SANTRY AVENUE LRD,
CHADWICKS BUILDERS MERCHANTS SITE

Sunlight , Daylight & Shadow Assessment

V1

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Executive Summary

This report examines the performance of Blocks AB, CD, EF & G in terms of light distribution and the shared amenity spaces. We have also provided a commentary on impact or lack thereof on neighbours.

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. . . . "*

Performance of the proposed design

- **Target Illuminance E_T**
  - **94%** of rooms comply with the BS/EN 17037 Annex NA room targets for 50% of the floor area tested.
  - If we include marginal results this increases to **97%**
  - The average compliant areas achieving the relevant target Lx for
    - all bedrooms is **95%** and
    - all Living/Kitchen spaces **80%**
    - both are well in excess of the required 50%
- **Sunlight to rooms:**
  - **86%** of Living rooms receive 1.5hrs of sunlight on the test day of the 21st March
  - If we include marginal results this increases to **90%**
  - This is consistent with the BRE defined "careful layout design" 80% target.
- **Sunlight on the Ground SOG (Shadow)**
  - **100%** of the new provided communal and public amenity spaces pass the BRE requirement.
  - There is considerable overprovision of amenity space.
  - The tested spaces comply with the requirements of the BRE guidelines in relation to shadow.
- Please see Architects comments on alternative, compensatory design solutions relating to light.

The application generally complies with the recommendations and guidelines of Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice (BR209 - 2022) when considered in terms of this infill and regeneration project in an un-developed lot.

Summary impact Neighbours

- Non-residential buildings sit to the West, North and East of the proposal and do not require testing.
- Phase 1 Santry Place sits to the South of this Phase 2 proposal.
  - Sunlight to amenity and windows of the granted Santry Place cannot be impacted by this current proposal as it sits to the North.
  - In relation to skylight (VSC) this proposal Phase 2 along the interface line is a mirrored development of the permitted and constructed Phase 1 design. Any impact along the closer façades will therefore be compliant with the guidelines and Mirrored development approach of Appendix F.
- The impact of this proposed mirrored Phase 2 development on the existing Phase 1 development is indistinguishable to that of an appendix F mirrored baseline analysis and therefore complaint with the BRE guidelines.

Architects' & Planners' Commentary / Compensatory Measures

The design is constrained as an extension of the Phase 1 regeneration development, by the site shape and orientation. The scheme has a number of competing design constraints and objectives it is specifically covered by clause 6.7 of the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities – amended July 2023:

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

6.7 Where an applicant cannot fully meet all of the requirements of the daylight provisions above, this must be clearly identified and a rationale for any alternative, compensatory design solutions must be set out, which planning authorities should apply their discretion in accepting taking account of its assessment of specific. This may arise due to a design constraints associated with the site or location and the balancing of that assessment against the desirability of achieving wider planning objectives. Such objectives might include 30 securing comprehensive urban regeneration and or an effective urban design and streetscape solution.

Commentary is made in relation to:

- The urban infill site and high-quality sun lit areas such as the public and communal spaces.
- Solar orientation.
- Quality of daylighting.
- Ground floor ceiling heights.

Please refer to the relevant section in the main body of the report for more detail.

Introduction

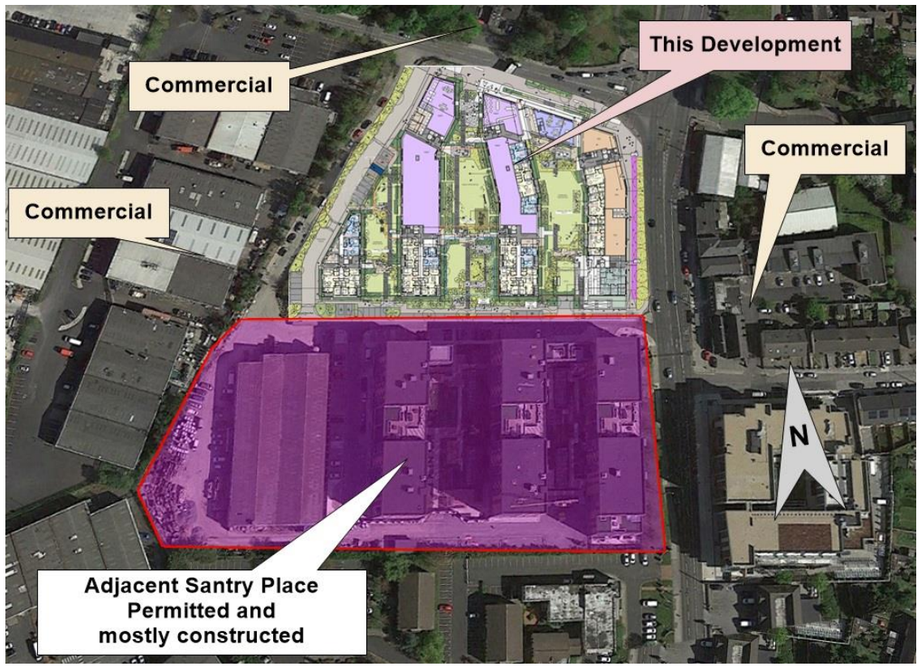
Chris Shackleton Consulting (CSC) have been asked to examine the performance of Blocks AB, CD, EF & G in terms of light distribution and the shared amenity spaces. We have also provided a commentary on impact or lack thereof on neighbours.

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

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

Preliminary Overview

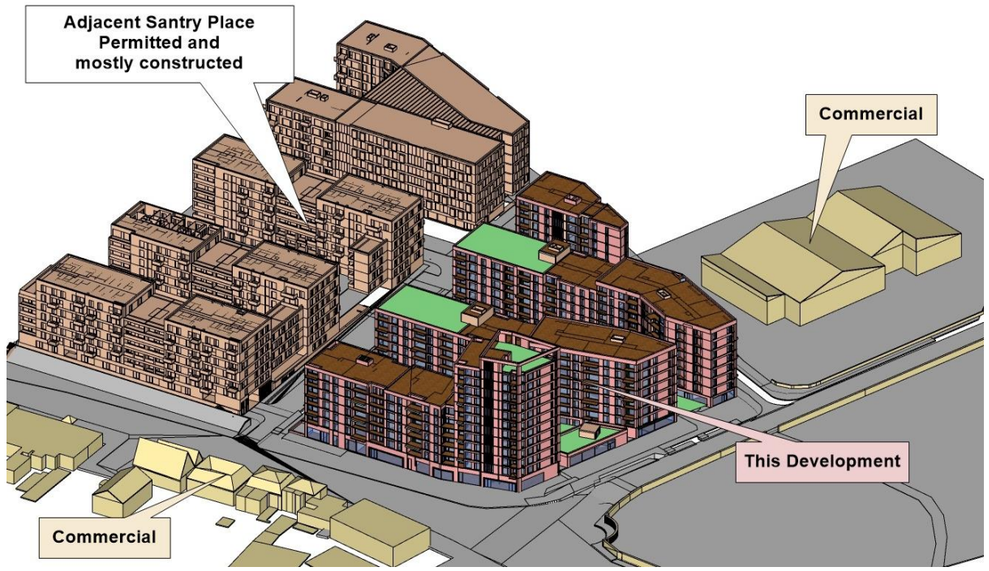
The aerial extract from Google Earth shows the context for the site. The proposed development provides for 321 no. apartments, comprised of 104 no. 1 bed, 198 no. 2 bed, & 19 no. 3 bed dwellings, in 4 no. seven to thirteen storey buildings, over basement level, with 3 no. retail units, a medical suite / GP Practice unit and community/arts & culture space (total c.1,483sq.m), all located at ground floor level, as well as a one storey residential amenity unit, facing onto Santry Avenue, located between Blocks A & D.



Google Earth extract © Google 2024

Design Model

A 3D model of the proposed development was provided by the client. This model was extracted from the BIM design model and is an accurate representation proposal and used in this analysis. This model was geo-referenced to its correct location and an accurate solar daylight system was introduced. The analysis is based on the information provided.



Scope of this Report

Development Performance

Development performance was examined 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.

In keeping with best practice guidelines, we have tested all residential rooms on all floor in all blocks.

Impact on Neighbours

A commentary was also provided relating to Impact on Neighbours.

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***

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 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 C3 details what area may be excluded.

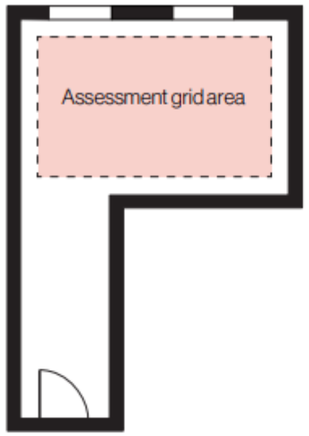


Figure C3: In a room with a corridor, or annexed entrance, the corridor need not be included in the assessment grid area (unless it is wide enough to be part of the usable space in a room, typically over 1.5m wide). The room layout and surfaces, including the corridor would still need to be included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

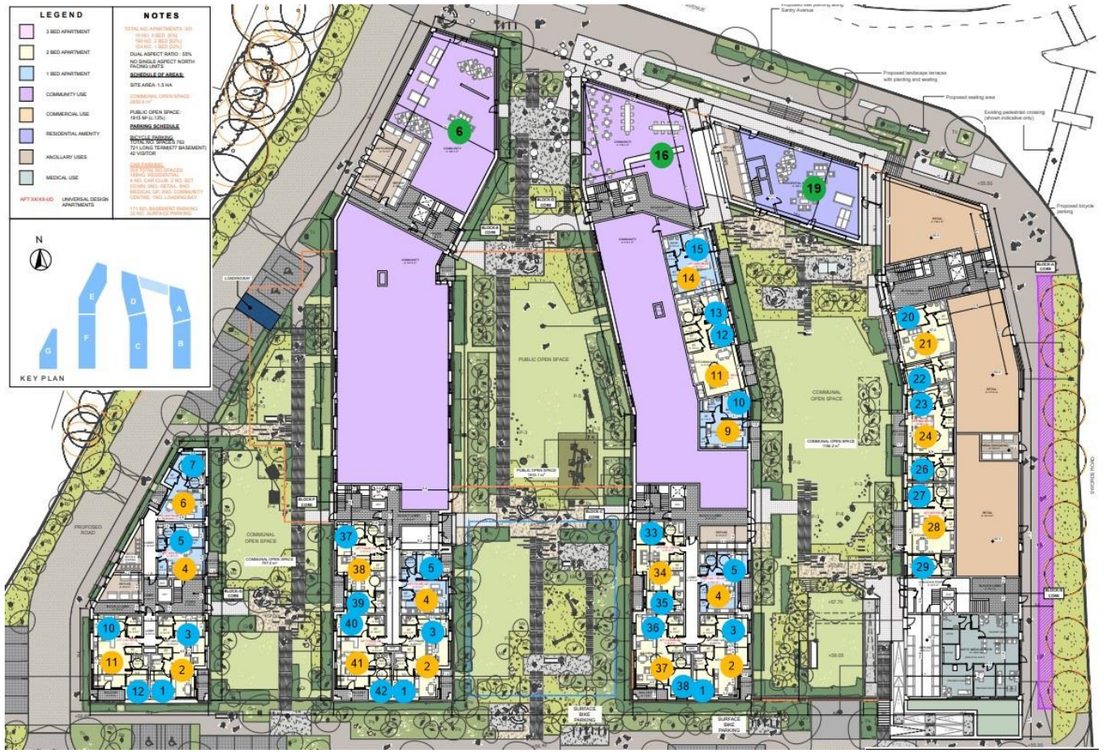
In the result tables the following referencing is used.

- Two-digit Floor reference 00=GFL, 01=1st Floor
- A single 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.

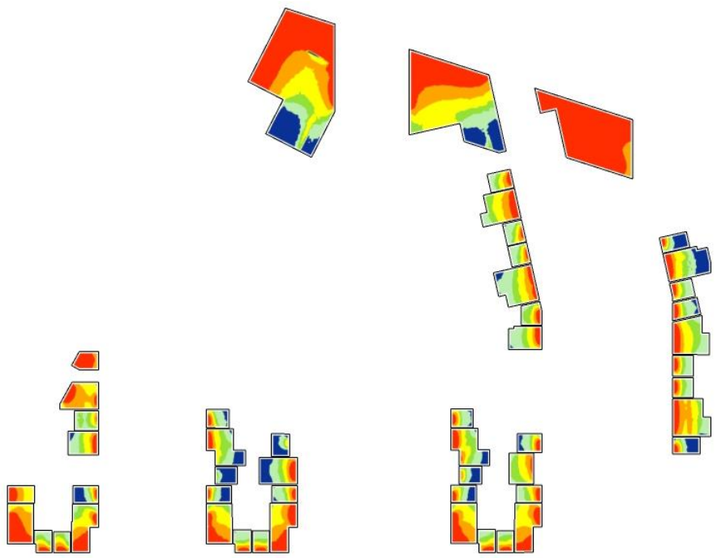
Typical Example of the naming, not specifically project related:

01AB02c = 1st Floor, Block AB, room 02 which is an LKD (Living/Kitchen/Dining room).
00AB20 = Ground Floor, Block A, room 20 which is a bedroom.

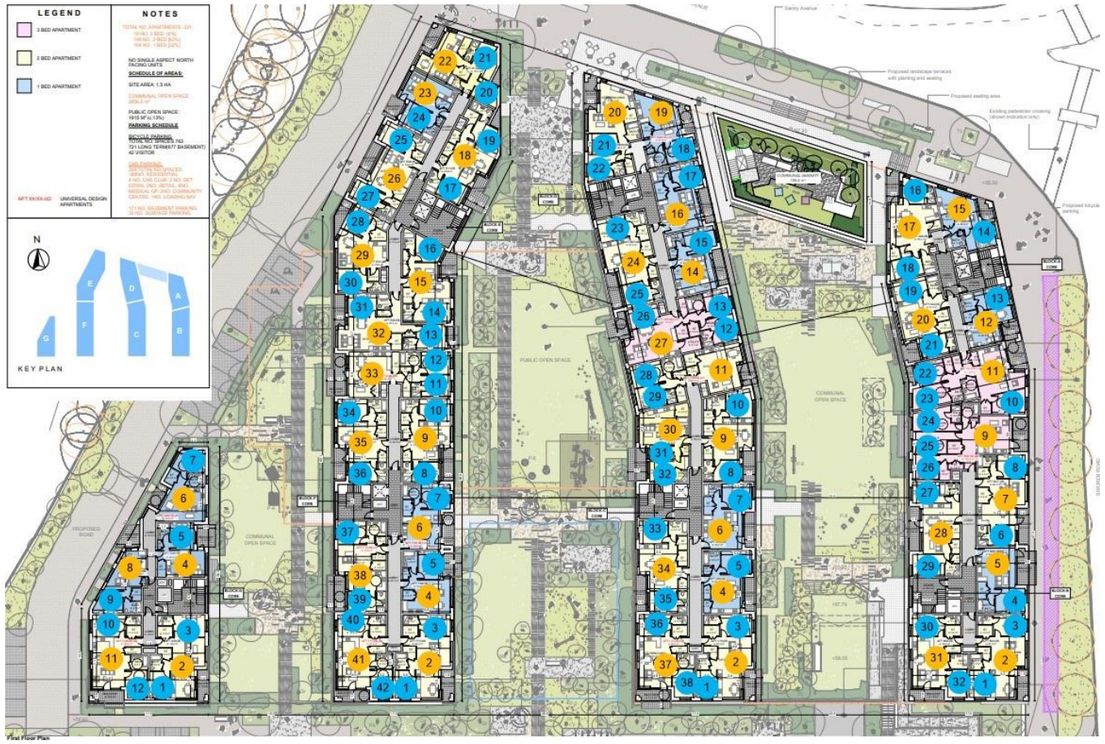
00-GFL - Floor Layout – Naming Convention



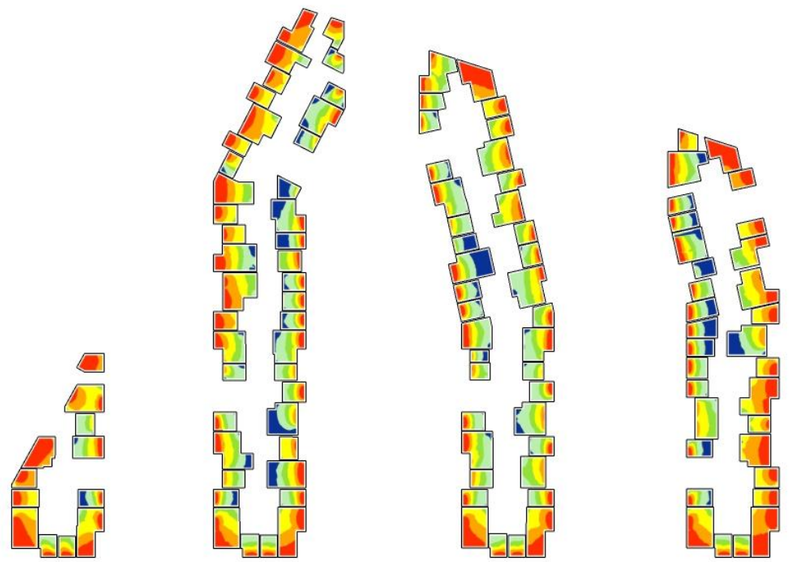
Radiance Plot



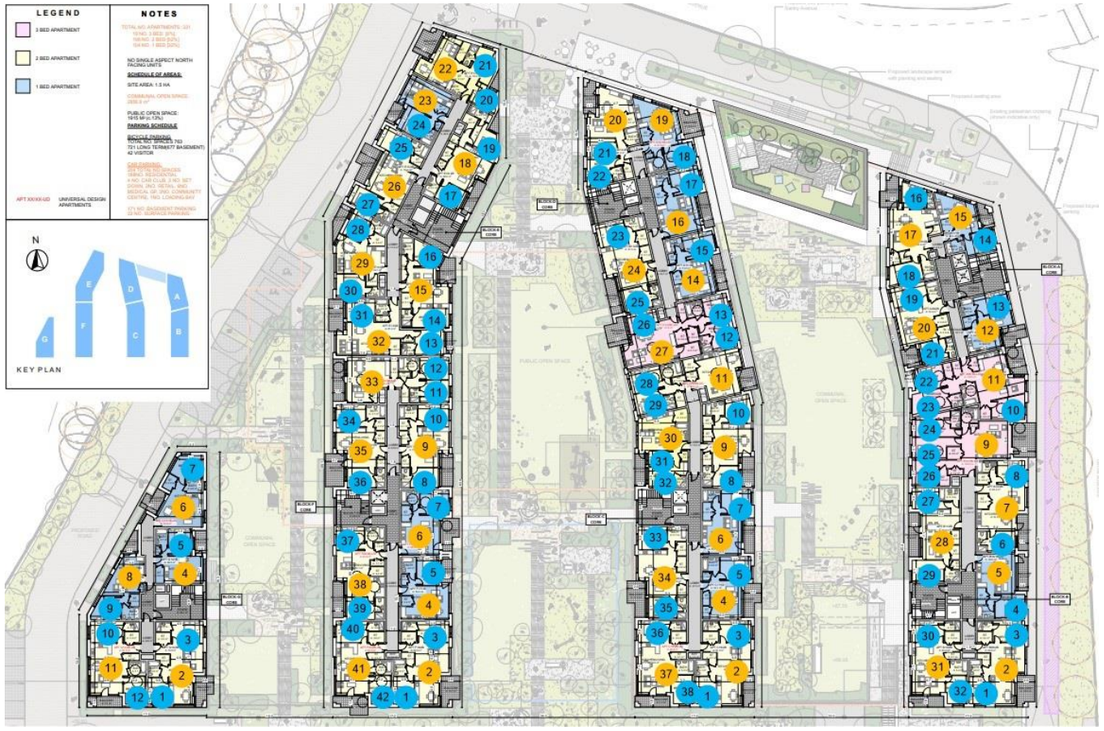
1st- Floor Layout – Naming Convention



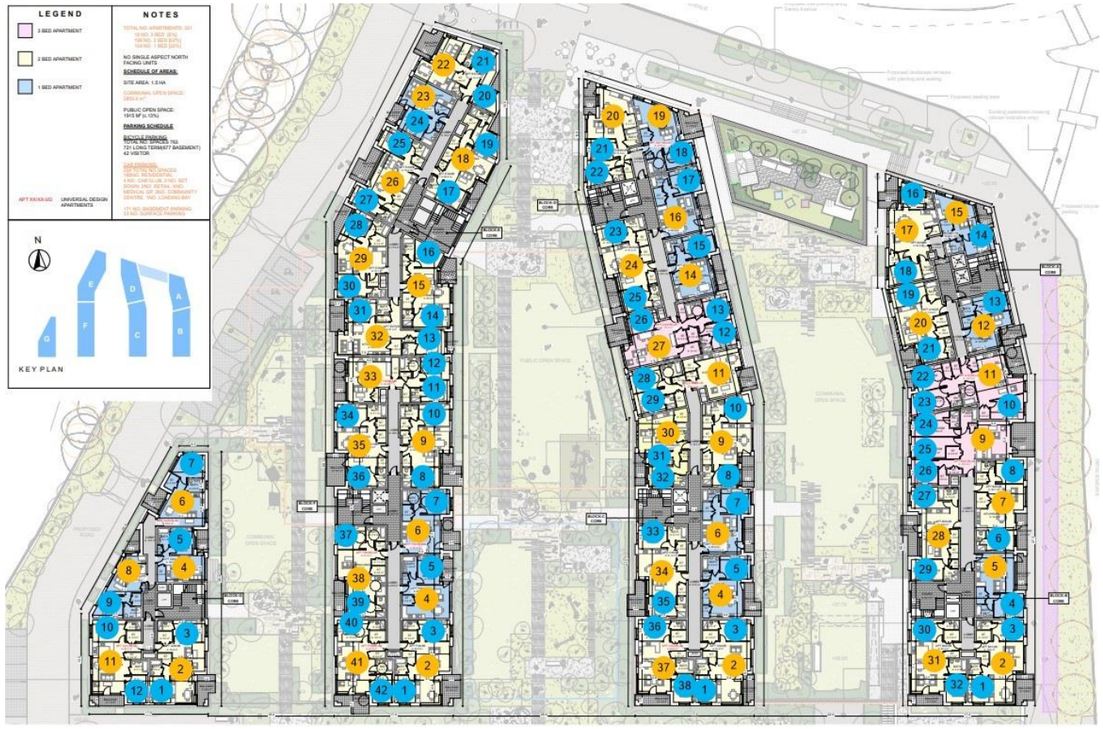
Radiance Plot



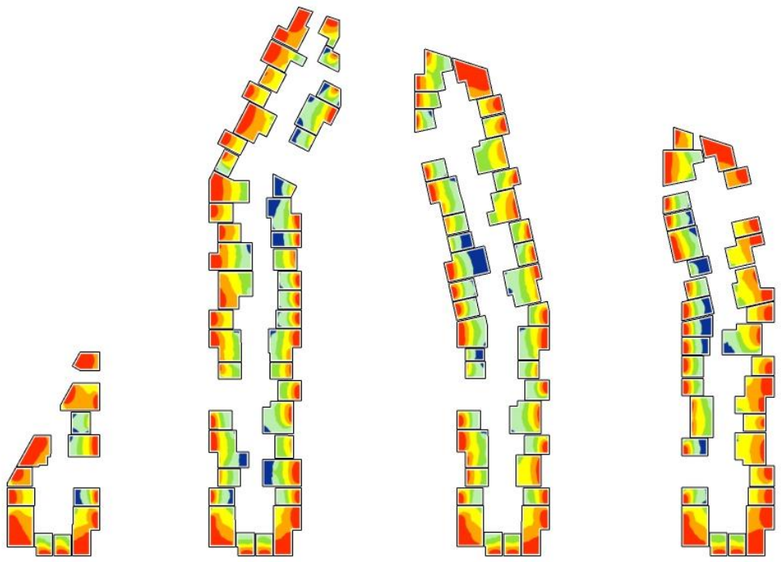
2nd - Floor Layout – Naming Convention



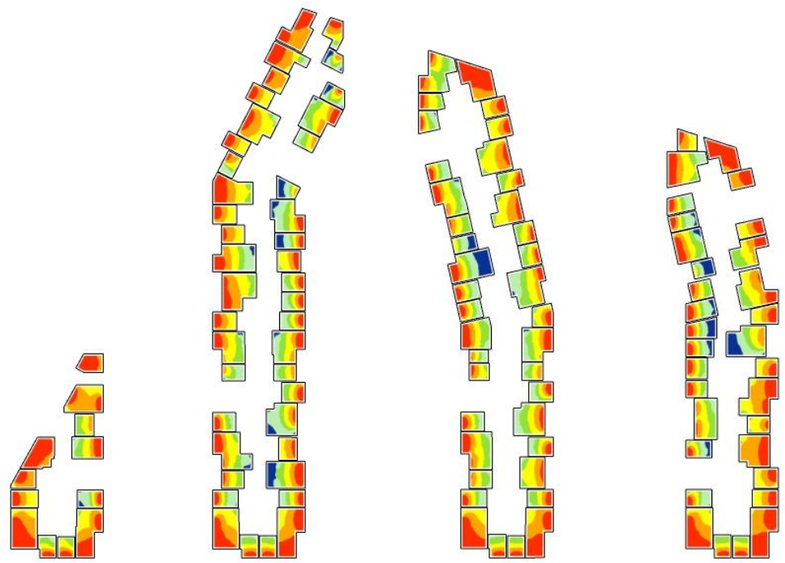
3rd - Floor Layout – Naming Convention



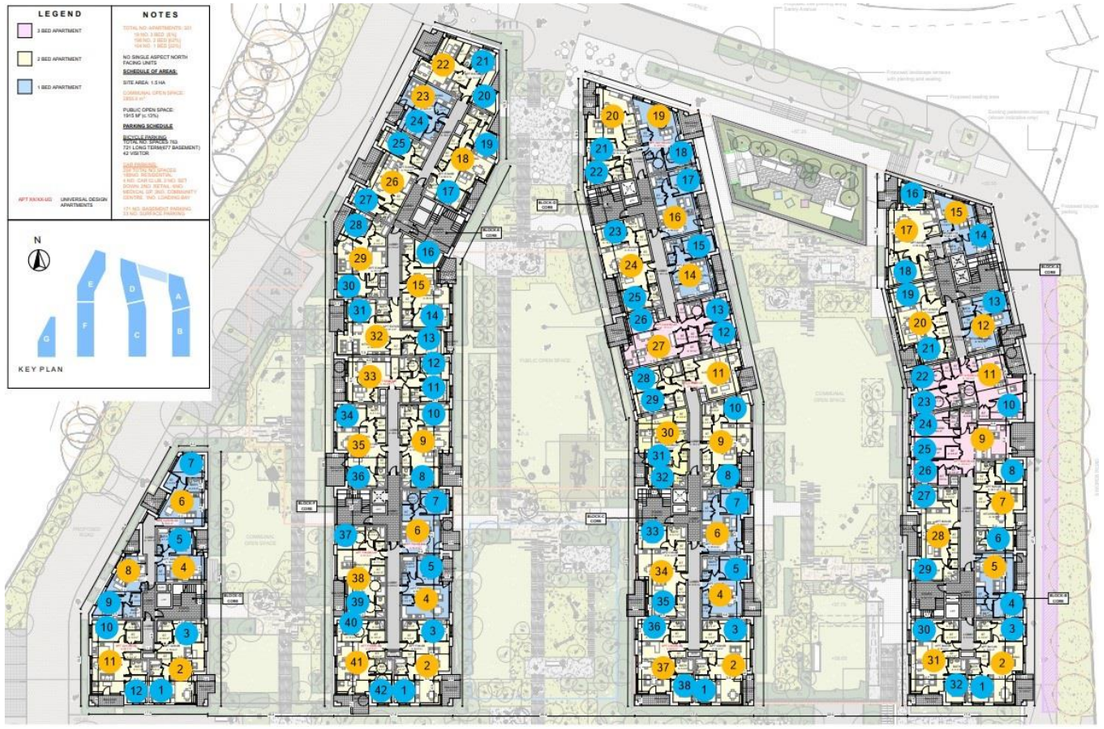
Radiance Plot



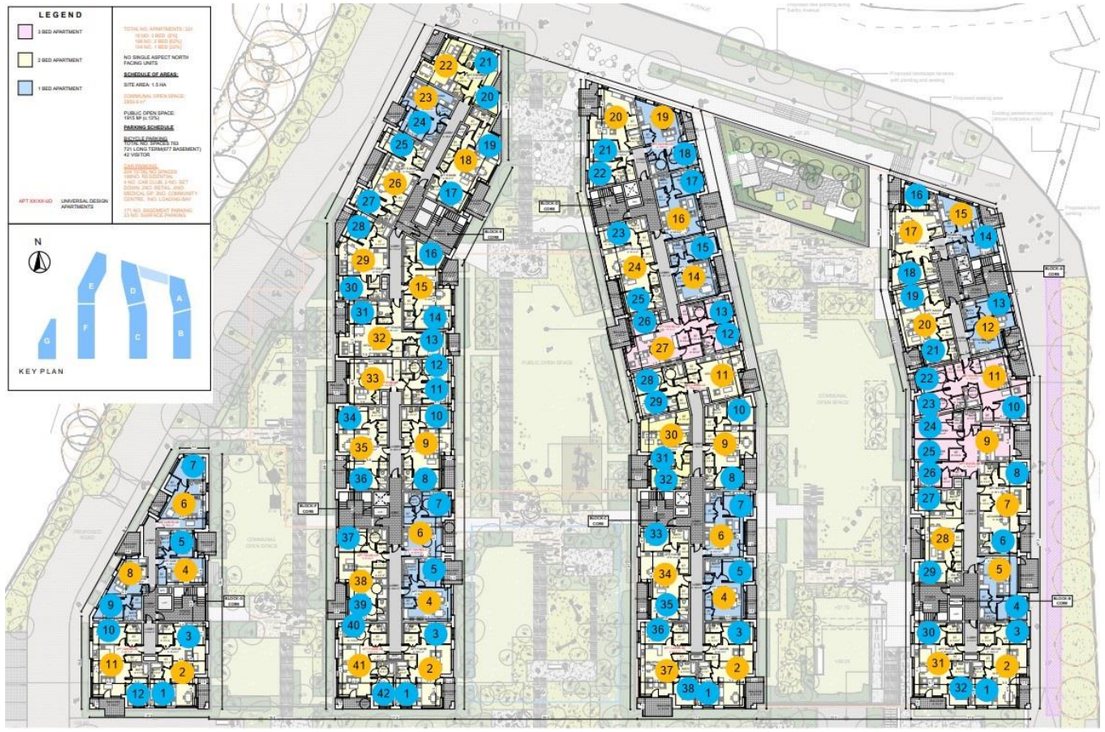
Radiance Plot



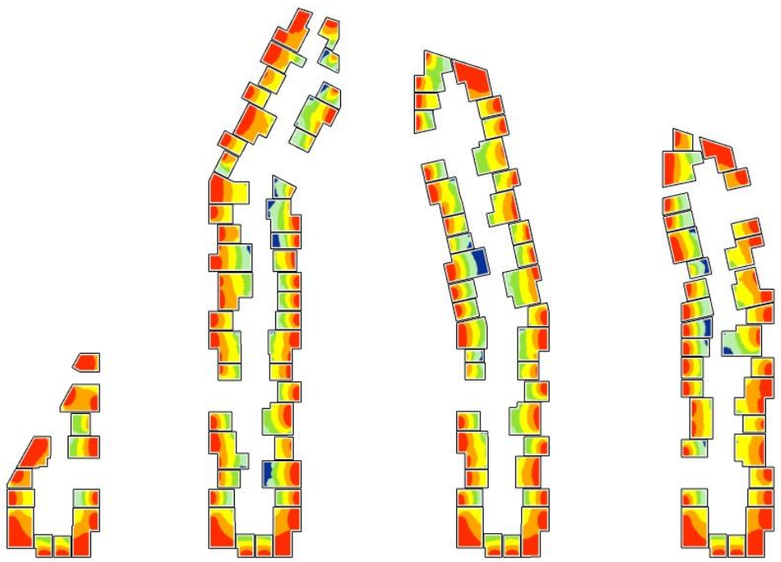
4th - Floor Layout – Naming Convention



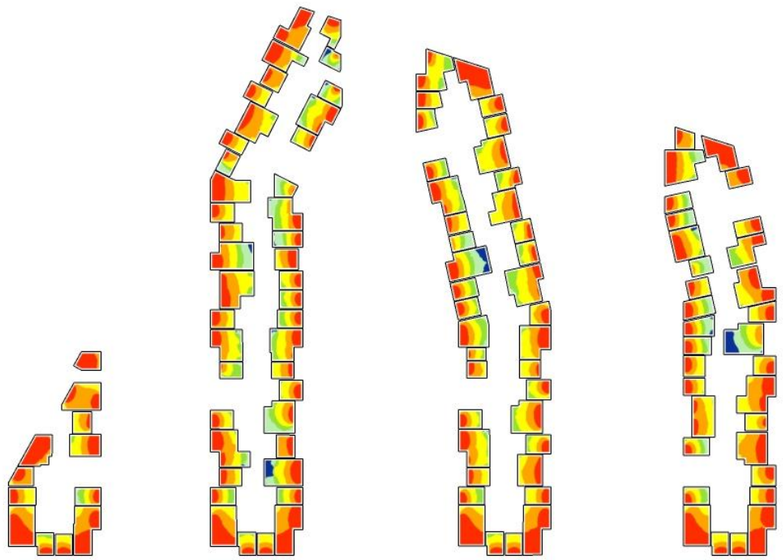
5th - Floor Layout – Naming Convention



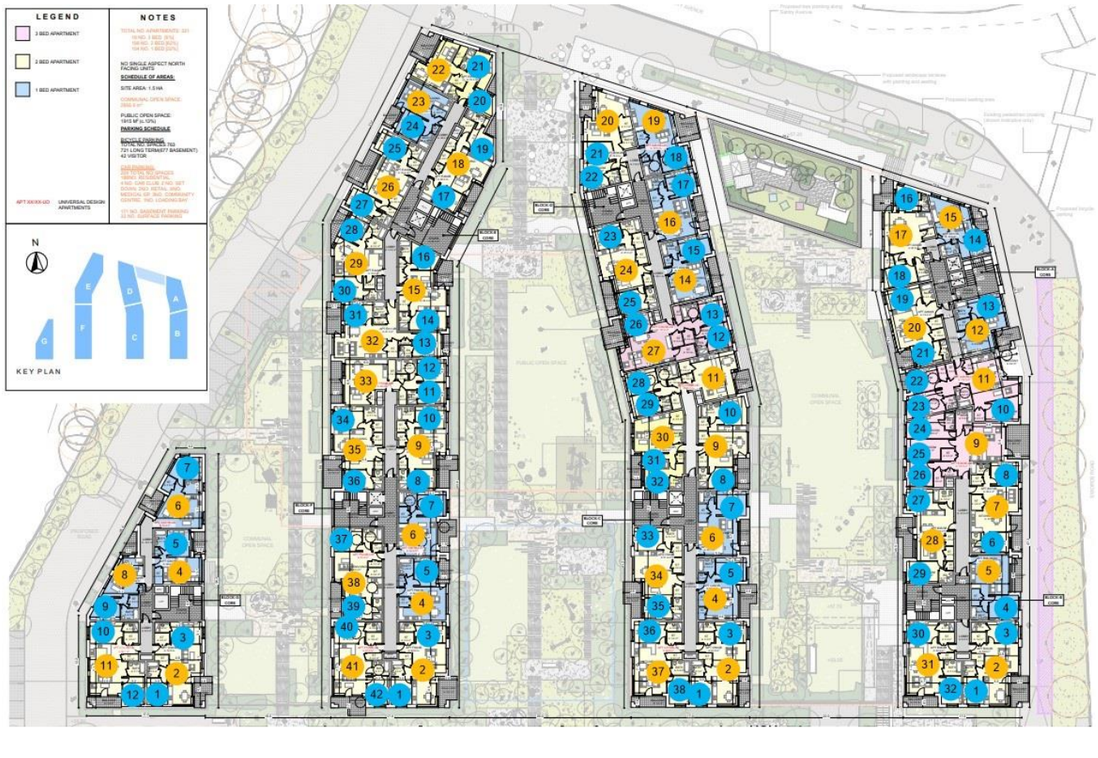
Radiance Plot



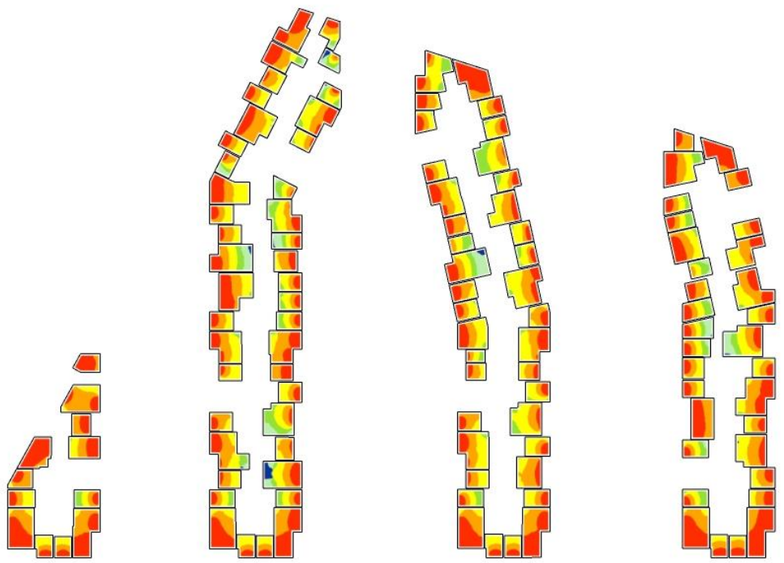
Radiance Plot



6th - Floor Layout – Naming Convention

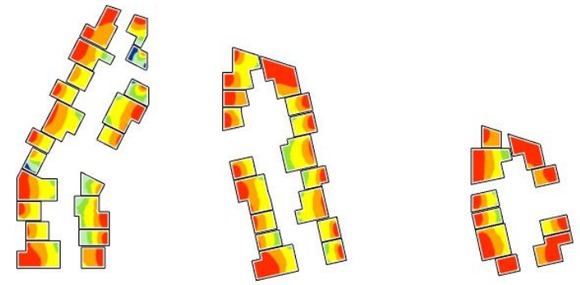


Radiance Plot



7th - Floor Layout – Naming Convention

Radiance Plot



8th & 9th - Floor Layout – Naming Convention

Radiance Plot

10th & 11th - Floor Layout – Naming Convention

Radiance Plot

NA.2 Minimum daylight provision

For all habitable rooms

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

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

AB-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00AB19l	Living	100	150	Pass
00AB20	Bedroom	44	100	Marginal
00AB21	Bedroom	68	100	Pass
00AB22c	Living/Kitchen	42	200	Marginal
00AB23	Bedroom	82	100	Pass
00AB24c	Living/Kitchen	53	200	Pass
00AB26	Bedroom	100	100	Pass
00AB27	Bedroom	100	100	Pass
00AB28c	Living/Kitchen	72	200	Pass
00AB29	Bedroom	51	100	Pass
01AB01	Bedroom	100	100	Pass
01AB02c	Living/Kitchen	100	200	Pass
01AB03	Bedroom	100	100	Pass
01AB04	Bedroom	100	100	Pass
01AB05c	Living/Kitchen	99	200	Pass
01AB06	Bedroom	100	100	Pass
01AB07c	Living/Kitchen	96	200	Pass
01AB08	Bedroom	100	100	Pass
01AB09c	Living/Kitchen	27	200	Fail
01AB10	Bedroom	100	100	Pass
01AB11c	Living/Kitchen	82	200	Pass
01AB12c	Living/Kitchen	64	200	Pass
01AB13	Bedroom	100	100	Pass
01AB14	Bedroom	100	100	Pass
01AB15c	Living/Kitchen	100	200	Pass
01AB16	Bedroom	100	100	Pass
01AB17c	Living/Kitchen	54	200	Pass
01AB18	Bedroom	81	100	Pass
01AB19	Bedroom	75	100	Pass
01AB20c	Living/Kitchen	41	200	Marginal
01AB21	Bedroom	22	100	Fail
01AB22	Bedroom	100	100	Pass
01AB23	Bedroom	69	100	Pass
01AB24	Bedroom	51	100	Pass
01AB25	Bedroom	65	100	Pass
01AB26	Bedroom	100	100	Pass
01AB27	Bedroom	98	100	Pass
01AB28c	Living/Kitchen	49	200	Marginal
01AB29	Bedroom	59	100	Pass
01AB30	Bedroom	82	100	Pass
01AB31c	Living/Kitchen	93	200	Pass
01AB32	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

AB-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
02AB01	Bedroom	100	100	Pass
02AB02c	Living/Kitchen	100	200	Pass
02AB03	Bedroom	100	100	Pass
02AB04	Bedroom	100	100	Pass
02AB05c	Living/Kitchen	97	200	Pass
02AB06	Bedroom	100	100	Pass
02AB07c	Living/Kitchen	95	200	Pass
02AB08	Bedroom	100	100	Pass
02AB09c	Living/Kitchen	46	200	Marginal
02AB10	Bedroom	100	100	Pass
02AB11c	Living/Kitchen	89	200	Pass
02AB12c	Living/Kitchen	93	200	Pass
02AB13	Bedroom	100	100	Pass
02AB14	Bedroom	100	100	Pass
02AB15c	Living/Kitchen	100	200	Pass
02AB16	Bedroom	100	100	Pass
02AB17c	Living/Kitchen	73	200	Pass
02AB18	Bedroom	98	100	Pass
02AB19	Bedroom	80	100	Pass
02AB20c	Living/Kitchen	53	200	Pass
02AB21	Bedroom	31	100	Fail
02AB22	Bedroom	100	100	Pass
02AB23	Bedroom	71	100	Pass
02AB24	Bedroom	57	100	Pass
02AB25	Bedroom	72	100	Pass
02AB26	Bedroom	100	100	Pass
02AB27	Bedroom	100	100	Pass
02AB28c	Living/Kitchen	57	200	Pass
02AB29	Bedroom	68	100	Pass
02AB30	Bedroom	89	100	Pass
02AB31c	Living/Kitchen	96	200	Pass
02AB32	Bedroom	100	100	Pass
03AB01	Bedroom	100	100	Pass
03AB02c	Living/Kitchen	100	200	Pass
03AB03	Bedroom	100	100	Pass
03AB04	Bedroom	100	100	Pass
03AB05c	Living/Kitchen	99	200	Pass
03AB06	Bedroom	100	100	Pass
03AB07c	Living/Kitchen	96	200	Pass
03AB08	Bedroom	100	100	Pass
03AB09c	Living/Kitchen	29	200	Fail
03AB10	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

AB-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
03AB11c	Living/Kitchen	79	200	Pass
03AB12c	Living/Kitchen	67	200	Pass
03AB13	Bedroom	100	100	Pass
03AB14	Bedroom	100	100	Pass
03AB15c	Living/Kitchen	100	200	Pass
03AB16	Bedroom	100	100	Pass
03AB17c	Living/Kitchen	73	200	Pass
03AB18	Bedroom	100	100	Pass
03AB19	Bedroom	87	100	Pass
03AB20c	Living/Kitchen	61	200	Pass
03AB21	Bedroom	38	100	Fail
03AB22	Bedroom	100	100	Pass
03AB23	Bedroom	83	100	Pass
03AB24	Bedroom	64	100	Pass
03AB25	Bedroom	80	100	Pass
03AB26	Bedroom	100	100	Pass
03AB27	Bedroom	100	100	Pass
03AB28c	Living/Kitchen	57	200	Pass
03AB29	Bedroom	79	100	Pass
03AB30	Bedroom	98	100	Pass
03AB31c	Living/Kitchen	98	200	Pass
03AB32	Bedroom	100	100	Pass
04AB01	Bedroom	100	100	Pass
04AB02c	Living/Kitchen	100	200	Pass
04AB03	Bedroom	100	100	Pass
04AB04	Bedroom	100	100	Pass
04AB05c	Living/Kitchen	99	200	Pass
04AB06	Bedroom	100	100	Pass
04AB07c	Living/Kitchen	97	200	Pass
04AB08	Bedroom	100	100	Pass
04AB09c	Living/Kitchen	47	200	Marginal
04AB10	Bedroom	100	100	Pass
04AB11c	Living/Kitchen	91	200	Pass
04AB12c	Living/Kitchen	89	200	Pass
04AB13	Bedroom	100	100	Pass
04AB14	Bedroom	100	100	Pass
04AB15c	Living/Kitchen	100	200	Pass
04AB16	Bedroom	100	100	Pass
04AB17c	Living/Kitchen	77	200	Pass
04AB18	Bedroom	100	100	Pass
04AB19	Bedroom	100	100	Pass
04AB20c	Living/Kitchen	72	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

AB-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
04AB21	Bedroom	68	100	Pass
04AB22	Bedroom	100	100	Pass
04AB23	Bedroom	100	100	Pass
04AB24	Bedroom	71	100	Pass
04AB25	Bedroom	93	100	Pass
04AB26	Bedroom	100	100	Pass
04AB27	Bedroom	100	100	Pass
04AB28c	Living/Kitchen	95	200	Pass
04AB29	Bedroom	94	100	Pass
04AB30	Bedroom	100	100	Pass
04AB31c	Living/Kitchen	99	200	Pass
04AB32	Bedroom	100	100	Pass
05AB01	Bedroom	100	100	Pass
05AB02c	Living/Kitchen	100	200	Pass
05AB03	Bedroom	100	100	Pass
05AB04	Bedroom	100	100	Pass
05AB05c	Living/Kitchen	99	200	Pass
05AB06	Bedroom	100	100	Pass
05AB07c	Living/Kitchen	100	200	Pass
05AB08	Bedroom	100	100	Pass
05AB09c	Living/Kitchen	31	200	Fail
05AB10	Bedroom	100	100	Pass
05AB11c	Living/Kitchen	98	200	Pass
05AB12c	Living/Kitchen	74	200	Pass
05AB13	Bedroom	100	100	Pass
05AB14	Bedroom	100	100	Pass
05AB15c	Living/Kitchen	100	200	Pass
05AB16	Bedroom	100	100	Pass
05AB17c	Living/Kitchen	79	200	Pass
05AB18	Bedroom	100	100	Pass
05AB19	Bedroom	100	100	Pass
05AB20c	Living/Kitchen	85	200	Pass
05AB21	Bedroom	98	100	Pass
05AB22	Bedroom	100	100	Pass
05AB23	Bedroom	100	100	Pass
05AB24	Bedroom	93	100	Pass
05AB25	Bedroom	100	100	Pass
05AB26	Bedroom	100	100	Pass
05AB27	Bedroom	100	100	Pass
05AB28c	Living/Kitchen	98	200	Pass
05AB29	Bedroom	100	100	Pass
05AB30	Bedroom	100	100	Pass
05AB31c	Living/Kitchen	100	200	Pass
05AB32	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

AB-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
06AB01	Bedroom	100	100	Pass
06AB02c	Living/Kitchen	100	200	Pass
06AB03	Bedroom	100	100	Pass
06AB04	Bedroom	100	100	Pass
06AB05c	Living/Kitchen	99	200	Pass
06AB06	Bedroom	100	100	Pass
06AB07c	Living/Kitchen	98	200	Pass
06AB08	Bedroom	100	100	Pass
06AB09c	Living/Kitchen	65	200	Pass
06AB10	Bedroom	100	100	Pass
06AB11c	Living/Kitchen	96	200	Pass
06AB12c	Living/Kitchen	99	200	Pass
06AB13	Bedroom	100	100	Pass
06AB14	Bedroom	100	100	Pass
06AB15c	Living/Kitchen	100	200	Pass
06AB16	Bedroom	100	100	Pass
06AB17c	Living/Kitchen	87	200	Pass
06AB18	Bedroom	100	100	Pass
06AB19	Bedroom	100	100	Pass
06AB20c	Living/Kitchen	95	200	Pass
06AB21	Bedroom	100	100	Pass
06AB22	Bedroom	100	100	Pass
06AB23	Bedroom	100	100	Pass
06AB24	Bedroom	98	100	Pass
06AB25	Bedroom	100	100	Pass
06AB26	Bedroom	100	100	Pass
06AB27	Bedroom	100	100	Pass
06AB28c	Living/Kitchen	100	200	Pass
06AB29	Bedroom	100	100	Pass
06AB30	Bedroom	100	100	Pass
06AB31c	Living/Kitchen	100	200	Pass
06AB32	Bedroom	100	100	Pass
07AB12c	Living/Kitchen	100	200	Pass
07AB13	Bedroom	100	100	Pass
07AB14	Bedroom	100	100	Pass
07AB15c	Living/Kitchen	100	200	Pass
07AB16	Bedroom	100	100	Pass
07AB17c	Living/Kitchen	89	200	Pass
07AB18	Bedroom	100	100	Pass
07AB19	Bedroom	100	100	Pass
07AB20c	Living/Kitchen	99	200	Pass
07AB21	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

AB-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
08AB12c	Living/Kitchen	100	200	Pass
08AB13	Bedroom	100	100	Pass
08AB14	Bedroom	100	100	Pass
08AB15c	Living/Kitchen	100	200	Pass
08AB16	Bedroom	100	100	Pass
08AB17c	Living/Kitchen	94	200	Pass
08AB18	Bedroom	100	100	Pass
08AB19	Bedroom	100	100	Pass
08AB20c	Living/Kitchen	100	200	Pass
08AB21	Bedroom	100	100	Pass
09AB12c	Living/Kitchen	100	200	Pass
09AB13	Bedroom	100	100	Pass
09AB14	Bedroom	100	100	Pass
09AB15c	Living/Kitchen	100	200	Pass
09AB16	Bedroom	100	100	Pass
09AB17c	Living/Kitchen	99	200	Pass
09AB18	Bedroom	100	100	Pass
09AB19	Bedroom	100	100	Pass
09AB20c	Living/Kitchen	100	200	Pass
09AB21	Bedroom	100	100	Pass
10AB12c	Living/Kitchen	100	200	Pass
10AB13	Bedroom	100	100	Pass
10AB14	Bedroom	100	100	Pass
10AB15c	Living/Kitchen	100	200	Pass
10AB16	Bedroom	100	100	Pass
10AB17c	Living/Kitchen	100	200	Pass
10AB18	Bedroom	100	100	Pass
10AB19	Bedroom	100	100	Pass
10AB20c	Living/Kitchen	100	200	Pass
10AB21	Bedroom	100	100	Pass
11AB12c	Living/Kitchen	100	200	Pass
11AB13	Bedroom	100	100	Pass
11AB14	Bedroom	100	100	Pass
11AB15c	Living/Kitchen	100	200	Pass
11AB16	Bedroom	100	100	Pass
11AB17c	Living/Kitchen	100	200	Pass
11AB18	Bedroom	100	100	Pass
11AB19	Bedroom	100	100	Pass
11AB20c	Living/Kitchen	100	200	Pass
11AB21	Bedroom	100	100	Pass

Summary AB: 95% compliant or 98% if we include marginal results.

NA.2 Minimum daylight provision

For all habitable rooms

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

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

CD-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
01CD01	Bedroom	100	100	Pass
01CD02c	Living/Kitchen	98	200	Pass
01CD03	Bedroom	100	100	Pass
01CD04c	Living/Kitchen	54	200	Pass
01CD05	Bedroom	78	100	Pass
01CD09c	Living/Kitchen	43	200	Marginal
01CD10	Bedroom	100	100	Pass
01CD11c	Living/Kitchen	46	200	Marginal
01CD12	Bedroom	100	100	Pass
01CD13	Bedroom	95	100	Pass
01CD14c	Living/Kitchen	69	200	Pass
01CD15	Bedroom	100	100	Pass
01CD16l	Living	79	150	Pass
01CD33	Bedroom	84	100	Pass
01CD34c	Living/Kitchen	47	200	Marginal
01CD35	Bedroom	50	100	Pass
01CD36	Bedroom	65	100	Pass
01CD37c	Living/Kitchen	92	200	Pass
01CD38	Bedroom	100	100	Pass
01CD01	Bedroom	100	100	Pass
01CD02c	Living/Kitchen	98	200	Pass
01CD03	Bedroom	100	100	Pass
01CD04c	Living/Kitchen	43	200	Marginal
01CD05	Bedroom	96	100	Pass
01CD06c	Living/Kitchen	28	200	Fail
01CD07	Bedroom	100	100	Pass
01CD08	Bedroom	95	100	Pass
01CD09c	Living/Kitchen	40	200	Marginal
01CD10	Bedroom	100	100	Pass
01CD11c	Living/Kitchen	41	200	Marginal
01CD12	Bedroom	96	100	Pass
01CD13	Bedroom	100	100	Pass
01CD14c	Living/Kitchen	73	200	Pass
01CD15	Bedroom	100	100	Pass
01CD16c	Living/Kitchen	53	200	Pass
01CD17	Bedroom	100	100	Pass
01CD18	Bedroom	100	100	Pass
01CD19c	Living/Kitchen	100	200	Pass
01CD20c	Living/Kitchen	55	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

CD-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
01CD21	Bedroom	100	100	Pass
01CD22	Bedroom	92	100	Pass
01CD23	Bedroom	85	100	Pass
01CD24c	Living/Kitchen	37	200	Fail
01CD25	Bedroom	100	100	Pass
01CD26	Bedroom	42	100	Marginal
01CD27c	Living/Kitchen	26	200	Fail
01CD28	Bedroom	79	100	Pass
01CD29	Bedroom	91	100	Pass
01CD30c	Living/Kitchen	45	200	Marginal
01CD31	Bedroom	66	100	Pass
01CD32	Bedroom	97	100	Pass
01CD33	Bedroom	100	100	Pass
01CD34c	Living/Kitchen	43	200	Marginal
01CD35	Bedroom	100	100	Pass
01CD36	Bedroom	97	100	Pass
01CD37c	Living/Kitchen	96	200	Pass
01CD38	Bedroom	100	100	Pass
02CD01	Bedroom	100	100	Pass
02CD02c	Living/Kitchen	100	200	Pass
02CD03	Bedroom	100	100	Pass
02CD04c	Living/Kitchen	91	200	Pass
02CD05	Bedroom	100	100	Pass
02CD06c	Living/Kitchen	37	200	Fail
02CD07	Bedroom	100	100	Pass
02CD08	Bedroom	100	100	Pass
02CD09c	Living/Kitchen	50	200	Pass
02CD10	Bedroom	100	100	Pass
02CD11c	Living/Kitchen	40	200	Marginal
02CD12	Bedroom	98	100	Pass
02CD13	Bedroom	100	100	Pass
02CD14c	Living/Kitchen	76	200	Pass
02CD15	Bedroom	100	100	Pass
02CD16c	Living/Kitchen	46	200	Marginal
02CD17	Bedroom	100	100	Pass
02CD18	Bedroom	100	100	Pass
02CD19c	Living/Kitchen	100	200	Pass
02CD20c	Living/Kitchen	53	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

CD-v1	Type			
Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
02CD21	Bedroom	100	100	Pass
02CD22	Bedroom	94	100	Pass
02CD23	Bedroom	98	100	Pass
02CD24c	Living/Kitchen	51	200	Pass
02CD25	Bedroom	100	100	Pass
02CD26	Bedroom	52	100	Pass
02CD27c	Living/Kitchen	29	200	Fail
02CD28	Bedroom	94	100	Pass
02CD29	Bedroom	100	100	Pass
02CD30c	Living/Kitchen	50	200	Pass
02CD31	Bedroom	50	100	Pass
02CD32	Bedroom	92	100	Pass
02CD33	Bedroom	100	100	Pass
02CD34c	Living/Kitchen	62	200	Pass
02CD35	Bedroom	100	100	Pass
02CD36	Bedroom	100	100	Pass
02CD37c	Living/Kitchen	95	200	Pass
02CD38	Bedroom	100	100	Pass
03CD01	Bedroom	100	100	Pass
03CD02c	Living/Kitchen	100	200	Pass
03CD03	Bedroom	100	100	Pass
03CD04c	Living/Kitchen	80	200	Pass
03CD05	Bedroom	100	100	Pass
03CD06c	Living/Kitchen	51	200	Pass
03CD07	Bedroom	100	100	Pass
03CD08	Bedroom	100	100	Pass
03CD09c	Living/Kitchen	59	200	Pass
03CD10	Bedroom	100	100	Pass
03CD11c	Living/Kitchen	50	200	Pass
03CD12	Bedroom	100	100	Pass
03CD13	Bedroom	100	100	Pass
03CD14c	Living/Kitchen	88	200	Pass
03CD15	Bedroom	100	100	Pass
03CD16c	Living/Kitchen	85	200	Pass
03CD17	Bedroom	100	100	Pass
03CD18	Bedroom	100	100	Pass
03CD19c	Living/Kitchen	100	200	Pass
03CD20c	Living/Kitchen	52	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

CD-v1	Type			
Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
03CD21	Bedroom	100	100	Pass
03CD22	Bedroom	100	100	Pass
03CD23	Bedroom	100	100	Pass
03CD24c	Living/Kitchen	58	200	Pass
03CD25	Bedroom	100	100	Pass
03CD26	Bedroom	66	100	Pass
03CD27c	Living/Kitchen	33	200	Fail
03CD28	Bedroom	100	100	Pass
03CD29	Bedroom	100	100	Pass
03CD30c	Living/Kitchen	61	200	Pass
03CD31	Bedroom	100	100	Pass
03CD32	Bedroom	100	100	Pass
03CD33	Bedroom	100	100	Pass
03CD34c	Living/Kitchen	66	200	Pass
03CD35	Bedroom	100	100	Pass
03CD36	Bedroom	100	100	Pass
03CD37c	Living/Kitchen	98	200	Pass
03CD38	Bedroom	100	100	Pass
04CD01	Bedroom	100	100	Pass
04CD02c	Living/Kitchen	100	200	Pass
04CD03	Bedroom	100	100	Pass
04CD04c	Living/Kitchen	98	200	Pass
04CD05	Bedroom	100	100	Pass
04CD06c	Living/Kitchen	66	200	Pass
04CD07	Bedroom	100	100	Pass
04CD08	Bedroom	100	100	Pass
04CD09c	Living/Kitchen	69	200	Pass
04CD10	Bedroom	100	100	Pass
04CD11c	Living/Kitchen	60	200	Pass
04CD12	Bedroom	100	100	Pass
04CD13	Bedroom	100	100	Pass
04CD14c	Living/Kitchen	85	200	Pass
04CD15	Bedroom	100	100	Pass
04CD16c	Living/Kitchen	58	200	Pass
04CD17	Bedroom	100	100	Pass
04CD18	Bedroom	100	100	Pass
04CD19c	Living/Kitchen	100	200	Pass
04CD20c	Living/Kitchen	50	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

CD-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
04CD21	Bedroom	100	100	Pass
04CD22	Bedroom	100	100	Pass
04CD23	Bedroom	100	100	Pass
04CD24c	Living/Kitchen	71	200	Pass
04CD25	Bedroom	100	100	Pass
04CD26	Bedroom	84	100	Pass
04CD27c	Living/Kitchen	41	200	Marginal
04CD28	Bedroom	100	100	Pass
04CD29	Bedroom	100	100	Pass
04CD30c	Living/Kitchen	70	200	Pass
04CD31	Bedroom	83	100	Pass
04CD32	Bedroom	100	100	Pass
04CD33	Bedroom	100	100	Pass
04CD34c	Living/Kitchen	88	200	Pass
04CD35	Bedroom	100	100	Pass
04CD36	Bedroom	100	100	Pass
04CD37c	Living/Kitchen	99	200	Pass
04CD38	Bedroom	100	100	Pass
05CD01	Bedroom	100	100	Pass
05CD02c	Living/Kitchen	100	200	Pass
05CD03	Bedroom	100	100	Pass
05CD04c	Living/Kitchen	98	200	Pass
05CD05	Bedroom	100	100	Pass
05CD06c	Living/Kitchen	82	200	Pass
05CD07	Bedroom	100	100	Pass
05CD08	Bedroom	100	100	Pass
05CD09c	Living/Kitchen	95	200	Pass
05CD10	Bedroom	100	100	Pass
05CD11c	Living/Kitchen	73	200	Pass
05CD12	Bedroom	100	100	Pass
05CD13	Bedroom	100	100	Pass
05CD14c	Living/Kitchen	98	200	Pass
05CD15	Bedroom	100	100	Pass
05CD16c	Living/Kitchen	88	200	Pass
05CD17	Bedroom	100	100	Pass
05CD18	Bedroom	100	100	Pass
05CD19c	Living/Kitchen	100	200	Pass
05CD20c	Living/Kitchen	78	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

CD-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
05CD21	Bedroom	100	100	Pass
05CD22	Bedroom	100	100	Pass
05CD23	Bedroom	100	100	Pass
05CD24c	Living/Kitchen	80	200	Pass
05CD25	Bedroom	100	100	Pass
05CD26	Bedroom	100	100	Pass
05CD27c	Living/Kitchen	48	200	Marginal
05CD28	Bedroom	100	100	Pass
05CD29	Bedroom	100	100	Pass
05CD30c	Living/Kitchen	67	200	Pass
05CD31	Bedroom	100	100	Pass
05CD32	Bedroom	100	100	Pass
05CD33	Bedroom	100	100	Pass
05CD34c	Living/Kitchen	88	200	Pass
05CD35	Bedroom	100	100	Pass
05CD36	Bedroom	100	100	Pass
05CD37c	Living/Kitchen	100	200	Pass
05CD38	Bedroom	100	100	Pass
06CD01	Bedroom	100	100	Pass
06CD02c	Living/Kitchen	100	200	Pass
06CD03	Bedroom	100	100	Pass
06CD04c	Living/Kitchen	98	200	Pass
06CD05	Bedroom	100	100	Pass
06CD06c	Living/Kitchen	84	200	Pass
06CD07	Bedroom	100	100	Pass
06CD08	Bedroom	100	100	Pass
06CD09c	Living/Kitchen	96	200	Pass
06CD10	Bedroom	100	100	Pass
06CD11c	Living/Kitchen	95	200	Pass
06CD12	Bedroom	100	100	Pass
06CD13	Bedroom	100	100	Pass
06CD14c	Living/Kitchen	95	200	Pass
06CD15	Bedroom	100	100	Pass
06CD16c	Living/Kitchen	59	200	Pass
06CD17	Bedroom	100	100	Pass
06CD18	Bedroom	100	100	Pass
06CD19c	Living/Kitchen	100	200	Pass
06CD20c	Living/Kitchen	77	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

CD-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
06CD21	Bedroom	100	100	Pass
06CD22	Bedroom	100	100	Pass
06CD23	Bedroom	100	100	Pass
06CD24c	Living/Kitchen	96	200	Pass
06CD25	Bedroom	100	100	Pass
06CD26	Bedroom	100	100	Pass
06CD27c	Living/Kitchen	54	200	Pass
06CD28	Bedroom	100	100	Pass
06CD29	Bedroom	100	100	Pass
06CD30c	Living/Kitchen	96	200	Pass
06CD31	Bedroom	100	100	Pass
06CD32	Bedroom	100	100	Pass
06CD33	Bedroom	100	100	Pass
06CD34c	Living/Kitchen	96	200	Pass
06CD35	Bedroom	100	100	Pass
06CD36	Bedroom	100	100	Pass
06CD37c	Living/Kitchen	100	200	Pass
06CD38	Bedroom	100	100	Pass
07CD12	Bedroom	100	100	Pass
07CD13	Bedroom	100	100	Pass
07CD14c	Living/Kitchen	89	200	Pass
07CD15	Bedroom	100	100	Pass
07CD16c	Living/Kitchen	72	200	Pass
07CD17	Bedroom	100	100	Pass
07CD18	Bedroom	100	100	Pass
07CD19c	Living/Kitchen	100	200	Pass
07CD20c	Living/Kitchen	95	200	Pass
07CD21	Bedroom	100	100	Pass
07CD22	Bedroom	100	100	Pass
07CD23	Bedroom	100	100	Pass
07CD24c	Living/Kitchen	96	200	Pass
07CD25	Bedroom	100	100	Pass
07CD26	Bedroom	100	100	Pass
07CD27c	Living/Kitchen	97	200	Pass

Summary CD: 93% compliant or 98% if we include marginal results.

NA.2 Minimum daylight provision

For all habitable rooms

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

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

EF-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00EF01	Bedroom	100	100	Pass
00EF02c	Living/Kitchen	99	200	Pass
00EF03	Bedroom	94	100	Pass
00EF04c	Living/Kitchen	36	200	Fail
00EF05	Bedroom	32	100	Fail
00EF06l	Living	79	150	Pass
00EF37	Bedroom	83	100	Pass
00EF38c	Living/Kitchen	36	200	Fail
00EF39	Bedroom	22	100	Fail
00EF40	Bedroom	57	100	Pass
00EF41c	Living/Kitchen	88	200	Pass
00EF42	Bedroom	100	100	Pass
01EF01	Bedroom	100	100	Pass
01EF02c	Living/Kitchen	98	200	Pass
01EF03	Bedroom	100	100	Pass
01EF04c	Living/Kitchen	45	200	Marginal
01EF05	Bedroom	100	100	Pass
01EF06c	Living/Kitchen	16	200	Fail
01EF07	Bedroom	100	100	Pass
01EF08	Bedroom	100	100	Pass
01EF09c	Living/Kitchen	37	200	Fail
01EF10	Bedroom	77	100	Pass
01EF11	Bedroom	100	100	Pass
01EF12	Bedroom	83	100	Pass
01EF13	Bedroom	100	100	Pass
01EF14	Bedroom	56	100	Pass
01EF15c	Living/Kitchen	26	200	Fail
01EF16	Bedroom	33	100	Fail
01EF17	Bedroom	77	100	Pass
01EF18c	Living/Kitchen	40	200	Marginal
01EF19	Bedroom	74	100	Pass
01EF20	Bedroom	85	100	Pass
01EF21	Bedroom	100	100	Pass
01EF22c	Living/Kitchen	100	200	Pass
01EF23c	Living/Kitchen	83	200	Pass
01EF24	Bedroom	100	100	Pass
01EF25	Bedroom	100	100	Pass
01EF26c	Living/Kitchen	94	200	Pass
01EF27	Bedroom	100	100	Pass
01EF28	Bedroom	90	100	Pass
01EF29c	Living/Kitchen	76	200	Pass
01EF30	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

EF-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
01EF31	Bedroom	100	100	Pass
01EF32c	Living/Kitchen	52	200	Pass
01EF33c	Living/Kitchen	76	200	Pass
01EF34	Bedroom	100	100	Pass
01EF35c	Living/Kitchen	58	200	Pass
01EF36	Bedroom	89	100	Pass
01EF37	Bedroom	100	100	Pass
01EF38c	Living/Kitchen	50	200	Pass
01EF39	Bedroom	100	100	Pass
01EF40	Bedroom	73	100	Pass
01EF41c	Living/Kitchen	82	200	Pass
01EF42	Bedroom	100	100	Pass
02EF01	Bedroom	100	100	Pass
02EF02c	Living/Kitchen	99	200	Pass
02EF03	Bedroom	100	100	Pass
02EF04c	Living/Kitchen	46	200	Marginal
02EF05	Bedroom	100	100	Pass
02EF06c	Living/Kitchen	32	200	Fail
02EF07	Bedroom	100	100	Pass
02EF08	Bedroom	100	100	Pass
02EF09c	Living/Kitchen	52	200	Pass
02EF10	Bedroom	90	100	Pass
02EF11	Bedroom	100	100	Pass
02EF12	Bedroom	95	100	Pass
02EF13	Bedroom	100	100	Pass
02EF14	Bedroom	58	100	Pass
02EF15c	Living/Kitchen	27	200	Fail
02EF16	Bedroom	51	100	Pass
02EF17	Bedroom	73	100	Pass
02EF18c	Living/Kitchen	40	200	Marginal
02EF19	Bedroom	73	100	Pass
02EF20	Bedroom	85	100	Pass
02EF21	Bedroom	100	100	Pass
02EF22c	Living/Kitchen	100	200	Pass
02EF23c	Living/Kitchen	85	200	Pass
02EF24	Bedroom	100	100	Pass
02EF25	Bedroom	100	100	Pass
02EF26c	Living/Kitchen	97	200	Pass
02EF27	Bedroom	100	100	Pass
02EF28	Bedroom	98	100	Pass
02EF29c	Living/Kitchen	80	200	Pass
02EF30	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

EF-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
02EF31	Bedroom	100	100	Pass
02EF32c	Living/Kitchen	57	200	Pass
02EF33c	Living/Kitchen	73	200	Pass
02EF34	Bedroom	100	100	Pass
02EF35c	Living/Kitchen	71	200	Pass
02EF36	Bedroom	100	100	Pass
02EF37	Bedroom	100	100	Pass
02EF38c	Living/Kitchen	46	200	Marginal
02EF39	Bedroom	100	100	Pass
02EF40	Bedroom	77	100	Pass
02EF41c	Living/Kitchen	93	200	Pass
02EF42	Bedroom	100	100	Pass
03EF01	Bedroom	100	100	Pass
03EF02c	Living/Kitchen	99	200	Pass
03EF03	Bedroom	100	100	Pass
03EF04c	Living/Kitchen	52	200	Pass
03EF05	Bedroom	100	100	Pass
03EF06c	Living/Kitchen	32	200	Fail
03EF07	Bedroom	100	100	Pass
03EF08	Bedroom	100	100	Pass
03EF09c	Living/Kitchen	57	200	Pass
03EF10	Bedroom	100	100	Pass
03EF11	Bedroom	100	100	Pass
03EF12	Bedroom	100	100	Pass
03EF13	Bedroom	100	100	Pass
03EF14	Bedroom	71	100	Pass
03EF15c	Living/Kitchen	36	200	Fail
03EF16	Bedroom	54	100	Pass
03EF17	Bedroom	100	100	Pass
03EF18c	Living/Kitchen	61	200	Pass
03EF19	Bedroom	79	100	Pass
03EF20	Bedroom	72	100	Pass
03EF21	Bedroom	100	100	Pass
03EF22c	Living/Kitchen	100	200	Pass
03EF23c	Living/Kitchen	85	200	Pass
03EF24	Bedroom	100	100	Pass
03EF25	Bedroom	100	100	Pass
03EF26c	Living/Kitchen	90	200	Pass
03EF27	Bedroom	100	100	Pass
03EF28	Bedroom	98	100	Pass
03EF29c	Living/Kitchen	88	200	Pass
03EF30	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

EF-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
03EF31	Bedroom	100	100	Pass
03EF32c	Living/Kitchen	56	200	Pass
03EF33c	Living/Kitchen	82	200	Pass
03EF34	Bedroom	100	100	Pass
03EF35c	Living/Kitchen	65	200	Pass
03EF36	Bedroom	98	100	Pass
03EF37	Bedroom	100	100	Pass
03EF38c	Living/Kitchen	68	200	Pass
03EF39	Bedroom	100	100	Pass
03EF40	Bedroom	98	100	Pass
03EF41c	Living/Kitchen	96	200	Pass
03EF42	Bedroom	100	100	Pass
04EF01	Bedroom	100	100	Pass
04EF02c	Living/Kitchen	100	200	Pass
04EF03	Bedroom	100	100	Pass
04EF04c	Living/Kitchen	58	200	Pass
04EF05	Bedroom	100	100	Pass
04EF06c	Living/Kitchen	66	200	Pass
04EF07	Bedroom	100	100	Pass
04EF08	Bedroom	100	100	Pass
04EF09c	Living/Kitchen	80	200	Pass
04EF10	Bedroom	100	100	Pass
04EF11	Bedroom	100	100	Pass
04EF12	Bedroom	100	100	Pass
04EF13	Bedroom	100	100	Pass
04EF14	Bedroom	72	100	Pass
04EF15c	Living/Kitchen	43	200	Marginal
04EF16	Bedroom	78	100	Pass
04EF17	Bedroom	100	100	Pass
04EF18c	Living/Kitchen	55	200	Pass
04EF19	Bedroom	86	100	Pass
04EF20	Bedroom	73	100	Pass
04EF21	Bedroom	100	100	Pass
04EF22c	Living/Kitchen	100	200	Pass
04EF23c	Living/Kitchen	85	200	Pass
04EF24	Bedroom	100	100	Pass
04EF25	Bedroom	100	100	Pass
04EF26c	Living/Kitchen	98	200	Pass
04EF27	Bedroom	100	100	Pass
04EF28	Bedroom	100	100	Pass
04EF29c	Living/Kitchen	97	200	Pass
04EF30	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

EF-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
04EF31	Bedroom	100	100	Pass
04EF32c	Living/Kitchen	60	200	Pass
04EF33c	Living/Kitchen	80	200	Pass
04EF34	Bedroom	100	100	Pass
04EF35c	Living/Kitchen	87	200	Pass
04EF36	Bedroom	100	100	Pass
04EF37	Bedroom	100	100	Pass
04EF38c	Living/Kitchen	75	200	Pass
04EF39	Bedroom	100	100	Pass
04EF40	Bedroom	100	100	Pass
04EF41c	Living/Kitchen	98	200	Pass
04EF42	Bedroom	100	100	Pass
05EF01	Bedroom	100	100	Pass
05EF02c	Living/Kitchen	100	200	Pass
05EF03	Bedroom	100	100	Pass
05EF04c	Living/Kitchen	66	200	Pass
05EF05	Bedroom	100	100	Pass
05EF06c	Living/Kitchen	47	200	Marginal
05EF07	Bedroom	100	100	Pass
05EF08	Bedroom	100	100	Pass
05EF09c	Living/Kitchen	76	200	Pass
05EF10	Bedroom	100	100	Pass
05EF11	Bedroom	100	100	Pass
05EF12	Bedroom	100	100	Pass
05EF13	Bedroom	100	100	Pass
05EF14	Bedroom	96	100	Pass
05EF15c	Living/Kitchen	58	200	Pass
05EF16	Bedroom	100	100	Pass
05EF17	Bedroom	100	100	Pass
05EF18c	Living/Kitchen	74	200	Pass
05EF19	Bedroom	96	100	Pass
05EF20	Bedroom	77	100	Pass
05EF21	Bedroom	100	100	Pass
05EF22c	Living/Kitchen	100	200	Pass
05EF23c	Living/Kitchen	85	200	Pass
05EF24	Bedroom	100	100	Pass
05EF25	Bedroom	100	100	Pass
05EF26c	Living/Kitchen	95	200	Pass
05EF27	Bedroom	100	100	Pass
05EF28	Bedroom	100	100	Pass
05EF29c	Living/Kitchen	97	200	Pass
05EF30	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

EF-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
05EF31	Bedroom	100	100	Pass
05EF32c	Living/Kitchen	58	200	Pass
05EF33c	Living/Kitchen	92	200	Pass
05EF34	Bedroom	100	100	Pass
05EF35c	Living/Kitchen	84	200	Pass
05EF36	Bedroom	100	100	Pass
05EF37	Bedroom	100	100	Pass
05EF38c	Living/Kitchen	86	200	Pass
05EF39	Bedroom	100	100	Pass
05EF40	Bedroom	100	100	Pass
05EF41c	Living/Kitchen	100	200	Pass
05EF42	Bedroom	100	100	Pass
06EF01	Bedroom	100	100	Pass
06EF02c	Living/Kitchen	100	200	Pass
06EF03	Bedroom	100	100	Pass
06EF04c	Living/Kitchen	69	200	Pass
06EF05	Bedroom	100	100	Pass
06EF06c	Living/Kitchen	50	200	Pass
06EF07	Bedroom	100	100	Pass
06EF08	Bedroom	100	100	Pass
06EF09c	Living/Kitchen	97	200	Pass
06EF10	Bedroom	100	100	Pass
06EF11	Bedroom	100	100	Pass
06EF12	Bedroom	100	100	Pass
06EF13	Bedroom	100	100	Pass
06EF14	Bedroom	95	100	Pass
06EF15c	Living/Kitchen	72	200	Pass
06EF16	Bedroom	100	100	Pass
06EF17	Bedroom	100	100	Pass
06EF18c	Living/Kitchen	89	200	Pass
06EF19	Bedroom	97	100	Pass
06EF20	Bedroom	82	100	Pass
06EF21	Bedroom	100	100	Pass
06EF22c	Living/Kitchen	100	200	Pass
06EF23c	Living/Kitchen	86	200	Pass
06EF24	Bedroom	100	100	Pass
06EF25	Bedroom	100	100	Pass
06EF26c	Living/Kitchen	98	200	Pass
06EF27	Bedroom	100	100	Pass
06EF28	Bedroom	100	100	Pass
06EF29c	Living/Kitchen	100	200	Pass
06EF30	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

EF-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
06EF31	Bedroom	100	100	Pass
06EF32c	Living/Kitchen	60	200	Pass
06EF33c	Living/Kitchen	98	200	Pass
06EF34	Bedroom	100	100	Pass
06EF35c	Living/Kitchen	95	200	Pass
06EF36	Bedroom	100	100	Pass
06EF37	Bedroom	100	100	Pass
06EF38c	Living/Kitchen	85	200	Pass
06EF39	Bedroom	100	100	Pass
06EF40	Bedroom	100	100	Pass
06EF41c	Living/Kitchen	100	200	Pass
06EF42	Bedroom	100	100	Pass
07EF13	Bedroom	100	100	Pass
07EF14	Bedroom	100	100	Pass
07EF15c	Living/Kitchen	66	200	Pass
07EF16	Bedroom	100	100	Pass
07EF17	Bedroom	100	100	Pass
07EF18c	Living/Kitchen	89	200	Pass
07EF19	Bedroom	94	100	Pass
07EF20	Bedroom	56	100	Pass
07EF21	Bedroom	100	100	Pass
07EF22c	Living/Kitchen	100	200	Pass
07EF23c	Living/Kitchen	84	200	Pass
07EF24	Bedroom	100	100	Pass
07EF25	Bedroom	100	100	Pass
07EF26c	Living/Kitchen	93	200	Pass
07EF27	Bedroom	100	100	Pass
07EF28	Bedroom	82	100	Pass
07EF29c	Living/Kitchen	91	200	Pass
07EF30	Bedroom	100	100	Pass
07EF31	Bedroom	100	100	Pass
07EF32c	Living/Kitchen	93	200	Pass

Summary EF: 93% compliant or 96% if we include marginal results.

NA.2 Minimum daylight provision

For all habitable rooms

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

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

G-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00G01	Bedroom	100	100	Pass
00G02c	Living/Kitchen	78	200	Pass
00G03	Bedroom	53	100	Pass
00G04c	Living/Kitchen	48	200	Marginal
00G05	Bedroom	100	100	Pass
00G06c	Living/Kitchen	99	200	Pass
00G07	Bedroom	100	100	Pass
00G10	Bedroom	100	100	Pass
00G11c	Living/Kitchen	100	200	Pass
00G12	Bedroom	100	100	Pass
01G01	Bedroom	100	100	Pass
01G02c	Living/Kitchen	88	200	Pass
01G03	Bedroom	68	100	Pass
01G04c	Living/Kitchen	51	200	Pass
01G05	Bedroom	98	100	Pass
01G06c	Living/Kitchen	95	200	Pass
01G07	Bedroom	100	100	Pass
01G08c	Living/Kitchen	100	200	Pass
01G09	Bedroom	100	100	Pass
01G10	Bedroom	100	100	Pass
01G11c	Living/Kitchen	99	200	Pass
01G12	Bedroom	100	100	Pass
02G01	Bedroom	100	100	Pass
02G02c	Living/Kitchen	97	200	Pass
02G03	Bedroom	71	100	Pass
02G04c	Living/Kitchen	53	200	Pass
02G05	Bedroom	80	100	Pass
02G06c	Living/Kitchen	100	200	Pass
02G07	Bedroom	100	100	Pass
02G08c	Living/Kitchen	100	200	Pass
02G09	Bedroom	100	100	Pass
02G10	Bedroom	100	100	Pass
02G11c	Living/Kitchen	100	200	Pass
02G12	Bedroom	100	100	Pass
03G01	Bedroom	100	100	Pass
03G02c	Living/Kitchen	97	200	Pass
03G03	Bedroom	87	100	Pass
03G04c	Living/Kitchen	63	200	Pass
03G05	Bedroom	100	100	Pass
03G06c	Living/Kitchen	100	200	Pass
03G07	Bedroom	100	100	Pass
03G08c	Living/Kitchen	100	200	Pass
03G09	Bedroom	100	100	Pass
03G10	Bedroom	100	100	Pass
03G11c	Living/Kitchen	100	200	Pass
03G12	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

G-v1 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
04G01	Bedroom	100	100	Pass
04G02c	Living/Kitchen	100	200	Pass
04G03	Bedroom	100	100	Pass
04G04c	Living/Kitchen	70	200	Pass
04G05	Bedroom	100	100	Pass
04G06c	Living/Kitchen	100	200	Pass
04G07	Bedroom	100	100	Pass
04G08c	Living/Kitchen	100	200	Pass
04G09	Bedroom	100	100	Pass
04G10	Bedroom	100	100	Pass
04G11c	Living/Kitchen	100	200	Pass
04G12	Bedroom	100	100	Pass
05G01	Bedroom	100	100	Pass
05G02c	Living/Kitchen	100	200	Pass
05G03	Bedroom	100	100	Pass
05G04c	Living/Kitchen	94	200	Pass
05G05	Bedroom	100	100	Pass
05G06c	Living/Kitchen	100	200	Pass
05G07	Bedroom	100	100	Pass
05G08c	Living/Kitchen	100	200	Pass
05G09	Bedroom	100	100	Pass
05G10	Bedroom	100	100	Pass
05G11c	Living/Kitchen	100	200	Pass
05G12	Bedroom	100	100	Pass
06G01	Bedroom	100	100	Pass
06G02c	Living/Kitchen	100	200	Pass
06G03	Bedroom	100	100	Pass
06G04c	Living/Kitchen	97	200	Pass
06G05	Bedroom	100	100	Pass
06G06c	Living/Kitchen	100	200	Pass
06G07	Bedroom	100	100	Pass
06G08c	Living/Kitchen	100	200	Pass
06G09	Bedroom	100	100	Pass
06G10	Bedroom	100	100	Pass
06G11c	Living/Kitchen	100	200	Pass
06G12	Bedroom	100	100	Pass

Summary G: 99% compliant or 100% if we include marginal results.

Summary

The majority of rooms fully comply with requirements. Of the few that don't most are very marginal on the 50% requirement.

There are compensatory factors outlined in the Architects Commentary relating to the design and specifics.

	Annex NA E_T % Pass	
	BRE v3	Incl Marginal
	Pass %	Pass %
AB	95%	98%
CD	93%	98%
EF	93%	96%
G	99%	100%
Total	**94%**	**97%**

94% of rooms comply with the BS/EN 17037 Annex NA room targets for 50% of the floor area tested.
(97% if we include marginal results)

The average compliant areas achieving the relevant target Lx for all bedrooms is 95% and all Living/Kitchen spaces 80% both are well in excess of the required 50%

Development Performance - Sunlight to rooms (living spaces)

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

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

Check Clauses

> *3.1.15 In general a dwelling, or non-domestic building that has a particular requirement for sunlight, will appear reasonably sunlit provided:*
> *- at least one main window wall faces within 90° of due south and*
> *- a habitable room, preferably a main living room, can receive a total of at least 1.5 hours of sunlight on 21 March. This is assessed at the inside centre of the window(s); sunlight received by different windows can be added provided they occur at different times and sunlight hours are not double counted.*

> *3.1.16 Where groups of dwellings are planned, site layout design should aim to maximise the number of dwellings with a main living room that meets the above recommendations*

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

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

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

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

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

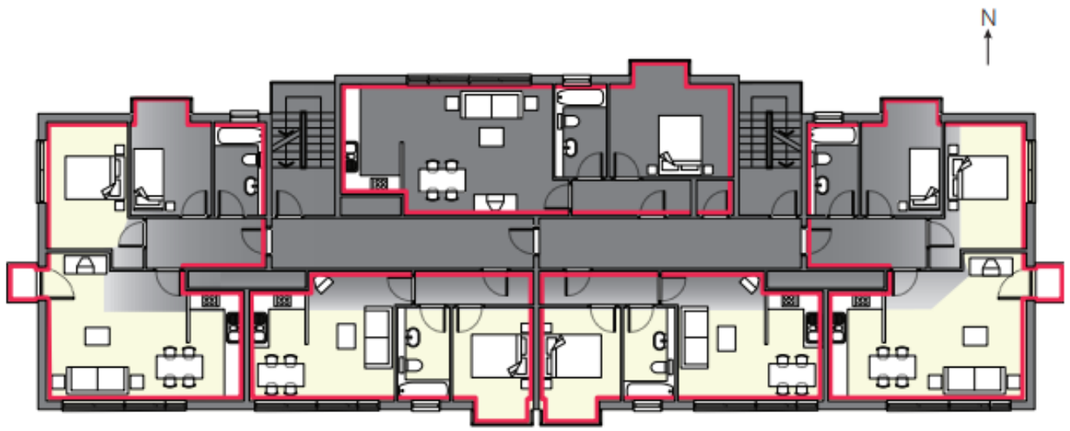


Figure 26: Careful layout design means that four out of the five flats shown have a south-facing living room

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

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

Sunlight to living rooms

Receives 1.5 hours of sunlight on 21st March

AB

Block	Floor	Window/Room	Ref	Hrs of Sun	Pass		Quality	
AB	F0	R19	00.AB.19	2.3	Pass	*Min*		
AB	F0	R21	00.AB.21	2.0	Pass	*Min*		
AB	F0	R24	00.AB.24	1.3	Marginal			
AB	F0	R28	00.AB.28	1.0	Fail			
AB	F1	R02	01.AB.02	7.0	Pass			*High*
AB	F1	R05	01.AB.05	3.8	Pass		*Medium*	
AB	F1	R07	01.AB.07	5.7	Pass			*High*
AB	F1	R09	01.AB.09	2.5	Pass	*Min*		
AB	F1	R11	01.AB.11	4.8	Pass			*High*
AB	F1	R12	01.AB.12	3.5	Pass		*Medium*	
AB	F1	R15	01.AB.15	2.8	Pass	*Min*		
AB	F1	R17	01.AB.17	2.0	Pass	*Min*		
AB	F1	R20	01.AB.20	2.0	Pass	*Min*		
AB	F1	R28	01.AB.28	0.2	Fail			
AB	F1	R31	01.AB.31	4.2	Pass			*High*
AB	F2	R02	02.AB.02	10.5	Pass			*High*
AB	F2	R05	02.AB.05	3.8	Pass		*Medium*	
AB	F2	R07	02.AB.07	5.7	Pass			*High*
AB	F2	R09	02.AB.09	3.2	Pass		*Medium*	
AB	F2	R11	02.AB.11	4.8	Pass			*High*
AB	F2	R12	02.AB.12	4.7	Pass			*High*
AB	F2	R15	02.AB.15	2.7	Pass	*Min*		
AB	F2	R17	02.AB.17	2.3	Pass	*Min*		
AB	F2	R20	02.AB.20	2.5	Pass	*Min*		
AB	F2	R28	02.AB.28	0.5	Fail			
AB	F2	R31	02.AB.31	7.3	Pass			*High*
AB	F3	R02	03.AB.02	10.8	Pass			*High*
AB	F3	R05	03.AB.05	3.8	Pass		*Medium*	
AB	F3	R07	03.AB.07	5.7	Pass			*High*
AB	F3	R09	03.AB.09	2.5	Pass	*Min*		
AB	F3	R11	03.AB.11	4.8	Pass			*High*
AB	F3	R12	03.AB.12	3.5	Pass		*Medium*	
AB	F3	R15	03.AB.15	2.8	Pass	*Min*		
AB	F3	R17	03.AB.17	2.7	Pass	*Min*		
AB	F3	R20	03.AB.20	2.8	Pass	*Min*		
AB	F3	R28	03.AB.28	1.0	Fail			
AB	F3	R31	03.AB.31	7.7	Pass			*High*
AB	F4	R02	04.AB.02	11.0	Pass			*High*
AB	F4	R05	04.AB.05	3.8	Pass		*Medium*	
AB	F4	R07	04.AB.07	5.7	Pass			*High*
AB	F4	R09	04.AB.09	3.2	Pass		*Medium*	
AB	F4	R11	04.AB.11	4.8	Pass			*High*
AB	F4	R12	04.AB.12	4.7	Pass			*High*
AB	F4	R15	04.AB.15	2.7	Pass	*Min*		
AB	F4	R17	04.AB.17	2.8	Pass	*Min*		
AB	F4	R20	04.AB.20	3.5	Pass		*Medium*	
AB	F4	R28	04.AB.28	1.7	Pass	*Min*		
AB	F4	R31	04.AB.31	7.7	Pass			*High*

Sunlight to living rooms

Receives 1.5 hours of sunlight on 21st March

AB

Block	Floor	Window/Room	Ref	Hrs of Sun	Pass		Quality	
AB	F5	R02	05.AB.02	11.0	Pass			*High*
AB	F5	R05	05.AB.05	3.8	Pass		*Medium*	
AB	F5	R07	05.AB.07	5.7	Pass			*High*
AB	F5	R09	05.AB.09	2.5	Pass	*Min*		
AB	F5	R11	05.AB.11	4.8	Pass			*High*
AB	F5	R12	05.AB.12	3.5	Pass		*Medium*	
AB	F5	R15	05.AB.15	2.8	Pass	*Min*		
AB	F5	R17	05.AB.17	3.5	Pass		*Medium*	
AB	F5	R20	05.AB.20	4.2	Pass			*High*
AB	F5	R28	05.AB.28	2.2	Pass	*Min*		
AB	F5	R31	05.AB.31	7.8	Pass			*High*
AB	F6	R02	06.AB.02	11.0	Pass			*High*
AB	F6	R05	06.AB.05	3.3	Pass		*Medium*	
AB	F6	R07	06.AB.07	3.0	Pass		*Medium*	
AB	F6	R09	06.AB.09	4.8	Pass			*High*
AB	F6	R11	06.AB.11	4.8	Pass			*High*
AB	F6	R12	06.AB.12	4.7	Pass			*High*
AB	F6	R15	06.AB.15	2.7	Pass	*Min*		
AB	F6	R17	06.AB.17	4.3	Pass			*High*
AB	F6	R20	06.AB.20	5.2	Pass			*High*
AB	F6	R28	06.AB.28	3.0	Pass		*Medium*	
AB	F6	R31	06.AB.31	3.0	Pass		*Medium*	
AB	F7	R31	07.AB.31	9.7	Pass			*High*
AB	F7	R61	07.AB.61	2.8	Pass	*Min*		
AB	F7	R62	07.AB.62	5.0	Pass			*High*
AB	F7	R63	07.AB.63	5.3	Pass			*High*
AB	F8	R64	08.AB.64	9.7	Pass			*High*
AB	F8	R65	08.AB.65	2.7	Pass	*Min*		
AB	F8	R66	08.AB.66	5.8	Pass			*High*
AB	F8	R67	08.AB.67	5.8	Pass			*High*
AB	F9	R68	09.AB.68	9.7	Pass			*High*
AB	F9	R69	09.AB.69	2.8	Pass	*Min*		
AB	F9	R70	09.AB.70	5.8	Pass			*High*
AB	F9	R71	09.AB.71	5.8	Pass			*High*
AB	F10	R72	10.AB.72	9.7	Pass			*High*
AB	F10	R73	10.AB.73	2.8	Pass	*Min*		
AB	F10	R74	10.AB.74	5.8	Pass			*High*
AB	F10	R75	10.AB.75	5.8	Pass			*High*
AB	F11	R76	11.AB.76	9.7	Pass			*High*
AB	F11	R77	11.AB.77	2.7	Pass	*Min*		
AB	F11	R78	11.AB.78	5.8	Pass			*High*
AB	F11	R79	11.AB.79	5.8	Pass			*High*

Summary G: 94% compliant or 96% if we include marginal results.

Sunlight to living rooms

Receives 1.5 hours of sunlight on 21st March

CD

Block	Floor	Window/Room	Ref	Hrs of Sun	Pass		Quality	
CD	F0	R02	00.CD.02	5.0	Pass			High
CD	F0	R04	00.CD.04	1.7	Pass	Min		
CD	F0	R09	00.CD.09	1.5	Pass	Min		
CD	F0	R11	00.CD.11	0.3	Fail			
CD	F0	R14	00.CD.14	1.3	Marginal			
CD	F0	R16	00.CD.16	1.2	Marginal			
CD	F0	R34	00.CD.34	2.5	Pass	Min		
CD	F0	R37	00.CD.37	1.0	Fail			
CD	F1	R02	01.CD.02	6.0	Pass			High
CD	F1	R04	01.CD.04	1.5	Pass	Min		
CD	F1	R06	01.CD.06	0.5	Fail			
CD	F1	R09	01.CD.09	2.0	Pass	Min		
CD	F1	R11	01.CD.11	0.3	Fail			
CD	F1	R14	01.CD.14	0.0	Fail			
CD	F1	R16	01.CD.16	0.5	Fail			
CD	F1	R19	01.CD.19	1.0	Fail			
CD	F1	R20	01.CD.20	1.3	Marginal			
CD	F1	R24	01.CD.24	2.5	Pass	Min		
CD	F1	R27	01.CD.27	2.7	Pass	Min		
CD	F1	R30	01.CD.30	2.0	Pass	Min		
CD	F1	R34	01.CD.34	1.5	Pass	Min		
CD	F1	R37	01.CD.37	3.0	Pass		Medium	
CD	F2	R02	02.CD.02	10.3	Pass			High
CD	F2	R04	02.CD.04	1.5	Pass	Min		
CD	F2	R06	02.CD.06	0.8	Fail			
CD	F2	R09	02.CD.09	2.5	Pass	Min		
CD	F2	R11	02.CD.11	0.7	Fail			
CD	F2	R14	02.CD.14	0.2	Fail			
CD	F2	R16	02.CD.16	0.0	Fail			
CD	F2	R19	02.CD.19	1.0	Fail			
CD	F2	R20	02.CD.20	1.5	Pass	Min		
CD	F2	R24	02.CD.24	2.7	Pass	Min		
CD	F2	R27	02.CD.27	3.2	Pass		Medium	
CD	F2	R30	02.CD.30	2.3	Pass	Min		
CD	F2	R34	02.CD.34	2.3	Pass	Min		
CD	F2	R37	02.CD.37	2.8	Pass	Min		
CD	F3	R02	03.CD.02	10.5	Pass			High
CD	F3	R04	03.CD.04	1.5	Pass	Min		
CD	F3	R06	03.CD.06	1.3	Marginal			
CD	F3	R09	03.CD.09	3.0	Pass		Medium	
CD	F3	R11	03.CD.11	1.0	Fail			
CD	F3	R14	03.CD.14	0.7	Fail			
CD	F3	R16	03.CD.16	0.7	Fail			
CD	F3	R19	03.CD.19	1.0	Fail			
CD	F3	R20	03.CD.20	1.8	Pass	Min		
CD	F3	R24	03.CD.24	3.0	Pass		Medium	
CD	F3	R27	03.CD.27	3.7	Pass		Medium	
CD	F3	R30	03.CD.30	2.8	Pass	Min		
CD	F3	R34	03.CD.34	3.0	Pass		Medium	
CD	F3	R37	03.CD.37	7.3	Pass			High

Sunlight to living rooms

Receives 1.5 hours of sunlight on 21st March

CD

Block	Floor	Window/Room	Ref	Hrs of Sun	Pass		Quality	
CD	F4	R02	04.CD.02	10.8	Pass			High
CD	F4	R04	04.CD.04	1.8	Pass	Min		
CD	F4	R06	04.CD.06	1.8	Pass	Min		
CD	F4	R09	04.CD.09	3.5	Pass		Medium	
CD	F4	R11	04.CD.11	1.7	Pass	Min		
CD	F4	R14	04.CD.14	1.0	Fail			
CD	F4	R16	04.CD.16	0.0	Fail			
CD	F4	R19	04.CD.19	1.0	Fail			
CD	F4	R20	04.CD.20	2.2	Pass	Min		
CD	F4	R24	04.CD.24	3.5	Pass		Medium	
CD	F4	R27	04.CD.27	4.2	Pass			High
CD	F4	R30	04.CD.30	3.3	Pass		Medium	
CD	F4	R34	04.CD.34	3.5	Pass		Medium	
CD	F4	R37	04.CD.37	3.3	Pass		Medium	
CD	F5	R02	05.CD.02	10.8	Pass			High
CD	F5	R04	05.CD.04	2.7	Pass	Min		
CD	F5	R06	05.CD.06	2.7	Pass	Min		
CD	F5	R09	05.CD.09	4.2	Pass			High
CD	F5	R11	05.CD.11	2.3	Pass	Min		
CD	F5	R14	05.CD.14	1.0	Fail			
CD	F5	R16	05.CD.16	0.7	Fail			
CD	F5	R19	05.CD.19	1.3	Marginal			
CD	F5	R20	05.CD.20	2.5	Pass	Min		
CD	F5	R24	05.CD.24	3.7	Pass		Medium	
CD	F5	R27	05.CD.27	4.8	Pass			High
CD	F5	R30	05.CD.30	3.7	Pass		Medium	
CD	F5	R34	05.CD.34	3.2	Pass		Medium	
CD	F5	R37	05.CD.37	7.3	Pass			High
CD	F6	R02	06.CD.02	10.8	Pass			High
CD	F6	R04	06.CD.04	2.8	Pass	Min		
CD	F6	R06	06.CD.06	2.7	Pass	Min		
CD	F6	R09	06.CD.09	5.0	Pass			High
CD	F6	R11	06.CD.11	4.3	Pass			High
CD	F6	R14	06.CD.14	1.0	Fail			
CD	F6	R16	06.CD.16	0.0	Fail			
CD	F6	R19	06.CD.19	1.3	Marginal			
CD	F6	R20	06.CD.20	3.2	Pass		Medium	
CD	F6	R24	06.CD.24	4.3	Pass			High
CD	F6	R27	06.CD.27	5.7	Pass			High
CD	F6	R30	06.CD.30	4.7	Pass			High
CD	F6	R34	06.CD.34	4.7	Pass			High
CD	F6	R37	06.CD.37	2.7	Pass	Min		
CD	F7	R14	07.CD.14	1.0	Fail			
CD	F7	R16	07.CD.16	0.3	Fail			
CD	F7	R19	07.CD.19	1.2	Marginal			
CD	F7	R20	07.CD.20	4.0	Pass			High
CD	F7	R24	07.CD.24	5.2	Pass			High
CD	F7	R27	07.CD.27	10.0	Pass			High

Summary CD: 67% compliant or 74% if we include marginal results.

Sunlight to living rooms

Receives 1.5 hours of sunlight on 21st March

EF

Block	Floor	Window/Room	Ref	Hrs of Sun	Pass		Quality	
EF	F0	R02	00.EF.02	4.8	Pass			High
EF	F0	R04	00.EF.04	2.5	Pass	Min		
EF	F0	R06	00.EF.06	1.3	Marginal			
EF	F0	R38	00.EF.38	0.8	Fail			
EF	F0	R41	00.EF.41	2.8	Pass	Min		
EF	F1	R02	01.EF.02	5.7	Pass			High
EF	F1	R04	01.EF.04	3.0	Pass		Medium	
EF	F1	R06	01.EF.06	0.8	Fail			
EF	F1	R09	01.EF.09	0.8	Fail			
EF	F1	R15	01.EF.15	1.7	Pass	Min		
EF	F1	R18	01.EF.18	2.5	Pass	Min		
EF	F1	R22	01.EF.22	1.3	Marginal			
EF	F1	R23	01.EF.23	3.0	Pass		Medium	
EF	F1	R26	01.EF.26	1.8	Pass	Min		
EF	F1	R29	01.EF.29	4.3	Pass			High
EF	F1	R32	01.EF.32	3.5	Pass		Medium	
EF	F1	R33	01.EF.33	2.0	Pass	Min		
EF	F1	R35	01.EF.35	2.7	Pass	Min		
EF	F1	R38	01.EF.38	1.8	Pass	Min		
EF	F1	R41	01.EF.41	1.3	Marginal			
EF	F2	R02	02.EF.02	9.7	Pass			High
EF	F2	R04	02.EF.04	3.0	Pass		Medium	
EF	F2	R06	02.EF.06	1.2	Marginal			
EF	F2	R09	02.EF.09	2.3	Pass	Min		
EF	F2	R15	02.EF.15	2.3	Pass	Min		
EF	F2	R18	02.EF.18	2.8	Pass	Min		
EF	F2	R22	02.EF.22	1.7	Pass	Min		
EF	F2	R23	02.EF.23	2.8	Pass	Min		
EF	F2	R26	02.EF.26	2.3	Pass	Min		
EF	F2	R29	02.EF.29	5.0	Pass			High
EF	F2	R32	02.EF.32	3.2	Pass		Medium	
EF	F2	R33	02.EF.33	2.3	Pass	Min		
EF	F2	R35	02.EF.35	3.0	Pass		Medium	
EF	F2	R38	02.EF.38	1.5	Pass	Min		
EF	F2	R41	02.EF.41	5.3	Pass			High
EF	F3	R02	03.EF.02	10.0	Pass			High
EF	F3	R04	03.EF.04	3.0	Pass		Medium	
EF	F3	R06	03.EF.06	0.8	Fail			
EF	F3	R09	03.EF.09	2.7	Pass	Min		
EF	F3	R15	03.EF.15	2.7	Pass	Min		
EF	F3	R18	03.EF.18	3.0	Pass		Medium	
EF	F3	R22	03.EF.22	2.0	Pass	Min		
EF	F3	R23	03.EF.23	3.8	Pass		Medium	
EF	F3	R26	03.EF.26	2.7	Pass	Min		
EF	F3	R29	03.EF.29	5.2	Pass			High
EF	F3	R32	03.EF.32	4.3	Pass			High
EF	F3	R33	03.EF.33	2.8	Pass	Min		
EF	F3	R35	03.EF.35	3.3	Pass		Medium	
EF	F3	R38	03.EF.38	2.2	Pass	Min		
EF	F3	R41	03.EF.41	4.7	Pass			High

Sunlight to living rooms

Receives 1.5 hours of sunlight on 21st March

EF

Block	Floor	Window/Room	Ref	Hrs of Sun	Pass		Quality	
EF	F4	R02	04.EF.02	10.8	Pass			High
EF	F4	R04	04.EF.04	3.5	Pass		Medium	
EF	F4	R06	04.EF.06	2.2	Pass	Min		
EF	F4	R09	04.EF.09	3.2	Pass		Medium	
EF	F4	R15	04.EF.15	3.3	Pass		Medium	
EF	F4	R18	04.EF.18	3.5	Pass		Medium	
EF	F4	R22	04.EF.22	2.2	Pass	Min		
EF	F4	R23	04.EF.23	3.3	Pass		Medium	
EF	F4	R26	04.EF.26	2.8	Pass	Min		
EF	F4	R29	04.EF.29	5.3	Pass			High
EF	F4	R32	04.EF.32	4.8	Pass			High
EF	F4	R33	04.EF.33	2.3	Pass	Min		
EF	F4	R35	04.EF.35	3.8	Pass		Medium	
EF	F4	R38	04.EF.38	2.8	Pass	Min		
EF	F4	R41	04.EF.41	6.8	Pass			High
EF	F5	R02	05.EF.02	10.8	Pass			High
EF	F5	R04	05.EF.04	4.0	Pass			High
EF	F5	R06	05.EF.06	2.8	Pass	Min		
EF	F5	R09	05.EF.09	2.3	Pass	Min		
EF	F5	R15	05.EF.15	3.3	Pass		Medium	
EF	F5	R18	05.EF.18	4.2	Pass			High
EF	F5	R22	05.EF.22	2.2	Pass	Min		
EF	F5	R23	05.EF.23	4.0	Pass			High
EF	F5	R26	05.EF.26	2.8	Pass	Min		
EF	F5	R29	05.EF.29	5.3	Pass			High
EF	F5	R32	05.EF.32	4.8	Pass			High
EF	F5	R33	05.EF.33	4.0	Pass			High
EF	F5	R35	05.EF.35	4.7	Pass			High
EF	F5	R38	05.EF.38	3.7	Pass		Medium	
EF	F5	R41	05.EF.41	4.7	Pass			High
EF	F6	R02	06.EF.02	10.8	Pass			High
EF	F6	R04	06.EF.04	4.7	Pass			High
EF	F6	R06	06.EF.06	2.8	Pass	Min		
EF	F6	R09	06.EF.09	4.3	Pass			High
EF	F6	R15	06.EF.15	3.7	Pass		Medium	
EF	F6	R18	06.EF.18	5.0	Pass			High
EF	F6	R22	06.EF.22	2.2	Pass	Min		
EF	F6	R23	06.EF.23	3.5	Pass		Medium	
EF	F6	R26	06.EF.26	2.8	Pass	Min		
EF	F6	R29	06.EF.29	5.3	Pass			High
EF	F6	R32	06.EF.32	4.8	Pass			High
EF	F6	R33	06.EF.33	4.3	Pass			High
EF	F6	R35	06.EF.35	5.3	Pass			High
EF	F6	R38	06.EF.38	4.3	Pass			High
EF	F6	R41	06.EF.41	2.7	Pass	Min		
EF	F7	R15	07.EF.15	4.5	Pass			High
EF	F7	R18	07.EF.18	5.5	Pass			High
EF	F7	R22	07.EF.22	2.2	Pass	Min		
EF	F7	R23	07.EF.23	3.8	Pass		Medium	
EF	F7	R26	07.EF.26	2.5	Pass	Min		
EF	F7	R29	07.EF.29	5.2	Pass			High
EF	F7	R32	07.EF.32	10.3	Pass			High

Summary EF: 92% compliant or 96% if we include marginal results.

Sunlight to living rooms

Receives 1.5 hours of sunlight on 21st March

G

Block	Floor	Window/Room	Ref	Hrs of Sun	Pass			Quality	
G	F0	R02	00.G.02	5.3	Pass				High
G	F0	R04	00.G.04	5.3	Pass				High
G	F0	R06	00.G.06	3.2	Pass			Medium	
G	F0	R11	00.G.11	7.0	Pass				High
G	F1	R02	01.G.02	4.2	Pass				High
G	F1	R04	01.G.04	4.2	Pass				High
G	F1	R06	01.G.06	4.0	Pass				High
G	F1	R08	01.G.08	7.5	Pass				High
G	F1	R11	01.G.11	4.2	Pass				High
G	F2	R02	02.G.02	4.2	Pass				High
G	F2	R04	02.G.04	4.0	Pass				High
G	F2	R06	02.G.06	7.5	Pass				High
G	F2	R08	02.G.08	9.2	Pass				High
G	F2	R11	02.G.11	7.7	Pass				High
G	F3	R02	03.G.02	4.0	Pass				High
G	F3	R04	03.G.04	4.0	Pass				High
G	F3	R06	03.G.06	4.0	Pass				High
G	F3	R08	03.G.08	4.0	Pass				High
G	F3	R11	03.G.11	4.0	Pass				High
G	F4	R02	04.G.02	4.0	Pass				High
G	F4	R04	04.G.04	4.0	Pass				High
G	F4	R06	04.G.06	4.0	Pass				High
G	F4	R08	04.G.08	4.0	Pass				High
G	F4	R11	04.G.11	4.0	Pass				High
G	F5	R02	05.G.02	4.0	Pass				High
G	F5	R04	05.G.04	4.0	Pass				High
G	F5	R06	05.G.06	4.0	Pass				High
G	F5	R08	05.G.08	4.0	Pass				High
G	F5	R11	05.G.11	4.0	Pass				High
G	F6	R02	06.G.02	4.0	Pass				High
G	F6	R04	06.G.04	4.0	Pass				High
G	F6	R06	06.G.06	4.0	Pass				High
G	F6	R08	06.G.08	4.0	Pass				High
G	F6	R11	06.G.11	4.0	Pass				High

Summary G: 100% compliant or 100% if we include marginal results.

This is consistent with the guidelines example of “careful layout” design 80%, especially given that this is a urban infill development.

Please refer to the Architects comments for compensatory factors.

Overall Pass rates all blocks sunlight.

	Sunlight	
	Pass	Marginal
AB	94%	96%
CD	67%	74%
EF	92%	96%
G	100%	100%
Total	**86%**	**90%**

Summary

Sunlight to living rooms:

86% of all Living rooms (90% if we include marginals) receive 1.5hrs of sunlight on the test day of the 21st March

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

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

Tests for the availability of sunlight in amenity areas.

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

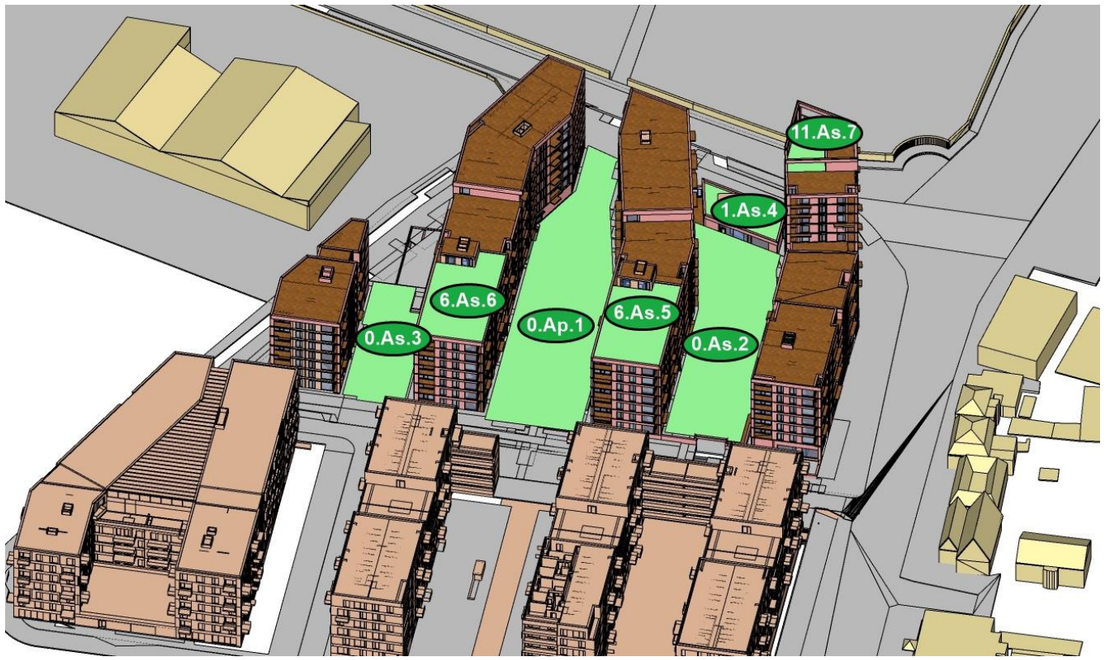
The amenities of the following Building Groups were tested.

- Shared / communal & Public Amenity spaces at ground and roof levels are tested.
- There is no requirement in the BRE guidelines to test Private balconies.

BRE 2-hour Shadow Plots

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

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



Zones references

Proposed

The results are tabulated below:

		Shadow / Sunlight Amenity			
		>50% receives 2 hours of sunlight on 21st March)			
Type	Floor	Ref	Ref	% 2hr Sunlight	Check
Public	F0	Ap.1	0.Ap.1	98%	Pass
Shared/communal	F0	As.2	0.As.2	95%	Pass
Shared/communal	F0	As.3	0.As.3	76%	Pass
Shared/communal	F1	As.4	1.As.4	66%	Pass
Shared/communal	F6	As.5	6.As.5	99%	Pass
Shared/communal	F7	As.6	7.As.6	99%	Pass
Shared/communal	F11	As.7	11.As.7	87%	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

100% of the new provided communal and public amenity spaces pass the BRE requirement.
There is considerable overprovision of amenity space.

The tested spaces comply with the requirements of the BRE guidelines in relation to shadow.

Details of Architect's Compensatory Measures / Justification

The design is constrained as an extension of the Phase 1 regeneration development, by the site shape and orientation. The scheme has a number of competing design constraints and objectives it is specifically covered by clause 6.7 of the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities – amended July 2023:

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

6.7 Where an applicant cannot fully meet all of the requirements of the daylight provisions above, this must be clearly identified and a rationale for any alternative, compensatory design solutions must be set out, which planning authorities should apply their discretion in accepting taking account of its assessment of specific. This may arise due to a design constraints associated with the site or location and the balancing of that assessment against the desirability of achieving wider planning objectives. Such objectives might include 30 securing comprehensive urban regeneration and or an effective urban design and streetscape solution.

We accept that a small number of rooms may not meet the BRE recommendations for daylight/ sunlight in certain locations at the lower levels of the development, however, a high level of residential amenity will be delivered for all the residents of this scheme, such as:

a) In this urban infill site, a strong emphasis was placed on catering for high-quality sun lit areas such as the public and communal spaces, as well as private amenity spaces, which ensures that sunlit spaces will be accessible to all residents within the development and not just those with more favourably orientated apartments. A wide variety of communal amenity areas are also provided for within the scheme at the Ground, First, Seventh and twelfth floors. Furthermore, there is an overprovision of communal amenity space, of over 900sq.m, which can be likened to a compensatory measure for certain apartments receiving below the BRE recommendations. All amenity spaces surpass the sun-lighting requirement by substantial margins.

b) The design of the private balconies has been influenced by the necessity to provide shelter and protection from the wind in addition to any sunlighting requirement. In this regard, all balconies are fully or partially recessed into the block, and we recognize that these recessed balconies will naturally reduce sunlight exposure, but they will ultimately contribute to a more user-friendly and comfortable private amenity space for residents. It should also be noted, however, that a high proportion of balconies are substantially larger than the required areas for private open space, thus affording increased residential amenity for future residents of the development.

c) 94% (or 97% including marginals) of the apartments receive above the required levels of daylighting and the analysis shows that all tested amenity spaces and living rooms also receive sunlight. There are no single north-facing single-aspect apartments within the entire scheme of 321 no. dwellings.

d) In order to improve sun lighting to ground floor units, the floor to ceiling height has been set at a generous 3m height and ground floor windows will be 2.7m high, which is substantially higher than the 2.1m standard height.

Future occupants will enjoy great levels of both daylight and sunlight within the proposed units and while having access to a number of amenity areas that are capable of receiving excellent levels of sunlight. The site is also directly opposite Santry Demesne Park which has large areas of open space and additional amenities. The results find that any impact on the sunlight received by individual apartments would be minimal in the overall context of the urban setting of the proposed development. There is a sufficient good quality of daylight in the apartments analysed and the amenity areas all have sufficient sunlight to be bright and pleasant spaces.

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.

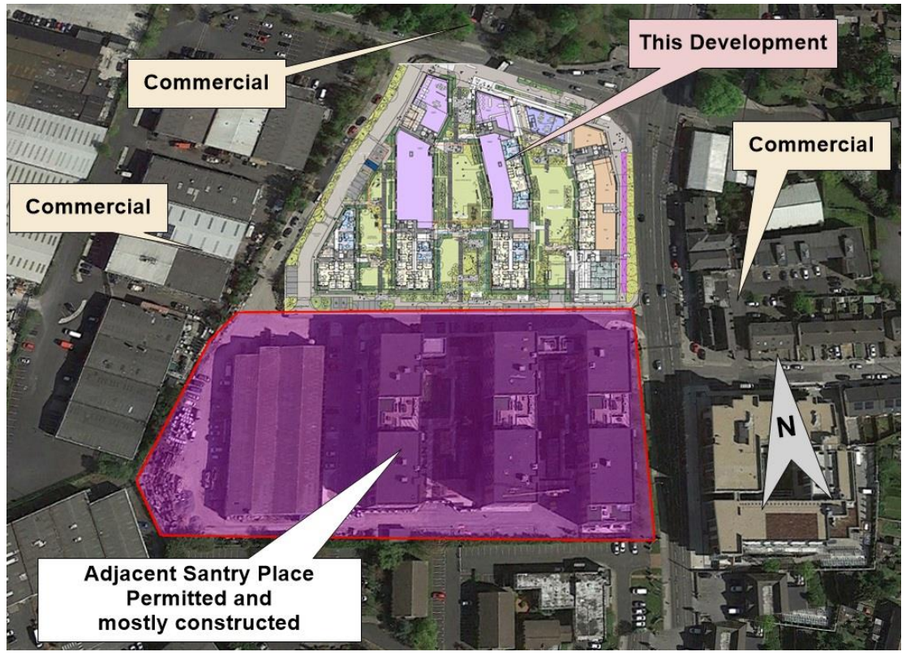
Performance of the proposed design

- **Target Illuminance E_T**
  - **94%** of rooms comply with the BS/EN 17037 Annex NA room targets for 50% of the floor area tested.
  - If we include marginal results this increases to **97%**
  - The average compliant areas achieving the relevant target Lx for
    - all bedrooms is **95%** and
    - all Living/Kitchen spaces **80%**
    - both are well in excess of the required 50%
- **Sunlight to rooms:**
  - **86%** of Living rooms receive 1.5hrs of sunlight on the test day of the 21st March
  - If we include marginal results this increases to **90%**
  - This is consistent with the BRE defined "careful layout design" 80% target.
- **Sunlight on the Ground SOG (Shadow)**
  - **100%** of the new provided communal and public amenity spaces pass the BRE requirement.
  - There is considerable overprovision of amenity space.
  - The tested spaces comply with the requirements of the BRE guidelines in relation to shadow.

The application generally complies with the recommendations and guidelines of Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice BR209 (Version 3, 2022) when considered in terms of this infill and regeneration project in an un-developed lot.

Impact on Neighbours

The proposed development generally sits amid commercial and retail buildings.



- **North:** To the North is a single storey commercial building in the heavily forested section of Santry Park.
- **West:** Commercial, office and warehouse buildings lie to the West.
- **East:** Across the relatively wide Swords Road lies retails and commercial buildings.
- **South:** Finally, to the South in line with each of the proposed blocks lies the permitted Santry Place, mixed use development.

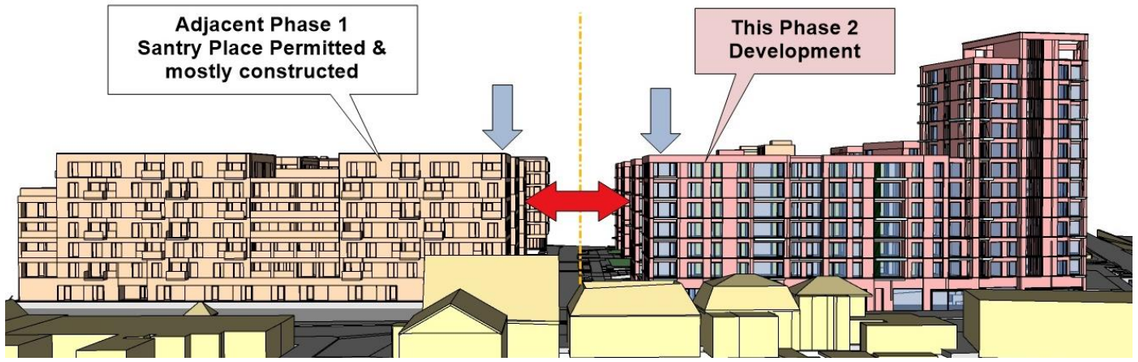
Impact is only considered for residential neighbours and thus we only need to look South in this case at the adjacent apartments permitted in the Santry place development.

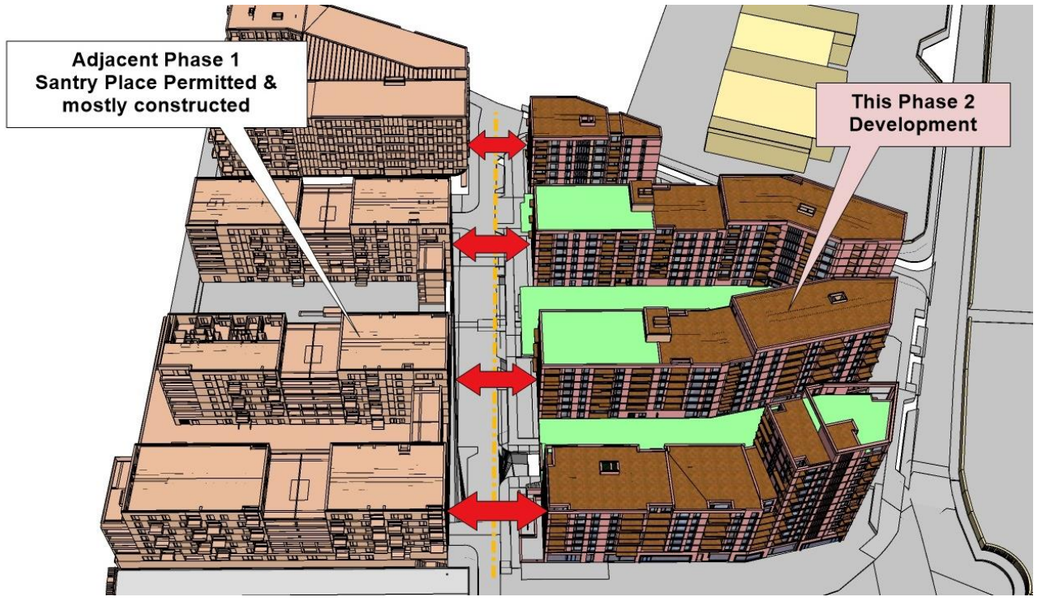
Since the current proposal sits directly to the North of Santry Place, there can be no impact on sunlight and no shadows can be cast this direction.

Particular care has been taken by the Architect to ensure good separation of the inline blocks in both the permitted development to the south and the current proposal to the north of same.

Mirrored Development.

This proposal Phase 2 along the interface line is a mirrored development of the permitted and constructed Phase 1 design. The proposed design extends the existing blocks in height and location along the interface. The design of both Phase 1 and Phase 2 were cognisant of the neighbouring proposals and development potential.





Appendix F provides clarity on how adjacent and mirrored developments should be examined clause F5 applies

> ***F5 A similar approach may be adopted in cases where an existing building has windows that are unusually close to the site boundary and taking more than their fair share of light. Figure F3 shows an example, where side windows of an existing building are close to the boundary. To ensure that new development matches the height and proportions of existing buildings, the VSC and APSH targets for these windows could be set to those for a 'mirror-image' building of the same height and size, an equal distance away on the other side of the boundary.***

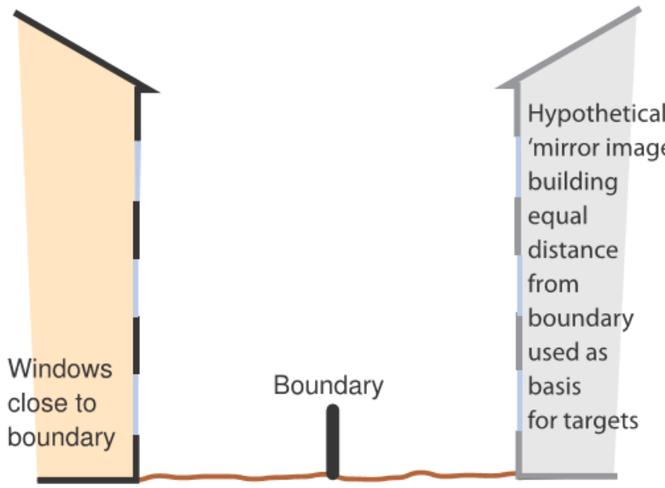


Figure F3: Use of a hypothetical mirror image building to set target daylight values

The layout of the current proposal, if approved, when read with Santry Place, will represent a comprehensive redevelopment of this brownfield condition at the junction of Santry Place & Swords Road.

The Phase 2 proposed development (along the interface) is a direct mirror of granted Phase 1 application as it is evident that any impact on the Northern gable façade will be the same as the theoretical mirrored design.

The development impact is therefore compliant with the guidelines and the Mirrored baseline development approach of Appendix F.

Summary impact Neighbours

- Non-residential buildings sit to the West, North and East of the proposal and do not require testing.
- Phase 1 Santry Place sits to the South of this Phase 2 proposal.
    - Sunlight to amenity and windows of the granted Santry Place cannot be impacted by this current proposal as it sits to the North.
    - In relation to skylight (VSC) this proposal Phase 2 along the interface line is a mirrored development of the permitted and constructed Phase 1 design. Any impact along the closer façades will therefore be compliant with the guidelines and the Mirrored baseline development approach of Appendix F.
- The impact of this proposed mirrored Phase 2 development on the existing Phase 1 development is indistinguishable to that of an appendix F mirrored baseline analysis and therefore complaint with the BRE guidelines.

Commentary on the Dublin City Development Plan – Appendix 16

Advice information only.

The DCC Development plan was developed in its draft format prior to the release of the BRE v3 guidelines.

It was, however, cognisant of the incoming BRE v3 guidelines and sought to provide clarity on how to cover all options during the interim period by way of a comprehensive Appendix 16.

Unfortunately, the BRE v3 was published before the DCC Development plan moved from draft to final and there wasn't time for Appendix 16 to be updated to reflect the same.

However, Clause 5.0 covered what should happen when the BRE v3 document was published:
… Until such time when BR 209 is updated and all relevant and required information is included (i.e. removal of reference to BS 8206-2 and inclusion of metrics within BS EN 17037), the planning authority will request metrics from both BS 8206-2 and BS EN 17037. …

This is now the case since

- The British Standard BS EN 17037:2018 is the UK implementation of EN 17037:2018.
  It supersedes BS 8206-2:2008, which was withdrawn in 2018.
- BRE 'Site Layout Planning for Daylight and Sunlight' – 2022 v3 is a new release which references BS EN 17037 and all references to BS 8206-2 are removed.
  It superseded the BRE v2 - 2011 edition which was withdrawn in 2022.
- The new 2023 Department Apartment guidelines and the 2024 Compact Settlement guidelines now only reference the new publications.

As such there is no reason why now, any analysis should be run against the withdrawn guidelines/standards which are also no longer referenced in the current department documents.

This report is therefore in accordance with the current guidelines and standards, BRE 'Site Layout Planning for Daylight and Sunlight' – 2022 v3, BS EN 17037's Annex NA , and as per the department apartment guidelines 2023, and the compact settlements 2024.

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

Comparison between the Annex and non-Annex results

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

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

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

Design Standards / Guidelines
Light Distribution.

BRE v2 – 2011 / BS 8206-2

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

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

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

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

BRE v3 – 2022 / EN 17037

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

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

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

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

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

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

Localisation

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

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

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

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

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

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

Dual usage rooms use the higher value.

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

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

Analysis

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

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

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

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

Block AB – E_T results - Tabulated.

NA.2 Minimum daylight provision

For all habitable rooms

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

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

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00AB19l	Living	100	Pass	100	Pass
00AB20	Bedroom	16	Fail	44	Fail
00AB21	Bedroom	23	Fail	68	Fail
00AB22c	Living/Kitchen	25	Fail	100	Pass
00AB23	Bedroom	30	Fail	82	Marginal
00AB24c	Living/Kitchen	29	Fail	100	Pass
00AB26	Bedroom	29	Fail	100	Pass
00AB27	Bedroom	31	Fail	100	Pass
00AB28c	Living/Kitchen	48	Marginal	98	Pass
00AB29	Bedroom	18	Fail	51	Fail
01AB01	Bedroom	38	Fail	100	Pass
01AB02c	Living/Kitchen	97	Pass	100	Pass
01AB03	Bedroom	64	Pass	100	Pass
01AB04	Bedroom	55	Pass	100	Pass
01AB05c	Living/Kitchen	85	Pass	99	Pass
01AB06	Bedroom	31	Fail	100	Pass
01AB07c	Living/Kitchen	74	Pass	100	Pass
01AB08	Bedroom	59	Pass	100	Pass
01AB09c	Living/Kitchen	11	Fail	67	Fail
01AB10	Bedroom	66	Pass	100	Pass
01AB11c	Living/Kitchen	43	Marginal	100	Pass
01AB12c	Living/Kitchen	36	Fail	100	Pass
01AB13	Bedroom	58	Pass	100	Pass
01AB14	Bedroom	100	Pass	100	Pass
01AB15c	Living/Kitchen	100	Pass	100	Pass
01AB16	Bedroom	52	Pass	100	Pass
01AB17c	Living/Kitchen	34	Fail	89	Marginal
01AB18	Bedroom	25	Fail	81	Marginal
01AB19	Bedroom	22	Fail	75	Fail
01AB20c	Living/Kitchen	26	Fail	85	Marginal
01AB21	Bedroom	0	Fail	22	Fail
01AB22	Bedroom	27	Fail	100	Pass
01AB23	Bedroom	27	Fail	69	Fail
01AB24	Bedroom	21	Fail	51	Fail
01AB25	Bedroom	22	Fail	65	Fail
01AB26	Bedroom	27	Fail	100	Pass
01AB27	Bedroom	35	Fail	98	Pass
01AB28c	Living/Kitchen	15	Fail	99	Pass
01AB29	Bedroom	19	Fail	59	Fail
01AB30	Bedroom	21	Fail	82	Marginal
01AB31c	Living/Kitchen	63	Pass	100	Pass
01AB32	Bedroom	33	Fail	100	Pass
02AB01	Bedroom	42	Marginal	100	Pass
02AB02c	Living/Kitchen	98	Pass	100	Pass
02AB03	Bedroom	62	Pass	100	Pass
02AB04	Bedroom	57	Pass	100	Pass
02AB05c	Living/Kitchen	50	Pass	99	Pass
02AB06	Bedroom	32	Fail	100	Pass
02AB07c	Living/Kitchen	73	Pass	100	Pass
02AB08	Bedroom	54	Pass	100	Pass
02AB09c	Living/Kitchen	23	Fail	90	Marginal
02AB10	Bedroom	67	Pass	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

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
02AB11c	Living/Kitchen	52	Pass	100	Pass
02AB12c	Living/Kitchen	55	Pass	100	Pass
02AB13	Bedroom	59	Pass	100	Pass
02AB14	Bedroom	100	Pass	100	Pass
02AB15c	Living/Kitchen	100	Pass	100	Pass
02AB16	Bedroom	74	Pass	100	Pass
02AB17c	Living/Kitchen	46	Marginal	100	Pass
02AB18	Bedroom	31	Fail	98	Pass
02AB19	Bedroom	24	Fail	80	Marginal
02AB20c	Living/Kitchen	34	Fail	93	Marginal
02AB21	Bedroom	0	Fail	31	Fail
02AB22	Bedroom	26	Fail	100	Pass
02AB23	Bedroom	30	Fail	71	Fail
02AB24	Bedroom	24	Fail	57	Fail
02AB25	Bedroom	26	Fail	72	Fail
02AB26	Bedroom	32	Fail	100	Pass
02AB27	Bedroom	43	Marginal	100	Pass
02AB28c	Living/Kitchen	24	Fail	100	Pass
02AB29	Bedroom	22	Fail	68	Fail
02AB30	Bedroom	24	Fail	89	Marginal
02AB31c	Living/Kitchen	68	Pass	100	Pass
02AB32	Bedroom	41	Marginal	100	Pass
03AB01	Bedroom	46	Marginal	100	Pass
03AB02c	Living/Kitchen	98	Pass	100	Pass
03AB03	Bedroom	62	Pass	100	Pass
03AB04	Bedroom	58	Pass	100	Pass
03AB05c	Living/Kitchen	94	Pass	99	Pass
03AB06	Bedroom	30	Fail	100	Pass
03AB07c	Living/Kitchen	75	Pass	100	Pass
03AB08	Bedroom	56	Pass	100	Pass
03AB09c	Living/Kitchen	12	Fail	71	Fail
03AB10	Bedroom	63	Pass	100	Pass
03AB11c	Living/Kitchen	46	Marginal	100	Pass
03AB12c	Living/Kitchen	38	Fail	100	Pass
03AB13	Bedroom	61	Pass	100	Pass
03AB14	Bedroom	100	Pass	100	Pass
03AB15c	Living/Kitchen	100	Pass	100	Pass
03AB16	Bedroom	58	Pass	100	Pass
03AB17c	Living/Kitchen	46	Marginal	100	Pass
03AB18	Bedroom	35	Fail	100	Pass
03AB19	Bedroom	30	Fail	87	Marginal
03AB20c	Living/Kitchen	41	Marginal	94	Marginal
03AB21	Bedroom	0	Fail	38	Fail
03AB22	Bedroom	38	Fail	100	Pass
03AB23	Bedroom	35	Fail	83	Marginal
03AB24	Bedroom	30	Fail	64	Fail
03AB25	Bedroom	33	Fail	80	Marginal
03AB26	Bedroom	38	Fail	100	Pass
03AB27	Bedroom	49	Marginal	100	Pass
03AB28c	Living/Kitchen	25	Fail	100	Pass
03AB29	Bedroom	24	Fail	79	Marginal
03AB30	Bedroom	26	Fail	98	Pass
03AB31c	Living/Kitchen	75	Pass	100	Pass
03AB32	Bedroom	42	Marginal	100	Pass

Block AB – E_T results - Tabulated.

NA.2 Minimum daylight provision

For all habitable rooms

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

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

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
04AB01	Bedroom	54	Pass	100	Pass
04AB02c	Living/Kitchen	98	Pass	100	Pass
04AB03	Bedroom	63	Pass	100	Pass
04AB04	Bedroom	59	Pass	100	Pass
04AB05c	Living/Kitchen	54	Pass	99	Pass
04AB06	Bedroom	33	Fail	100	Pass
04AB07c	Living/Kitchen	76	Pass	100	Pass
04AB08	Bedroom	58	Pass	100	Pass
04AB09c	Living/Kitchen	23	Fail	92	Marginal
04AB10	Bedroom	70	Pass	100	Pass
04AB11c	Living/Kitchen	56	Pass	100	Pass
04AB12c	Living/Kitchen	55	Pass	100	Pass
04AB13	Bedroom	63	Pass	100	Pass
04AB14	Bedroom	100	Pass	100	Pass
04AB15c	Living/Kitchen	100	Pass	100	Pass
04AB16	Bedroom	82	Pass	100	Pass
04AB17c	Living/Kitchen	51	Pass	100	Pass
04AB18	Bedroom	39	Fail	100	Pass
04AB19	Bedroom	37	Fail	100	Pass
04AB20c	Living/Kitchen	49	Marginal	95	Pass
04AB21	Bedroom	7	Fail	68	Fail
04AB22	Bedroom	51	Pass	100	Pass
04AB23	Bedroom	40	Marginal	100	Pass
04AB24	Bedroom	33	Fail	71	Fail
04AB25	Bedroom	38	Fail	93	Marginal
04AB26	Bedroom	48	Marginal	100	Pass
04AB27	Bedroom	57	Pass	100	Pass
04AB28c	Living/Kitchen	55	Pass	100	Pass
04AB29	Bedroom	29	Fail	94	Marginal
04AB30	Bedroom	30	Fail	100	Pass
04AB31c	Living/Kitchen	80	Pass	100	Pass
04AB32	Bedroom	48	Marginal	100	Pass
05AB01	Bedroom	60	Pass	100	Pass
05AB02c	Living/Kitchen	98	Pass	100	Pass
05AB03	Bedroom	65	Pass	100	Pass
05AB04	Bedroom	64	Pass	100	Pass
05AB05c	Living/Kitchen	89	Pass	99	Pass
05AB06	Bedroom	33	Fail	100	Pass
05AB07c	Living/Kitchen	77	Pass	100	Pass
05AB08	Bedroom	62	Pass	100	Pass
05AB09c	Living/Kitchen	14	Fail	74	Fail
05AB10	Bedroom	70	Pass	100	Pass
05AB11c	Living/Kitchen	72	Pass	100	Pass
05AB12c	Living/Kitchen	46	Marginal	100	Pass
05AB13	Bedroom	61	Pass	100	Pass
05AB14	Bedroom	100	Pass	100	Pass
05AB15c	Living/Kitchen	100	Pass	100	Pass
05AB16	Bedroom	82	Pass	100	Pass
05AB17c	Living/Kitchen	55	Pass	100	Pass
05AB18	Bedroom	45	Marginal	100	Pass
05AB19	Bedroom	42	Marginal	100	Pass
05AB20c	Living/Kitchen	56	Pass	97	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

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
05AB21	Bedroom	14	Fail	98	Pass
05AB22	Bedroom	60	Pass	100	Pass
05AB23	Bedroom	45	Marginal	100	Pass
05AB24	Bedroom	37	Fail	93	Marginal
05AB25	Bedroom	44	Marginal	100	Pass
05AB26	Bedroom	55	Pass	100	Pass
05AB27	Bedroom	65	Pass	100	Pass
05AB28c	Living/Kitchen	60	Pass	100	Pass
05AB29	Bedroom	34	Fail	100	Pass
05AB30	Bedroom	34	Fail	100	Pass
05AB31c	Living/Kitchen	89	Pass	100	Pass
05AB32	Bedroom	53	Pass	100	Pass
06AB01	Bedroom	77	Pass	100	Pass
06AB02c	Living/Kitchen	100	Pass	100	Pass
06AB03	Bedroom	73	Pass	100	Pass
06AB04	Bedroom	68	Pass	100	Pass
06AB05c	Living/Kitchen	60	Pass	99	Pass
06AB06	Bedroom	64	Pass	100	Pass
06AB07c	Living/Kitchen	82	Pass	100	Pass
06AB08	Bedroom	53	Pass	100	Pass
06AB09c	Living/Kitchen	36	Fail	98	Pass
06AB10	Bedroom	61	Pass	100	Pass
06AB11c	Living/Kitchen	69	Pass	100	Pass
06AB12c	Living/Kitchen	61	Pass	100	Pass
06AB13	Bedroom	62	Pass	100	Pass
06AB14	Bedroom	100	Pass	100	Pass
06AB15c	Living/Kitchen	100	Pass	100	Pass
06AB16	Bedroom	97	Pass	100	Pass
06AB17c	Living/Kitchen	63	Pass	100	Pass
06AB18	Bedroom	52	Pass	100	Pass
06AB19	Bedroom	48	Marginal	100	Pass
06AB20c	Living/Kitchen	64	Pass	100	Pass
06AB21	Bedroom	18	Fail	100	Pass
06AB22	Bedroom	80	Pass	100	Pass
06AB23	Bedroom	46	Marginal	100	Pass
06AB24	Bedroom	37	Fail	98	Pass
06AB25	Bedroom	45	Marginal	100	Pass
06AB26	Bedroom	55	Pass	100	Pass
06AB27	Bedroom	66	Pass	100	Pass
06AB28c	Living/Kitchen	100	Pass	100	Pass
06AB29	Bedroom	34	Fail	100	Pass
06AB30	Bedroom	32	Fail	100	Pass
06AB31c	Living/Kitchen	93	Pass	100	Pass
06AB32	Bedroom	70	Pass	100	Pass
07AB12c	Living/Kitchen	100	Pass	100	Pass
07AB13	Bedroom	61	Pass	100	Pass
07AB14	Bedroom	100	Pass	100	Pass
07AB15c	Living/Kitchen	100	Pass	100	Pass
07AB16	Bedroom	100	Pass	100	Pass
07AB17c	Living/Kitchen	64	Pass	100	Pass
07AB18	Bedroom	55	Pass	100	Pass
07AB19	Bedroom	51	Pass	100	Pass
07AB20c	Living/Kitchen	72	Pass	100	Pass

Block AB – E_T results - Tabulated.

NA.2 Minimum daylight provision

For all habitable rooms

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

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

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
07AB21	Bedroom	100	Pass	100	Pass
08AB12c	Living/Kitchen	100	Pass	100	Pass
08AB13	Bedroom	61	Pass	100	Pass
08AB14	Bedroom	100	Pass	100	Pass
08AB15c	Living/Kitchen	100	Pass	100	Pass
08AB16	Bedroom	100	Pass	100	Pass
08AB17c	Living/Kitchen	68	Pass	100	Pass
08AB18	Bedroom	61	Pass	100	Pass
08AB19	Bedroom	52	Pass	100	Pass
08AB20c	Living/Kitchen	83	Pass	100	Pass
08AB21	Bedroom	100	Pass	100	Pass
09AB12c	Living/Kitchen	100	Pass	100	Pass
09AB13	Bedroom	63	Pass	100	Pass
09AB14	Bedroom	100	Pass	100	Pass
09AB15c	Living/Kitchen	100	Pass	100	Pass
09AB16	Bedroom	100	Pass	100	Pass
09AB17c	Living/Kitchen	71	Pass	100	Pass
09AB18	Bedroom	61	Pass	100	Pass
09AB19	Bedroom	56	Pass	100	Pass
09AB20c	Living/Kitchen	87	Pass	100	Pass
09AB21	Bedroom	100	Pass	100	Pass
10AB12c	Living/Kitchen	100	Pass	100	Pass
10AB13	Bedroom	64	Pass	100	Pass
10AB14	Bedroom	100	Pass	100	Pass
10AB15c	Living/Kitchen	100	Pass	100	Pass
10AB16	Bedroom	100	Pass	100	Pass
10AB17c	Living/Kitchen	75	Pass	100	Pass
10AB18	Bedroom	63	Pass	100	Pass
10AB19	Bedroom	57	Pass	100	Pass
10AB20c	Living/Kitchen	89	Pass	100	Pass
10AB21	Bedroom	100	Pass	100	Pass
11AB12c	Living/Kitchen	100	Pass	100	Pass
11AB13	Bedroom	54	Pass	100	Pass
11AB14	Bedroom	100	Pass	100	Pass
11AB15c	Living/Kitchen	100	Pass	100	Pass
11AB16	Bedroom	100	Pass	100	Pass
11AB17c	Living/Kitchen	78	Pass	100	Pass
11AB18	Bedroom	71	Pass	100	Pass
11AB19	Bedroom	63	Pass	100	Pass
11AB20c	Living/Kitchen	85	Pass	100	Pass
11AB21	Bedroom	100	Pass	100	Pass
		Count	**252**	**Count**	**252**
		Pass	**153**	**Pass**	**213**
		Pass Rate 300lx/50%	**61%**	**Pass Rate 100lx/95%**	**85%**
		Marginal	24	Marginal	18
		Pass Margina	70%	Pass Margina	92%

Block CD – E_T results - Tabulated.

NA.2 Minimum daylight provision

For all habitable rooms

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

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

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
01CD01	Bedroom	38	Fail	100	Pass
01CD02c	Living/Kitchen	67	Pass	100	Pass
01CD03	Bedroom	32	Fail	100	Pass
01CD04c	Living/Kitchen	24	Fail	100	Pass
01CD05	Bedroom	24	Fail	78	Marginal
01CD09c	Living/Kitchen	26	Fail	97	Pass
01CD10	Bedroom	29	Fail	100	Pass
01CD11c	Living/Kitchen	27	Fail	94	Marginal
01CD12	Bedroom	21	Fail	100	Pass
01CD13	Bedroom	20	Fail	95	Pass
01CD14c	Living/Kitchen	43	Marginal	100	Pass
01CD15	Bedroom	34	Fail	100	Pass
01CD16l	Living	50	Pass	88	Marginal
01CD33	Bedroom	25	Fail	84	Marginal
01CD34c	Living/Kitchen	28	Fail	87	Marginal
01CD35	Bedroom	10	Fail	50	Fail
01CD36	Bedroom	23	Fail	65	Fail
01CD37c	Living/Kitchen	64	Pass	100	Pass
01CD38	Bedroom	34	Fail	100	Pass
01CD01	Bedroom	37	Fail	100	Pass
01CD02c	Living/Kitchen	75	Pass	100	Pass
01CD03	Bedroom	34	Fail	100	Pass
01CD04c	Living/Kitchen	16	Fail	100	Pass
01CD05	Bedroom	23	Fail	96	Pass
01CD06c	Living/Kitchen	11	Fail	86	Marginal
01CD07	Bedroom	21	Fail	100	Pass
01CD08	Bedroom	3	Fail	95	Pass
01CD09c	Living/Kitchen	24	Fail	95	Pass
01CD10	Bedroom	29	Fail	100	Pass
01CD11c	Living/Kitchen	15	Fail	97	Pass
01CD12	Bedroom	25	Fail	96	Pass
01CD13	Bedroom	29	Fail	100	Pass
01CD14c	Living/Kitchen	35	Fail	100	Pass
01CD15	Bedroom	31	Fail	100	Pass
01CD16c	Living/Kitchen	25	Fail	100	Pass
01CD17	Bedroom	41	Marginal	100	Pass
01CD18	Bedroom	52	Pass	100	Pass
01CD19c	Living/Kitchen	95	Pass	100	Pass
01CD20c	Living/Kitchen	31	Fail	100	Pass
01CD21	Bedroom	30	Fail	100	Pass
01CD22	Bedroom	17	Fail	92	Marginal
01CD23	Bedroom	21	Fail	85	Marginal
01CD24c	Living/Kitchen	22	Fail	94	Marginal
01CD25	Bedroom	11	Fail	100	Pass
01CD26	Bedroom	0	Fail	42	Fail
01CD27c	Living/Kitchen	17	Fail	54	Fail
01CD28	Bedroom	29	Fail	79	Marginal
01CD29	Bedroom	27	Fail	91	Marginal
01CD30c	Living/Kitchen	30	Fail	97	Pass
01CD31	Bedroom	14	Fail	66	Fail
01CD32	Bedroom	19	Fail	97	Pass
01CD33	Bedroom	28	Fail	100	Pass
01CD34c	Living/Kitchen	23	Fail	97	Pass
01CD35	Bedroom	21	Fail	100	Pass
01CD36	Bedroom	26	Fail	97	Pass
01CD37c	Living/Kitchen	70	Pass	100	Pass
01CD38	Bedroom	29	Fail	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

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
02CD01	Bedroom	39	Fail	100	Pass
02CD02c	Living/Kitchen	78	Pass	100	Pass
02CD03	Bedroom	37	Fail	100	Pass
02CD04c	Living/Kitchen	39	Fail	100	Pass
02CD05	Bedroom	29	Fail	100	Pass
02CD06c	Living/Kitchen	17	Fail	98	Pass
02CD07	Bedroom	26	Fail	100	Pass
02CD08	Bedroom	16	Fail	100	Pass
02CD09c	Living/Kitchen	29	Fail	98	Pass
02CD10	Bedroom	36	Fail	100	Pass
02CD11c	Living/Kitchen	18	Fail	96	Pass
02CD12	Bedroom	25	Fail	98	Pass
02CD13	Bedroom	30	Fail	100	Pass
02CD14c	Living/Kitchen	38	Fail	100	Pass
02CD15	Bedroom	33	Fail	100	Pass
02CD16c	Living/Kitchen	17	Fail	100	Pass
02CD17	Bedroom	44	Marginal	100	Pass
02CD18	Bedroom	63	Pass	100	Pass
02CD19c	Living/Kitchen	99	Pass	100	Pass
02CD20c	Living/Kitchen	28	Fail	100	Pass
02CD21	Bedroom	33	Fail	100	Pass
02CD22	Bedroom	20	Fail	94	Marginal
02CD23	Bedroom	27	Fail	98	Pass
02CD24c	Living/Kitchen	27	Fail	97	Pass
02CD25	Bedroom	20	Fail	100	Pass
02CD26	Bedroom	0	Fail	52	Fail
02CD27c	Living/Kitchen	19	Fail	59	Fail
02CD28	Bedroom	33	Fail	94	Marginal
02CD29	Bedroom	31	Fail	100	Pass
02CD30c	Living/Kitchen	34	Fail	98	Pass
02CD31	Bedroom	0	Fail	50	Fail
02CD32	Bedroom	7	Fail	92	Marginal
02CD33	Bedroom	35	Fail	100	Pass
02CD34c	Living/Kitchen	37	Fail	98	Pass
02CD35	Bedroom	36	Fail	100	Pass
02CD36	Bedroom	29	Fail	100	Pass
02CD37c	Living/Kitchen	68	Pass	100	Pass
02CD38	Bedroom	37	Fail	100	Pass
03CD01	Bedroom	46	Marginal	100	Pass
03CD02c	Living/Kitchen	87	Pass	100	Pass
03CD03	Bedroom	43	Marginal	100	Pass
03CD04c	Living/Kitchen	39	Fail	100	Pass
03CD05	Bedroom	32	Fail	100	Pass
03CD06c	Living/Kitchen	29	Fail	100	Pass
03CD07	Bedroom	30	Fail	100	Pass
03CD08	Bedroom	23	Fail	100	Pass
03CD09c	Living/Kitchen	35	Fail	98	Pass
03CD10	Bedroom	44	Marginal	100	Pass
03CD11c	Living/Kitchen	25	Fail	98	Pass
03CD12	Bedroom	30	Fail	100	Pass
03CD13	Bedroom	34	Fail	100	Pass
03CD14c	Living/Kitchen	49	Marginal	100	Pass
03CD15	Bedroom	37	Fail	100	Pass
03CD16c	Living/Kitchen	39	Fail	100	Pass
03CD17	Bedroom	47	Marginal	100	Pass
03CD18	Bedroom	63	Pass	100	Pass
03CD19c	Living/Kitchen	98	Pass	100	Pass
03CD20c	Living/Kitchen	28	Fail	100	Pass

Block CD – E_T results - Tabulated.

NA.2 Minimum daylight provision

For all habitable rooms

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

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

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
03CD21	Bedroom	40	Marginal	100	Pass
03CD22	Bedroom	28	Fail	100	Pass
03CD23	Bedroom	32	Fail	100	Pass
03CD24c	Living/Kitchen	32	Fail	98	Pass
03CD25	Bedroom	29	Fail	100	Pass
03CD26	Bedroom	0	Fail	66	Fail
03CD27c	Living/Kitchen	22	Fail	63	Fail
03CD28	Bedroom	37	Fail	100	Pass
03CD29	Bedroom	37	Fail	100	Pass
03CD30c	Living/Kitchen	43	Marginal	100	Pass
03CD31	Bedroom	28	Fail	100	Pass
03CD32	Bedroom	47	Marginal	100	Pass
03CD33	Bedroom	39	Fail	100	Pass
03CD34c	Living/Kitchen	41	Marginal	100	Pass
03CD35	Bedroom	27	Fail	100	Pass
03CD36	Bedroom	33	Fail	100	Pass
03CD37c	Living/Kitchen	77	Pass	100	Pass
03CD38	Bedroom	39	Fail	100	Pass
04CD01	Bedroom	54	Pass	100	Pass
04CD02c	Living/Kitchen	88	Pass	100	Pass
04CD03	Bedroom	50	Pass	100	Pass
04CD04c	Living/Kitchen	70	Pass	100	Pass
04CD05	Bedroom	39	Fail	100	Pass
04CD06c	Living/Kitchen	35	Fail	100	Pass
04CD07	Bedroom	36	Fail	100	Pass
04CD08	Bedroom	36	Fail	100	Pass
04CD09c	Living/Kitchen	42	Marginal	98	Pass
04CD10	Bedroom	53	Pass	100	Pass
04CD11c	Living/Kitchen	32	Fail	100	Pass
04CD12	Bedroom	33	Fail	100	Pass
04CD13	Bedroom	34	Fail	100	Pass
04CD14c	Living/Kitchen	49	Marginal	100	Pass
04CD15	Bedroom	42	Marginal	100	Pass
04CD16c	Living/Kitchen	22	Fail	100	Pass
04CD17	Bedroom	48	Marginal	100	Pass
04CD18	Bedroom	62	Pass	100	Pass
04CD19c	Living/Kitchen	99	Pass	100	Pass
04CD20c	Living/Kitchen	26	Fail	100	Pass
04CD21	Bedroom	47	Marginal	100	Pass
04CD22	Bedroom	35	Fail	100	Pass
04CD23	Bedroom	38	Fail	100	Pass
04CD24c	Living/Kitchen	41	Marginal	98	Pass
04CD25	Bedroom	44	Marginal	100	Pass
04CD26	Bedroom	9	Fail	84	Marginal
04CD27c	Living/Kitchen	26	Fail	70	Fail
04CD28	Bedroom	43	Marginal	100	Pass
04CD29	Bedroom	44	Marginal	100	Pass
04CD30c	Living/Kitchen	46	Marginal	100	Pass
04CD31	Bedroom	8	Fail	83	Marginal
04CD32	Bedroom	24	Fail	100	Pass
04CD33	Bedroom	44	Marginal	100	Pass
04CD34c	Living/Kitchen	53	Pass	99	Pass
04CD35	Bedroom	60	Pass	100	Pass
04CD36	Bedroom	34	Fail	100	Pass
04CD37c	Living/Kitchen	78	Pass	100	Pass
04CD38	Bedroom	45	Marginal	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

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
05CD01	Bedroom	56	Pass	100	Pass
05CD02c	Living/Kitchen	95	Pass	100	Pass
05CD03	Bedroom	56	Pass	100	Pass
05CD04c	Living/Kitchen	73	Pass	100	Pass
05CD05	Bedroom	42	Marginal	100	Pass
05CD06c	Living/Kitchen	46	Marginal	100	Pass
05CD07	Bedroom	41	Marginal	100	Pass
05CD08	Bedroom	48	Marginal	100	Pass
05CD09c	Living/Kitchen	60	Pass	100	Pass
05CD10	Bedroom	66	Pass	100	Pass
05CD11c	Living/Kitchen	39	Fail	100	Pass
05CD12	Bedroom	34	Fail	100	Pass
05CD13	Bedroom	36	Fail	100	Pass
05CD14c	Living/Kitchen	59	Pass	100	Pass
05CD15	Bedroom	42	Marginal	100	Pass
05CD16c	Living/Kitchen	42	Marginal	100	Pass
05CD17	Bedroom	48	Marginal	100	Pass
05CD18	Bedroom	63	Pass	100	Pass
05CD19c	Living/Kitchen	98	Pass	100	Pass
05CD20c	Living/Kitchen	36	Fail	100	Pass
05CD21	Bedroom	61	Pass	100	Pass
05CD22	Bedroom	46	Marginal	100	Pass
05CD23	Bedroom	46	Marginal	100	Pass
05CD24c	Living/Kitchen	49	Marginal	98	Pass
05CD25	Bedroom	55	Pass	100	Pass
05CD26	Bedroom	18	Fail	100	Pass
05CD27c	Living/Kitchen	30	Fail	81	Marginal
05CD28	Bedroom	46	Marginal	100	Pass
05CD29	Bedroom	52	Pass	100	Pass
05CD30c	Living/Kitchen	44	Marginal	100	Pass
05CD31	Bedroom	45	Marginal	100	Pass
05CD32	Bedroom	73	Pass	100	Pass
05CD33	Bedroom	50	Pass	100	Pass
05CD34c	Living/Kitchen	52	Pass	99	Pass
05CD35	Bedroom	61	Pass	100	Pass
05CD36	Bedroom	39	Fail	100	Pass
05CD37c	Living/Kitchen	88	Pass	100	Pass
05CD38	Bedroom	48	Marginal	100	Pass
06CD01	Bedroom	63	Pass	100	Pass
06CD02c	Living/Kitchen	97	Pass	100	Pass
06CD03	Bedroom	55	Pass	100	Pass
06CD04c	Living/Kitchen	73	Pass	100	Pass
06CD05	Bedroom	45	Marginal	100	Pass
06CD06c	Living/Kitchen	35	Fail	100	Pass
06CD07	Bedroom	40	Marginal	100	Pass
06CD08	Bedroom	67	Pass	100	Pass
06CD09c	Living/Kitchen	60	Pass	100	Pass
06CD10	Bedroom	76	Pass	100	Pass
06CD11c	Living/Kitchen	54	Pass	100	Pass
06CD12	Bedroom	36	Fail	100	Pass
06CD13	Bedroom	40	Marginal	100	Pass
06CD14c	Living/Kitchen	56	Pass	100	Pass
06CD15	Bedroom	44	Marginal	100	Pass
06CD16c	Living/Kitchen	21	Fail	100	Pass
06CD17	Bedroom	50	Pass	100	Pass
06CD18	Bedroom	63	Pass	100	Pass
06CD19c	Living/Kitchen	99	Pass	100	Pass
06CD20c	Living/Kitchen	36	Fail	100	Pass

Block CD – E_T results - Tabulated.

NA.2 Minimum daylight provision

For all habitable rooms

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

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

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
06CD21	Bedroom	85	Pass	100	Pass
06CD22	Bedroom	61	Pass	100	Pass
06CD23	Bedroom	56	Pass	100	Pass
06CD24c	Living/Kitchen	63	Pass	100	Pass
06CD25	Bedroom	85	Pass	100	Pass
06CD26	Bedroom	25	Fail	100	Pass
06CD27c	Living/Kitchen	35	Fail	95	Pass
06CD28	Bedroom	76	Pass	100	Pass
06CD29	Bedroom	54	Pass	100	Pass
06CD30c	Living/Kitchen	56	Pass	100	Pass
06CD31	Bedroom	38	Fail	100	Pass
06CD32	Bedroom	69	Pass	100	Pass
06CD33	Bedroom	79	Pass	100	Pass
06CD34c	Living/Kitchen	56	Pass	100	Pass
06CD35	Bedroom	50	Pass	100	Pass
06CD36	Bedroom	37	Fail	100	Pass
06CD37c	Living/Kitchen	90	Pass	100	Pass
06CD38	Bedroom	53	Pass	100	Pass
07CD12	Bedroom	36	Fail	100	Pass
07CD13	Bedroom	40	Marginal	100	Pass
07CD14c	Living/Kitchen	44	Marginal	100	Pass
07CD15	Bedroom	41	Marginal	100	Pass
07CD16c	Living/Kitchen	28	Fail	100	Pass
07CD17	Bedroom	50	Pass	100	Pass
07CD18	Bedroom	59	Pass	100	Pass
07CD19c	Living/Kitchen	98	Pass	100	Pass
07CD20c	Living/Kitchen	46	Marginal	100	Pass
07CD21	Bedroom	100	Pass	100	Pass
07CD22	Bedroom	67	Pass	100	Pass
07CD23	Bedroom	58	Pass	100	Pass
07CD24c	Living/Kitchen	60	Pass	100	Pass
07CD25	Bedroom	57	Pass	100	Pass
07CD26	Bedroom	35	Fail	100	Pass
07CD27c	Living/Kitchen	72	Pass	100	Pass
		Count	**263**	**Count**	**263**
		Pass	**77**	**Pass**	**235**
		Pass Rate 300lx/50%	**29%**	**Pass Rate 100lx/95%**	**89%**
		Marginal	**46**	**Marginal**	**17**
		Pass Margina	**47%**	**Pass Margina**	**96%**

Block EF – E_T results - Tabulated.

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

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

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00EF01	Bedroom	35	Fail	100	Pass
00EF02c	Living/Kitchen	76	Pass	100	Pass
00EF03	Bedroom	29	Fail	94	Marginal
00EF04c	Living/Kitchen	26	Fail	69	Fail
00EF05	Bedroom	0	Fail	32	Fail
00EF06l	Living	58	Pass	86	Marginal
00EF37	Bedroom	24	Fail	83	Marginal
00EF38c	Living/Kitchen	17	Fail	81	Marginal
00EF39	Bedroom	0	Fail	22	Fail
00EF40	Bedroom	15	Fail	57	Fail
00EF41c	Living/Kitchen	61	Pass	100	Pass
00EF42	Bedroom	29	Fail	100	Pass
01EF01	Bedroom	34	Fail	100	Pass
01EF02c	Living/Kitchen	74	Pass	100	Pass
01EF03	Bedroom	34	Fail	100	Pass
01EF04c	Living/Kitchen	28	Fail	74	Fail
01EF05	Bedroom	33	Fail	100	Pass
01EF06c	Living/Kitchen	7	Fail	53	Fail
01EF07	Bedroom	32	Fail	100	Pass
01EF08	Bedroom	18	Fail	100	Pass
01EF09c	Living/Kitchen	18	Fail	91	Marginal
01EF10	Bedroom	24	Fail	77	Marginal
01EF11	Bedroom	27	Fail	100	Pass
01EF12	Bedroom	21	Fail	83	Marginal
01EF13	Bedroom	31	Fail	100	Pass
01EF14	Bedroom	21	Fail	56	Fail
01EF15c	Living/Kitchen	15	Fail	75	Fail
01EF16	Bedroom	0	Fail	33	Fail
01EF17	Bedroom	7	Fail	77	Marginal
01EF18c	Living/Kitchen	20	Fail	88	Marginal
01EF19	Bedroom	16	Fail	74	Fail
01EF20	Bedroom	18	Fail	85	Marginal
01EF21	Bedroom	50	Pass	100	Pass
01EF22c	Living/Kitchen	95	Pass	100	Pass
01EF23c	Living/Kitchen	66	Pass	100	Pass
01EF24	Bedroom	67	Pass	100	Pass
01EF25	Bedroom	54	Pass	100	Pass
01EF26c	Living/Kitchen	64	Pass	100	Pass
01EF27	Bedroom	58	Pass	100	Pass
01EF28	Bedroom	27	Fail	90	Marginal
01EF29c	Living/Kitchen	58	Pass	100	Pass
01EF30	Bedroom	53	Pass	100	Pass
01EF31	Bedroom	51	Pass	100	Pass
01EF32c	Living/Kitchen	35	Fail	90	Marginal
01EF33c	Living/Kitchen	56	Pass	100	Pass
01EF34	Bedroom	84	Pass	100	Pass
01EF35c	Living/Kitchen	29	Fail	97	Pass
01EF36	Bedroom	8	Fail	89	Marginal
01EF37	Bedroom	27	Fail	100	Pass
01EF38c	Living/Kitchen	23	Fail	88	Marginal
01EF39	Bedroom	17	Fail	100	Pass
01EF40	Bedroom	25	Fail	73	Fail
01EF41c	Living/Kitchen	57	Pass	100	Pass
01EF42	Bedroom	29	Fail	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

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
02EF01	Bedroom	38	Fail	100	Pass
02EF02c	Living/Kitchen	85	Pass	100	Pass
02EF03	Bedroom	37	Fail	100	Pass
02EF04c	Living/Kitchen	32	Fail	74	Fail
02EF05	Bedroom	13	Fail	100	Pass
02EF06c	Living/Kitchen	16	Fail	94	Marginal
02EF07	Bedroom	38	Fail	100	Pass
02EF08	Bedroom	31	Fail	100	Pass
02EF09c	Living/Kitchen	31	Fail	96	Pass
02EF10	Bedroom	29	Fail	90	Marginal
02EF11	Bedroom	32	Fail	100	Pass
02EF12	Bedroom	29	Fail	95	Pass
02EF13	Bedroom	25	Fail	100	Pass
02EF14	Bedroom	26	Fail	58	Fail
02EF15c	Living/Kitchen	17	Fail	75	Fail
02EF16	Bedroom	3	Fail	51	Fail
02EF17	Bedroom	0	Fail	73	Fail
02EF18c	Living/Kitchen	19	Fail	90	Marginal
02EF19	Bedroom	15	Fail	73	Fail
02EF20	Bedroom	18	Fail	85	Marginal
02EF21	Bedroom	56	Pass	100	Pass
02EF22c	Living/Kitchen	100	Pass	100	Pass
02EF23c	Living/Kitchen	70	Pass	100	Pass
02EF24	Bedroom	36	Fail	100	Pass
02EF25	Bedroom	55	Pass	100	Pass
02EF26c	Living/Kitchen	80	Pass	100	Pass
02EF27	Bedroom	59	Pass	100	Pass
02EF28	Bedroom	32	Fail	98	Pass
02EF29c	Living/Kitchen	60	Pass	100	Pass
02EF30	Bedroom	55	Pass	100	Pass
02EF31	Bedroom	70	Pass	100	Pass
02EF32c	Living/Kitchen	39	Fail	95	Pass
02EF33c	Living/Kitchen	49	Marginal	100	Pass
02EF34	Bedroom	57	Pass	100	Pass
02EF35c	Living/Kitchen	38	Fail	97	Pass
02EF36	Bedroom	20	Fail	100	Pass
02EF37	Bedroom	33	Fail	100	Pass
02EF38c	Living/Kitchen	21	Fail	85	Marginal
02EF39	Bedroom	16	Fail	100	Pass
02EF40	Bedroom	27	Fail	77	Marginal
02EF41c	Living/Kitchen	65	Pass	100	Pass
02EF42	Bedroom	33	Fail	100	Pass
03EF01	Bedroom	45	Marginal	100	Pass
03EF02c	Living/Kitchen	85	Pass	100	Pass
03EF03	Bedroom	40	Marginal	100	Pass
03EF04c	Living/Kitchen	37	Fail	77	Marginal
03EF05	Bedroom	64	Pass	100	Pass
03EF06c	Living/Kitchen	16	Fail	88	Marginal
03EF07	Bedroom	43	Marginal	100	Pass
03EF08	Bedroom	24	Fail	100	Pass
03EF09c	Living/Kitchen	34	Fail	96	Pass
03EF10	Bedroom	35	Fail	100	Pass

Block EF – E_T results - Tabulated.

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

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

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
03EF11	Bedroom	38	Fail	100	Pass
03EF12	Bedroom	40	Marginal	100	Pass
03EF13	Bedroom	49	Marginal	100	Pass
03EF14	Bedroom	30	Fail	71	Fail
03EF15c	Living/Kitchen	20	Fail	88	Marginal
03EF16	Bedroom	8	Fail	54	Fail
03EF17	Bedroom	19	Fail	100	Pass
03EF18c	Living/Kitchen	33	Fail	98	Pass
03EF19	Bedroom	16	Fail	79	Marginal
03EF20	Bedroom	12	Fail	72	Fail
03EF21	Bedroom	54	Pass	100	Pass
03EF22c	Living/Kitchen	99	Pass	100	Pass
03EF23c	Living/Kitchen	73	Pass	100	Pass
03EF24	Bedroom	85	Pass	100	Pass
03EF25	Bedroom	57	Pass	100	Pass
03EF26c	Living/Kitchen	46	Marginal	99	Pass
03EF27	Bedroom	59	Pass	100	Pass
03EF28	Bedroom	34	Fail	98	Pass
03EF29c	Living/Kitchen	61	Pass	100	Pass
03EF30	Bedroom	56	Pass	100	Pass
03EF31	Bedroom	58	Pass	100	Pass
03EF32c	Living/Kitchen	36	Fail	95	Pass
03EF33c	Living/Kitchen	60	Pass	100	Pass
03EF34	Bedroom	61	Pass	100	Pass
03EF35c	Living/Kitchen	33	Fail	97	Pass
03EF36	Bedroom	10	Fail	98	Pass
03EF37	Bedroom	40	Marginal	100	Pass
03EF38c	Living/Kitchen	37	Fail	97	Pass
03EF39	Bedroom	35	Fail	100	Pass
03EF40	Bedroom	32	Fail	98	Pass
03EF41c	Living/Kitchen	67	Pass	100	Pass
03EF42	Bedroom	40	Marginal	100	Pass
04EF01	Bedroom	52	Pass	100	Pass
04EF02c	Living/Kitchen	96	Pass	100	Pass
04EF03	Bedroom	47	Marginal	100	Pass
04EF04c	Living/Kitchen	41	Marginal	80	Marginal
04EF05	Bedroom	55	Pass	100	Pass
04EF06c	Living/Kitchen	37	Fail	100	Pass
04EF07	Bedroom	49	Marginal	100	Pass
04EF08	Bedroom	58	Pass	100	Pass
04EF09c	Living/Kitchen	51	Pass	99	Pass
04EF10	Bedroom	40	Marginal	100	Pass
04EF11	Bedroom	44	Marginal	100	Pass
04EF12	Bedroom	42	Marginal	100	Pass
04EF13	Bedroom	46	Marginal	100	Pass
04EF14	Bedroom	33	Fail	72	Fail
04EF15c	Living/Kitchen	25	Fail	89	Marginal
04EF16	Bedroom	15	Fail	78	Marginal
04EF17	Bedroom	8	Fail	100	Pass
04EF18c	Living/Kitchen	30	Fail	97	Pass
04EF19	Bedroom	16	Fail	86	Marginal
04EF20	Bedroom	13	Fail	73	Fail
04EF21	Bedroom	54	Pass	100	Pass
04EF22c	Living/Kitchen	100	Pass	100	Pass
04EF23c	Living/Kitchen	72	Pass	100	Pass
04EF24	Bedroom	42	Marginal	100	Pass
04EF25	Bedroom	57	Pass	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

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
04EF26c	Living/Kitchen	84	Pass	100	Pass
04EF27	Bedroom	60	Pass	100	Pass
04EF28	Bedroom	40	Marginal	100	Pass
04EF29c	Living/Kitchen	63	Pass	100	Pass
04EF30	Bedroom	56	Pass	100	Pass
04EF31	Bedroom	86	Pass	100	Pass
04EF32c	Living/Kitchen	41	Marginal	96	Pass
04EF33c	Living/Kitchen	57	Pass	100	Pass
04EF34	Bedroom	62	Pass	100	Pass
04EF35c	Living/Kitchen	50	Pass	99	Pass
04EF36	Bedroom	30	Fail	100	Pass
04EF37	Bedroom	47	Marginal	100	Pass
04EF38c	Living/Kitchen	46	Marginal	97	Pass
04EF39	Bedroom	34	Fail	100	Pass
04EF40	Bedroom	39	Fail	100	Pass
04EF41c	Living/Kitchen	76	Pass	100	Pass
04EF42	Bedroom	45	Marginal	100	Pass
05EF01	Bedroom	56	Pass	100	Pass
05EF02c	Living/Kitchen	97	Pass	100	Pass
05EF03	Bedroom	49	Marginal	100	Pass
05EF04c	Living/Kitchen	45	Marginal	85	Marginal
05EF05	Bedroom	100	Pass	100	Pass
05EF06c	Living/Kitchen	25	Fail	100	Pass
05EF07	Bedroom	53	Pass	100	Pass
05EF08	Bedroom	58	Pass	100	Pass
05EF09c	Living/Kitchen	47	Marginal	97	Pass
05EF10	Bedroom	46	Marginal	100	Pass
05EF11	Bedroom	48	Marginal	100	Pass
05EF12	Bedroom	53	Pass	100	Pass
05EF13	Bedroom	75	Pass	100	Pass
05EF14	Bedroom	39	Fail	96	Pass
05EF15c	Living/Kitchen	34	Fail	99	Pass
05EF16	Bedroom	22	Fail	100	Pass
05EF17	Bedroom	43	Marginal	100	Pass
05EF18c	Living/Kitchen	44	Marginal	98	Pass
05EF19	Bedroom	20	Fail	96	Pass
05EF20	Bedroom	14	Fail	77	Marginal
05EF21	Bedroom	54	Pass	100	Pass
05EF22c	Living/Kitchen	100	Pass	100	Pass
05EF23c	Living/Kitchen	75	Pass	100	Pass
05EF24	Bedroom	88	Pass	100	Pass
05EF25	Bedroom	57	Pass	100	Pass
05EF26c	Living/Kitchen	69	Pass	100	Pass
05EF27	Bedroom	61	Pass	100	Pass
05EF28	Bedroom	40	Marginal	100	Pass
05EF29c	Living/Kitchen	63	Pass	100	Pass
05EF30	Bedroom	55	Pass	100	Pass
05EF31	Bedroom	64	Pass	100	Pass
05EF32c	Living/Kitchen	38	Fail	96	Pass
05EF33c	Living/Kitchen	65	Pass	100	Pass
05EF34	Bedroom	68	Pass	100	Pass
05EF35c	Living/Kitchen	49	Marginal	99	Pass

Block EF – E_T results - Tabulated.

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

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

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
05EF36	Bedroom	18	Fail	100	Pass
05EF37	Bedroom	54	Pass	100	Pass
05EF38c	Living/Kitchen	65	Pass	99	Pass
05EF39	Bedroom	69	Pass	100	Pass
05EF40	Bedroom	46	Marginal	100	Pass
05EF41c	Living/Kitchen	81	Pass	100	Pass
05EF42	Bedroom	48	Marginal	100	Pass
06EF01	Bedroom	60	Pass	100	Pass
06EF02c	Living/Kitchen	98	Pass	100	Pass
06EF03	Bedroom	47	Marginal	100	Pass
06EF04c	Living/Kitchen	46	Marginal	88	Marginal
06EF05	Bedroom	74	Pass	100	Pass
06EF06c	Living/Kitchen	22	Fail	100	Pass
06EF07	Bedroom	50	Pass	100	Pass
06EF08	Bedroom	100	Pass	100	Pass
06EF09c	Living/Kitchen	83	Pass	100	Pass
06EF10	Bedroom	42	Marginal	100	Pass
06EF11	Bedroom	47	Marginal	100	Pass
06EF12	Bedroom	53	Pass	100	Pass
06EF13	Bedroom	78	Pass	100	Pass
06EF14	Bedroom	37	Fail	95	Pass
06EF15c	Living/Kitchen	41	Marginal	100	Pass
06EF16	Bedroom	26	Fail	100	Pass
06EF17	Bedroom	38	Fail	100	Pass
06EF18c	Living/Kitchen	53	Pass	99	Pass
06EF19	Bedroom	23	Fail	97	Pass
06EF20	Bedroom	14	Fail	82	Marginal
06EF21	Bedroom	54	Pass	100	Pass
06EF22c	Living/Kitchen	100	Pass	100	Pass
06EF23c	Living/Kitchen	74	Pass	100	Pass
06EF24	Bedroom	59	Pass	100	Pass
06EF25	Bedroom	57	Pass	100	Pass
06EF26c	Living/Kitchen	78	Pass	100	Pass
06EF27	Bedroom	62	Pass	100	Pass
06EF28	Bedroom	40	Marginal	100	Pass
06EF29c	Living/Kitchen	64	Pass	100	Pass
06EF30	Bedroom	57	Pass	100	Pass
06EF31	Bedroom	65	Pass	100	Pass
06EF32c	Living/Kitchen	39	Fail	97	Pass
06EF33c	Living/Kitchen	73	Pass	100	Pass
06EF34	Bedroom	66	Pass	100	Pass
06EF35c	Living/Kitchen	58	Pass	99	Pass
06EF36	Bedroom	38	Fail	100	Pass
06EF37	Bedroom	74	Pass	100	Pass
06EF38c	Living/Kitchen	62	Pass	99	Pass
06EF39	Bedroom	54	Pass	100	Pass
06EF40	Bedroom	46	Marginal	100	Pass
06EF41c	Living/Kitchen	84	Pass	100	Pass
06EF42	Bedroom	52	Pass	100	Pass
07EF13	Bedroom	95	Pass	100	Pass
07EF14	Bedroom	39	Fail	100	Pass
07EF15c	Living/Kitchen	36	Fail	100	Pass
07EF16	Bedroom	18	Fail	100	Pass
07EF17	Bedroom	52	Pass	100	Pass
07EF18c	Living/Kitchen	49	Marginal	99	Pass
07EF19	Bedroom	14	Fail	94	Marginal
07EF20	Bedroom	9	Fail	56	Fail

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%
07EF21	Bedroom	49	Marginal	100	Pass
07EF22c	Living/Kitchen	96	Pass	100	Pass
07EF23c	Living/Kitchen	67	Pass	100	Pass
07EF24	Bedroom	29	Fail	100	Pass
07EF25	Bedroom	50	Pass	100	Pass
07EF26c	Living/Kitchen	54	Pass	100	Pass
07EF27	Bedroom	52	Pass	100	Pass
07EF28	Bedroom	17	Fail	82	Marginal
07EF29c	Living/Kitchen	59	Pass	100	Pass
07EF30	Bedroom	45	Marginal	100	Pass
07EF31	Bedroom	47	Marginal	100	Pass
07EF32c	Living/Kitchen	64	Pass	100	Pass
		Count	**284**	**Count**	**284**
		Pass	**120**	**Pass**	**227**
		Pass Rate 300lx/50%	**42%**	**Pass Rate 100lx/95%**	**80%**
		Marginal	44	Marginal	34
		Pass Margina	58%	Pass Margina	92%

Block G – E_T results - Tabulated.

NA.2 Minimum daylight provision

For all habitable rooms

Median External Diffuse Illuminance 14,900 lx

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

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00G01	Bedroom	40	Marginal	100	Pass
00G02c	Living/Kitchen	53	Pass	100	Pass
00G03	Bedroom	16	Fail	53	Fail
00G04c	Living/Kitchen	27	Fail	93	Marginal
00G05	Bedroom	11	Fail	100	Pass
00G06c	Living/Kitchen	72	Pass	100	Pass
00G07	Bedroom	100	Pass	100	Pass
00G10	Bedroom	60	Pass	100	Pass
00G11c	Living/Kitchen	85	Pass	100	Pass
00G12	Bedroom	31	Fail	100	Pass
01G01	Bedroom	36	Fail	100	Pass
01G02c	Living/Kitchen	55	Pass	100	Pass
01G03	Bedroom	19	Fail	68	Fail
01G04c	Living/Kitchen	30	Fail	94	Marginal
01G05	Bedroom	0	Fail	98	Pass
01G06c	Living/Kitchen	51	Pass	100	Pass
01G07	Bedroom	100	Pass	100	Pass
01G08c	Living/Kitchen	100	Pass	100	Pass
01G09	Bedroom	95	Pass	100	Pass
01G10	Bedroom	58	Pass	100	Pass
01G11c	Living/Kitchen	80	Pass	100	Pass
01G12	Bedroom	29	Fail	100	Pass
02G01	Bedroom	40	Marginal	100	Pass
02G02c	Living/Kitchen	72	Pass	100	Pass
02G03	Bedroom	24	Fail	71	Fail
02G04c	Living/Kitchen	31	Fail	95	Pass
02G05	Bedroom	0	Fail	80	Marginal
02G06c	Living/Kitchen	80	Pass	100	Pass
02G07	Bedroom	100	Pass	100	Pass
02G08c	Living/Kitchen	100	Pass	100	Pass
02G09	Bedroom	93	Pass	100	Pass
02G10	Bedroom	56	Pass	100	Pass
02G11c	Living/Kitchen	83	Pass	100	Pass
02G12	Bedroom	31	Fail	100	Pass
03G01	Bedroom	47	Marginal	100	Pass
03G02c	Living/Kitchen	73	Pass	100	Pass
03G03	Bedroom	29	Fail	87	Marginal
03G04c	Living/Kitchen	42	Marginal	99	Pass
03G05	Bedroom	21	Fail	100	Pass
03G06c	Living/Kitchen	78	Pass	100	Pass
03G07	Bedroom	100	Pass	100	Pass
03G08c	Living/Kitchen	100	Pass	100	Pass
03G09	Bedroom	95	Pass	100	Pass
03G10	Bedroom	55	Pass	100	Pass
03G11c	Living/Kitchen	85	Pass	100	Pass
03G12	Bedroom	38	Fail	100	Pass
04G01	Bedroom	52	Pass	100	Pass
04G02c	Living/Kitchen	87	Pass	100	Pass
04G03	Bedroom	36	Fail	100	Pass
04G04c	Living/Kitchen	49	Marginal	100	Pass
04G05	Bedroom	15	Fail	100	Pass
04G06c	Living/Kitchen	85	Pass	100	Pass
04G07	Bedroom	100	Pass	100	Pass
04G08c	Living/Kitchen	100	Pass	100	Pass
04G09	Bedroom	93	Pass	100	Pass
04G10	Bedroom	56	Pass	100	Pass
04G11c	Living/Kitchen	86	Pass	100	Pass
04G12	Bedroom	45	Marginal	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

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
05G01	Bedroom	59	Pass	100	Pass
05G02c	Living/Kitchen	93	Pass	100	Pass
05G03	Bedroom	41	Marginal	100	Pass
05G04c	Living/Kitchen	63	Pass	100	Pass
05G05	Bedroom	53	Pass	100	Pass
05G06c	Living/Kitchen	84	Pass	100	Pass
05G07	Bedroom	100	Pass	100	Pass
05G08c	Living/Kitchen	100	Pass	100	Pass
05G09	Bedroom	93	Pass	100	Pass
05G10	Bedroom	58	Pass	100	Pass
05G11c	Living/Kitchen	91	Pass	100	Pass
05G12	Bedroom	49	Marginal	100	Pass
06G01	Bedroom	60	Pass	100	Pass
06G02c	Living/Kitchen	95	Pass	100	Pass
06G03	Bedroom	43	Marginal	100	Pass
06G04c	Living/Kitchen	70	Pass	100	Pass
06G05	Bedroom	100	Pass	100	Pass
06G06c	Living/Kitchen	80	Pass	100	Pass
06G07	Bedroom	100	Pass	100	Pass
06G08c	Living/Kitchen	100	Pass	100	Pass
06G09	Bedroom	92	Pass	100	Pass
06G10	Bedroom	55	Pass	100	Pass
06G11c	Living/Kitchen	92	Pass	100	Pass
06G12	Bedroom	53	Pass	100	Pass
		Count	**82**	**Count**	**82**
		Pass	**55**	**Pass**	**75**
		Pass Rate 300lx/50%	**67%**	**Pass Rate 100lx/95%**	**91%**
		Marginal	9	Marginal	4
		Pass Margina	78%	Pass Margina	96%

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 %
AB	95%	98%	AB	61%	70%	AB	85%	92%
CD	93%	98%	CD	29%	47%	CD	89%	96%
EF	93%	96%	EF	42%	58%	EF	80%	92%
G	99%	100%	G	67%	78%	G	91%	96%
Total	**94%**	**97%**	**Total**	**46%**	**60%**	**Total**	**85%**	**93%**

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

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

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

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