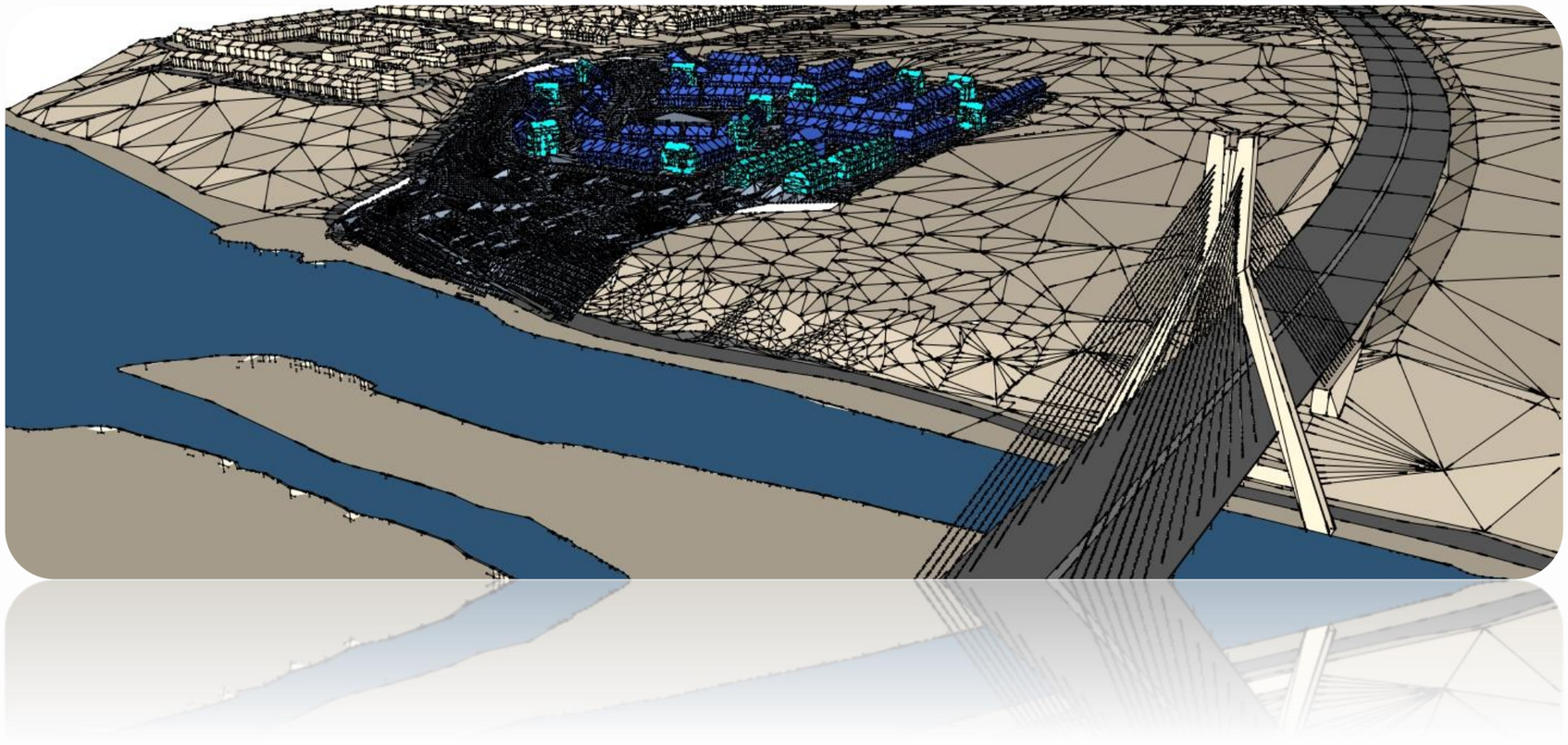
RATHMULLEN LRD

Sunlight, Daylight & Shadow Assessment (Development Performance and Impact on Neighbours)



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Executive Summary

This report examines how the proposed development performs in terms of light, also impact the proposed Development will have on neighbours
The report is, in accordance with Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice - Third Edition – 2022 (otherwise known as the "BRE Guidelines").

It should be noted at the outset that the BRE Guidelines sets out in their 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. . . . "*

Performance of the proposed design

- **Target Illuminance E_T**
  - **92%** (98% including marginals) of rooms comply with the BS/EN 17037 Annex NA room targets for 50% of the floor area tested.
  - ***Marginal GFL Living rooms in Duplexes, compensated by being oversized see commentary.***
  - The average compliant areas achieving the relevant target Lx for
    - all bedrooms is **91%** and
    - all Living/Kitchen spaces **74%**
    - both are well in excess of the required 50%
- **Sunlight to rooms:**
  - **100%** comply with the 1.5hr BRE test on the 21st March.
- **Sunlight on the Ground SOG (Shadow)**
  - **92%** of the provided shared amenity spaces pass the BRE requirement.
  - 1x North facing space is marginal receiving 33% qualifying sunlight on the 21st March.
  - The tested spaces generally comply with the requirements of the BRE Guidelines.
  - .

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

- **Skylight- VSC**
  - **100%** of the tested windows comply with the 27%, 0.8 ratio requirements for habitable rooms.
  - The average change ratio for VSC is **1.00**
- **Sunlight APSH & WPSH**
  - **100%** of tested windows comply with the annual APSH and
  - **100%** with the winter WPSH requirements for sunlight or overall requirement.
  - The average change ratio for sunlight is APSH:**1.00** and WPSH: **1.00**
- **Sunlight on the Ground SOG (Shadow)**
  - We can identify no neighbouring amenity spaces which require testing.

The application generally complies with the recommendations of the BRE Guidelines "Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice" BR209 (Version 3, 2022)"

This development has been successfully designed to maximise the occupant's access to light and reduce the impact on existing buildings. As such the design has used the guidelines in the spirit they have been written and has balanced the requirements of this BRE Guidelines with other constraints/objectives to arrive at this design.

Architects' & Planners' Commentary / Compensatory Measures.

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 prioritised providing additional living space for some units. The rooms receive good light over the minimum required areas, however, not all of the additional/excess living space will comply with requirements:

Duplex Design

The 4x blocks of Duplexes to the NW corner of the site have been designed to provide significantly larger living spaces than the minimum required.

- The ground floor rear facing Living/Kitchen/Dining tested on the full space provided yields results lower than the BRE requirements with results in the 50% .. 36% range (mostly marginal), however, when tested against the minimum area required yield results of 77% .. 55% which is compliant.
- There rooms are significantly larger than the minimum requirements.
- These rooms also have direct access to amenity to the rear.

Amenity Space A32

- By way of compensation the apartment private balconies for these units are all south or west facing and all units are within 60m of 2 no. large public open space areas.

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

Introduction

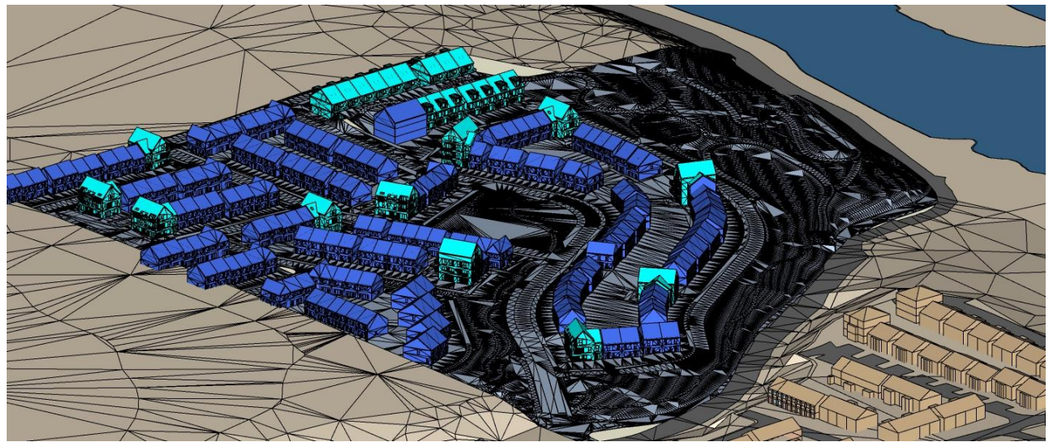
Chris Shackleton Consulting (CSC) have been asked to examine how the proposed development which consists of Duplex/ Apartments and traditional low-rise housing performs in terms of light. We have also examined the impact that the proposed development will have on the existing neighbouring properties in terms of sunlight, daylight & shadow.

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

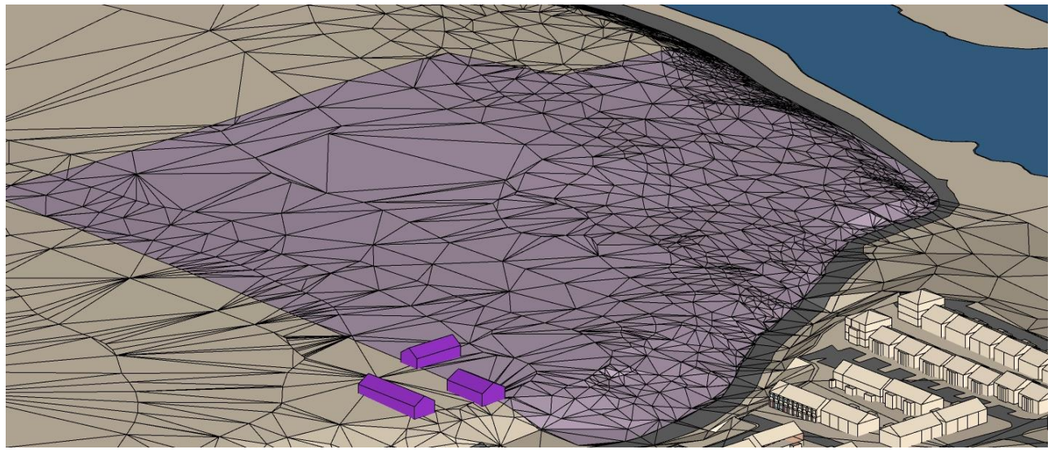
All references quoted in this report are from the BRE Guidelines unless specifically noted otherwise.

Design Model

3D models of the proposed development and the surrounding neighbouring properties were 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



Existing Model

Scope of this Report

We have been asked to address the following specific items in this report:

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 industry best practice and analyse all rooms on all floors on all blocks for apartments (which includes duplexes and maisonettes).

Impact on Existing Neighbours

This low-rise development is well separated from its neighbours. It is clear from the drawings that no undue impact will arise. However, for completeness and allow comparison with other projects we have provided an assessment to the nearest neighbours. We have tested for the following in relation to impact:

- Existing facing windows for:
  - Impact/Change for Skylight – **V**ertical **S**ky **C**omponent - VSC
  - Impact/Change for **P**robable **S**unlight **H**ours – Annual APSH and Winter WPSH
- Existing amenity spaces for impact/change on Sunlight/Shadow

Sustainable Residential Development and Compact Settlement Guidelines, 2024

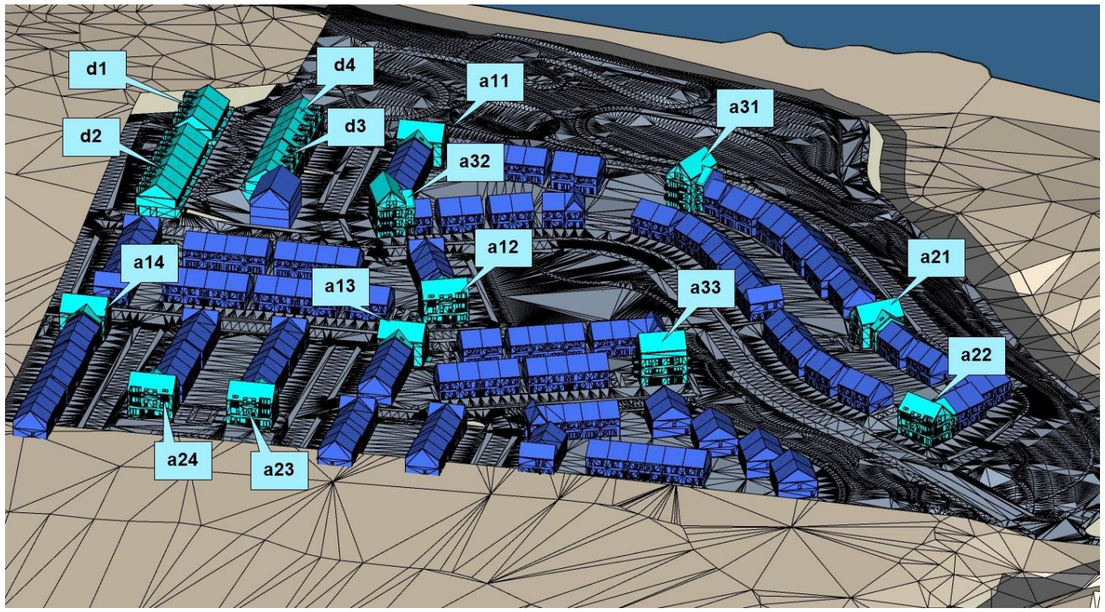
We will examine Performance of all apartments which includes Duplexes & Maisonettes (cyan in the graphic overleaf) and also Impact on neighbours. Traditional low-rise housing which complies with the recommended separation distances do not need detailed technical assessment as per clause 5.3.7(a) of the **Compact Settlement Guidelines** 2024.

The layouts of traditional houses suffer none of the space limitations that apartments have, they do not have overhanging balconies and their living spaces benefit by being true dual aspect with glazing to the front and rear which ensures a high quality of daylight and sunlight.

> *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.*

Referencing used in this report.

Duplex/Apartments tested are noted below in Cyan.
The referencing used in this report is as below.



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 concur with the UK committee's acknowledgement that the recommendations for daylight provision in a space may not be achievable for some buildings.

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" directly reference UK Annex NA of BS EN17037 and the BRE Guidelines (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

Extract from BS EN 17037 annex NA

> *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), and 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

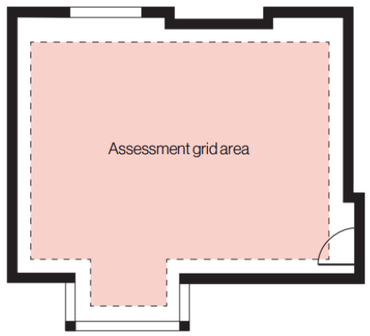


Figure C2: Where room layouts have small variations or alcoves along a wall's length, the inner or dominant section should be taken as a basis for the 0.3m gap to the assessment grid area. Fixed floor to ceiling cupboards can be excluded from the room area, but not kitchen units incorporating a worktop.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

Fig C3 - Corridors/entrances

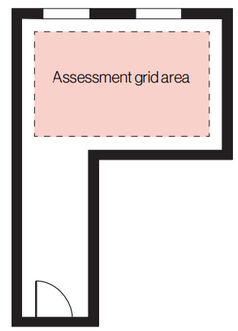


Figure C3: In a room with a corridor, or annexed entrance, the corridor need not be included in the assessment grid area (unless it is wide enough to be part of the usable space in a room, typically over 1.5m wide). The room layout and surfaces, including the corridor would still need to be included 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. The BRE Guidelines also 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 = LKD Living/Kitchen/Dining room and Blue = Bedroom.

In the result tables the following referencing is used.

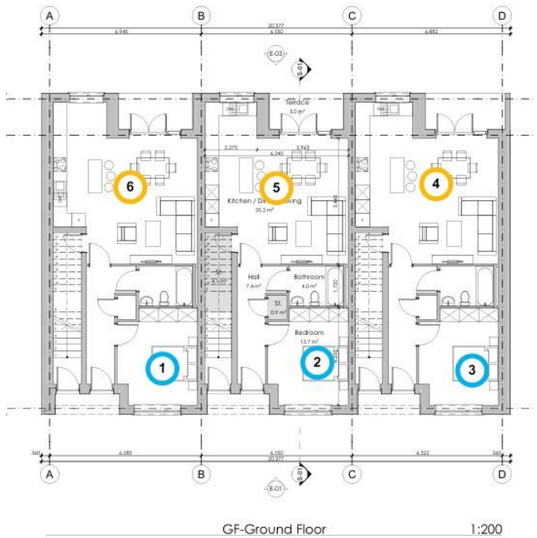
- Two-digit Floor reference 00=GFL, 01=1st Floor
- A block reference
- Two-digit room reference (as per layout naming in the plans below
  Combined Living/Kitchen/Dining rooms have the suffix “c” added to the name
  See example below.

Typical Example of the naming, not specifically project related:

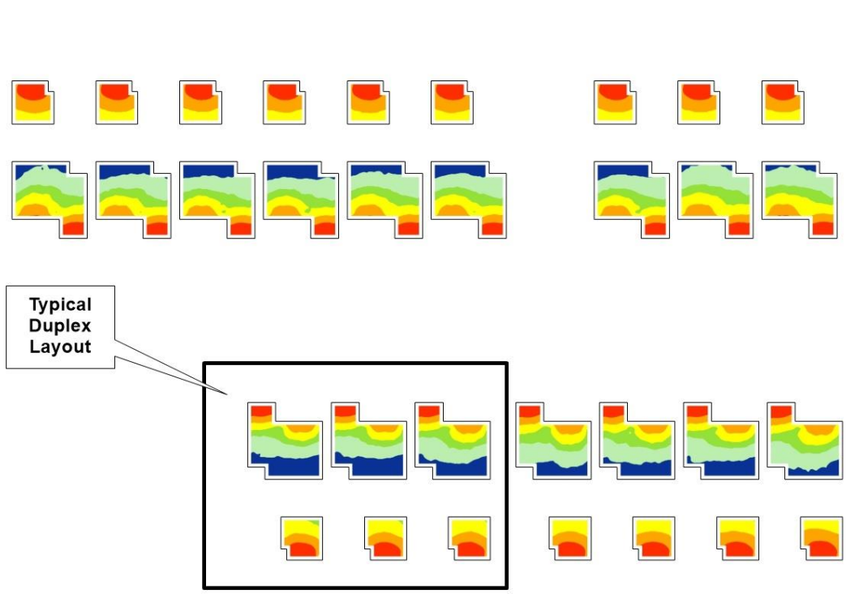
01-D1-04c = 1st Floor, Block Duplex1, room 4 which is an LKD (Living/Kitchen/Dining room).
00-11-01 = Ground Floor, Block 11, room 1 which is a bedroom.

Block Duplex d3 – (Typical of d1, d2, d3, d4) Target Illuminance E_T

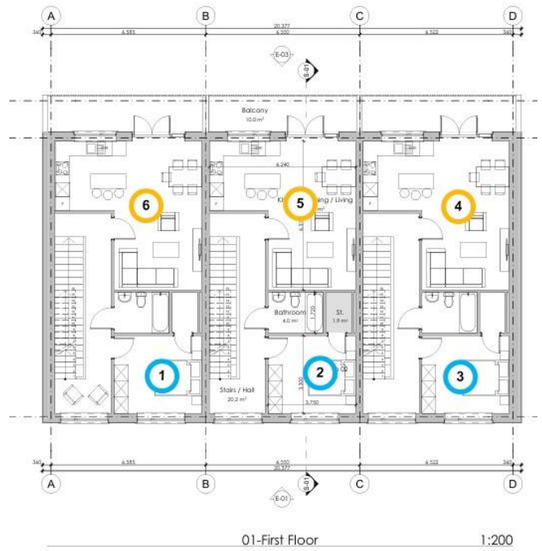
GFL Floor Layout – Naming Convention



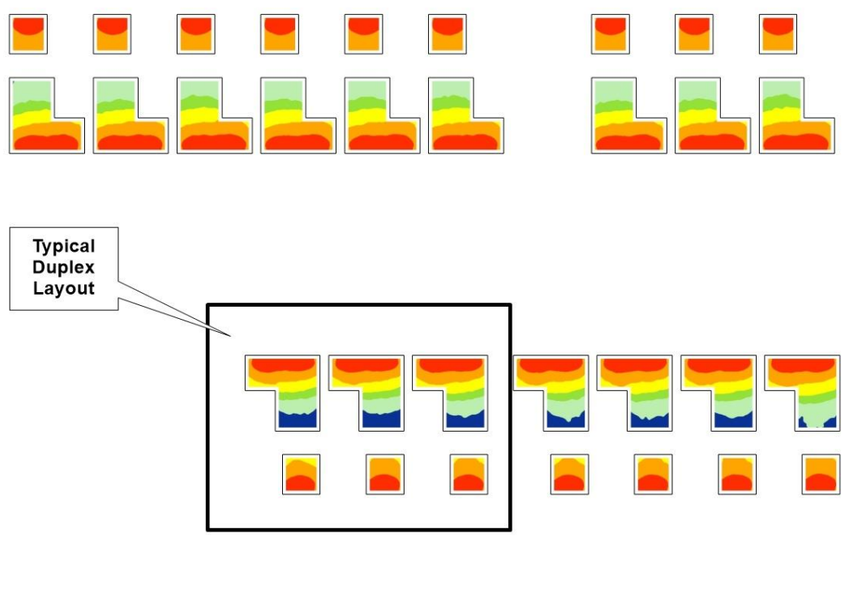
Radiance Plot



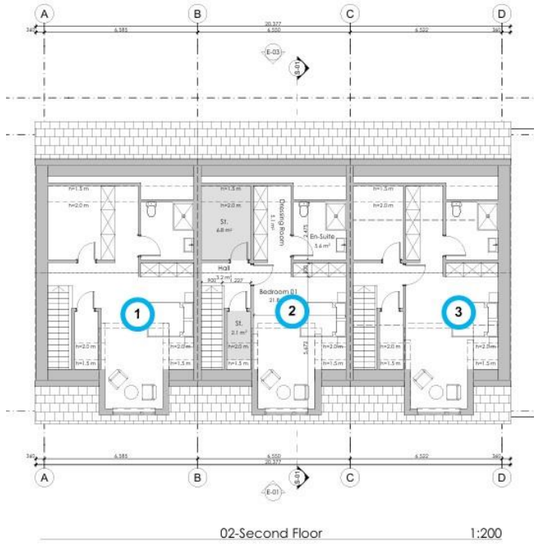
1st Floor Layout – Naming Convention



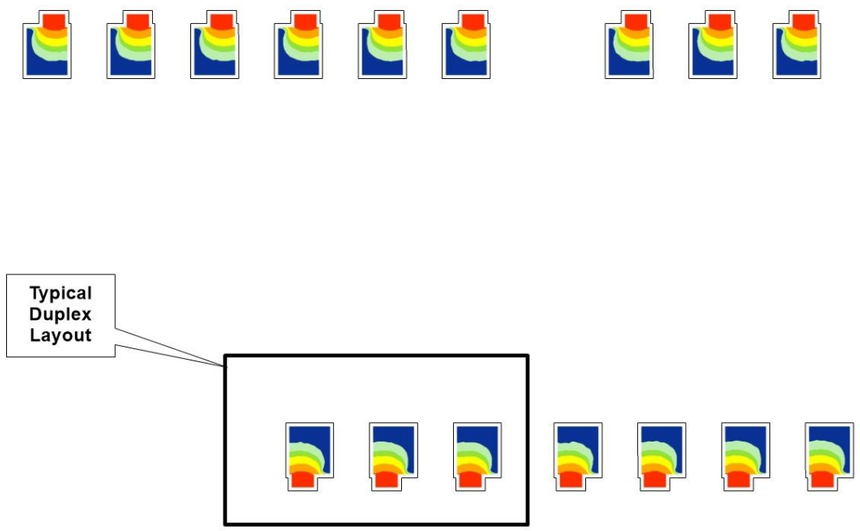
Radiance Plot



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	**Type**			
Ref	**Type**	**Percentage within Target Lux**	**BS/EN17037 Annex AN Target Lux**	**Check**
00-d1-01	Bedroom	100	100	Pass
00-d1-02	Bedroom	100	100	Pass
00-d1-03	Bedroom	100	100	Pass
00-d1-04c	Living/Kitchen	43	200	Marginal
00-d1-05c	Living/Kitchen	50	200	Pass
00-d1-06c	Living/Kitchen	49	200	Marginal
01-d1-01	Bedroom	100	100	Pass
01-d1-02	Bedroom	100	100	Pass
01-d1-03	Bedroom	100	100	Pass
01-d1-04c	Living/Kitchen	65	200	Pass
01-d1-05c	Living/Kitchen	67	200	Pass
01-d1-06c	Living/Kitchen	68	200	Pass
02-d1-01	Bedroom	58	100	Pass
02-d1-02	Bedroom	58	100	Pass
02-d1-03	Bedroom	58	100	Pass
00-d2-01	Bedroom	100	100	Pass
00-d2-02	Bedroom	100	100	Pass
00-d2-03	Bedroom	100	100	Pass
00-d2-04	Bedroom	100	100	Pass
00-d2-05	Bedroom	100	100	Pass
00-d2-06	Bedroom	100	100	Pass
00-d2-07c	Living/Kitchen	47	200	Marginal
00-d2-08c	Living/Kitchen	44	200	Marginal
00-d2-09c	Living/Kitchen	43	200	Marginal
00-d2-10c	Living/Kitchen	43	200	Marginal
00-d2-11c	Living/Kitchen	48	200	Marginal
00-d2-12c	Living/Kitchen	45	200	Marginal
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

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	Type			
Ref	**Type**	**Percentage within Target Lux**	**BS/EN17037 Annex AN Target Lux**	**Check**
01-d2-06	Bedroom	100	100	Pass
01-d2-07c	Living/Kitchen	65	200	Pass
01-d2-08c	Living/Kitchen	67	200	Pass
01-d2-09c	Living/Kitchen	69	200	Pass
01-d2-10c	Living/Kitchen	68	200	Pass
01-d2-11c	Living/Kitchen	68	200	Pass
01-d2-12c	Living/Kitchen	68	200	Pass
02-d2-01	Bedroom	58	100	Pass
02-d2-02	Bedroom	58	100	Pass
02-d2-03	Bedroom	58	100	Pass
02-d2-04	Bedroom	58	100	Pass
02-d2-05	Bedroom	58	100	Pass
02-d2-06	Bedroom	58	100	Pass
00-d3-01	Bedroom	100	100	Pass
00-d3-02	Bedroom	100	100	Pass
00-d3-03	Bedroom	100	100	Pass
00-d3-04c	Living/Kitchen	37	200	Fail
00-d3-05c	Living/Kitchen	37	200	Fail
00-d3-06c	Living/Kitchen	36	200	Fail
01-d3-01	Bedroom	100	100	Pass
01-d3-02	Bedroom	100	100	Pass
01-d3-03	Bedroom	100	100	Pass
01-d3-04c	Living/Kitchen	61	200	Pass
01-d3-05c	Living/Kitchen	60	200	Pass
01-d3-06c	Living/Kitchen	60	200	Pass
02-d3-01	Bedroom	54	100	Pass
02-d3-02	Bedroom	56	100	Pass
02-d3-03	Bedroom	56	100	Pass
00-d4-01	Bedroom	100	100	Pass
00-d4-02	Bedroom	100	100	Pass
00-d4-03	Bedroom	100	100	Pass
00-d4-04	Bedroom	100	100	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

Duplex	Type			
Ref	**Type**	**Percentage within Target Lux**	**BS/EN17037 Annex AN Target Lux**	**Check**
00-d4-05c	Living/Kitchen	43	200	Marginal
00-d4-06c	Living/Kitchen	38	200	Fail
00-d4-07c	Living/Kitchen	40	200	Marginal
00-d4-08c	Living/Kitchen	41	200	Marginal
01-d4-01	Bedroom	100	100	Pass
01-d4-02	Bedroom	100	100	Pass
01-d4-03	Bedroom	100	100	Pass
01-d4-04	Bedroom	100	100	Pass
01-d4-05c	Living/Kitchen	63	200	Pass
01-d4-06c	Living/Kitchen	60	200	Pass
01-d4-07c	Living/Kitchen	61	200	Pass
01-d4-08c	Living/Kitchen	61	200	Pass
02-d4-01	Bedroom	55	100	Pass
02-d4-02	Bedroom	57	100	Pass
02-d4-03	Bedroom	58	100	Pass
02-d4-04	Bedroom	58	100	Pass

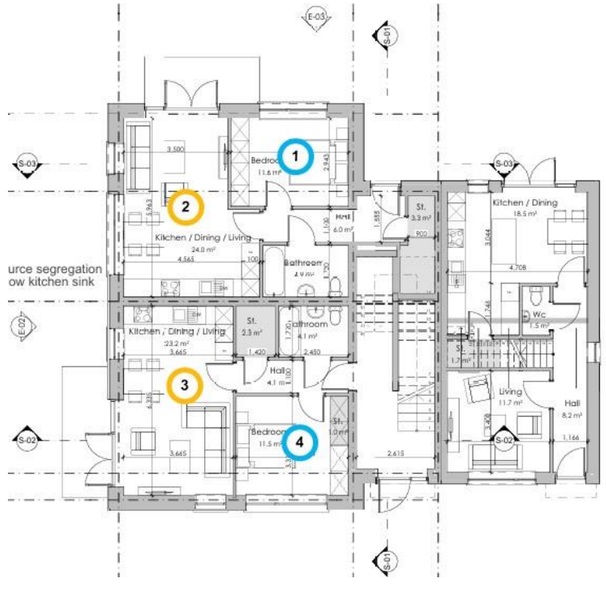
All rooms comply other than the rear Living rooms on the Ground Floor.

These rooms show a series of results ranging from 50% to 36% depending on their location, adjacent buildings facing the windows and the relative elevations in terms of FFL. There are compensatory measures relating to all these oversized rooms. See the Architect's commentary, in this report, for further information.

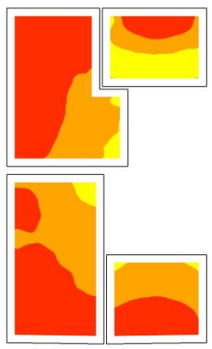
Duplex Blocks: 81% *(95% including marginal)* of Rooms in the 4x Duplex Blocks.

Block Apartment A1 (11) (Typical of 11, 12, 13, 14) Target Illuminance E_T
A2 (Typical for 21, 22, 23, 24)

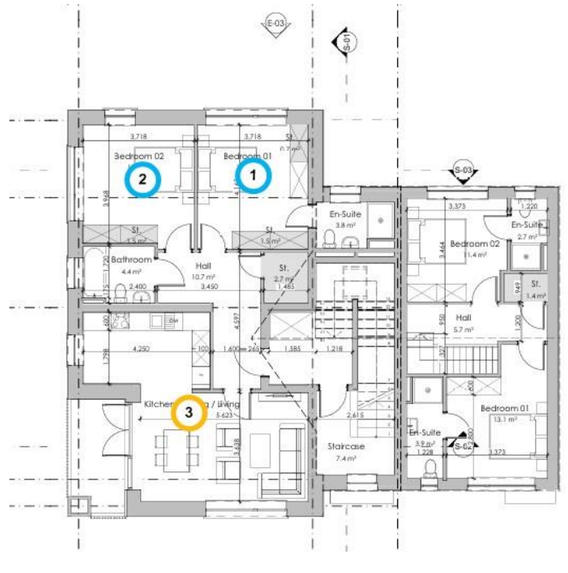
GFL Floor Layout – Naming Convention



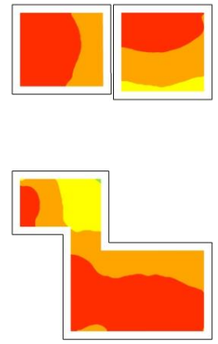
Radiance Plot



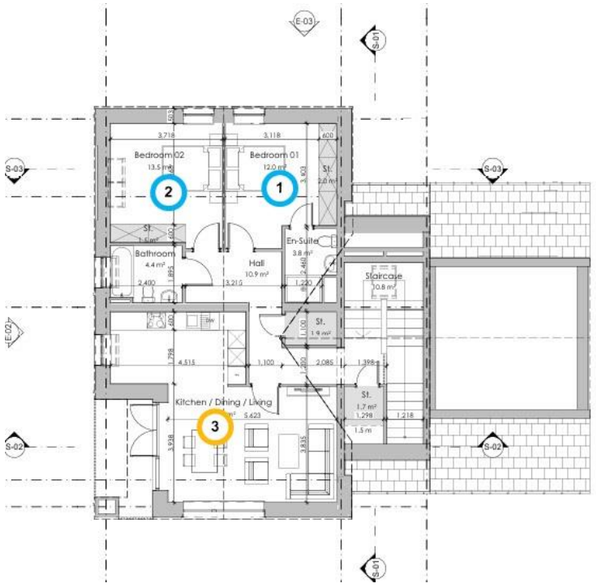
1st Floor Layout – Naming Convention



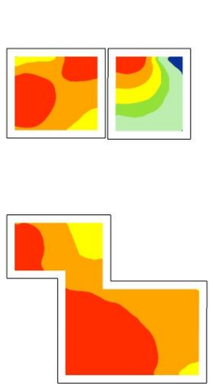
Radiance Plot



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				
Apt1	**Type**			
Ref	**Type**	**Percentage within Target Lux**	**BS/EN17037 Annex AN Target Lux**	**Check**
00-11-01	Bedroom	100	100	Pass
00-11-02c	Living/Kitchen	100	200	Pass
00-11-03c	Living/Kitchen	100	200	Pass
00-11-04	Bedroom	100	100	Pass
01-11-01	Bedroom	100	100	Pass
01-11-02	Bedroom	100	100	Pass
01-11-03c	Living/Kitchen	99	200	Pass
02-11-01	Bedroom	95	100	Pass
02-11-02	Bedroom	100	100	Pass
02-11-03c	Living/Kitchen	100	200	Pass
00-12-01	Bedroom	100	100	Pass
00-12-02c	Living/Kitchen	100	200	Pass
00-12-03c	Living/Kitchen	100	200	Pass
00-12-04	Bedroom	100	100	Pass
01-12-01	Bedroom	100	100	Pass
01-12-02	Bedroom	100	100	Pass
01-12-03c	Living/Kitchen	97	200	Pass
02-12-01	Bedroom	91	100	Pass
02-12-02	Bedroom	100	100	Pass
02-12-03c	Living/Kitchen	100	200	Pass
00-13-01	Bedroom	100	100	Pass
00-13-02c	Living/Kitchen	100	200	Pass
00-13-03c	Living/Kitchen	100	200	Pass
00-13-04	Bedroom	100	100	Pass
01-13-01	Bedroom	100	100	Pass
01-13-02	Bedroom	100	100	Pass
01-13-03c	Living/Kitchen	99	200	Pass
02-13-01	Bedroom	91	100	Pass
02-13-02	Bedroom	100	100	Pass
02-13-03c	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				
Apt1	**Type**			
Ref	**Type**	**Percentage within Target Lux**	**BS/EN17037 Annex AN Target Lux**	**Check**
00-14-01	Bedroom	100	100	Pass
00-14-02c	Living/Kitchen	100	200	Pass
00-14-03c	Living/Kitchen	100	200	Pass
00-14-04	Bedroom	100	100	Pass
01-14-01	Bedroom	100	100	Pass
01-14-02	Bedroom	100	100	Pass
01-14-03c	Living/Kitchen	98	200	Pass
02-14-01	Bedroom	95	100	Pass
02-14-02	Bedroom	100	100	Pass
02-14-03c	Living/Kitchen	100	200	Pass

Apartment A1: 100% of Rooms in the 4x A1 Apartment Blocks.

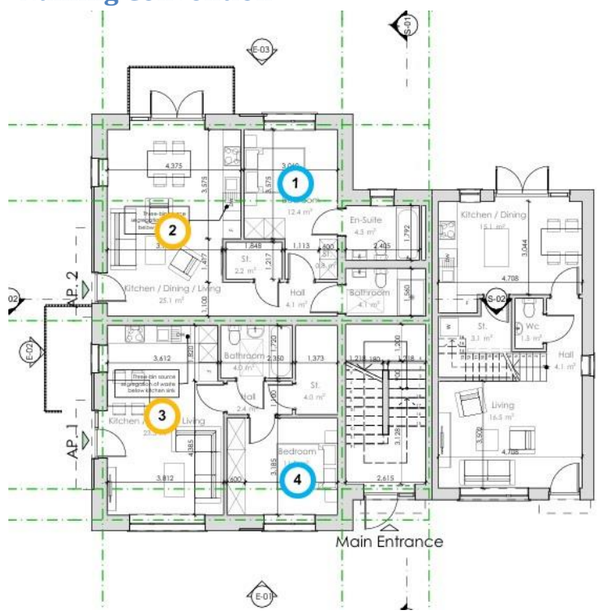
NA.2 Minimum daylight provision				
			For all habitable rooms	
Median External Diffuse Illuminance			***14,900***	***lx***
>50 % of the points on a reference plane to exceed				
Apt2	**Type**			
Ref	**Type**	**Percentage within Target Lux**	**BS/EN17037 Annex AN Target Lux**	**Check**
00-21-01	Bedroom	100	100	Pass
00-21-02c	Living/Kitchen	100	200	Pass
00-21-03c	Living/Kitchen	100	200	Pass
00-21-04	Bedroom	100	100	Pass
01-21-01	Bedroom	100	100	Pass
01-21-02	Bedroom	100	100	Pass
01-21-03c	Living/Kitchen	96	200	Pass
02-21-01	Bedroom	65	100	Pass
02-21-02	Bedroom	100	100	Pass
02-21-03c	Living/Kitchen	100	200	Pass
00-22-01	Bedroom	100	100	Pass
00-22-02c	Living/Kitchen	100	200	Pass
00-22-03c	Living/Kitchen	100	200	Pass
00-22-04	Bedroom	100	100	Pass
01-22-01	Bedroom	100	100	Pass
01-22-02	Bedroom	100	100	Pass
01-22-03c	Living/Kitchen	98	200	Pass
02-22-01	Bedroom	65	100	Pass
02-22-03c	Living/Kitchen	100	200	Pass
02-22-22	Bedroom	100	100	Pass
00-23-01	Bedroom	100	100	Pass
00-23-02c	Living/Kitchen	100	200	Pass
00-23-03c	Living/Kitchen	100	200	Pass
00-23-04	Bedroom	100	100	Pass
01-23-01	Bedroom	100	100	Pass
01-23-02	Bedroom	100	100	Pass
02-23-01	Bedroom	87	100	Pass
02-23-02	Bedroom	100	100	Pass
02-23-03c	Living/Kitchen	100	200	Pass
03-23-03c	Living/Kitchen	98	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				
Apt2	**Type**			
Ref	**Type**	**Percentage within Target Lux**	**BS/EN17037 Annex AN Target Lux**	**Check**
00-24-01	Bedroom	100	100	Pass
00-24-02c	Living/Kitchen	100	200	Pass
00-24-03c	Living/Kitchen	100	200	Pass
00-24-04	Bedroom	100	100	Pass
01-24-01	Bedroom	100	100	Pass
01-24-02	Bedroom	100	100	Pass
01-24-03c	Living/Kitchen	98	200	Pass
02-24-01	Bedroom	86	100	Pass
02-24-02	Bedroom	100	100	Pass
02-24-03c	Living/Kitchen	100	200	Pass

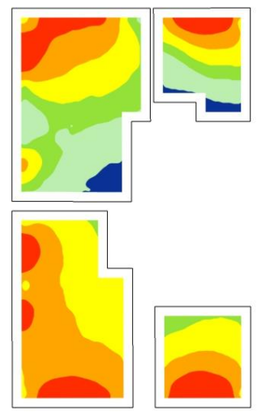
Apartment A2: 100% of Rooms in the 4x A2 Apartment Blocks.

Block Apartment A3(32) (Typical of 31, 32, 33) Target Illuminance E_T

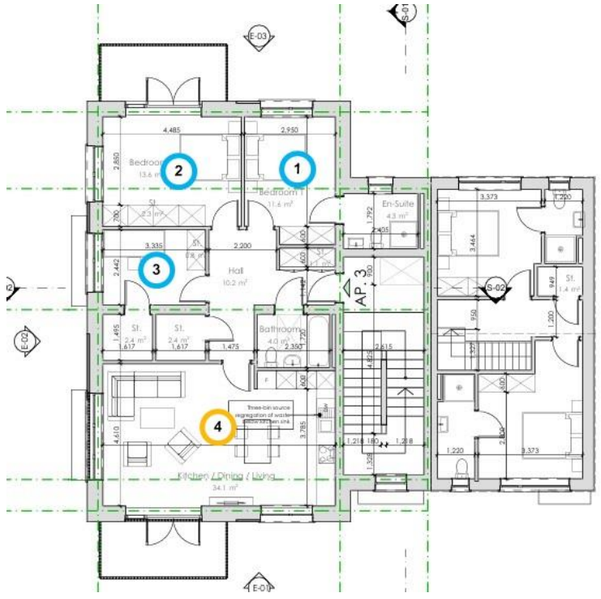
GFL Floor Layout – Naming Convention



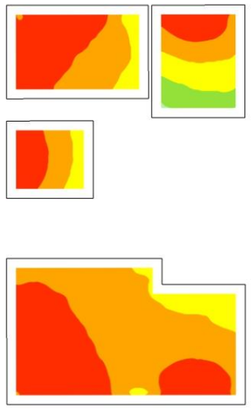
Radiance Plot



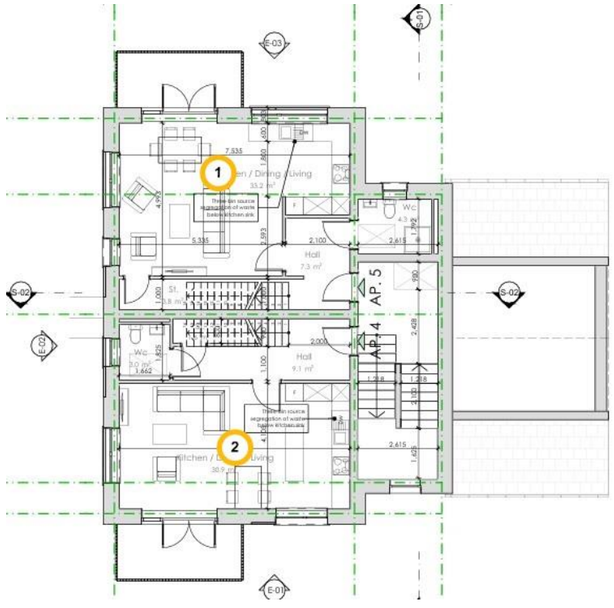
1st Floor Layout – Naming Convention



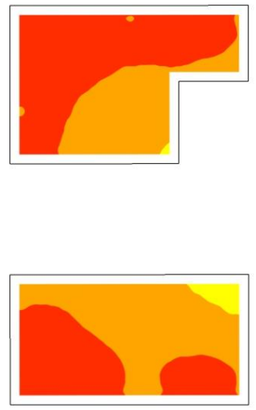
Radiance Plot



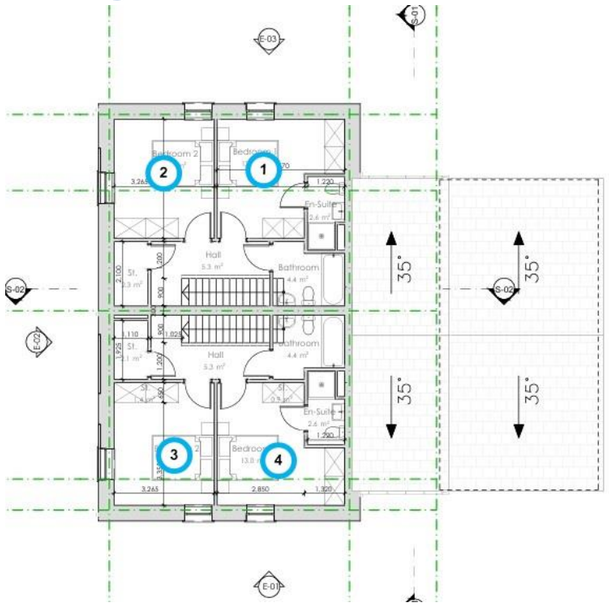
2nd Floor Layout – Naming Convention



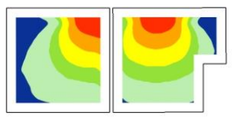
Radiance Plot

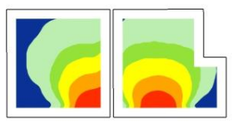


3rd Floor Layout – Naming Convention



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				
Apt3	Type			
Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00-31-01	Bedroom	100	100	Pass
00-31-02c	Living/Kitchen	55	200	Pass
00-31-03c	Living/Kitchen	100	200	Pass
00-31-04	Bedroom	100	100	Pass
01-31-01	Bedroom	100	100	Pass
01-31-02	Bedroom	100	100	Pass
01-31-03	Bedroom	100	100	Pass
01-31-04c	Living/Kitchen	100	200	Pass
02-31-01c	Living/Kitchen	100	200	Pass
02-31-02c	Living/Kitchen	100	200	Pass
03-31-01	Bedroom	92	100	Pass
03-31-02	Bedroom	72	100	Pass
03-31-03	Bedroom	68	100	Pass
03-31-04	Bedroom	91	100	Pass
00-32-01	Bedroom	87	100	Pass
00-32-02c	Living/Kitchen	50	200	Pass
00-32-03c	Living/Kitchen	98	200	Pass
00-32-04	Bedroom	100	100	Pass
01-32-01	Bedroom	100	100	Pass
01-32-02	Bedroom	100	100	Pass
01-32-03	Bedroom	100	100	Pass
01-32-04c	Living/Kitchen	100	200	Pass
02-32-01c	Living/Kitchen	100	200	Pass
02-32-02c	Living/Kitchen	100	200	Pass
03-32-01	Bedroom	92	100	Pass
03-32-02	Bedroom	72	100	Pass
03-32-03	Bedroom	68	100	Pass
03-32-04	Bedroom	91	100	Pass
00-33-01	Bedroom	86	100	Pass
00-33-02c	Living/Kitchen	47	200	Marginal
00-33-03c	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				
Apt3	**Type**			
Ref	**Type**	**Percentage within Target Lux**	**BS/EN17037 Annex AN Target Lux**	**Check**
00-33-04	Bedroom	100	100	**Pass**
01-33-01	Bedroom	100	100	**Pass**
01-33-02	Bedroom	100	100	**Pass**
01-33-03	Bedroom	100	100	**Pass**
01-33-04c	Living/Kitchen	100	200	**Pass**
02-33-01c	Living/Kitchen	100	200	**Pass**
02-33-02c	Living/Kitchen	100	200	**Pass**
03-33-01	Bedroom	92	100	**Pass**
03-33-02	Bedroom	78	100	**Pass**
03-33-03	Bedroom	68	100	**Pass**
03-33-04	Bedroom	91	100	**Pass**

Summary

The majority of rooms comply with requirements. There are compensatory factors outlined in the Architects Commentary, in this report, relating to the design and specifics.

92% of rooms comply with the BS/EN 17037 Annex NA room targets for 50% of the floor area tested.
(98% if we include marginal results)

Marginal results for the GFL Living rooms in Duplexes are compensated since they are oversized see Architect's commentary in this report.

The average compliant areas achieving the relevant target Lx for all bedrooms is 91% and all Living/Kitchen spaces 74% both are well in excess of the required 50%

Apartment A3: 98% *(100% including marginals)* of Rooms in the 3x A3 Apartment Blocks.

Development Performance - Sunlight to rooms (living spaces)

Clause 3.1.2 of the BRE Guidelines 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 BRE 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 preferable to have sunlight the BRE Guidelines are pragmatic in this regard noting 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.*

The BRE Guidelines proceeds with an example of a careful layout for a relatively small block where 4/5 flats have South-facing living rooms, and one North-facing living room which would receive no sunlight at all. From this layout and results we can conclude that an 80% pass rate constitutes careful layout design.

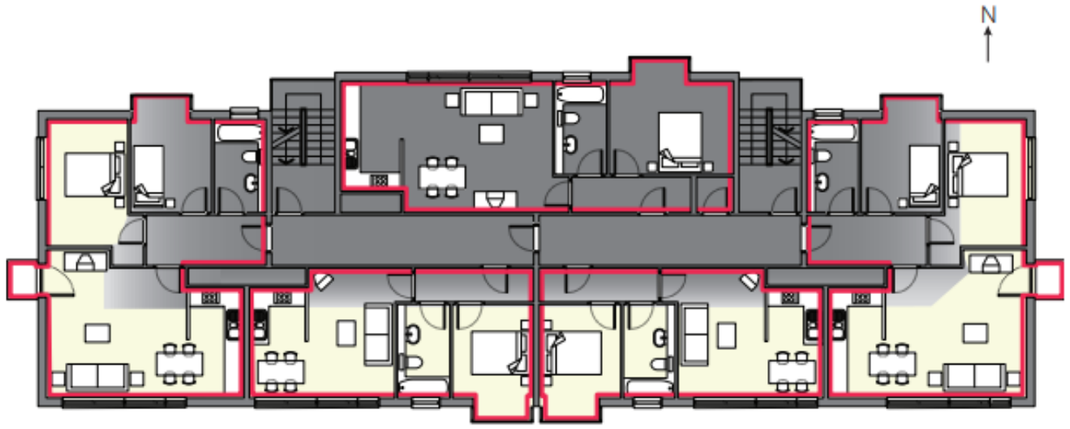


Figure 26: Careful layout design means that four out of the five flats shown have a south-facing living room

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		
d1	F0	R04	00.d1.04	3.3	Pass		*Medium*	
d1	F0	R05	00.d1.05	3.3	Pass		*Medium*	
d1	F0	R06	00.d1.06	3.3	Pass		*Medium*	
d1	F1	R04	01.d1.04	4.0	Pass			*High*
d1	F1	R05	01.d1.05	4.0	Pass			*High*
d1	F1	R06	01.d1.06	4.2	Pass			*High*
d2	F0	R07	00.d2.07	3.5	Pass		*Medium*	
d2	F0	R08	00.d2.08	3.5	Pass		*Medium*	
d2	F0	R09	00.d2.09	3.8	Pass		*Medium*	
d2	F0	R10	00.d2.10	4.5	Pass			*High*
d2	F0	R11	00.d2.11	4.8	Pass			*High*
d2	F0	R12	00.d2.12	5.5	Pass			*High*
d2	F1	R07	01.d2.07	4.2	Pass			*High*
d2	F1	R08	01.d2.08	4.2	Pass			*High*
d2	F1	R09	01.d2.09	4.5	Pass			*High*
d2	F1	R10	01.d2.10	4.7	Pass			*High*
d2	F1	R11	01.d2.11	5.0	Pass			*High*
d2	F1	R12	01.d2.12	5.7	Pass			*High*
d3	F0	R04	00.d3.04	2.7	Pass	*Min*		
d3	F0	R05	00.d3.05	2.7	Pass	*Min*		
d3	F0	R06	00.d3.06	2.7	Pass	*Min*		
d3	F1	R04	01.d3.04	3.5	Pass		*Medium*	
d3	F1	R05	01.d3.05	3.5	Pass		*Medium*	
d4	F1	R06	01.d4.06	3.5	Pass		*Medium*	
d4	F0	R05	00.d4.05	2.8	Pass	*Min*		
d4	F0	R06	00.d4.06	3.5	Pass		*Medium*	
d4	F0	R07	00.d4.07	3.2	Pass		*Medium*	
d4	F0	R08	00.d4.08	2.8	Pass	*Min*		
d4	F1	R05	01.d4.05	4.2	Pass			*High*
d4	F1	R06	01.d4.06	4.2	Pass			*High*
d4	F1	R07	01.d4.07	3.5	Pass		*Medium*	
d4	F1	R08	01.d4.08	3.5	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		
a11	F0	R02	00.a11.02	4.8	Pass			*High*
a11	F0	R03	00.a11.03	3.3	Pass		*Medium*	
a11	F1	R03	01.a11.03	4.3	Pass			*High*
a11	F2	R03	02.a11.03	4.7	Pass			*High*
a12	F0	R02	00.a12.02	9.7	Pass			*High*
a12	F0	R03	00.a12.03	8.8	Pass			*High*
a12	F1	R03	01.a12.03	8.8	Pass			*High*
a12	F2	R03	02.a12.03	8.7	Pass			*High*
a13	F0	R02	00.a13.02	5.2	Pass			*High*
a13	F0	R03	00.a13.03	4.7	Pass			*High*
a13	F1	R03	01.a13.03	5.2	Pass			*High*
a13	F2	R03	02.a13.03	5.2	Pass			*High*
a14	F0	R02	00.a14.02	5.8	Pass			*High*
a14	F0	R03	00.a14.03	4.7	Pass			*High*
a14	F1	R03	01.a14.03	5.3	Pass			*High*
a14	F2	R03	02.a14.03	5.0	Pass			*High*
a21	F0	R02	00.a21.02	7.5	Pass			*High*
a21	F0	R03	00.a21.03	2.8	Pass	*Min*		
a21	F1	R03	01.a21.03	3.3	Pass		*Medium*	
a21	F2	R03	02.a21.03	2.8	Pass	*Min*		
a22	F0	R02	00.a22.02	8.7	Pass			*High*
a22	F0	R03	00.a22.03	8.8	Pass			*High*
a22	F1	R03	01.a22.03	8.3	Pass			*High*
a22	F2	R03	02.a22.03	8.3	Pass			*High*
a23	F0	R02	00.a23.02	10.7	Pass			*High*
a23	F0	R03	00.a23.03	9.8	Pass			*High*
a23	F1	R03	01.a23.03	8.8	Pass			*High*
a23	F2	R03	02.a23.03	8.2	Pass			*High*
a24	F0	R02	00.a24.02	10.3	Pass			*High*
a24	F0	R03	00.a24.03	9.7	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		
a24	F1	R03	01.a24.03	8.8	Pass			*High*
a24	F2	R03	02.a24.03	8.0	Pass			*High*
a31	F0	R02	00.a31.02	8.7	Pass			*High*
a31	F0	R03	00.a31.03	2.7	Pass	*Min*		
a31	F1	R04	01.a31.04	3.8	Pass		*Medium*	
a31	F2	R01	02.a31.01	9.5	Pass			*High*
a31	F2	R02	02.a31.02	3.8	Pass		*Medium*	
a32	F0	R02	00.a32.02	7.3	Pass			*High*
a32	F0	R03	00.a32.03	5.2	Pass			*High*
a32	F1	R04	01.a32.04	9.5	Pass			*High*
a32	F2	R01	02.a32.01	9.7	Pass			*High*
a32	F2	R02	02.a32.02	6.3	Pass			*High*
a33	F0	R02	00.a33.02	8.2	Pass			*High*
a33	F0	R03	00.a33.03	8.3	Pass			*High*
a33	F1	R04	01.a33.04	9.7	Pass			*High*
a33	F2	R01	02.a33.01	8.5	Pass			*High*
a33	F2	R02	02.a33.02	9.5	Pass			*High*

Summary

Sunlight to living rooms:

100% of all Living rooms receive 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).***

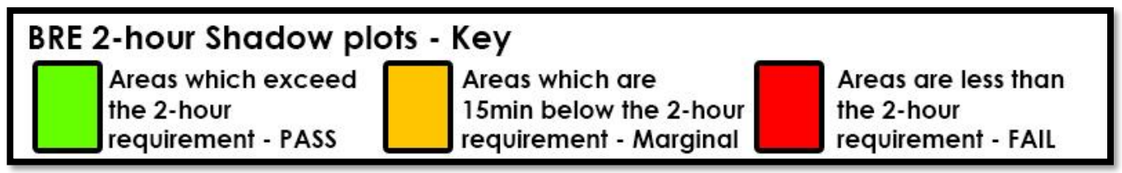
> ***3.3.9 … Normally trees and shrubs need not be included, partly because their shapes are almost impossible to predict, and partly because the dappled shade of a tree is more pleasant than the deep shadow of a building (this applies especially to deciduous trees). …***

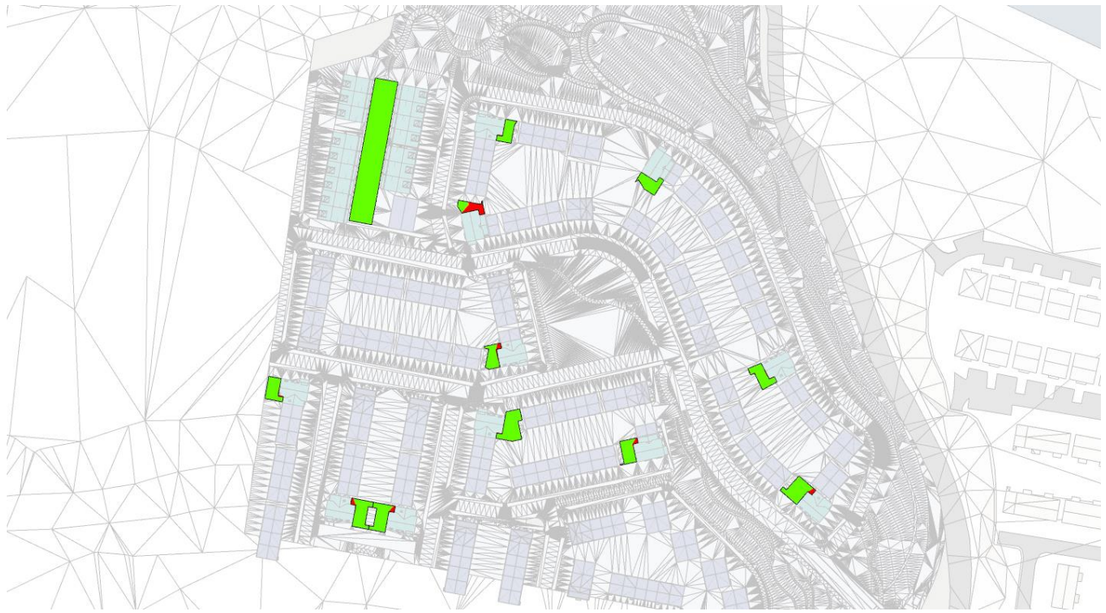
The amenities of the following were tested.

- 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

Conclusion

92% of the provided shared amenity spaces pass the requirements of the BRE Guidelines.
1x North facing space is marginal receiving 33% qualifying sunlight on the 21st March.

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

The results are tabulated below:

	Shadow / Sunlight Amenity				
	>50% receives 2 hours of sunlight on 21st March)				
Group	**Ref**	**Ref**	**% 2hr Sunlight**	**Check**	
Apart	A11	Apart.A11	99%	Pass	
Apart	A12	Apart.A12	90%	Pass	
Apart	A13	Apart.A13	100%	Pass	
Apart	A14	Apart.A14	99%	Pass	
Apart	A21	Apart.A21	99%	Pass	
Apart	A22	Apart.A22	94%	Pass	
Apart	A23	Apart.A23	94%	Pass	
Apart	A24	Apart.A24	94%	Pass	
Apart	A31	Apart.A31	100%	Pass	
Apart	A32	Apart.A32	33%	Fail	*North Facing*
Apart	A33	Apart.A33	92%	Pass	
Duplex	D1	Duplex.D1	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.

Architects Commentary Compensatory Measures.

General

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.

Duplex Design

The 4x blocks of Duplexes to the NW corner of the site provide more living space than the minimum required.

The ground floor rear facing Living/Kitchen/Dining tested on the full space provided yields results lower than the BRE requirements with results in the 50% .. 36% range (mostly marginal) on the 50% BRE target at 200lx.

The rooms are, however, significantly oversized at 35.2m^2 against the minimum required which is 23m^2

The analysis when adjusted against the minimum area requirement will yield results of 77% .. 55% which is compliant. The architect has prioritised this additional space to live in.

These rooms also have direct access to amenity to the rear.

The above compensatory measures outweigh the marginal results.

Amenity Space A32

We note this amenity space achieves 33% sunlight.

By way of compensation the apartment private balconies for these units are all South or West facing

Also all units are within 60m of 2 no. large public open space areas.

Summary – Development Performance

This report has been prepared in compliance with the requirements of the BRE Guidelines: "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 BRE Guidelines.

Performance of the proposed design

- **Target Illuminance E_T**
  - **92%** (98% including marginals) of rooms comply with the BS/EN 17037 Annex NA room targets for 50% of the floor area tested.
  - ***Marginal GFL Living rooms in Duplexes, compensated by being oversized see commentary.***
  - The average compliant areas achieving the relevant target Lx for
    - all bedrooms is **91%** and
    - all Living/Kitchen spaces **74%**
    - both are well in excess of the required 50%
- **Sunlight to rooms:**
  - **100%** comply with the 1.5hr BRE test on the 21st March.
- **Sunlight on the Ground SOG (Shadow)**
  - **92%** of the provided shared amenity spaces pass the BRE requirement.
  - 1x North facing space is marginal receiving 33% qualifying sunlight on the 21st March.
  - The tested spaces generally comply with the requirements of the BRE Guidelines.

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

Impact on Neighbours - Overview

This section of the report assesses impact (or lack thereof) on the nearest neighbouring properties. This analysis is in accordance with the BRE Guidelines "Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice - Third Edition – 2022". Typically, such an analysis reviews proposed developments where the proposed buildings are close to their neighbours. In this proposed development, however, the site boundary is well separated across a road, and then the proposed low-rise housing is well offset into the site from that boundary. The impact analysis is performed regardless to provide a report which is consistent with other LRD applications. The results which we will present below show that there is no impact since practically all change ratios are **1.00** i.e. no change.

The site is positioned across the road from any existing neighbours. The separation distances are well in excess of the minimums suggested by Compact Settlement Guidelines 2024. Most of the houses in Riverbank (The Square and the Dale) have gables facing the development. Gable windows to non-habitable rooms are not required to be assessed.

Only one line of houses noted as Neighbours Group B1 on The Dale face the proposal and these, even though they are very distant, they are assessed. The aerial view shows the context for the site and the closest neighbouring window group.

Google Earth extract © Google 2025

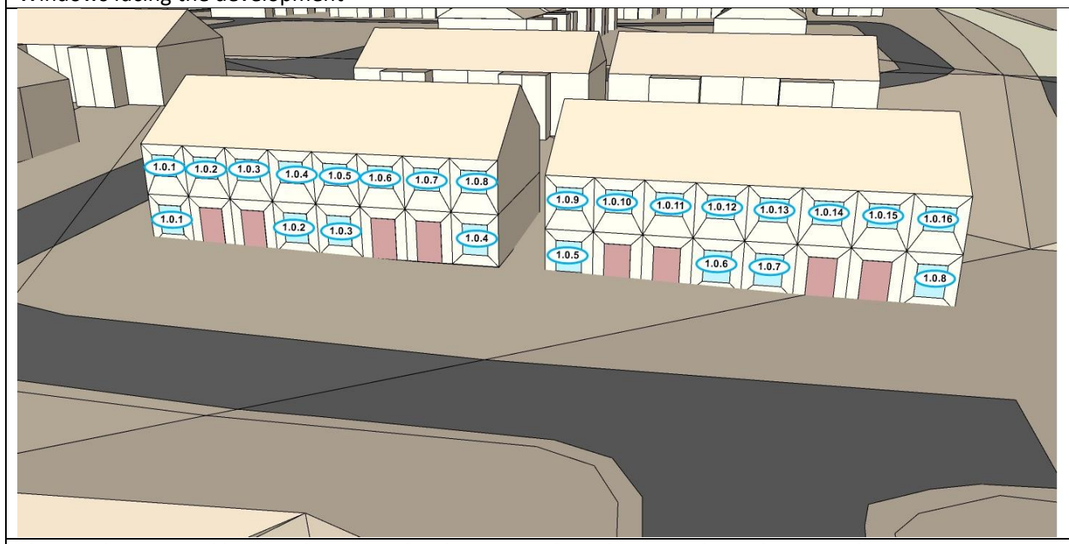
Adjacent Properties Details

The only neighbours close enough to the proposed development to possibly be impacted are those below. Houses 1 .. 15 (odd numbers) The Dale. The numbering used later for windows is detailed here.

Neighbours Group B1

Oblique imagery

Windows facing the development



The numbering used later in this report for this group of windows is indicated in cyan above.
Amenity spaces to these houses are to the rear of the existing buildings and cannot be impacted by this propsoed develoopment .
Additional end gable windows to non-habitable rooms in this estate are not required to be tested.

Impact on neighbours

Adjacent Properties - Light from the Sky impact on neighbouring properties

Tests were carried out to establish the quantity and quality of skylight (daylight) available to a room's windows. Locations tested are based on guideline recommendations for the closest facades which have windows with potential for impact.

We have investigated this impact under clause 2.2.7

> ***2.2.7 If this VSC is greater than 27% then enough skylight should still be reaching the window of the existing building. This value of VSC typically supplies enough daylight to a standard room when combined with a window of normal dimensions, with glass area around 10% or more of the floor area. Any reduction below this level should be kept to a minimum. If the VSC, with the new development in place, is both less than 27% and less than 0.80 times its former value, occupants of the existing building will notice the reduction in the amount of skylight. The area lit by the window is likely to appear gloomier, and electric lighting will be needed more of the time. . . .***

> ***2.2.6 Any reduction in the total amount of skylight can be calculated by finding the VSC at the centre of each main window. In the case of a floor-to-ceiling window such as a patio door, a point 1.6 m above ground (or balcony level for an upper storey) on the centre line of the window may be used. For a bay window, the centre window facing directly outwards can be taken as the main window. If a room has two or more windows of equal size, the mean of their VSCs may be taken. The reference point is in the external plane of the window wall. Windows to bathrooms, toilets, storerooms, circulation areas, and garages need not be analysed. . . .***

Tabulated results

Design	Skylight to habitable rooms VSC *Check > 27% or ratio > 0.8*						
Group	Floor	Win	Ref	Existing	Proposed	Ratio	Result
B1	F0	W1	1.0.1	37.5%	37.3%	0.99	Pass
B1	F0	W2	1.0.2	38.1%	37.9%	0.99	Pass
B1	F0	W3	1.0.3	38.2%	38.0%	0.99	Pass
B1	F0	W4	1.0.4	38.4%	38.3%	1.00	Pass
B1	F0	W5	1.0.5	38.1%	37.9%	1.00	Pass
B1	F0	W6	1.0.6	38.4%	38.2%	1.00	Pass
B1	F0	W7	1.0.7	38.4%	38.2%	1.00	Pass
B1	F0	W8	1.0.8	38.4%	38.2%	1.00	Pass
B1	F1	W1	1.1.1	38.4%	38.3%	1.00	Pass
B1	F1	W2	1.1.2	38.6%	38.4%	1.00	Pass
B1	F1	W3	1.1.3	38.7%	38.5%	1.00	Pass
B1	F1	W4	1.1.4	38.7%	38.6%	1.00	Pass
B1	F1	W5	1.1.5	38.8%	38.7%	1.00	Pass
B1	F1	W6	1.1.6	38.9%	38.7%	1.00	Pass
B1	F1	W7	1.1.7	38.9%	38.8%	1.00	Pass
B1	F1	W8	1.1.8	38.9%	38.8%	1.00	Pass
B1	F1	W9	1.1.9	38.7%	38.6%	1.00	Pass
B1	F1	W10	1.1.10	38.8%	38.7%	1.00	Pass
B1	F1	W11	1.1.11	38.9%	38.7%	1.00	Pass
B1	F1	W12	1.1.12	38.9%	38.7%	1.00	Pass
B1	F1	W13	1.1.13	38.9%	38.8%	1.00	Pass
B1	F1	W14	1.1.14	38.9%	38.8%	1.00	Pass
B1	F1	W15	1.1.15	38.9%	38.8%	1.00	Pass
B1	F1	W16	1.1.16	38.9%	38.8%	1.00	Pass

Note: When the proposed value exceeds the minimum 27% requirement the ratio check is not required, and the result is coloured grey.

Conclusion

When tested with the new development in place
100% of the tested windows comply with the 27%, 0.8 ratio requirements for habitable rooms.

The average change ratio for VSC is **1.00**

The proposed development complies with the requirements of the BRE Guidelines in relation to skylight availability for neighbours.

Adjacent Properties - Sunlight into living spaces

Tests for the amount of sunlight that windows to living room and/or conservatory can receive over both annual and winter periods.

> *3.2.3 To assess loss of sunlight to an existing building, it is suggested that all main living rooms of dwellings, and conservatories, should be checked if they have a window facing within 90° of due south. Kitchens and bedrooms are less important, although care should be taken not to block too much sun. Normally loss of sunlight need not be analysed to kitchens and bedrooms, except for bedrooms that also comprise a living space, for example a bed sitting room in an old people's home. . . .*
>
> *3.2.4 To calculate the loss of sunlight over the year, a different metric, the annual probable sunlight hours (APSH), is used. Here 'probable sunlight hours' means the total number of hours in the year that the sun is expected to shine on unobstructed ground, allowing for average levels of cloudiness for the location in question (based on sunshine probability data). The sunlight reaching a window is quantified as a percentage of this unobstructed annual total. … The APSH is a better way of quantifying loss of sunlight because it takes into account sunlight received over the whole year, not just on one particular date.*
>
> *3.2.13 If a living room of an existing dwelling has a main window facing within 90° of due south, and any part of a new development subtends an angle of more than 25° to the horizontal measured from the centre of the window in a vertical section perpendicular to the window, then the sunlighting of the existing dwelling may be adversely affected. This will be the case if the centre of the window:*
> *• receives less than 25% of annual probable sunlight hours and less than 0.80 times its former annual value; or less than 5% of annual probable sunlight hours between 21 September and 21 March and less than 0.80 times its former value during that period;*
> *• and also has a reduction in sunlight received over the whole year greater than 4% of annual probable sunlight hours.*

While not all windows on assessed units relate to living rooms, we have for completeness tested all of them.

The results are tabulated below:

Sunlight on windows to living room spaces check

				Annual - 25% and Winter - 5%							
Design				Check > 25% or ratio > 0.8				Check > 5% or ratio > 0.8			
Group	Floor	Win	Ref	Existing	Proposed	Ratio	Result	Existing	Proposed	Ratio	Result
B1	F0	W1	1.0.1	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F0	W2	1.0.2	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F0	W3	1.0.3	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F0	W4	1.0.4	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F0	W5	1.0.5	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F0	W6	1.0.6	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F0	W7	1.0.7	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F0	W8	1.0.8	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F1	W1	1.1.1	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F1	W2	1.1.2	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F1	W3	1.1.3	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F1	W4	1.1.4	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F1	W5	1.1.5	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F1	W6	1.1.6	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F1	W7	1.1.7	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F1	W8	1.1.8	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F1	W9	1.1.9	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F1	W10	1.1.10	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F1	W11	1.1.11	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F1	W12	1.1.12	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F1	W13	1.1.13	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F1	W14	1.1.14	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F1	W15	1.1.15	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass
B1	F1	W16	1.1.16	47.2%	47.2%	1.00	Pass	12.9%	12.9%	1.00	Pass

Note: When the proposed value exceeds the minimum requirement 25% APSH and/or 5% WPSH the ratio check is not required, and the result is coloured grey.

Conclusion

When tested with the proposed development in place:
100% of tested windows comply with the annual APSH and
100% with the winter WPSH requirements for sunlight or overall requirement.

The average change ratio for sunlight is APSH:**1.00** and WPSH: **1.00**

The proposed development complies with the requirements of the BRE Guidelines in relation to both annual and winter sunlight availability to neighbours as it applies to living rooms and conservatories.

Adjacent Properties – Sunlight on the Ground (Shadow)

Gardens and Open spaces

Tests for the availability of sunlight in amenity areas.

3.3.17 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).

The neighbouring houses in all groups sit to the East of the proposed development.

These houses sit between the proposed development and their garden amenities to their rear.

No shadow from the proposed development can be cast in the morning or afternoon in the direction of these neighbours gardens. In the evening any shadow cast will be caused by the adjacent neighbouring houses themselves, rather than this proposed development approx. 100m distant. There can be no impact from the proposal on these amenity spaces.

We have not identified any neighbouring amenity space which require testing.

Conclusion

We can identify no neighbouring amenity spaces which require testing.

The proposed development complies with the requirements of the BRE Guidelines for impact on amenity Sunlight/Shadow.

Summary - Adjacent Properties

Neighbouring properties will generally not be affected by the proposed development and the impacts on Skylight, Sunlight and Shadow have been tested in accordance with the best practice guidelines.

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

- **Skylight- VSC**
  - **100%** of the tested windows comply with the 27%, 0.8 ratio requirements for habitable rooms.
  - The average change ratio for VSC is **1.00**
- **Sunlight APSH & WPSH**
  - **100%** of tested windows comply with the annual APSH and
  - **100%** with the winter WPSH requirements for sunlight or overall requirement.
  - The average change ratio for sunlight is APSH:**1.00** and WPSH: **1.00**
- **Sunlight on the Ground SOG (Shadow)**
  - We can identify no neighbouring amenity spaces which require testing.

The potential impact of the proposed development on neighbours complies with the requirements of the BRE Guidelines "Site layout planning for daylight and sunlight a guide to good practice " (BR209 – 2022)

Summary – Overall

This report is in compliance with the BRE Guidelines "Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice" BRE version 3, 2022 and EN 17037:2018 Daylight in buildings.

Performance of the proposed design

- **Target Illuminance E_T**
  - **92%** (98% including marginals) of rooms comply with the BS/EN 17037 Annex NA room targets for 50% of the floor area tested.
  - ***Marginal GFL Living rooms in Duplexes, compensated by being oversized see commentary.***
  - The average compliant areas achieving the relevant target Lx for
    - all bedrooms is **91%** and
    - all Living/Kitchen spaces **74%**
    - both are well in excess of the required 50%
- **Sunlight to rooms:**
  - **100%** comply with the 1.5hr BRE test on the 21st March.
- **Sunlight on the Ground SOG (Shadow)**
  - **92%** of the provided shared amenity spaces pass the BRE requirement.
  - 1x North facing space is marginal receiving 33% qualifying sunlight on the 21st March.
  - The tested spaces generally comply with the requirements of the BRE Guidelines.
  - .

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

- **Skylight- VSC**
  - **100%** of the tested windows comply with the 27%, 0.8 ratio requirements for habitable rooms.
  - The average change ratio for VSC is **1.00**
- **Sunlight APSH & WPSH**
  - **100%** of tested windows comply with the annual APSH and
  - **100%** with the winter WPSH requirements for sunlight or overall requirement.
  - The average change ratio for sunlight is APSH:**1.00** and WPSH: **1.00**
- **Sunlight on the Ground SOG (Shadow)**
  - We can identify no neighbouring amenity spaces which require testing.

The application generally complies with the recommendations of the BRE Guidelines "Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice" BR209 (Version 3, 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 NA

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' acknowledgement that 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 – E_T results - Tabulated

Minimum daylight provision — *For all habitable room*

Location: Dublin 14,900 lx

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00-d1-01	Bedroom	67	Pass	100	Pass
00-d1-02	Bedroom	67	Pass	100	Pass
00-d1-03	Bedroom	66	Pass	100	Pass
00-d1-04c	Living/Kitchen	21	Fail	82	Marginal
00-d1-05c	Living/Kitchen	23	Fail	95	Pass
00-d1-06c	Living/Kitchen	23	Fail	91	Marginal
01-d1-01	Bedroom	100	Pass	100	Pass
01-d1-02	Bedroom	100	Pass	100	Pass
01-d1-03	Bedroom	100	Pass	100	Pass
01-d1-04c	Living/Kitchen	52	Pass	100	Pass
01-d1-05c	Living/Kitchen	53	Pass	100	Pass
01-d1-06c	Living/Kitchen	54	Pass	100	Pass
02-d1-01	Bedroom	27	Fail	58	Fail
02-d1-02	Bedroom	27	Fail	58	Fail
02-d1-03	Bedroom	27	Fail	58	Fail
00-d2-01	Bedroom	69	Pass	100	Pass
00-d2-02	Bedroom	69	Pass	100	Pass
00-d2-03	Bedroom	68	Pass	100	Pass
00-d2-04	Bedroom	66	Pass	100	Pass
00-d2-05	Bedroom	66	Pass	100	Pass
00-d2-06	Bedroom	69	Pass	100	Pass
00-d2-07c	Living/Kitchen	22	Fail	89	Marginal
00-d2-08c	Living/Kitchen	21	Fail	83	Marginal
00-d2-09c	Living/Kitchen	20	Fail	81	Marginal
00-d2-10c	Living/Kitchen	21	Fail	79	Marginal
00-d2-11c	Living/Kitchen	22	Fail	86	Marginal
00-d2-12c	Living/Kitchen	22	Fail	83	Marginal
01-d2-01	Bedroom	100	Pass	100	Pass
01-d2-02	Bedroom	100	Pass	100	Pass
01-d2-03	Bedroom	100	Pass	100	Pass
01-d2-04	Bedroom	100	Pass	100	Pass
01-d2-05	Bedroom	100	Pass	100	Pass
01-d2-06	Bedroom	100	Pass	100	Pass
01-d2-07c	Living/Kitchen	52	Pass	100	Pass
01-d2-08c	Living/Kitchen	52	Pass	100	Pass
01-d2-09c	Living/Kitchen	53	Pass	100	Pass
01-d2-10c	Living/Kitchen	52	Pass	100	Pass
01-d2-11c	Living/Kitchen	52	Pass	100	Pass
01-d2-12c	Living/Kitchen	52	Pass	100	Pass
02-d2-01	Bedroom	27	Fail	58	Fail
02-d2-02	Bedroom	27	Fail	58	Fail
02-d2-03	Bedroom	26	Fail	58	Fail
02-d2-04	Bedroom	27	Fail	58	Fail
02-d2-05	Bedroom	27	Fail	58	Fail
02-d2-06	Bedroom	27	Fail	58	Fail

Minimum daylight provision — *For all habitable room*

Location: Dublin 14,900 lx

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00-d3-01	Bedroom	53	Pass	100	Pass
00-d3-02	Bedroom	58	Pass	100	Pass
00-d3-03	Bedroom	57	Pass	100	Pass
00-d3-04c	Living/Kitchen	19	Fail	74	Fail
00-d3-05c	Living/Kitchen	18	Fail	68	Fail
00-d3-06c	Living/Kitchen	18	Fail	69	Fail
01-d3-01	Bedroom	77	Pass	100	Pass
01-d3-02	Bedroom	93	Pass	100	Pass
01-d3-03	Bedroom	88	Pass	100	Pass
01-d3-04c	Living/Kitchen	45	Marginal	83	Marginal
01-d3-05c	Living/Kitchen	44	Marginal	81	Marginal
01-d3-06c	Living/Kitchen	43	Marginal	82	Marginal
02-d3-01	Bedroom	26	Fail	54	Fail
02-d3-02	Bedroom	26	Fail	56	Fail
02-d3-03	Bedroom	26	Fail	56	Fail
00-d4-01	Bedroom	58	Pass	100	Pass
00-d4-02	Bedroom	60	Pass	100	Pass
00-d4-03	Bedroom	61	Pass	100	Pass
00-d4-04	Bedroom	67	Pass	100	Pass
00-d4-05c	Living/Kitchen	21	Fail	85	Marginal
00-d4-06c	Living/Kitchen	19	Fail	76	Marginal
00-d4-07c	Living/Kitchen	20	Fail	77	Marginal
00-d4-08c	Living/Kitchen	20	Fail	81	Marginal
01-d4-01	Bedroom	84	Pass	100	Pass
01-d4-02	Bedroom	86	Pass	100	Pass
01-d4-03	Bedroom	92	Pass	100	Pass
01-d4-04	Bedroom	98	Pass	100	Pass
01-d4-05c	Living/Kitchen	49	Marginal	91	Marginal
01-d4-06c	Living/Kitchen	46	Marginal	84	Marginal
01-d4-07c	Living/Kitchen	46	Marginal	85	Marginal
01-d4-08c	Living/Kitchen	46	Marginal	84	Marginal
02-d4-01	Bedroom	26	Fail	55	Fail
02-d4-02	Bedroom	27	Fail	57	Fail
02-d4-03	Bedroom	27	Fail	58	Fail
02-d4-04	Bedroom	27	Fail	58	Fail
		Count	80	Count	80
		Pass	41	Pass	42
		Pass Rate 300lx/50%	51%	Pass Rate 100lx/95%	53%
		Marginal	7	Marginal	19
		Pass Margina	60%	Pass Margina	76%

Apt A1 – E_T results – Tabulated

Minimum daylight provision — *For all habitable room*

Location: Dublin 14,900 lx

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00-11-01	Bedroom	50	Pass	100	Pass
00-11-02c	Living/Kitchen	94	Pass	100	Pass
00-11-03c	Living/Kitchen	95	Pass	100	Pass
00-11-04	Bedroom	94	Pass	100	Pass
01-11-01	Bedroom	82	Pass	100	Pass
01-11-02	Bedroom	100	Pass	100	Pass
01-11-03c	Living/Kitchen	86	Pass	100	Pass
02-11-01	Bedroom	22	Fail	95	Pass
02-11-02	Bedroom	81	Pass	100	Pass
02-11-03c	Living/Kitchen	90	Pass	100	Pass
00-12-01	Bedroom	42	Marginal	100	Pass
00-12-02c	Living/Kitchen	81	Pass	100	Pass
00-12-03c	Living/Kitchen	84	Pass	100	Pass
00-12-04	Bedroom	100	Pass	100	Pass
01-12-01	Bedroom	67	Pass	100	Pass
01-12-02	Bedroom	100	Pass	100	Pass
01-12-03c	Living/Kitchen	83	Pass	100	Pass
02-12-01	Bedroom	22	Fail	91	Marginal
02-12-02	Bedroom	79	Pass	100	Pass
02-12-03c	Living/Kitchen	90	Pass	100	Pass
00-13-01	Bedroom	60	Pass	100	Pass
00-13-02c	Living/Kitchen	83	Pass	100	Pass
00-13-03c	Living/Kitchen	85	Pass	100	Pass
00-13-04	Bedroom	95	Pass	100	Pass
01-13-01	Bedroom	86	Pass	100	Pass
01-13-02	Bedroom	100	Pass	100	Pass
01-13-03c	Living/Kitchen	84	Pass	100	Pass
02-13-01	Bedroom	22	Fail	91	Marginal
02-13-02	Bedroom	81	Pass	100	Pass
02-13-03c	Living/Kitchen	90	Pass	100	Pass
00-14-01	Bedroom	98	Pass	100	Pass
00-14-02c	Living/Kitchen	91	Pass	100	Pass
00-14-03c	Living/Kitchen	85	Pass	100	Pass
00-14-04	Bedroom	90	Pass	100	Pass
01-14-01	Bedroom	100	Pass	100	Pass
01-14-02	Bedroom	100	Pass	100	Pass
01-14-03c	Living/Kitchen	84	Pass	100	Pass
02-14-01	Bedroom	22	Fail	95	Pass
02-14-02	Bedroom	83	Pass	100	Pass
02-14-03c	Living/Kitchen	87	Pass	100	Pass
		Count	40	Count	40
		Pass	35	Pass	38
		Pass Rate 300lx/50%	88%	Pass Rate 100lx/95%	95%
		Marginal	1	Marginal	2
		Pass Margina	90%	Pass Margina	100%

Apt A2 – E_T results - Tabulated

Minimum daylight provision — *For all habitable room*

Location: Dublin 14,900 lx

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00-21-01	Bedroom	50	Pass	100	Pass
00-21-02c	Living/Kitchen	85	Pass	100	Pass
00-21-03c	Living/Kitchen	84	Pass	100	Pass
00-21-04	Bedroom	100	Pass	100	Pass
01-21-01	Bedroom	76	Pass	100	Pass
01-21-02	Bedroom	100	Pass	100	Pass
01-21-03c	Living/Kitchen	83	Pass	100	Pass
02-21-01	Bedroom	22	Fail	65	Fail
02-21-02	Bedroom	79	Pass	100	Pass
02-21-03c	Living/Kitchen	89	Pass	100	Pass
00-22-01	Bedroom	51	Pass	100	Pass
00-22-02c	Living/Kitchen	85	Pass	100	Pass
00-22-03c	Living/Kitchen	94	Pass	100	Pass
00-22-04	Bedroom	100	Pass	100	Pass
01-22-01	Bedroom	73	Pass	100	Pass
01-22-02	Bedroom	100	Pass	100	Pass
01-22-03c	Living/Kitchen	83	Pass	100	Pass
02-22-01	Bedroom	22	Fail	65	Fail
02-22-03c	Living/Kitchen	87	Pass	100	Pass
02-22-22	Bedroom	77	Pass	100	Pass
00-23-01	Bedroom	71	Pass	100	Pass
00-23-02c	Living/Kitchen	95	Pass	100	Pass
00-23-03c	Living/Kitchen	91	Pass	100	Pass
00-23-04	Bedroom	86	Pass	100	Pass
01-23-01	Bedroom	86	Pass	100	Pass
01-23-02	Bedroom	100	Pass	100	Pass
02-23-01	Bedroom	22	Fail	87	Marginal
02-23-02	Bedroom	81	Pass	100	Pass
02-23-03c	Living/Kitchen	88	Pass	100	Pass
03-23-03c	Living/Kitchen	83	Pass	100	Pass
00-24-01	Bedroom	66	Pass	100	Pass
00-24-02c	Living/Kitchen	94	Pass	100	Pass
00-24-03c	Living/Kitchen	90	Pass	100	Pass
00-24-04	Bedroom	83	Pass	100	Pass
01-24-01	Bedroom	82	Pass	100	Pass
01-24-02	Bedroom	100	Pass	100	Pass
01-24-03c	Living/Kitchen	84	Pass	100	Pass
02-24-01	Bedroom	22	Fail	86	Marginal
02-24-02	Bedroom	81	Pass	100	Pass
02-24-03c	Living/Kitchen	87	Pass	100	Pass
		Count	40	Count	40
		Pass	36	Pass	36
		Pass Rate 300lx/50%	90%	Pass Rate 100lx/95%	90%
		Marginal	0	Marginal	2
		Pass Margina	90%	Pass Margina	95%

Apt A3 – E_T results – Tabulated

		Minimum daylight provision			
					For all habitable room
	Location	Dublin	14,900	lx	
Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00-31-01	Bedroom	38	Fail	100	Pass
00-31-02c	Living/Kitchen	28	Fail	95	Pass
00-31-03c	Living/Kitchen	75	Pass	100	Pass
00-31-04	Bedroom	55	Pass	100	Pass
01-31-01	Bedroom	52	Pass	100	Pass
01-31-02	Bedroom	88	Pass	100	Pass
01-31-03	Bedroom	76	Pass	100	Pass
01-31-04c	Living/Kitchen	95	Pass	100	Pass
02-31-01c	Living/Kitchen	98	Pass	100	Pass
02-31-02c	Living/Kitchen	97	Pass	100	Pass
03-31-01	Bedroom	17	Fail	92	Marginal
03-31-02	Bedroom	16	Fail	72	Fail
03-31-03	Bedroom	14	Fail	68	Fail
03-31-04	Bedroom	17	Fail	91	Marginal
00-32-01	Bedroom	27	Fail	87	Marginal
00-32-02c	Living/Kitchen	27	Fail	95	Pass
00-32-03c	Living/Kitchen	60	Pass	100	Pass
00-32-04	Bedroom	44	Marginal	100	Pass
01-32-01	Bedroom	48	Marginal	100	Pass
01-32-02	Bedroom	82	Pass	100	Pass
01-32-03	Bedroom	72	Pass	100	Pass
01-32-04c	Living/Kitchen	88	Pass	100	Pass
02-32-01c	Living/Kitchen	99	Pass	100	Pass
02-32-02c	Living/Kitchen	94	Pass	100	Pass
03-32-01	Bedroom	17	Fail	92	Marginal
03-32-02	Bedroom	16	Fail	72	Fail
03-32-03	Bedroom	14	Fail	68	Fail
03-32-04	Bedroom	17	Fail	91	Marginal
00-33-01	Bedroom	29	Fail	86	Marginal
00-33-02c	Living/Kitchen	23	Fail	88	Marginal
00-33-03c	Living/Kitchen	70	Pass	100	Pass
00-33-04	Bedroom	52	Pass	100	Pass
01-33-01	Bedroom	47	Marginal	100	Pass
01-33-02	Bedroom	81	Pass	100	Pass
01-33-03	Bedroom	83	Pass	100	Pass
01-33-04c	Living/Kitchen	91	Pass	100	Pass
02-33-01c	Living/Kitchen	99	Pass	100	Pass
02-33-02c	Living/Kitchen	95	Pass	100	Pass
03-33-01	Bedroom	16	Fail	92	Marginal
03-33-02	Bedroom	16	Fail	78	Marginal
03-33-03	Bedroom	14	Fail	68	Fail
03-33-04	Bedroom	17	Fail	91	Marginal
		Count	42	Count	42
		Pass	21	Pass	27
		Pass Rate 300lx/50%	50%	Pass Rate 100lx/95%	64%
		Marginal	3	Marginal	10
		Pass Margina	57%	Pass Margina	88%

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 %
Duplex	81%	95%	Duplex	51%	60%	Duplex	53%	76%
A1	100%	100%	A1	88%	90%	A1	95%	100%
A2	100%	100%	A2	90%	90%	A2	90%	95%
A3	98%	100%	A3	50%	57%	A3	64%	88%
Total	92%	98%	Total	66%	71%	Total	71%	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 Department of Housing's document "Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities" 2024 and clause 5.3.7 thereof 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 publications such as "Sustainable and Compact Settlements: Guidelines for Planning Authorities 2024" and many Development Plans.