living/Kitchen	35	Fail	100	Pass
00-HE4-06c	Living/Kitchen	41	Marginal	100	Pass
00-HE4-07c	Living/Kitchen	46	Marginal	100	Pass
00-HE4-08c	Living/Kitchen	32	Fail	100	Pass
00-HE4-09	Bedroom	21	Fail	60	Fail
01-HE4-01	Bedroom	51	Pass	100	Pass
01-HE4-02	Bedroom	54	Pass	100	Pass
01-HE4-03	Bedroom	54	Pass	100	Pass
01-HE4-04	Bedroom	56	Pass	100	Pass
01-HE4-05	Bedroom	28	Fail	100	Pass
01-HE4-06	Bedroom	31	Fail	72	Fail
01-HE4-07	Bedroom	27	Fail	100	Pass
01-HE4-08	Bedroom	35	Fail	88	Marginal
01-HE4-09	Bedroom	30	Fail	100	Pass
01-HE4-10	Bedroom	48	Marginal	100	Pass
01-HE4-11	Bedroom	26	Fail	100	Pass
01-HE4-12	Bedroom	43	Marginal	100	Pass
02-HE4-01c	Living/Kitchen	88	Pass	100	Pass
02-HE4-02c	Living/Kitchen	84	Pass	100	Pass
02-HE4-03c	Living/Kitchen	85	Pass	100	Pass
02-HE4-04c	Living/Kitchen	87	Pass	100	Pass
		Count	25	Count	25
		Pass	8	Pass	22
		Pass Rate 300lx/50%	32%	Pass Rate 100lx/95%	88%
		Marginal	7	Marginal	1
		Pass Margina	60%	Pass Margina	92%

House/Duplex HE8 – E_T results

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00-HE8-01	Bedroom	30	Fail	93	Marginal
00-HE8-02	Bedroom	34	Fail	80	Marginal
00-HE8-03	Bedroom	27	Fail	73	Fail
00-HE8-04	Bedroom	36	Fail	85	Marginal
00-HE8-05c	Living/Kitchen	50	Pass	100	Pass
00-HE8-06c	Living/Kitchen	47	Marginal	100	Pass
00-HE8-07c	Living/Kitchen	45	Marginal	100	Pass
00-HE8-08c	Living/Kitchen	24	Fail	100	Pass
00-HE8-09	Bedroom	21	Fail	67	Fail
01-HE8-01	Bedroom	47	Marginal	100	Pass
01-HE8-02	Bedroom	48	Marginal	100	Pass
01-HE8-03	Bedroom	41	Marginal	100	Pass
01-HE8-04	Bedroom	44	Marginal	100	Pass
01-HE8-05	Bedroom	30	Fail	100	Pass
01-HE8-06	Bedroom	35	Fail	85	Marginal
01-HE8-07	Bedroom	30	Fail	100	Pass
01-HE8-08	Bedroom	35	Fail	77	Marginal
01-HE8-09	Bedroom	30	Fail	100	Pass
01-HE8-10	Bedroom	35	Fail	81	Marginal
01-HE8-11	Bedroom	26	Fail	100	Pass
01-HE8-12	Bedroom	42	Marginal	100	Pass
02-HE8-01c	Living/Kitchen	86	Pass	100	Pass
02-HE8-02c	Living/Kitchen	85	Pass	100	Pass
02-HE8-03c	Living/Kitchen	78	Pass	100	Pass
02-HE8-04c	Living/Kitchen	83	Pass	100	Pass
		Count	25	Count	25
		Pass	5	Pass	17
		Pass Rate 300lx/50%	20%	Pass Rate 100lx/95%	68%
		Marginal	7	Marginal	6
		Pass Margina	48%	Pass Margina	92%

House/Duplex HE9 – E_T results

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00-HE9-01	Bedroom	30	Fail	96	Pass
00-HE9-02	Bedroom	35	Fail	80	Marginal
00-HE9-03	Bedroom	27	Fail	71	Fail
00-HE9-04	Bedroom	35	Fail	87	Marginal
00-HE9-05c	Living/Kitchen	35	Fail	100	Pass
00-HE9-06c	Living/Kitchen	46	Marginal	100	Pass
00-HE9-07c	Living/Kitchen	46	Marginal	100	Pass
00-HE9-08c	Living/Kitchen	25	Fail	100	Pass
00-HE9-09	Bedroom	21	Fail	62	Fail
01-HE9-01	Bedroom	46	Marginal	100	Pass
01-HE9-02	Bedroom	48	Marginal	100	Pass
01-HE9-03	Bedroom	40	Marginal	100	Pass
01-HE9-04	Bedroom	44	Marginal	100	Pass
01-HE9-05	Bedroom	26	Fail	100	Pass
01-HE9-06	Bedroom	34	Fail	79	Marginal
01-HE9-07	Bedroom	29	Fail	100	Pass
01-HE9-08	Bedroom	34	Fail	74	Fail
01-HE9-09	Bedroom	30	Fail	100	Pass
01-HE9-10	Bedroom	35	Fail	78	Marginal
01-HE9-11	Bedroom	26	Fail	100	Pass
01-HE9-12	Bedroom	42	Marginal	100	Pass
02-HE9-01c	Living/Kitchen	87	Pass	100	Pass
02-HE9-02c	Living/Kitchen	84	Pass	100	Pass
02-HE9-03c	Living/Kitchen	78	Pass	100	Pass
02-HE9-04c	Living/Kitchen	84	Pass	100	Pass
		Count	25	Count	25
		Pass	4	Pass	18
		Pass Rate 300lx/50%	16%	Pass Rate 100lx/95%	72%
		Marginal	7	Marginal	4
		Pass Margina	44%	Pass Margina	88%

House/Duplex HE6 – E_T results

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00HE601	Bedroom	71	Pass	100	Pass
00HE602	Bedroom	50	Pass	100	Pass
00HE603c	Living/Kitchen	39	Fail	100	Pass
00HE604c	Living/Kitchen	43	Marginal	100	Pass
01HE601	Bedroom	94	Pass	100	Pass
01HE602	Bedroom	57	Pass	100	Pass
01HE603	Bedroom	29	Fail	100	Pass
01HE604	Bedroom	33	Fail	74	Fail
01HE605	Bedroom	29	Fail	100	Pass
01HE606	Bedroom	45	Marginal	100	Pass
02HE601c	Living/Kitchen	95	Pass	100	Pass
02HE602c	Living/Kitchen	84	Pass	100	Pass
		Count	12	Count	12
		Pass	6	Pass	11
		Pass Rate 300lx/50%	50%	Pass Rate 100lx/95%	92%
		Marginal	2	Marginal	0
		Pass Margina	67%	Pass Margina	92%

House/Duplex HE7 – E_T results

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00-HE7-01	Bedroom	74	Pass	100	Pass
00-HE7-02	Bedroom	52	Pass	100	Pass
00-HE7-03	Bedroom	51	Pass	100	Pass
00-HE7-04	Bedroom	52	Pass	100	Pass
00-HE7-05c	Living/Kitchen	36	Fail	100	Pass
00-HE7-06c	Living/Kitchen	34	Fail	100	Pass
00-HE7-07c	Living/Kitchen	34	Fail	100	Pass
00-HE7-08c	Living/Kitchen	35	Fail	100	Pass
01-HE7-01	Bedroom	95	Pass	100	Pass
01-HE7-02	Bedroom	57	Pass	100	Pass
01-HE7-03	Bedroom	55	Pass	100	Pass
01-HE7-04	Bedroom	57	Pass	100	Pass
01-HE7-05	Bedroom	30	Fail	100	Pass
01-HE7-06	Bedroom	34	Fail	76	Marginal
01-HE7-07	Bedroom	28	Fail	100	Pass
01-HE7-08	Bedroom	34	Fail	72	Fail
01-HE7-09	Bedroom	28	Fail	100	Pass
01-HE7-10	Bedroom	31	Fail	73	Fail
01-HE7-11	Bedroom	28	Fail	100	Pass
01-HE7-12	Bedroom	48	Marginal	100	Pass
02-HE7-01c	Living/Kitchen	93	Pass	100	Pass
02-HE7-02c	Living/Kitchen	83	Pass	100	Pass
02-HE7-03c	Living/Kitchen	83	Pass	100	Pass
02-HE7-04c	Living/Kitchen	85	Pass	100	Pass
		Count	24	Count	24
		Pass	12	Pass	21
		Pass Rate 300lx/50%	50%	Pass Rate 100lx/95%	88%
		Marginal	1	Marginal	1
		Pass Margina	54%	Pass Margina	92%

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

>50 % of the points on a reference plane to exceed

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%

Summary – Light Distribution all habitable rooms for all blocks.

A summary for pass results for all blocks is detailed below.
And compared with the analysis from Light Distribution – Target Illuminance (Annex NA)

	Annex NA E_T % Pass			Non-Annex 300lx @ 50%			Non-Annex 100lx @ 95%	
	BRE v3	Incl Marginal			Incl Marginal			Incl Marginal
	Pass %	Pass %		Pass %	Pass %		Pass %	Pass %
AptA	100%	100%	AptA	67%	75%	AptA	92%	96%
AptB1/3	100%	100%	AptB1/3	64%	76%	AptB1/3	90%	100%
AptB2	100%	100%	AptB2	65%	80%	AptB2	95%	95%
AptC	97%	98%	AptC	55%	73%	AptC	93%	95%
AptD	96%	96%	AptD	74%	78%	AptD	91%	96%
DupA1	100%	100%	DupA1	48%	65%	DupA1	100%	100%
DupA2	100%	100%	DupA2	48%	65%	DupA2	100%	100%
DupA3	100%	100%	DupA3	46%	58%	DupA3	100%	100%
DupB1	100%	100%	DupB1	44%	61%	DupB1	100%	100%
DupB2	100%	100%	DupB2	46%	66%	DupB2	100%	100%
DupC1	100%	100%	DupC1	65%	88%	DupC1	100%	100%
DupD1	100%	100%	DupD1	71%	87%	DupD1	100%	100%
DupD2	100%	100%	DupD2	71%	86%	DupD2	100%	100%
DupE1	96%	100%	DupE1	2%	13%	DupE1	20%	68%
DupE2	94%	100%	DupE2	0%	10%	DupE2	10%	67%
DupE3	94%	100%	DupE3	6%	13%	DupE3	25%	69%
HseE2	91%	100%	HseE2	39%	61%	HseE2	83%	96%
HseE5	100%	100%	HseE5	24%	52%	HseE5	76%	88%
HseE1	96%	100%	HseE1	35%	57%	HseE1	78%	96%
HseE3	100%	100%	HseE3	32%	68%	HseE3	92%	96%
HseE4	100%	100%	HseE4	32%	60%	HseE4	88%	92%
HseE8	100%	100%	HseE8	20%	48%	HseE8	68%	92%
HseE9	100%	100%	HseE9	16%	44%	HseE9	72%	88%
HseE6	100%	100%	HseE6	50%	67%	HseE6	92%	92%
HseE7	100%	100%	HseE7	50%	54%	HseE7	88%	92%
Total	**99%**	**100%**	**Total**	**45%**	**62%**	**Total**	**85%**	**94%**

It is our opinion that this concurs with the UK committees' position that the non-annex targets are too stringent for use for residential buildings and that (in the absence of an Irish National Annex) that the targets provided in the UK Annex NA are reasonable to apply to residential housing in this case.

The above is further endorsed in the Departments "Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities" July 2023 and clause 6.6 which directly references the UK National Annex BS EN17037:2019 as does the "Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities" 2024.

This is a supplementary analysis which does not reflect the performance of the proposed design in temperate climates such as Ireland / UK. There should be no expectation that the design would comply with these requirements.

The NA-annex results in the main body of this report reflect design in such conditions. This is as defined by the UK committee and directly referenced in Irish Department publications such "Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities" July 2023, "Sustainable and Compact Settlements: Guidelines for Planning Authorities 2024" and many Development Plans.