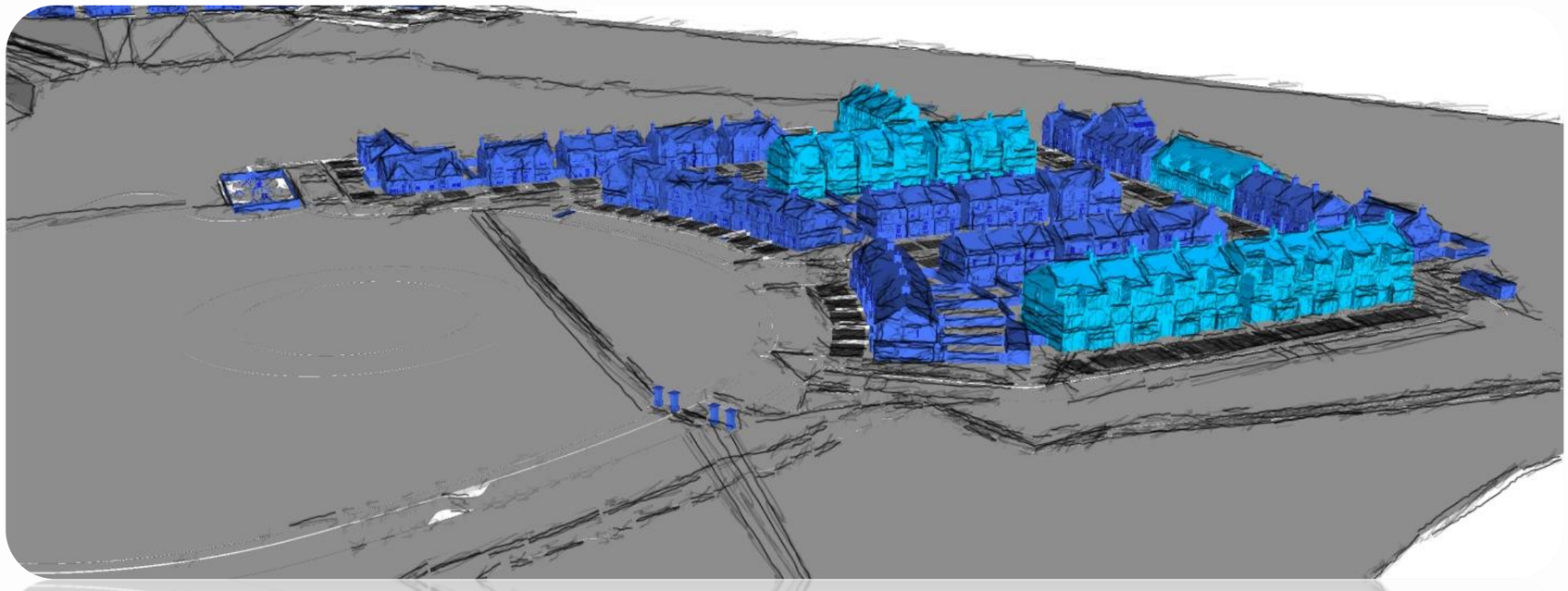
PROPOSED RESIDENTIAL DEVELOPMENT AT LISDARAN

Sunlight, Daylight & Shadow Assessment (Development Performance)

V1



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Executive Summary

This report examines the impact 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.

- There are existing houses adjacent to the proposed development to be tested.

Performance of the proposed design

- **Target Illuminance E_T**
  - **95%** *(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 **94%** and
    - all Living/Kitchen spaces **82%**
    - both are well in excess of the required 50%
- **Sunlight to rooms:**
  - **100%** of all Living rooms receive at least 1.5hrs of sunlight on the test day of the 21st March
- **Sunlight on the Ground SOG (Shadow)**
  - Both new provided communal amenity spaces are comply and are fully lit on the BRE tests day.
  - The provided amenity spaces are well oversized.
  - The tested spaces comply with the requirements of the BRE Guidelines

The application generally complies with the recommendations and Guidelines of Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice – BR209.

This development has been successfully designed to maximise the occupant's access to light. As such the design has used the guidelines in the spirit they have been written and balanced the requirements of this report with other constraints to arrive at this design.

Architects' & Planners' Commentary / Compensatory Measures.

The design is constrained by its location, site shape and orientation. Planning Design Standards for Apartments Guidelines for Planning Authorities, 2025:

6.1 The provision of acceptable levels of natural light in new apartment developments is an important planning consideration as it contributes to the liveability and amenity enjoyed by apartment residents. It is also important to safeguard against a detrimental impact on the amenity of other sensitive occupiers of adjacent properties. Section 5.3.7 of the SRDCSGs outlines requirements for the provision of acceptable levels of daylight in new residential developments and adjoining properties.

Department document "Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities" provides further detail and how minor non-compliance should be handled and assessed:

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. Project Specific Comments / Compensatory Design Solutions are provided in the body of the report and summarised below.

- A small number small number of living rooms are identified as marginal, and the design has incorporated a deliberate compensatory measure in that these apartments are significantly larger in size than the minimum required.
- This oversizing strategy ensures that, even where daylight performance is technically marginal, residents benefit from exceptionally generous and well-proportioned internal living spaces with more room to live.

Please see the main body of this report and the Architect's Design Statement for further details.

Introduction

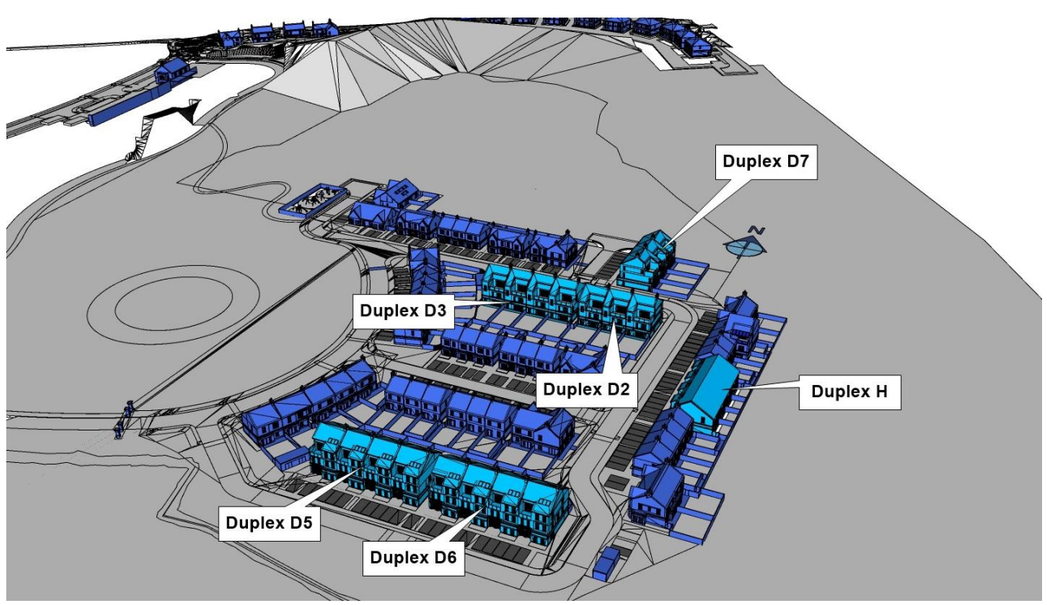
Chris Shackleton Consulting (CSC) have been asked to examine how the proposed development performs in terms of light. The proposed development is a low-rise development with housing and some Duplex units.

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.***

Design Model

A 3D model of the proposed development 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

- There are no adjacent neighbours to be assessed.

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 and maisonettes).

Sustainable Residential Development and Compact Settlement Guidelines, 2024

Performance of all apartments which includes Duplexes & Maisonettes 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 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.*

The above Section is also directly referenced in Planning Design Standards for Apartments Guidelines for Planning Authorities, 2025.

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

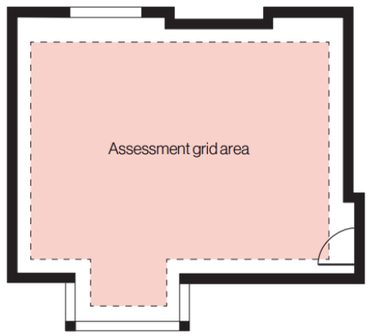


Figure C2: Where room layouts have small variations or alcoves along a wall's length, the inner or dominant section should be taken as a basis for the 0.3m gap to the assessment grid area. Fixed floor to ceiling cupboards can be excluded from the room area, but not kitchen units incorporating a worktop.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

Fig C3 - Corridors/entrances

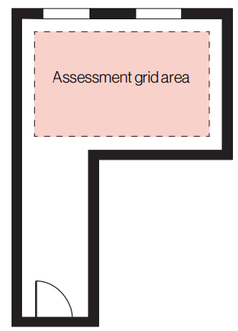


Figure C3: In a room with a corridor, or annexed entrance, the corridor need not be included in the assessment grid area (unless it is wide enough to be part of the usable space in a room, typically over 1.5m wide). The room layout and surfaces, including the corridor would still need to be included 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 2 letter 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:

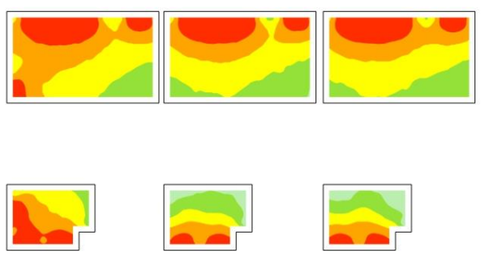
02-D3-05c = 2nd Floor, Block D3, room 5 which is an LKD (Living/Kitchen/Dining room).

00-D2-02 = Ground Floor, Block A, room 2 which is a bedroom.

Duplex D2 - Target Illuminance E_T

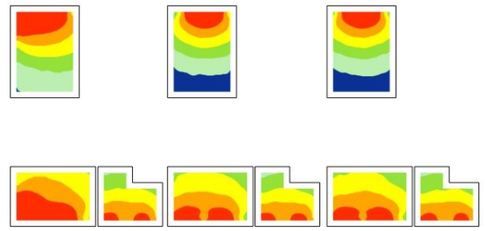
GFL Floor Layout – Naming Convention

Radiance Plot

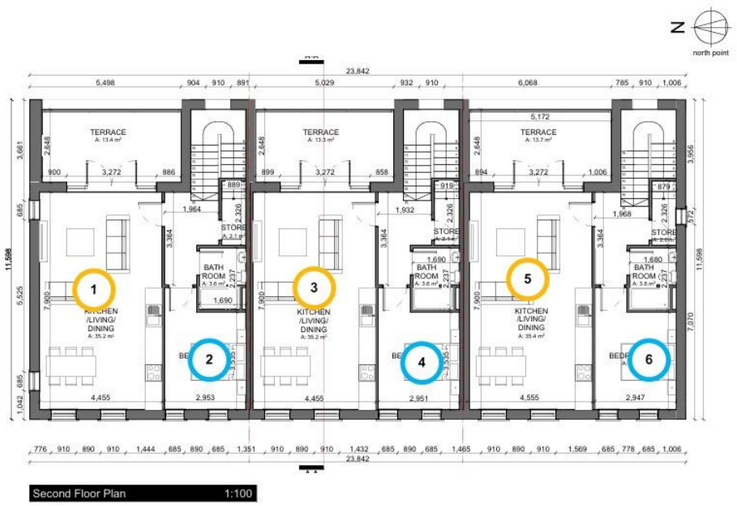


1st Floor Layout – Naming Convention

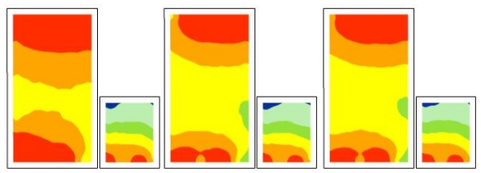
Radiance Plot



2nd Floor Layout – Naming Convention



Radiance Plot



Results are tabulated below:

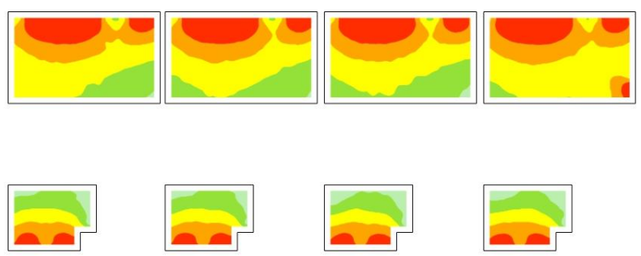
NA.2 Minimum daylight provision				
				For all habitable rooms
Median External Diffuse Illuminance			***14,900***	***lx***
>50 % of the points on a reference plane to exceed				
Duplex D2	**Type**			
Ref	**Type**	**Percentage within Target Lux**	**BS/EN17037 Annex AN Target Lux**	**Check**
00-D2-01	Bedroom	100	100	Pass
00-D2-02	Bedroom	100	100	Pass
00-D2-03	Bedroom	100	100	Pass
00-D2-04c	Living/Kitchen	77	200	Pass
00-D2-05c	Living/Kitchen	75	200	Pass
00-D2-06c	Living/Kitchen	87	200	Pass
01-D2-01	Bedroom	100	100	Pass
01-D2-02	Bedroom	100	100	Pass
01-D2-03	Bedroom	100	100	Pass
01-D2-04	Bedroom	100	100	Pass
01-D2-05	Bedroom	100	100	Pass
01-D2-06	Bedroom	100	100	Pass
01-D2-07	Bedroom	73	100	Pass
01-D2-08	Bedroom	73	100	Pass
01-D2-09	Bedroom	98	100	Pass
02-D2-01c	Living/Kitchen	100	200	Pass
02-D2-02	Bedroom	95	100	Pass
02-D2-03c	Living/Kitchen	96	200	Pass
02-D2-04	Bedroom	94	100	Pass
02-D2-05c	Living/Kitchen	96	200	Pass
02-D2-06	Bedroom	95	100	Pass

Duplex D2 – 100% compliant

Duplex D3 - Target Illuminance E_T

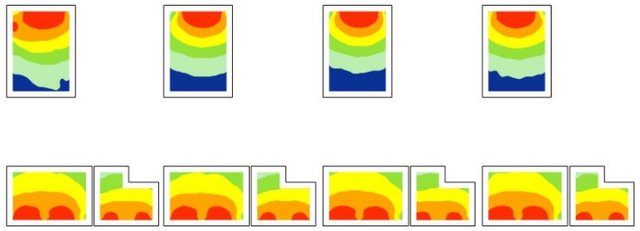
GFL Floor Layout – Naming Convention

Radiance Plot



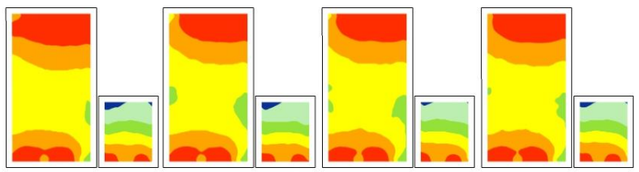
1st Floor Layout – Naming Convention

Radiance Plot



2nd Floor Layout – Naming Convention

Radiance Plot



Results are tabulated below:

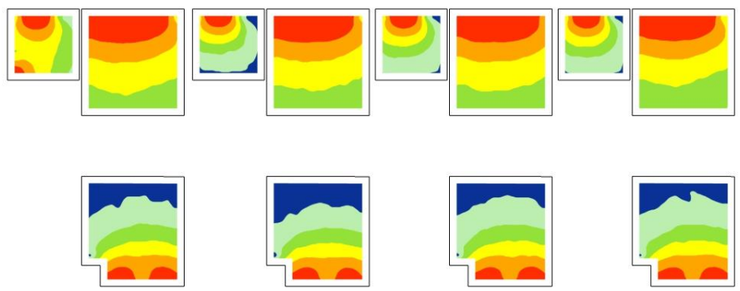
NA.2 Minimum daylight provision				
				For all habitable rooms
Median External Diffuse Illuminance			14,900	lx
>50 % of the points on a reference plane to exceed				
Duplex D3	**Type**			
Ref	**Type**	**Percentage within Target Lux**	**BS/EN17037 Annex AN Target Lux**	**Check**
00-D3-01	Bedroom	100	100	Pass
00-D3-02	Bedroom	100	100	Pass
00-D3-03	Bedroom	100	100	Pass
00-D3-04	Bedroom	100	100	Pass
00-D3-05c	Living/Kitchen	95	200	Pass
00-D3-06c	Living/Kitchen	72	200	Pass
00-D3-07c	Living/Kitchen	74	200	Pass
00-D3-08c	Living/Kitchen	81	200	Pass
01-D3-01	Bedroom	100	100	Pass
01-D3-02	Bedroom	100	100	Pass
01-D3-03	Bedroom	100	100	Pass
01-D3-04	Bedroom	100	100	Pass
01-D3-05	Bedroom	100	100	Pass
01-D3-06	Bedroom	100	100	Pass
01-D3-07	Bedroom	100	100	Pass
01-D3-08	Bedroom	100	100	Pass
01-D3-09	Bedroom	75	100	Pass
01-D3-10	Bedroom	70	100	Pass
01-D3-11	Bedroom	74	100	Pass
01-D3-12	Bedroom	83	100	Pass
02-D3-01c	Living/Kitchen	97	200	Pass
02-D3-02	Bedroom	94	100	Pass
02-D3-03c	Living/Kitchen	93	200	Pass
02-D3-04	Bedroom	94	100	Pass
02-D3-05c	Living/Kitchen	94	200	Pass
02-D3-06	Bedroom	97	100	Pass
02-D3-07c	Living/Kitchen	94	200	Pass
02-D3-08	Bedroom	95	100	Pass

Duplex D3 – 100% compliant

Duplex D5 - Target Illuminance E_T

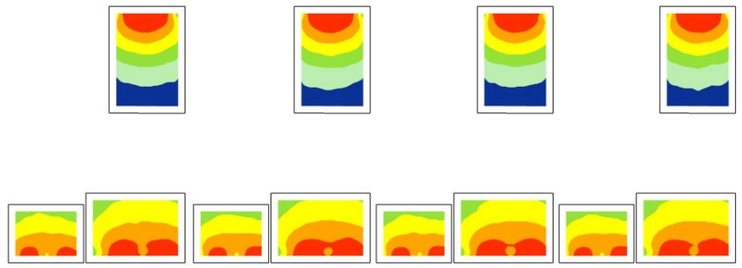
GFL Floor Layout – Naming Convention

Radiance Plot



1st Floor Layout – Naming Convention

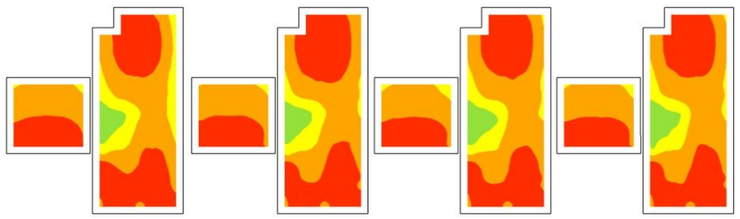
Radiance Plot



2nd Floor Layout – Naming Convention

Second Floor Plan 1:100

Radiance Plot



Results are tabulated below:

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

Duplex D5 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00-D5-01l	Living	46	150	Marginal
00-D5-02l	Living	43	150	Marginal
00-D5-03l	Living	46	150	Marginal
00-D5-04l	Living	46	150	Marginal
00-D5-05k	Kitchen	64	200	Pass
00-D5-06	Bedroom	90	100	Pass
00-D5-07k	Kitchen	72	200	Pass
00-D5-08	Bedroom	92	100	Pass
00-D5-09k	Kitchen	71	200	Pass
00-D5-10	Bedroom	75	100	Pass
00-D5-11k	Kitchen	73	200	Pass
00-D5-12	Bedroom	100	100	Pass
01-D5-01	Bedroom	100	100	Pass
01-D5-02	Bedroom	100	100	Pass
01-D5-03	Bedroom	100	100	Pass
01-D5-04	Bedroom	100	100	Pass
01-D5-05	Bedroom	100	100	Pass
01-D5-06	Bedroom	100	100	Pass
01-D5-07	Bedroom	100	100	Pass
01-D5-08	Bedroom	100	100	Pass
01-D5-09	Bedroom	74	100	Pass
01-D5-10	Bedroom	73	100	Pass
01-D5-11	Bedroom	75	100	Pass
01-D5-12	Bedroom	72	100	Pass
02-D5-01	Bedroom	100	100	Pass
02-D5-02c	Living/Kitchen	94	200	Pass
02-D5-03	Bedroom	100	100	Pass
02-D5-04c	Living/Kitchen	94	200	Pass
02-D5-05	Bedroom	100	100	Pass
02-D5-06c	Living/Kitchen	94	200	Pass
02-D5-07	Bedroom	100	100	Pass
02-D5-08c	Living/Kitchen	93	200	Pass

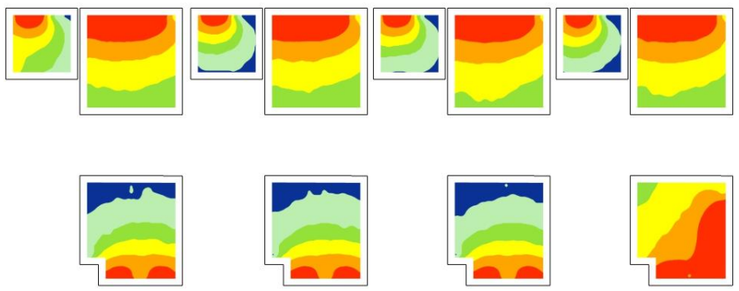
Duplex D5 – 88% *(100% including marginals)* compliant

Duplex D6 - Target Illuminance E_T

GFL Floor Layout – Naming Convention

Ground Floor Plan 1:100

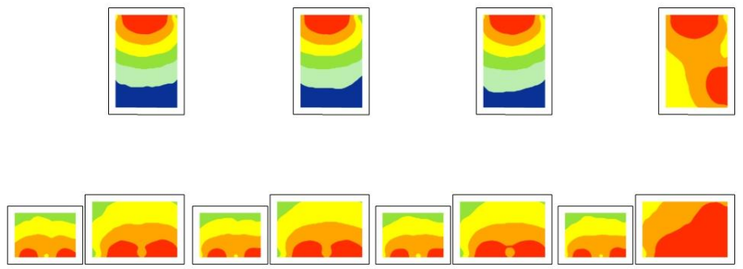
Radiance Plot



1st Floor Layout – Naming Convention

First Floor Plan 1:100

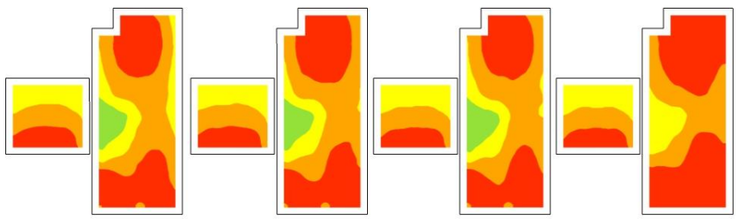
Radiance Plot



2nd Floor Layout – Naming Convention

Second Floor Plan 1:100

Radiance Plot



Results are tabulated below:

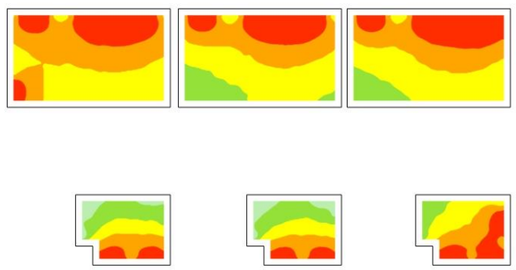
NA.2 Minimum daylight provision				
				For all habitable rooms
Median External Diffuse Illuminance		14,900	lx	
>50 % of the points on a reference plane to exceed				
Duplex D6	**Type**			
Ref	**Type**	**Percentage within Target Lux**	**BS/EN17037 Annex AN Target Lux**	**Check**
00-D6-01l	Living	46	150	Marginal
00-D6-02l	Living	46	150	Marginal
00-D6-03l	Living	47	150	Marginal
00-D6-04l	Living	100	150	Pass
00-D6-05k	Kitchen	75	200	Pass
00-D6-06	Bedroom	76	100	Pass
00-D6-07k	Kitchen	77	200	Pass
00-D6-08	Bedroom	85	100	Pass
00-D6-09k	Kitchen	72	200	Pass
00-D6-10	Bedroom	71	100	Pass
00-D6-11k	Kitchen	72	200	Pass
00-D6-12	Bedroom	98	100	Pass
01-D6-01	Bedroom	100	100	Pass
01-D6-02	Bedroom	100	100	Pass
01-D6-03	Bedroom	100	100	Pass
01-D6-04	Bedroom	100	100	Pass
01-D6-05	Bedroom	100	100	Pass
01-D6-06	Bedroom	100	100	Pass
01-D6-07	Bedroom	100	100	Pass
01-D6-08	Bedroom	100	100	Pass
01-D6-09	Bedroom	100	100	Pass
01-D6-10	Bedroom	75	100	Pass
01-D6-11	Bedroom	72	100	Pass
01-D6-12	Bedroom	72	100	Pass
02-D6-01	Bedroom	100	100	Pass
02-D6-02c	Living/Kitchen	93	200	Pass
02-D6-03	Bedroom	100	100	Pass
02-D6-04c	Living/Kitchen	93	200	Pass
02-D6-05	Bedroom	100	100	Pass
02-D6-06c	Living/Kitchen	92	200	Pass
02-D6-07	Bedroom	100	100	Pass
02-D6-08c	Living/Kitchen	100	200	Pass

Duplex D6 – 91% *(100% including marginals)* compliant

Duplex D7 - Target Illuminance E_T

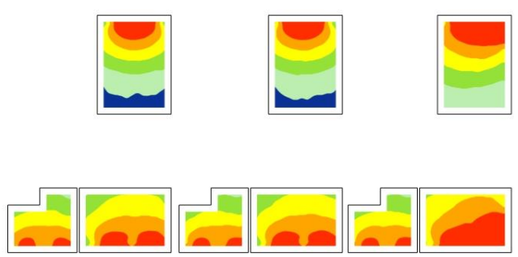
GFL Floor Layout – Naming Convention

Radiance Plot



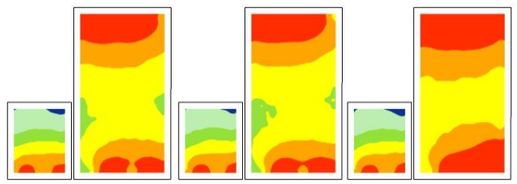
1st Floor Layout – Naming Convention

Radiance Plot



2nd Floor Layout – Naming Convention

Radiance Plot



Results are tabulated below:

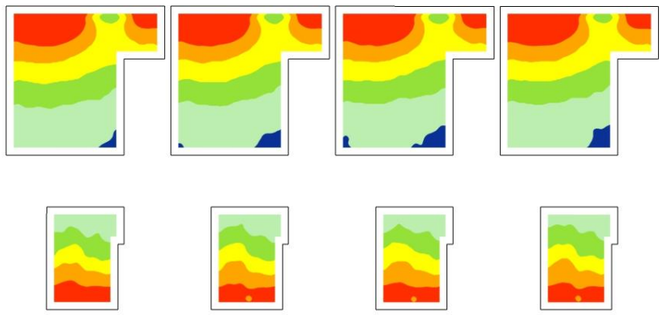
NA.2 Minimum daylight provision				
				For all habitable rooms
Median External Diffuse Illuminance			14,900	lx
>50 % of the points on a reference plane to exceed				
B15	**Type**			
Ref	**Type**	**Percentage within Target Lux**	**BS/EN17037 Annex AN Target Lux**	**Check**
00-D7-01	Bedroom	100	100	Pass
00-D7-02	Bedroom	100	100	Pass
00-D7-03	Bedroom	100	100	Pass
00-D7-04c	Living/Kitchen	89	200	Pass
00-D7-05c	Living/Kitchen	83	200	Pass
00-D7-06c	Living/Kitchen	100	200	Pass
01-D1-01	Bedroom	100	100	Pass
01-D1-02	Bedroom	100	100	Pass
01-D1-03	Bedroom	100	100	Pass
01-D1-04	Bedroom	100	100	Pass
01-D1-05	Bedroom	100	100	Pass
01-D1-06	Bedroom	100	100	Pass
01-D1-07	Bedroom	100	100	Pass
01-D1-08	Bedroom	81	100	Pass
01-D1-09	Bedroom	80	100	Pass
02-D7-01	Bedroom	95	100	Pass
02-D7-02c	Living/Kitchen	93	200	Pass
02-D7-03	Bedroom	97	100	Pass
02-D7-04c	Living/Kitchen	92	200	Pass
02-D7-05	Bedroom	95	100	Pass
02-D7-06c	Living/Kitchen	99	200	Pass

Duplex D7 – 100% compliant

Duplex Hx - Target Illuminance E_T

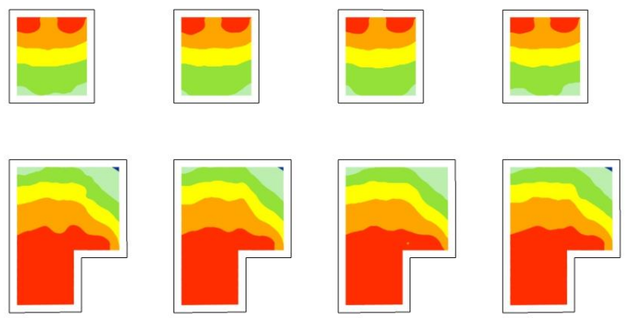
GFL Floor Layout – Naming Convention

Radiance Plot



1st Floor Layout – Naming Convention

Radiance Plot



Results are tabulated below:

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

B15	Type			
Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00-Hx-01	Bedroom	100	100	Pass
00-Hx-02	Bedroom	100	100	Pass
00-Hx-03	Bedroom	100	100	Pass
00-Hx-04	Bedroom	100	100	Pass
00-Hx-05c	Living/Kitchen	50	200	Pass
00-Hx-06c	Living/Kitchen	50	200	Pass
00-Hx-07c	Living/Kitchen	50	200	Pass
00-Hx-08c	Living/Kitchen	51	200	Pass
01-Hx-01c	Living/Kitchen	74	200	Pass
01-Hx-02c	Living/Kitchen	76	200	Pass
01-Hx-03c	Living/Kitchen	76	200	Pass
01-Hx-04c	Living/Kitchen	75	200	Pass
01-Hx-05	Bedroom	100	100	Pass
01-Hx-06	Bedroom	100	100	Pass
01-Hx-07	Bedroom	100	100	Pass
01-Hx-08	Bedroom	100	100	Pass

Summary

The majority of rooms fully comply with requirements. Of the few that don't are very marginal on the 50% requirement. There are compensatory factors outlined in the Architects Commentary relating to the design and specifics.

L/K/D		Annex NA E_T % Pass	
		BRE v3	Incl Marginal
		Pass %	Pass %
	D3	100%	100%
	D2	100%	100%
	D5	88%	100%
	D6	91%	100%
	D7	100%	100%
	Hx	100%	100%
	Total	**95%**	**100%**

95% of rooms comply with the BS/EN 17037 Annex NA room targets for 50% of the floor area tested.
(100% if we include marginal results)

The average compliant areas achieving the relevant target Lx for all bedrooms is 94% and all Living/Kitchen spaces 82% both are well in excess of the required 50%

Duplex D2 – 100% compliant

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.*

> *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 BRE 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.

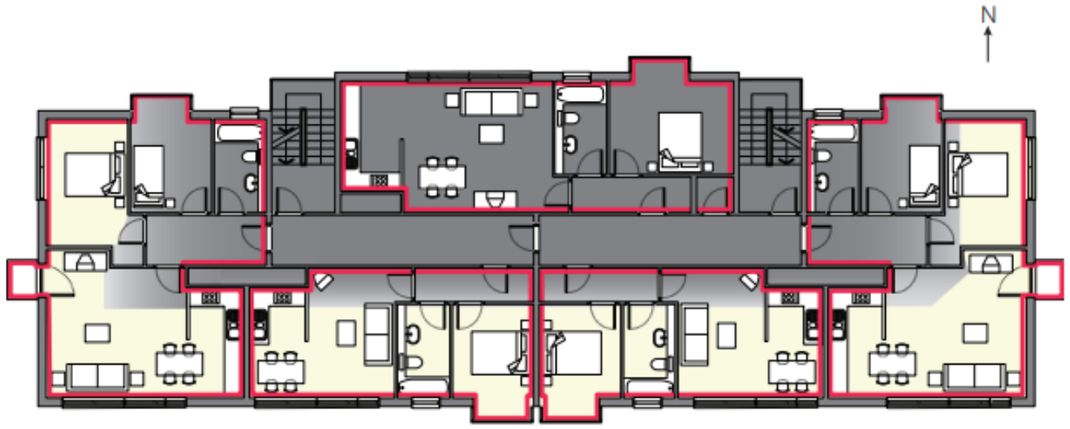


Figure 26: Careful layout design means that four out of the five flats shown have a south-facing living room

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. …..*

Results are tabulated below:

Sunlight to living rooms									
Receives 1.5 hours of sunlight on 21st March									
Block	**Floor**	**Window/Room**	**Ref**	**Hrs of Sun**	**Pass**		**Quality**		
D2	F0	R04	00.D2.04	9.8	Pass				*High*
D2	F0	R05	00.D2.05	9.7	Pass				*High*
D2	F0	R06	00.D2.06	9.3	Pass				*High*
D2	F2	R01	02.D2.01	6.7	Pass				*High*
D2	F2	R03	02.D2.03	5.0	Pass				*High*
D2	F2	R05	02.D2.05	5.2	Pass				*High*
D3	F0	R05	00.D3.05	8.5	Pass				*High*
D3	F0	R06	00.D3.06	9.0	Pass				*High*
D3	F0	R07	00.D3.07	9.5	Pass				*High*
D3	F0	R08	00.D3.08	10.0	Pass				*High*
D3	F2	R01	02.D3.01	6.0	Pass				*High*
D3	F2	R03	02.D3.03	5.0	Pass				*High*
D3	F2	R05	02.D3.05	4.8	Pass				*High*
D3	F2	R07	02.D3.07	5.2	Pass				*High*
D5	F0	R01	00.D5.01	10.7	Pass				*High*
D5	F0	R02	00.D5.02	10.7	Pass				*High*
D5	F0	R03	00.D5.03	10.5	Pass				*High*
D5	F0	R04	00.D5.04	10.5	Pass				*High*
D5	F2	R02	02.D5.02	10.5	Pass				*High*
D5	F2	R04	02.D5.04	10.7	Pass				*High*
D5	F2	R06	02.D5.06	10.5	Pass				*High*
D5	F2	R08	02.D5.08	10.7	Pass				*High*
D6	F0	R01	00.D6.01	10.5	Pass				*High*
D6	F0	R02	00.D6.02	10.5	Pass				*High*
D6	F0	R03	00.D6.03	10.5	Pass				*High*
D6	F0	R04	00.D6.04	10.5	Pass				*High*
D6	F2	R02	02.D6.02	10.7	Pass				*High*
D6	F2	R04	02.D6.04	10.7	Pass				*High*
D6	F2	R06	02.D6.06	10.7	Pass				*High*
D6	F2	R08	02.D6.08	10.7	Pass				*High*
D7	F0	R04	00.D7.04	10.7	Pass				*High*
D7	F0	R05	00.D7.05	5.0	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**		
D7	F0	R06	00.D7.06	5.5	Pass				*High*
D7	F1	R02	01.D7.02	5.5	Pass				*High*
D7	F1	R04	01.D7.04	3.8	Pass			*Medium*	
D7	F1	R06	01.D7.06	3.8	Pass			*Medium*	
Hx	F0	R05	00.Hx.05	5.8	Pass				*High*
Hx	F0	R06	00.Hx.06	4.7	Pass				*High*
Hx	F0	R07	00.Hx.07	4.7	Pass				*High*
Hx	F0	R08	00.Hx.08	4.7	Pass				*High*
Hx	F1	R01	01.Hx.01	5.0	Pass				*High*
Hx	F1	R02	01.Hx.02	4.3	Pass				*High*
Hx	F1	R03	01.Hx.03	4.0	Pass				*High*
Hx	F1	R04	01.Hx.04	4.7	Pass				*High*

Summary

Sunlight to living rooms:

100% of all Living rooms receive at least 1.5hrs of sunlight on the test day of the 21st March

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).*

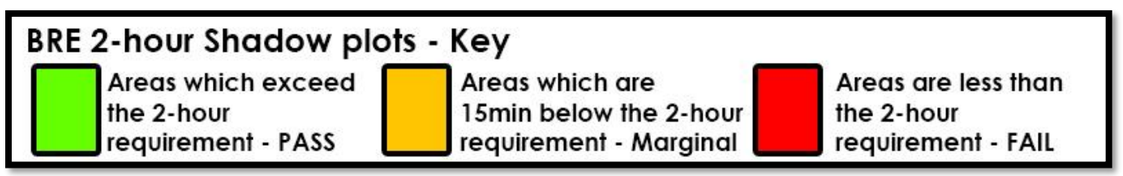
> *3.3.9 … Normally trees and shrubs need not be included, partly because their shapes are almost impossible to predict, and partly because the dappled shade of a tree is more pleasant than the deep shadow of a building (this applies especially to deciduous trees). …*

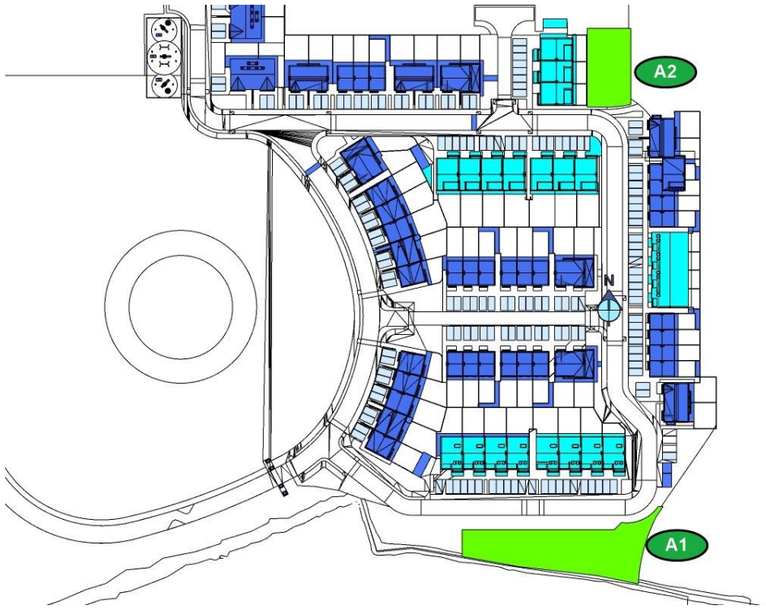
The amenities of the following were tested.

- Shared / communal Spaces but not Private balconies should be 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.





Proposed

The results are tabulated below:

		Shadow / Sunlight Amenity >50% receives 2 hours of sunlight on 21st March)			
Group	Floor	Ref	Ref	% 2hr Sunlight	Check
Bx	F0	A1	x.A1	100%	Pass
Bx	F0	A2	x.A2	100%	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

Both new provided communal amenity spaces are comply and are fully lit on the BRE tests day.
Provided amenity spaces are well oversized.

The tested spaces comply with the requirements of the BRE Guidelines

Architects Commentary Compensatory Measures.

General

The design is constrained by its location, site shape and orientation.
Planning Design Standards for Apartments Guidelines for Planning Authorities, 2025:

6.1 The provision of acceptable levels of natural light in new apartment developments is an important planning consideration as it contributes to the liveability and amenity enjoyed by apartment residents. It is also important to safeguard against a detrimental impact on the amenity of other sensitive occupiers of adjacent properties. Section 5.3.7 of the SRDCSGs outlines requirements for the provision of acceptable levels of daylight in new residential developments and adjoining properties.

Planning authorities are requested to practically and flexibly apply the general requirements of these Guidelines in relation to refurbishment schemes, particularly in historic buildings, some urban townscapes and 'over the shop' type or other existing building conversion or refurbishment projects, where property owners must work with existing building fabric and dimensions. Ultimately, Building Regulations must be complied with and planning authorities must prioritise the objective of more effective usage of existing underutilised accommodation, including empty buildings and vacant upper floors.

Department document "Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities" provides further detail and how minor non-compliance should be handled and assessed:

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 given that this is an urban infill site.

The daylight analysis undertaken demonstrates that the majority of Living spaces achieve and in many cases comfortably exceed the BRE/EN 17037 targets. A small number of living rooms, identified in this report as marginal – including **00-D5-01l, 00-D5-02l, 00-D5-03l & 00-D5-04l in Duplex D5 and 00-D6-01l, 00-D6-02l and 00-D6-03l in Duplex D6** fall just below the 50% compliance threshold.

In recognition of this, the design has incorporated a deliberate compensatory measure: these apartments have been designed to be **significantly larger than the minimum standards set out in the Planning Design Standards for Apartments Guidelines, 2025**. The overall floor area of these units is **109.4 sq.m.**, compared to the **minimum requirement of 76 sq.m. for a 3-bedroom (4-person) apartment**. Furthermore, the Living spaces within these units also **exceed the minimum width and floor area requirements** stipulated in the Guidelines.

This oversizing strategy ensures that, even where daylight performance is technically marginal, residents benefit from **exceptionally generous and well-proportioned internal living spaces**. These enlarged layouts offer enhanced flexibility in furniture arrangement, improved spatial quality, and a higher degree of comfort, thereby **compensating fully for the slight shortfall in daylight performance**.

In line with the BRE (2022) guidance, which emphasises that numerical daylight targets should be interpreted flexibly and balanced against overall residential quality, this approach guarantees that the development continues to provide **bright, spacious, and high-quality homes** that prioritise the wellbeing of future occupants.'

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**
  - **95%** *(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 **94%** and
    - all Living/Kitchen spaces **82%**
    - both are well in excess of the required 50%
- **Sunlight to rooms:**
  - **100%** of all Living rooms receive at least 1.5hrs of sunlight on the test day of the 21st March
- **Sunlight on the Ground SOG (Shadow)**
  - Both new provided communal amenity spaces are comply and are fully lit on the BRE tests day.
  - The provided amenity spaces are well oversized.
  - The tested spaces comply with the requirements of the BRE Guidelines

The application complies with the recommendations and Guidelines of Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice – BR209.

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 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 Residential Development and Compact Settlements Guidelines for Planning Authorities" 2024 and clause 5.3.7 which directly references the UK National Annex BS EN17037:2019.

Duplex D2

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-D2-01	Bedroom	56	Pass	100	Pass
00-D2-02	Bedroom	33	Fail	100	Pass
00-D2-03	Bedroom	33	Fail	100	Pass
00-D2-04c	Living/Kitchen	43	Marginal	100	Pass
00-D2-05c	Living/Kitchen	40	Marginal	100	Pass
00-D2-06c	Living/Kitchen	55	Pass	100	Pass
01-D2-01	Bedroom	61	Pass	100	Pass
01-D2-02	Bedroom	44	Marginal	100	Pass
01-D2-03	Bedroom	44	Marginal	100	Pass
01-D2-04	Bedroom	38	Fail	100	Pass
01-D2-05	Bedroom	44	Marginal	100	Pass
01-D2-06	Bedroom	41	Marginal	100	Pass
01-D2-07	Bedroom	22	Fail	73	Fail
01-D2-08	Bedroom	22	Fail	73	Fail
01-D2-09	Bedroom	38	Fail	98	Pass
02-D2-01c	Living/Kitchen	74	Pass	100	Pass
02-D2-02	Bedroom	31	Fail	95	Pass
02-D2-03c	Living/Kitchen	50	Pass	100	Pass
02-D2-04	Bedroom	30	Fail	94	Marginal
02-D2-05c	Living/Kitchen	52	Pass	100	Pass
02-D2-06	Bedroom	31	Fail	95	Pass
		Count	21	Count	21
		Pass	6	Pass	18
		Pass Rate 300lx/50%	29%	Pass Rate 100lx/95%	86%
		Marginal	6	Marginal	1
		Pass Margina	57%	Pass Margina	90%

Duplex D3

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-D3-01	Bedroom	36	Fail	100	Pass
00-D3-02	Bedroom	35	Fail	100	Pass
00-D3-03	Bedroom	34	Fail	100	Pass
00-D3-04	Bedroom	35	Fail	100	Pass
00-D3-05c	Living/Kitchen	47	Marginal	100	Pass
00-D3-06c	Living/Kitchen	40	Marginal	100	Pass
00-D3-07c	Living/Kitchen	39	Fail	100	Pass
00-D3-08c	Living/Kitchen	40	Marginal	100	Pass
01-D3-01	Bedroom	47	Marginal	100	Pass
01-D3-02	Bedroom	41	Marginal	100	Pass
01-D3-03	Bedroom	41	Marginal	100	Pass
01-D3-04	Bedroom	41	Marginal	100	Pass
01-D3-05	Bedroom	45	Marginal	100	Pass
01-D3-06	Bedroom	38	Fail	100	Pass
01-D3-07	Bedroom	45	Marginal	100	Pass
01-D3-08	Bedroom	44	Marginal	100	Pass
01-D3-09	Bedroom	23	Fail	75	Fail
01-D3-10	Bedroom	22	Fail	70	Fail
01-D3-11	Bedroom	22	Fail	74	Fail
01-D3-12	Bedroom	31	Fail	83	Marginal
02-D3-01c	Living/Kitchen	54	Pass	100	Pass
02-D3-02	Bedroom	30	Fail	94	Marginal
02-D3-03c	Living/Kitchen	49	Marginal	100	Pass
02-D3-04	Bedroom	30	Fail	94	Marginal
02-D3-05c	Living/Kitchen	49	Marginal	100	Pass
02-D3-06	Bedroom	31	Fail	97	Pass
02-D3-07c	Living/Kitchen	52	Pass	100	Pass
02-D3-08	Bedroom	31	Fail	95	Pass
		Count	28	Count	28
		Pass	2	Pass	22
		Pass Rate 300lx/50%	7%	Pass Rate 100lx/95%	79%
		Marginal	12	Marginal	3
		Pass Margina	50%	Pass Margina	89%

Duplex D5

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-D5-01l	Living	23	Fail	72	Fail
00-D5-02l	Living	20	Fail	66	Fail
00-D5-03l	Living	22	Fail	73	Fail
00-D5-04l	Living	23	Fail	73	Fail
00-D5-05k	Kitchen	39	Fail	100	Pass
00-D5-06	Bedroom	17	Fail	90	Marginal
00-D5-07k	Kitchen	46	Marginal	100	Pass
00-D5-08	Bedroom	17	Fail	92	Marginal
00-D5-09k	Kitchen	44	Marginal	100	Pass
00-D5-10	Bedroom	16	Fail	75	Fail
00-D5-11k	Kitchen	45	Marginal	100	Pass
00-D5-12	Bedroom	29	Fail	100	Pass
01-D5-01	Bedroom	46	Marginal	100	Pass
01-D5-02	Bedroom	45	Marginal	100	Pass
01-D5-03	Bedroom	42	Marginal	100	Pass
01-D5-04	Bedroom	45	Marginal	100	Pass
01-D5-05	Bedroom	40	Marginal	100	Pass
01-D5-06	Bedroom	46	Marginal	100	Pass
01-D5-07	Bedroom	39	Fail	100	Pass
01-D5-08	Bedroom	45	Marginal	100	Pass
01-D5-09	Bedroom	23	Fail	74	Fail
01-D5-10	Bedroom	24	Fail	73	Fail
01-D5-11	Bedroom	24	Fail	75	Fail
01-D5-12	Bedroom	23	Fail	72	Fail
02-D5-01	Bedroom	97	Pass	100	Pass
02-D5-02c	Living/Kitchen	76	Pass	100	Pass
02-D5-03	Bedroom	97	Pass	100	Pass
02-D5-04c	Living/Kitchen	84	Pass	100	Pass
02-D5-05	Bedroom	91	Pass	100	Pass
02-D5-06c	Living/Kitchen	82	Pass	100	Pass
02-D5-07	Bedroom	96	Pass	100	Pass
02-D5-08c	Living/Kitchen	82	Pass	100	Pass
		Count	32	Count	32
		Pass	8	Pass	21
		Pass Rate 300lx/50%	25%	Pass Rate 100lx/95%	66%
		Marginal	10	Marginal	2
		Pass Margina	56%	Pass Margina	72%

Duplex D6

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-D6-01l	Living	22	Fail	76	Marginal
00-D6-02l	Living	23	Fail	76	Marginal
00-D6-03l	Living	22	Fail	74	Fail
00-D6-04l	Living	58	Pass	100	Pass
00-D6-05k	Kitchen	45	Marginal	100	Pass
00-D6-06	Bedroom	20	Fail	76	Marginal
00-D6-07k	Kitchen	45	Marginal	100	Pass
00-D6-08	Bedroom	20	Fail	85	Marginal
00-D6-09k	Kitchen	44	Marginal	100	Pass
00-D6-10	Bedroom	19	Fail	71	Fail
00-D6-11k	Kitchen	45	Marginal	100	Pass
00-D6-12	Bedroom	22	Fail	98	Pass
01-D6-01	Bedroom	44	Marginal	100	Pass
01-D6-02	Bedroom	46	Marginal	100	Pass
01-D6-03	Bedroom	41	Marginal	100	Pass
01-D6-04	Bedroom	45	Marginal	100	Pass
01-D6-05	Bedroom	40	Marginal	100	Pass
01-D6-06	Bedroom	45	Marginal	100	Pass
01-D6-07	Bedroom	38	Fail	100	Pass
01-D6-08	Bedroom	89	Pass	100	Pass
01-D6-09	Bedroom	72	Pass	100	Pass
01-D6-10	Bedroom	24	Fail	75	Fail
01-D6-11	Bedroom	26	Fail	72	Fail
01-D6-12	Bedroom	23	Fail	72	Fail
02-D6-01	Bedroom	60	Pass	100	Pass
02-D6-02c	Living/Kitchen	75	Pass	100	Pass
02-D6-03	Bedroom	59	Pass	100	Pass
02-D6-04c	Living/Kitchen	82	Pass	100	Pass
02-D6-05	Bedroom	59	Pass	100	Pass
02-D6-06c	Living/Kitchen	79	Pass	100	Pass
02-D6-07	Bedroom	58	Pass	100	Pass
02-D6-08c	Living/Kitchen	89	Pass	100	Pass
		Count	32	Count	32
		Pass	11	Pass	23
		Pass Rate 300lx/50%	34%	Pass Rate 100lx/95%	72%
		Marginal	10	Marginal	4
		Pass Margina	66%	Pass Margina	84%

Duplex D7

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-D7-01	Bedroom	37	Fail	100	Pass
00-D7-02	Bedroom	35	Fail	100	Pass
00-D7-03	Bedroom	55	Pass	100	Pass
00-D7-04c	Living/Kitchen	49	Marginal	100	Pass
00-D7-05c	Living/Kitchen	45	Marginal	100	Pass
00-D7-06c	Living/Kitchen	61	Pass	100	Pass
01-D1-01	Bedroom	41	Marginal	100	Pass
01-D1-02	Bedroom	45	Marginal	100	Pass
01-D1-03	Bedroom	37	Fail	100	Pass
01-D1-04	Bedroom	45	Marginal	100	Pass
01-D1-05	Bedroom	44	Marginal	100	Pass
01-D1-06	Bedroom	66	Pass	100	Pass
01-D1-07	Bedroom	36	Fail	100	Pass
01-D1-08	Bedroom	22	Fail	81	Marginal
01-D1-09	Bedroom	23	Fail	80	Marginal
02-D7-01	Bedroom	30	Fail	95	Pass
02-D7-02c	Living/Kitchen	50	Pass	100	Pass
02-D7-03	Bedroom	31	Fail	97	Pass
02-D7-04c	Living/Kitchen	47	Marginal	100	Pass
02-D7-05	Bedroom	31	Fail	95	Pass
02-D7-06c	Living/Kitchen	64	Pass	100	Pass
		Count	21	Count	21
		Pass	5	Pass	19
		Pass Rate 300lx/50%	24%	Pass Rate 100lx/95%	90%
		Marginal	7	Marginal	2
		Pass Margina	57%	Pass Margina	100%

Duplex Hx

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-Hx-01	Bedroom	38	Fail	100	Pass
00-Hx-02	Bedroom	38	Fail	100	Pass
00-Hx-03	Bedroom	38	Fail	100	Pass
00-Hx-04	Bedroom	40	Marginal	100	Pass
00-Hx-05c	Living/Kitchen	30	Fail	96	Pass
00-Hx-06c	Living/Kitchen	29	Fail	94	Marginal
00-Hx-07c	Living/Kitchen	30	Fail	96	Pass
00-Hx-08c	Living/Kitchen	31	Fail	98	Pass
01-Hx-01c	Living/Kitchen	62	Pass	100	Pass
01-Hx-02c	Living/Kitchen	62	Pass	100	Pass
01-Hx-03c	Living/Kitchen	62	Pass	100	Pass
01-Hx-04c	Living/Kitchen	62	Pass	100	Pass
01-Hx-05	Bedroom	37	Fail	100	Pass
01-Hx-06	Bedroom	38	Fail	100	Pass
01-Hx-07	Bedroom	38	Fail	100	Pass
01-Hx-08	Bedroom	37	Fail	100	Pass
		Count	16	Count	16
		Pass	4	Pass	15
		Pass Rate 300lx/50%	25%	Pass Rate 100lx/95%	94%
		Marginal	1	Marginal	1
		Pass Margina	31%	Pass Margina	100%

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 %
D3	100%	100%	D3	29%	57%	D3	86%	90%
D2	100%	100%	D2	7%	50%	D2	79%	89%
D5	88%	100%	D5	25%	56%	D5	66%	72%
D6	91%	100%	D6	34%	66%	D6	72%	84%
D7	100%	100%	D7	24%	57%	D7	90%	100%
Hx	100%	100%	Hx	25%	31%	Hx	94%	100%
Total	**95%**	**100%**	**Total**	**24%**	**55%**	**Total**	**79%**	**87%**

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 Residential Development and Compact Settlements Guidelines for Planning Authorities" 2024 and clause 5.3.7 which directly references the UK National Annex BS EN17037:2019.

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 publication "Sustainable and Compact Settlements: Guidelines for Planning Authorities 2024" and many Development Plans.