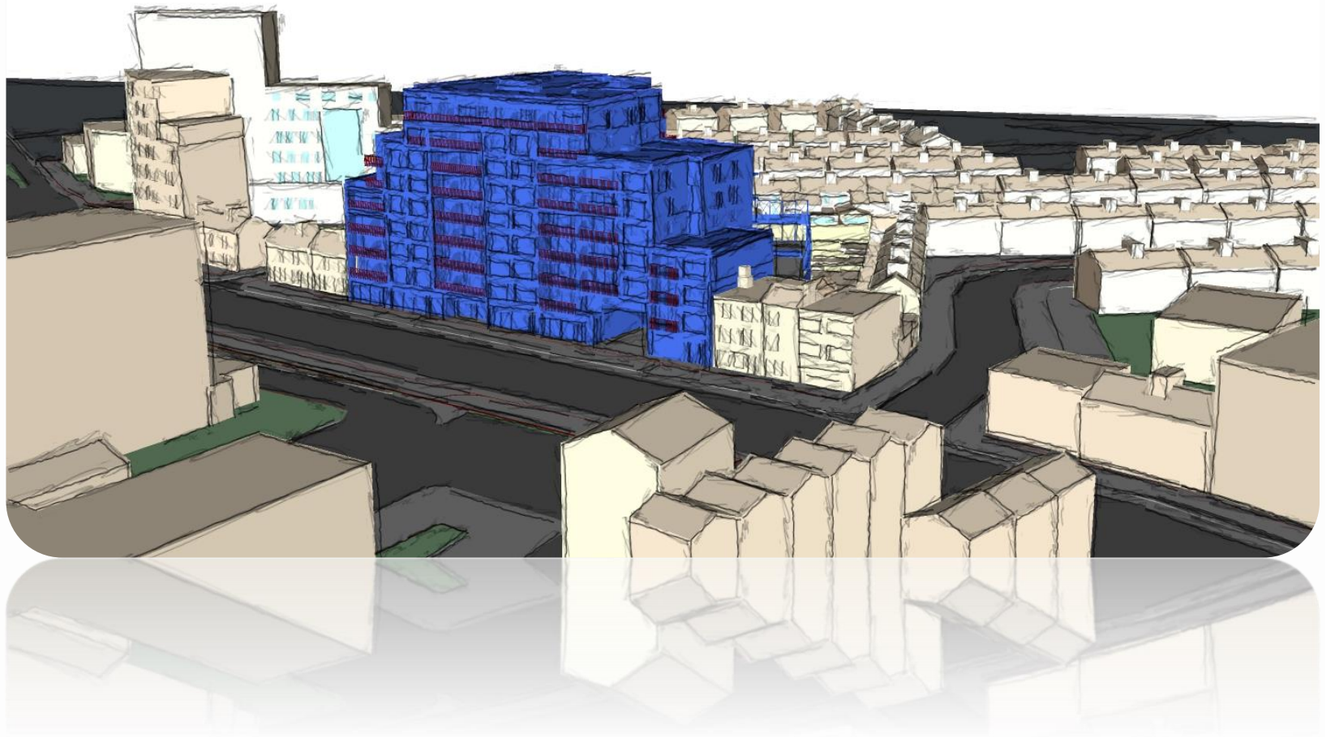
43-50 Dolphin's Barn Street - LRD

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

V30



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Executive Summary

This report examines the impact the proposed Development will have on neighbours in terms of daylight, sunlight & shadow. We will also examine how the proposed development performs in terms of light.

The report is, in accordance with Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice - Third Edition - 2022.

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

> *"Summary Page . . . It is purely advisory and the numerical target values within it may be varied to meet the needs of the development and its location."*
>
> *" 1.6 . . . The advice given here is not mandatory and the guide should not be seen as an instrument of planning policy; its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly since natural lighting is only one of many factors in site layout design. . . . "*

Change/Impact to neighbouring buildings in the adjoining residential areas.
Baseline: Permitted but lapsed Application on the site Reg. Ref.: 3853/17 and ABP Ref.: 302149-18

- **Skylight- VSC**
  - **96**% *(100% if marginals are included)* of tested windows pass the relevant VSC checks.
  - Average VSC change ratio is nominal at **0.97**
  - The results are consistent with those of the granted/lapsed permission and the nett change to impact is neutral/positive.
- **Sunlight APSH & WPSH**
  - **100%** tested windows pass the relevant Annual Sunlight APSH requirements.
  - **83%** *(100% including negligible)* pass the relevant Winter Sunlight WPSH requirements
  - The average change ratio for sunlight is APSH:**0.94** and WPSH: **1.73**
- **Shadow**
  - **95%** *(100% including marginals)* of the Gardens tested comply with the BRE requirements
  - The average change ratio for shadow/sunlight is **1.05**

Performance of the proposed design

- **Target Illuminance E_T**
  - **97%** *(99% including marginals)* of rooms comply with the BS/EN 17037 Annex NA room targets for 50% of the floor area tested.
  - The average compliant areas achieving the relevant target Lx for
    - all bedrooms is **86%** and
    - all Living/Kitchen spaces **68%**
    - both in excess of the required 50%
- **Sunlight to rooms:**
  - **76%** *(78% including marginals)* of Living rooms comply with the 1.5hr BRE test on the 21st March.
  - This is generally consistent with the BRE defined "careful layout design" 80% target.
- **Sunlight on the Ground SOG (Shadow)**

  The new provided amenity space complies with the BRE 2hr requirements.

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 an infill and regeneration project in an un-developed lot.

Architects' & Planners' Commentary / Compensatory Measures.

The design is constrained by its location, site shape and orientation. As an urban infill scheme with competing design constraints and objectives it is specifically covered by clauses 6.6/6.7 of the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities – amended July 2023:

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

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

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

The architect has endeavoured to design apartment units with good access to light given that this is an urban infill site. Project Specific Comments / Compensatory Design Solutions are provided under the following headings:

- Development Solar Orientation
- Site constraints and Constraints.
- Comparison with granted but lapsed development
- Specific Room commentary
- Room/Floor Layout Design

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

Introduction

Chris Shackleton Consulting (CSC) have been asked to provide a report on the impact that the proposed revised development will have on the existing neighbouring properties in terms of sunlight, daylight & shadow. We have also been asked to examine how the proposed development performs in terms of light.
We have been asked to reference the granted but lapsed permission on the site Reg. Ref.: 3853/17 and ABP Ref.: 302149-18 we shall use this as the baseline condition and shall additionally provide assessment against baselines of the existing and live SHD application in the accompanying Appendixes.

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

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

Preliminary Overview

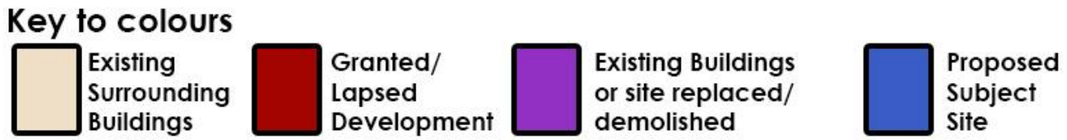
The aerial view shows the context for the site and the closest neighbouring window groups.



Google Earth extract © Google 2024

Design Model

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



These results are based on the information and models provided.



Existing Model (for information only)



Granted but lapsed Permission on this site.



Proposed 2025 – v30

Scope of this Report

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

Impact on Existing Neighbours

In this document we will assess the potential impact of the proposed development on the neighbouring residential houses. The baseline condition is the granted but lapsed development on this site:

- Existing facing windows for:
  - Impact/Change for Skylight – **V**ertical **S**ky **C**omponent - VSC
  - Impact/Change for **P**robable **S**unlight **H**ours – Annual APSH [1]
    Winter WPSH also reported but there should be a lower expectation for winter sunlight in a city environment.
- Existing amenity spaces for impact/change on Sunlight/Shadow

Development Performance

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

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

When examining the internal performance of the development we have tested all rooms on all floors.

Consistent Impact Terminology

The granted/lapsed Permission for this project provided an Impact on Neighbours analysis and we have been asked to provide a report which used the same terminology.

Impact terms used in the older permission were as follows. To match the previous report and for consistency, we have been asked to utilise the same terminology.

- "Negligible" for compliance with the guidelines
- "Minor" for variance of approx. 20% from guidelines
- "Moderate" for variance of approx. 20% from guidelines
- "Major" for variance of approx. 20% from guidelines
- These may be classified as Adverse or Beneficial
- In each case the variance normally measured from the ratio may also be considered from the minimum target.

Analysis against alternative baselines are provided in Appendixes to this report.

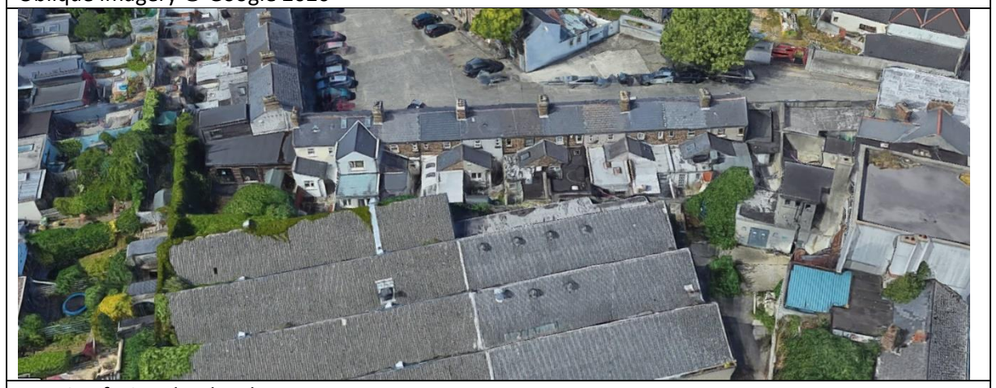
[1] Winter WPSH sunlight was not reported on the in the granted but lapsed permission since the assessment of low level winter sunlight in a city environment conflicts with the desirable densification of development. This report shall therefore also concentrate on Annual Sunlight Availability although results for both are presented.

Adjacent Properties Details

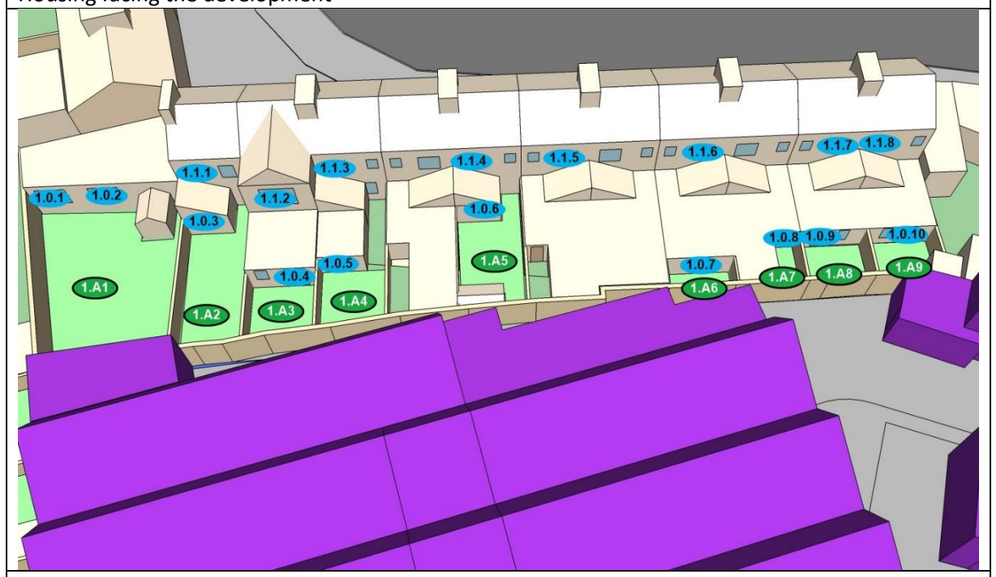
The numbering used later for windows and amenity spaces in each of the groups is detailed below.

Building Group 1 - Neighbours - North

Oblique imagery © Google 2020



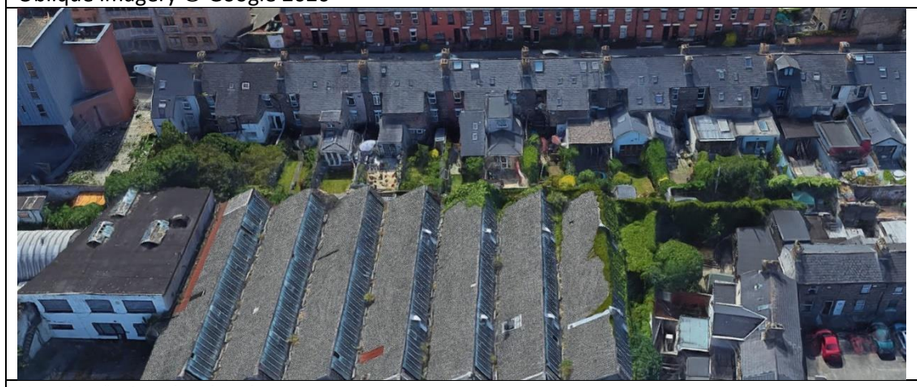
Housing facing the development



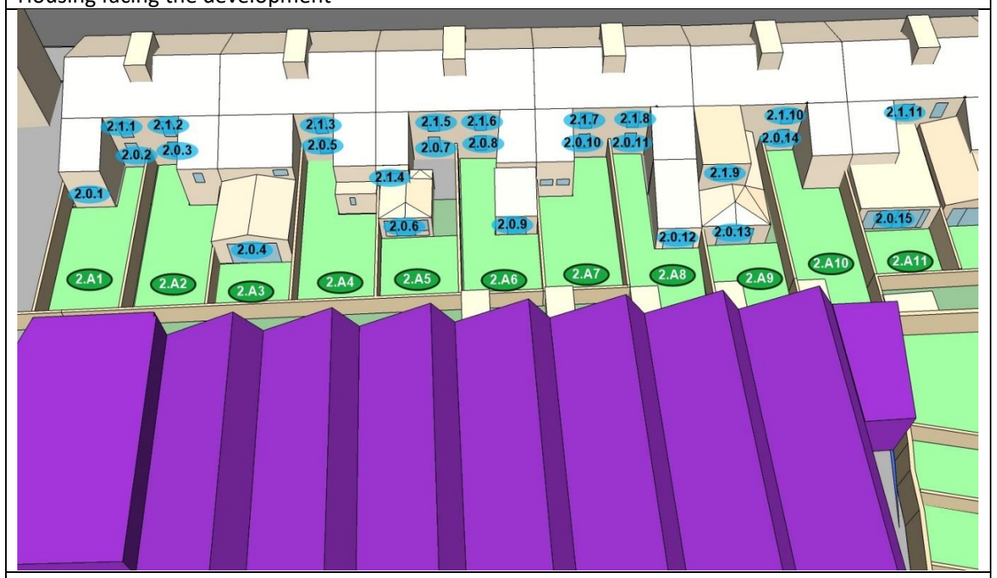
The numbering used later in this report for the windows in this window group is as indicated in cyan above.
Green indicates tested amenity spaces.

Building Group 2 - Neighbours - West

Oblique imagery © Google 2020



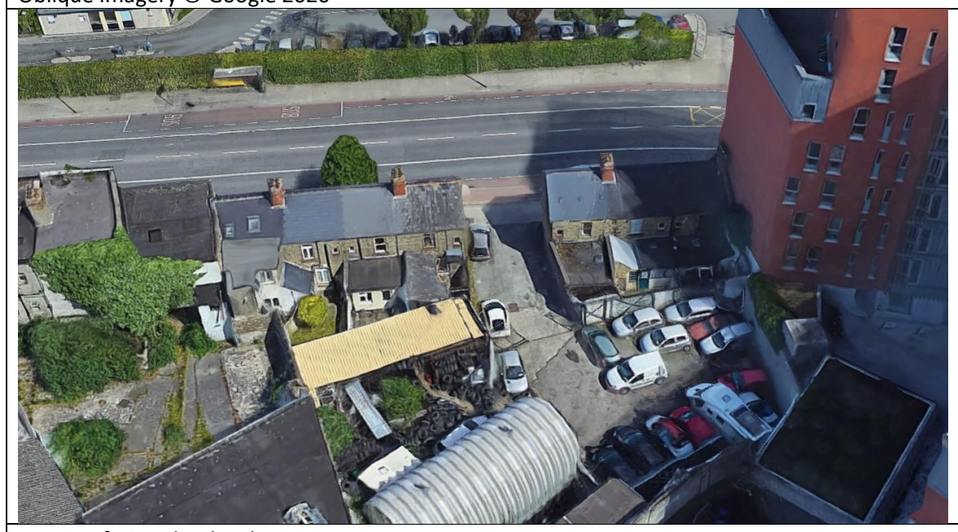
Housing facing the development



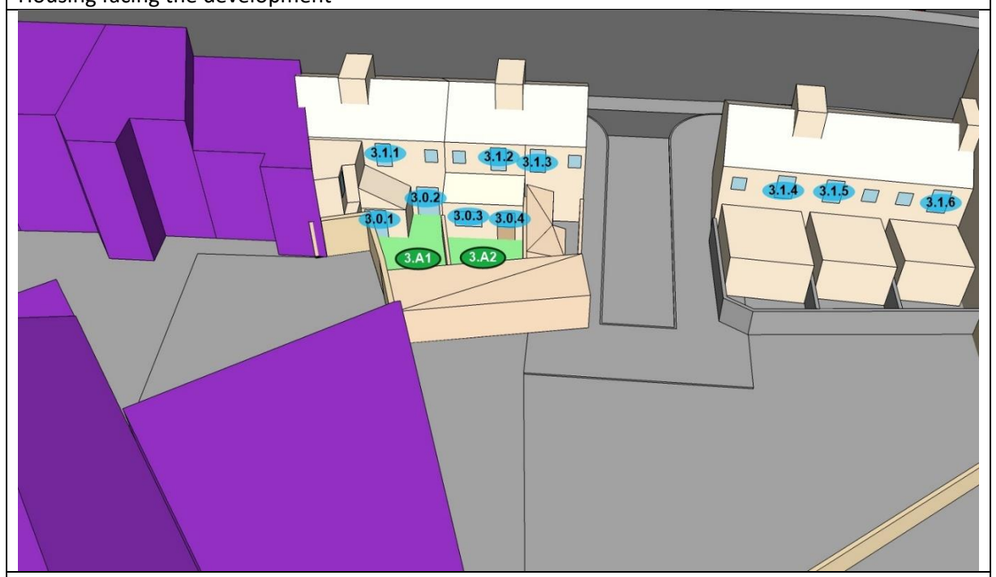
The numbering used later in this report for the windows in this window group is as indicated in cyan above.
Green indicates tested amenity spaces.

Building Group 3 - Neighbours - South

Oblique imagery © Google 2020



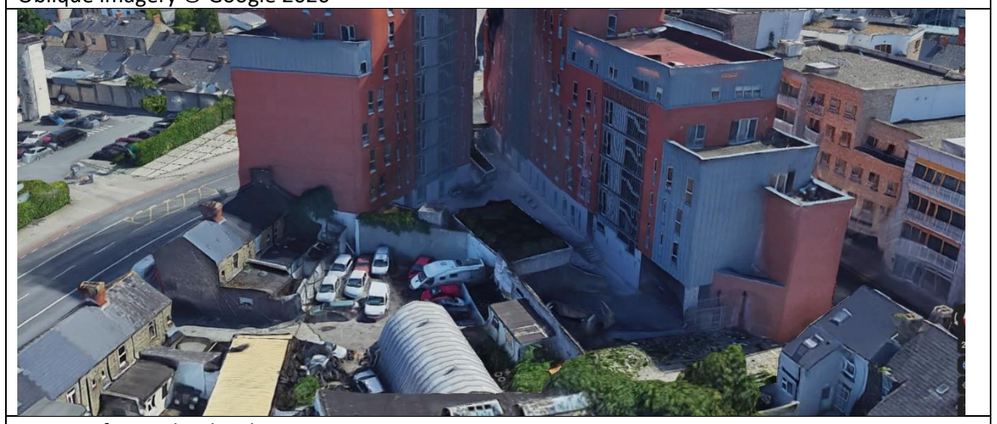
Housing facing the development



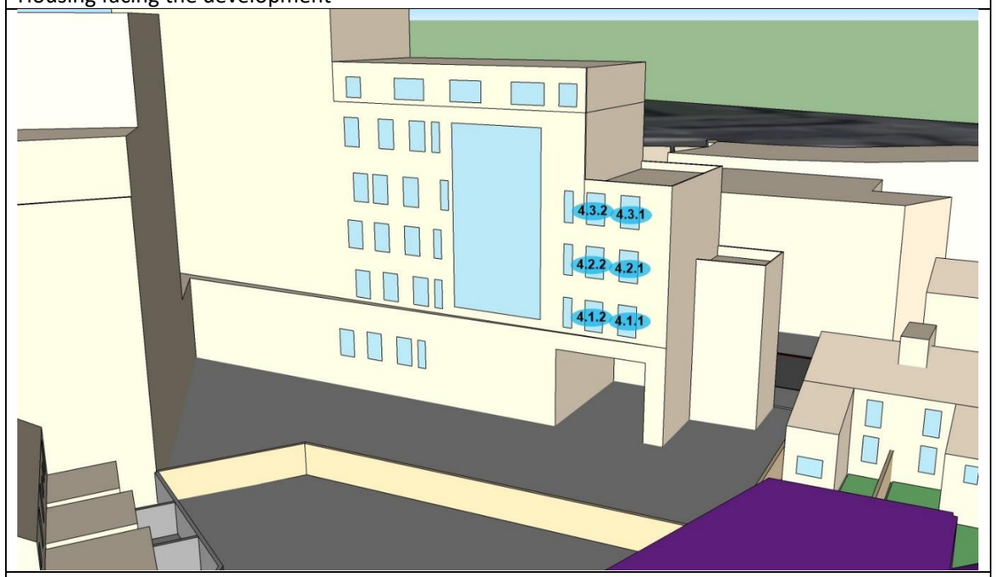
The numbering used later in this report for the windows in this window group is as indicated in cyan above.

Building Group 4 - Neighbours - South

Oblique imagery © Google 2020



Housing facing the development



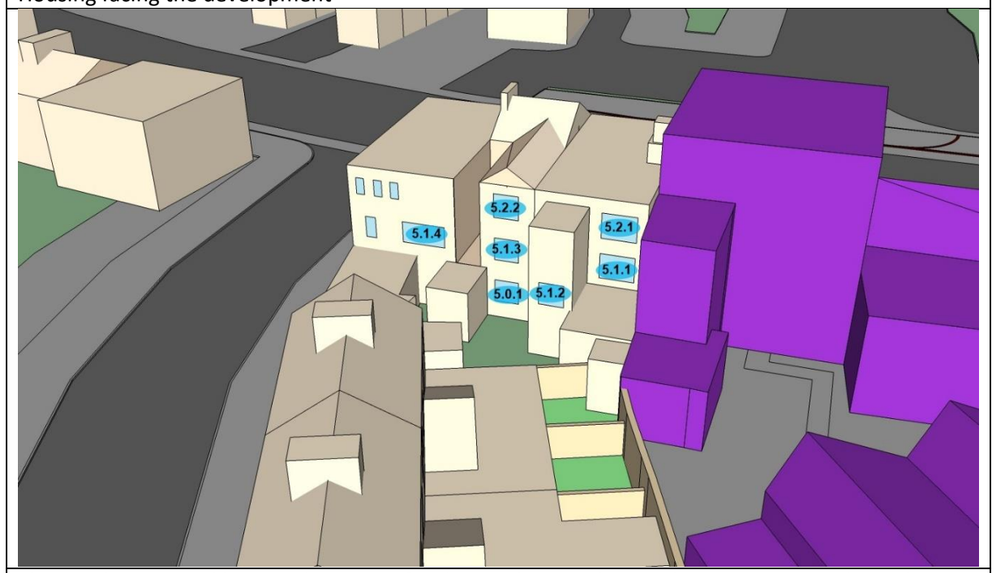
The numbering used later in this report for the windows in this window group is as indicated in cyan above.

Building Group 5 - Neighbours - North

Oblique imagery © Google 2020



Housing facing the development



The numbering used later in this report for the windows in this window group is as indicated in cyan above.

Impact on neighbours

Adjacent Properties - Light from the Sky impact on neighbouring properties

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

We have investigated this impact under clause 2.2.7

> ***2.2.7 If this VSC is greater than 27% then enough skylight should still be reaching the window of the existing building. This value of VSC typically supplies enough daylight to a standard room when combined with a window of normal dimensions, with glass area around 10% or more of the floor area. Any reduction below this level should be kept to a minimum. If the VSC, with the new development in place, is both less than 27% and less than 0.80 times its former value, occupants of the existing building will notice the reduction in the amount of skylight. The area lit by the window is likely to appear gloomier, and electric lighting will be needed more of the time. . . .***
>
> ***2.2.6 Any reduction in the total amount of skylight can be calculated by finding the VSC at the centre of each main window. In the case of a floor-to-ceiling window such as a patio door, a point 1.6 m above ground (or balcony level for an upper storey) on the centre line of the window may be used. For a bay window, the centre window facing directly outwards can be taken as the main window. If a room has two or more windows of equal size, the mean of their VSCs may be taken. The reference point is in the external plane of the window wall. Windows to bathrooms, toilets, storerooms, circulation areas, and garages need not be analysed. . . .***

Tabulated Results – Skylight VSC – Baseline granted/lapsed Application.

Skylight to habitable rooms								
v30	**VSC - Baseline granted/lapsed Application**							
Design	*Check > 27% or ratio > 0.8*							
Ref	**Floor**	**Window**	**Ref**	**Granted/ Lapsed**	**Proposed**	**Ratio**	**Result**	**Classification**
B1	**F0**	**W1**	1.0.1	27.3	26.6	0.97	Pass	***Negligible***
B1	F0	W2	1.0.2	30.1	29.3	0.97	Pass	***Negligible***
B1	F0	W3	1.0.3	26.8	26.7	1.00	Pass	***Negligible***
B1	F0	W4	1.0.4	16.5	20.5	1.24	Pass	***Minor Beneficial***
B1	F0	W5	1.0.5	17.5	19.9	1.13	Pass	***Minor Beneficial***
B1	F0	W6	1.0.6	23.1	21.9	0.95	Pass	***Negligible***
B1	F0	W7	1.0.7	17.3	13.8	0.80	Pass	***Negligible***
B1	F0	W8	1.0.8	15.4	11.8	0.77	Marginal	***Minor Adverse***
B1	F0	W9	1.0.9	17.1	13.2	0.77	Marginal	***Minor Adverse***
B1	F0	W10	1.0.10	14.3	10.6	0.74	Marginal	***Minor Adverse***
B1	F1	W1	1.1.1	30.0	29.4	0.98	Pass	***Negligible***
B1	F1	W2	1.1.2	28.8	28.2	0.98	Pass	***Negligible***
B1	F1	W3	1.1.3	23.6	22.8	0.96	Pass	***Negligible***
B1	F1	W4	1.1.4	27.2	26.0	0.95	Pass	***Negligible***
B1	F1	W5	1.1.5	26.4	24.3	0.92	Pass	***Negligible***
B1	F1	W6	1.1.6	25.1	22.1	0.88	Pass	***Negligible***
B1	F1	W7	1.1.7	23.8	20.3	0.85	Pass	***Negligible***
B1	F1	W8	1.1.8	23.2	19.8	0.85	Pass	***Negligible***
B2	**F0**	**W1**	2.0.1	29.9	29.1	0.97	Pass	***Negligible***
B2	F0	W2	2.0.2	17.4	16.5	0.95	Pass	***Negligible***
B2	F0	W3	2.0.3	20.4	19.6	0.96	Pass	***Negligible***
B2	F0	W4	2.0.4	21.9	23.6	1.08	Pass	***Minor Beneficial***
B2	F0	W5	2.0.5	11.7	11.7	0.99	Pass	***Negligible***
B2	F0	W6	2.0.6	18.8	21.8	1.16	Pass	***Minor Beneficial***
B2	F0	W7	2.0.7	19.4	18.8	0.97	Pass	***Negligible***
B2	F0	W8	2.0.8	16.8	17.7	1.05	Pass	***Minor Beneficial***
B2	F0	W9	2.0.9	22.1	22.6	1.02	Pass	***Negligible***
B2	F0	W10	2.0.10	20.3	19.7	0.97	Pass	***Negligible***
B2	F0	W11	2.0.11	18.1	17.8	0.98	Pass	***Negligible***
B2	F0	W12	2.0.12	32.5	31.2	0.96	Pass	***Negligible***
B2	F0	W13	2.0.13	26.8	25.6	0.95	Pass	***Negligible***
B2	F0	W14	2.0.14	18.9	18.4	0.97	Pass	***Negligible***
B2	F0	W15	2.0.15	30.4	29.8	0.98	Pass	***Negligible***
B2	F1	W1	2.1.1	26.5	25.7	0.97	Pass	***Negligible***
B2	F1	W2	2.1.2	26.2	25.2	0.96	Pass	***Negligible***
B2	F1	W3	2.1.3	23.1	23.1	1.00	Pass	***Negligible***
B2	F1	W4	2.1.4	27.5	29.0	1.05	Pass	***Minor Beneficial***
B2	F1	W5	2.1.5	27.5	27.4	1.00	Pass	***Negligible***
B2	F1	W6	2.1.6	26.3	26.3	1.00	Pass	***Negligible***
B2	F1	W7	2.1.7	27.9	26.9	0.97	Pass	***Negligible***
B2	F1	W8	2.1.8	27.2	27.2	1.00	Pass	***Negligible***
B2	F1	W9	2.1.9	31.5	31.0	0.98	Pass	***Negligible***
B2	F1	W10	2.1.10	28.3	27.5	0.97	Pass	***Negligible***
B2	F1	W11	2.1.11	32.4	31.8	0.98	Pass	***Negligible***

Skylight to habitable rooms								
v30	**VSC - Baseline granted/lapsed Application**							
Design	*Check > 27% or ratio > 0.8*							
Ref	**Floor**	**Window**	**Ref**	**Granted/ Lapsed**	**Proposed**	**Ratio**	**Result**	**Classification**
B3	**F0**	**W1**	3.0.1	12.5	10.5	0.84	Pass	***Negligible***
B3	F0	W2	3.0.2	19.5	19.8	1.01	Pass	***Negligible***
B3	F0	W3	3.0.3	23.4	23.7	1.01	Pass	***Negligible***
B3	F0	W4	3.0.4	23.1	23.3	1.01	Pass	***Negligible***
B3	F1	W1	3.1.1	23.4	24.0	1.03	Pass	***Negligible***
B3	F1	W2	3.1.2	27.0	27.0	1.00	Pass	***Negligible***
B3	F1	W3	3.1.3	27.6	27.5	1.00	Pass	***Negligible***
B3	F1	W4	3.1.4	27.2	26.8	0.99	Pass	***Negligible***
B3	F1	W5	3.1.5	26.2	25.9	0.99	Pass	***Negligible***
B3	F1	W6	3.1.6	21.2	20.9	0.99	Pass	***Negligible***
B4	**F1**	**W1**	4.1.1	31.7	30.7	0.97	Pass	***Negligible***
B4	F1	W2	4.1.2	31.4	30.4	0.97	Pass	***Negligible***
B4	F2	W1	4.2.1	33.8	32.8	0.97	Pass	***Negligible***
B4	F2	W2	4.2.2	33.5	32.5	0.97	Pass	***Negligible***
B4	F3	W1	4.3.1	35.7	34.7	0.97	Pass	***Negligible***
B4	F3	W2	4.3.2	35.5	34.5	0.97	Pass	***Negligible***
B5	F0	W1	5.0.1	19.7	19.7	1.00	Pass	***Negligible***
B5	**F1**	**W1**	5.1.1	19.0	21.8	1.15	Pass	***Minor Beneficial***
B5	F1	W2	5.1.2	32.8	31.8	0.97	Pass	***Negligible***
B5	F1	W3	5.1.3	29.7	29.7	1.00	Pass	***Negligible***
B5	F1	W4	5.1.4	35.4	34.8	0.98	Pass	***Negligible***
B5	F2	W1	5.2.1	29.3	28.6	0.98	Pass	***Negligible***
B5	F2	W2	5.2.2	36.4	35.5	0.98	Pass	***Negligible***

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

Conclusion

The impact on neighbours tested against the granted but lapsed proposal:
96% ***(100%** if marginals are included)* of tested windows comply with the 27%, 0.8 ratio requirements for habitable rooms.

The average change ratio for VSC is **0.97**

The proposed development generally complies with the requirements of the BRE guidelines in relation to maintaining skylight availability for neighbours against the granted but lapsed baseline. The results are consistent with those of the granted/lapsed permission impact is neutral/positive.

Adjacent Properties - Sunlight into living spaces

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

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

While not all windows relate to living rooms, we have for completeness tested all of them. Note only windows which face within 90˚of due South require testing.

Tabulated Results – Sunlight APSH & WPSH – Baseline granted/lapsed Application.

Sunlight on windows to living room spaces check

v30 **Annual - 25% and Winter - 5%** - Baseline granted/lapsed Application

Design				*Check > 25% or ratio > 0.8*					*Check > 5% or ratio > 0.8*					
Ref	Floor	Window	Ref	Granted/ Lapsed	Proposed	Ratio	Result	Classification	Granted/ Lapsed	Proposed	Ratio	Result	Classification	
B1	F0	W1	1.0.1	62.5	61.7	0.99	Pass	*Negligible*	11.3	11.4	1.01	Pass	*Negligible*	
B1	F0	W2	1.0.2	69.7	67.7	0.97	Pass	*Negligible*	17.6	17.1	0.97	Pass	*Negligible*	
B1	F0	W3	1.0.3	67.1	66.1	0.99	Pass	*Negligible*	12.0	13.1	1.09	Pass	*Negligible*	
B1	F0	W4	1.0.4	49.6	53.2	1.07	Pass	*Minor Beneficial*	0.9	3.9	4.55	Pass	*Major Beneficial*	
B1	F0	W5	1.0.5	46.9	48.7	1.04	Pass	*Negligible*	0.3	3.7	11.75	Pass	*Major Beneficial*	
B1	F0	W6	1.0.6	60.3	60.3	1.00	Pass	*Negligible*	5.9	8.2	1.38	Pass	*Minor Beneficial*	
B1	F0	W7	1.0.7	48.6	40.4	0.83	Pass	*Negligible*	1.8	1.3	0.74	-	*Negligible - Note*	**2
B1	F0	W8	1.0.8	36.8	28.4	0.77	Pass	*Negligible*	0.3	0.2	0.50	-	*Negligible - Note*	**2
B1	F0	W9	1.0.9	45.8	37.5	0.82	Pass	*Negligible*	2.6	1.9	0.71	-	*Negligible - Note*	**2
B1	F0	W10	1.0.10	38.1	27.4	0.72	Pass	*Negligible*	1.6	1.6	1.00	Pass	*Negligible*	
B1	F1	W1	1.1.1	67.2	65.9	0.98	Pass	*Negligible*	17.9	17.6	0.99	Pass	*Negligible*	
B1	F1	W2	1.1.2	71.6	68.2	0.95	Pass	*Negligible*	15.4	14.6	0.95	Pass	*Negligible*	
B1	F1	W3	1.1.3	51.9	50.7	0.98	Pass	*Negligible*	7.9	8.2	1.03	Pass	*Negligible*	
B1	F1	W4	1.1.4	67.8	66.5	0.98	Pass	*Negligible*	11.3	11.7	1.03	Pass	*Negligible*	
B1	F1	W5	1.1.5	65.3	62.8	0.96	Pass	*Negligible*	9.2	8.8	0.95	Pass	*Negligible*	
B1	F1	W6	1.1.6	63.2	59.6	0.94	Pass	*Negligible*	7.2	6.4	0.88	Pass	*Negligible*	
B1	F1	W7	1.1.7	60.5	56.5	0.93	Pass	*Negligible*	5.3	4.4	0.84	PASS	*Negligible - Note*	**1
B1	F1	W8	1.1.8	57.8	53.4	0.92	Pass	*Negligible*	4.7	4.1	0.87	Pass	*Negligible*	

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

**1 Window 1.1.7 complies with the APSH reduction of less than 4% requirement

**2 Baseline winter sunlight to windows noted thus are minimal and thus Impact on these windows is also negligible, albeit that the ratios may be appear as disproportionately low.

Most windows face North and only windows which face within 90˚of due South require testing.

Conclusion

The impact on neighbours tested against the granted but lapsed proposal:

100% of tested windows comply with the annual APSH and
83% *(100% including negligible)* with the winter WPSH requirements for sunlight or overall requirement.

The average change ratio for sunlight is APSH:**0.94** and WPSH: **1.73**

The proposed development generally complies with the BRE guidelines in relation to both annual and winter sunlight availability to neighbours. The results are consistent with those of the granted/lapsed permission and the nett APSH and WPSH is neutral.

Adjacent Properties – Sunlight on the Ground (Shadow)

Gardens and Open spaces

Tests for the availability of sunlight in amenity areas.

3.3.17 It is recommended that for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on 21 March. If as a result of new development an existing garden or amenity area does not meet the above, and the area that can receive two hours of sun on 21 March is less than 0.80 times its former value, then the loss of sunlight is likely to be noticeable. If a detailed calculation cannot be carried out, it is recommended that the centre of the area should receive at least two hours of sunlight on 21 March

3.3.3 The availability of sunlight should be checked for all open spaces where it will be required. This would normally include:

• gardens, such as the main back garden of a house or communal gardens including courtyards and roof terraces

• parks and playing fields

• children's playgrounds

• outdoor swimming pools and paddling pools, and other areas of recreational water such as marinas and boating lakes

• sitting out areas such as those between non-domestic buildings and in public squares

• nature reserves (which may have special requirements for sunlight if rare plants are growing there).

The amenities of the following properties were tested.

- Rear gardens to Window Groups 1, 2 & 3

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** is marginal or borderline - just below the 2-hour requirement



Granted but Lapsed



Proposed 2025-v30

Tabulated Results – Shadow – Baseline granted/lapsed Application.

			Shadow to amenity spaces					
	v30		**Design**	**2-hour Sunlight - 21st March**				
				- Baseline granted/lapsed Application				
				Check > 50% or ratio > 0.8				
Block	**Zone**	**Ref**	**Description**	**Existing**	**Proposed**	**Ratio**	**Result**	**Classification**
B1	A1	1.A1	Rear Garden	47%	45%	0.96	Pass	***Negligible***
B1	A2	1.A2	Rear Garden	16%	33%	2.06	Pass	***Major beneficial***
B1	A3	1.A3	Rear Garden	0%	0%		Pass	***Negligible***
B1	A4	1.A4	Rear Garden	0%	0%		Pass	***Negligible***
B1	A5	1.A5	Rear Garden	22%	22%	1.00	Pass	***Negligible***
B1	A6	1.A6	Rear Garden	0%	0%		Pass	***Negligible***
B1	A7	1.A7	Rear Garden	0%	0%		Pass	***Negligible***
B1	A8	1.A8	Rear Garden	0%	0%		Pass	***Negligible***
B1	A9	1.A9	Rear Garden	0%	0%		Pass	***Negligible***
B2	A1	2.A1	Rear Garden	25%	25%	1.00	Pass	***Negligible***
B2	A2	2.A2	Rear Garden	40%	40%	1.00	Pass	***Negligible***
B2	A3	2.A3	Rear Garden	43%	43%	1.00	Pass	***Negligible***
B2	A4	2.A4	Rear Garden	40%	40%	1.00	Pass	***Negligible***
B2	A5	2.A5	Rear Garden	55%	55%	1.00	Pass	***Negligible***
B2	A6	2.A6	Rear Garden	39%	39%	1.00	Pass	***Negligible***
B2	A7	2.A7	Rear Garden	41%	42%	1.02	Pass	***Minor beneficial***
B2	A8	2.A8	Rear Garden	40%	40%	1.00	Pass	***Negligible***
B2	A9	2.A9	Rear Garden	50%	49%	0.98	Pass	***Negligible***
B2	A10	2.A10	Rear Garden	44%	44%	1.00	Pass	***Negligible***
B2	A11	2.A11	Rear Garden	51%	50%	0.98	Pass	***Negligible***
B3	A1	3.A1	Rear Garden	25%	19%	0.76	Marginal	***Minor Adverse***
B3	A2	3.A2	Rear Garden	1%	1%	1.00	Pass	***Negligible***

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

Some of the amenity spaces receive nominal light over an exceedingly small area, change impact to these spaces will show a disproportionate change ratio not consistent with the spirit of the guidelines. Percentage changes of around 2% are classified here as negligible.

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

The impact on neighbours tested against the granted but lapsed proposal:

95% *(100% if we include marginals)* of tested neighbouring amenity spaces pass the BRE 2-hours of sunlight on the 21st of March or 0.8 ratio requirement.

The average change ratio for the tested amenity spaces **1.05**

The proposed development generally complies with the requirements of the BRE guidelines for impact on amenity Sunlight/Shadow. The results are consistent with those of the granted/lapsed permission and shadow impacts are neutral.

Summary - Adjacent Properties

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

Change/Impact to neighbouring buildings in the adjoining residential areas.
Baseline: Permitted but lapsed Application on the site Reg. Ref.: 3853/17 and ABP Ref.: 302149-18

- **Skylight- VSC**
  - **96**% *(100% if marginals are included)* of tested windows pass the relevant VSC checks.
  - Average VSC change ratio is nominal at **0.97**
  - The results are consistent with those of the granted/lapsed permission and the nett change to impact is neutral/positive.
- **Sunlight APSH & WPSH**
  - **100%** tested windows pass the relevant Annual Sunlight APSH requirements.
  - **83%** *(100% including negligible)* pass the relevant Winter Sunlight WPSH requirements
  - The average change ratio for sunlight is APSH:**0.94** and WPSH: **1.73**
- **Shadow**
  - **95%** *(100% including marginals)* of the Gardens tested comply with the BRE requirements
  - The average change ratio for shadow/sunlight is **1.05**

The results show that the impacts of this proposed development are generally consistent with those of the granted but lapsed permission and may be classified as neutral / beneficial.

Development Performance

Development Performance - Target Illuminance E_T Metric

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

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

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

> ***Target illuminance (ET) :***
> ***Illuminance from daylight that should be achieved for at least half of annual daylight hours across a specified fraction of the reference plane in a daylit space***

Reference in Irish Government Publications:

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

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

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

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

NA.2 - Minimum daylight provision in UK dwellings

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

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

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

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

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

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

This is echoed in The BRE Guidelines

> ***C16 The UK National Annex gives illuminance recommendations of 100 lux in bedrooms, 150 lux in living rooms and 200 lux in kitchens. These are the median illuminances, to be exceeded over at least 50% of the assessment points in the room for at least half of the daylight hours. The recommended levels over 95% of a reference plane need not apply to dwellings in the UK.***
>
> ***C17 Where a room has a shared use, the highest target should apply. For example in a bed sitting room in student accommodation, the value for a living room should be used if students would often spend time in their rooms during the day. Local authorities could use discretion here. For example, the target for a living room could be used for a combined living/dining/kitchen area if the kitchens are not treated as habitable spaces, as it may avoid small separate kitchens in a design. The kitchen space would still need to be included in the assessment area … in rooms with a particular requirement for daylight, such as bed sitting rooms in homes for the elderly, higher values … may be taken.***

Analysis Parameters

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

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

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

Reference plane or working plane

> *Horizontal, vertical, or inclined plane in which a visual task lies. Normally the working plane may be taken to be horizontal, 0.85 m above the floor in houses and factories, 0.7 m above the floor in offices.*

Legend for Radiance Plots

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



Assessment Areas

Where rooms have small annexed entrances or corridors they need not be included in the assessment grid area, (unless it is wide enough to be part of the usable space in a room, typically over 1.5m wide).

Fig C2 – Fixed floor to ceiling units

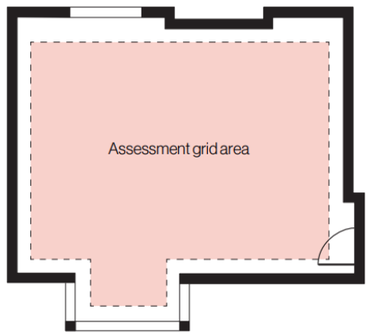


Figure C2: Where room layouts have small variations or alcoves along a wall's length, the inner or dominant section should be taken as a basis for the 0.3m gap to the assessment grid area. Fixed floor to ceiling cupboards can be excluded from the room area, but not kitchen units incorporating a worktop.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

Fig C3 - Corridors/entrances

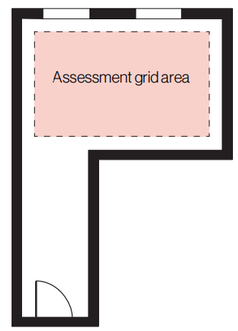


Figure C3: In a room with a corridor, or annexed entrance, the corridor need not be included in the assessment grid area (unless it is wide enough to be part of the usable space in a room, typically over 1.5m wide). The room layout and surfaces, including the corridor would still need to be included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

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

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

Room referencing

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

In the result tables the following referencing is used.

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

01A02c = 1st Floor, Block A, room 2 which is an LKD (Living/Kitchen/Dining room).
00A10 = Ground Floor, Block A, room 10 which is a bedroom.

Block A - Target Illuminance E_T

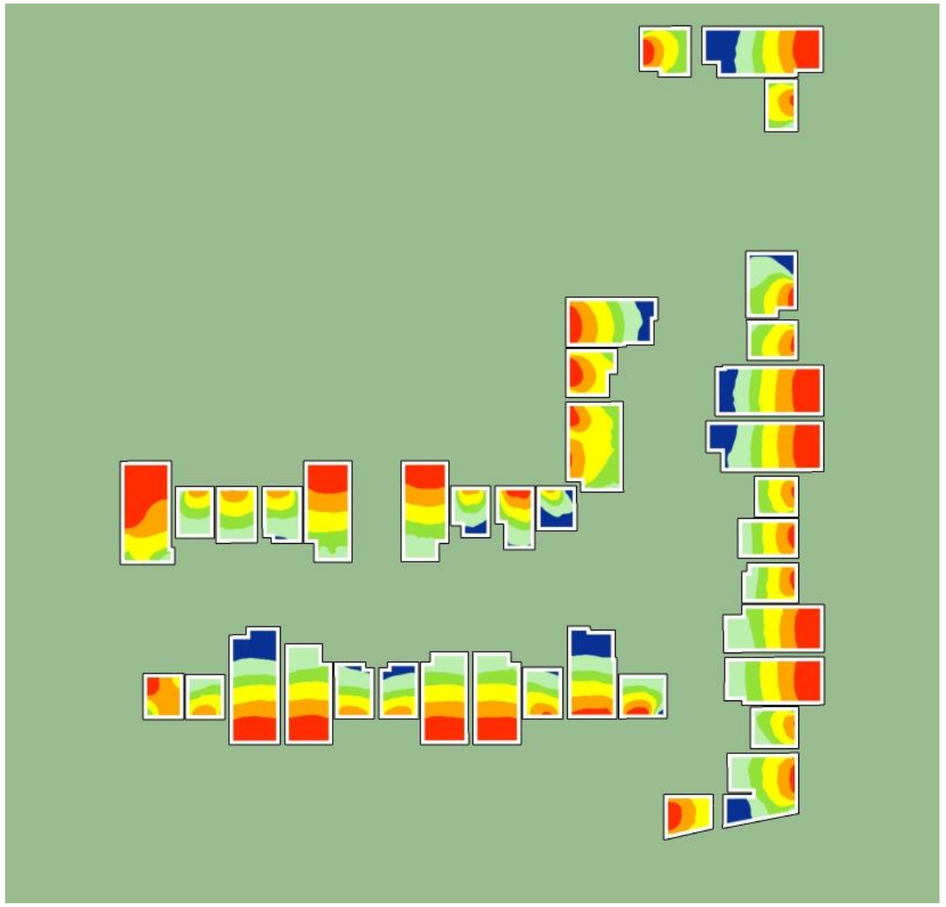
GFL Floor Layout – Naming Convention


00X02L
00X01L
APT 0-03
Type D
74.77 m²
APT 0-04
Type A
51.22 m²
APT 0-02
Type B
75.63 m²
APT 0-01
Type A
51.22 m²
Car park
15 Parking Spaces
Proposed Vehicle & Cyclist Entrance
Pedestrian Gate
Community Hub Access
Sensory Garden
Play Area
Clear Glass
Residents access
Main Residential Entrance
Lobby & Foyer
Plant Room
Sensory Surface
VRF Condenser
Pool Boxes
Pool Storage
Changing Village
Stair Core 01
Stair Core 02
Stair Core 03
Lift Motor Room
Lift Overrun
Fire Lift
Lift Pit
Lift Shaft
Group Fire Enclosure
Glass Lifts & Stairs
1-Tier Racks
34 Bike Spaces
1-Tier Racks
38 Bike Spaces
1-Tier Racks
108 Bike Spaces
1-Tier Racks
20 Bike Spaces
Secure Cycle Storage
Secure Cycle Storage
Secure Cycle Storage

1st Floor Layout – Naming Convention (Also 2nd Floor)



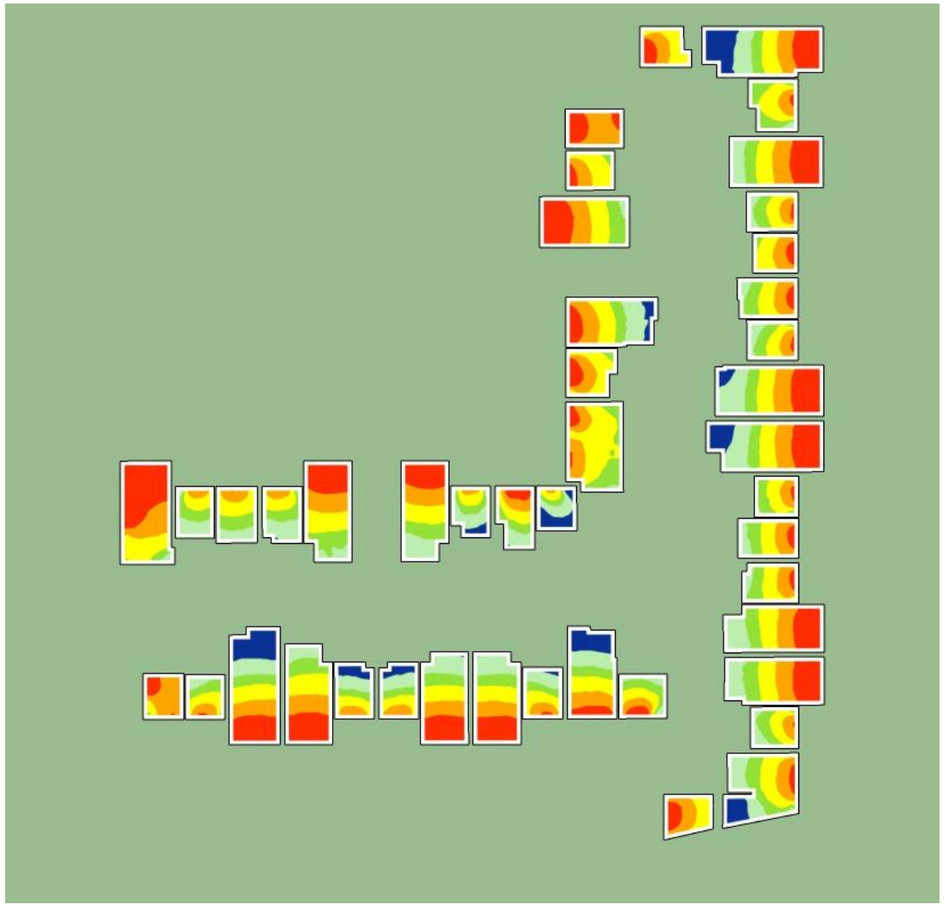
Radiance Plot - Level 01



2nd Floor Layout – Naming Convention



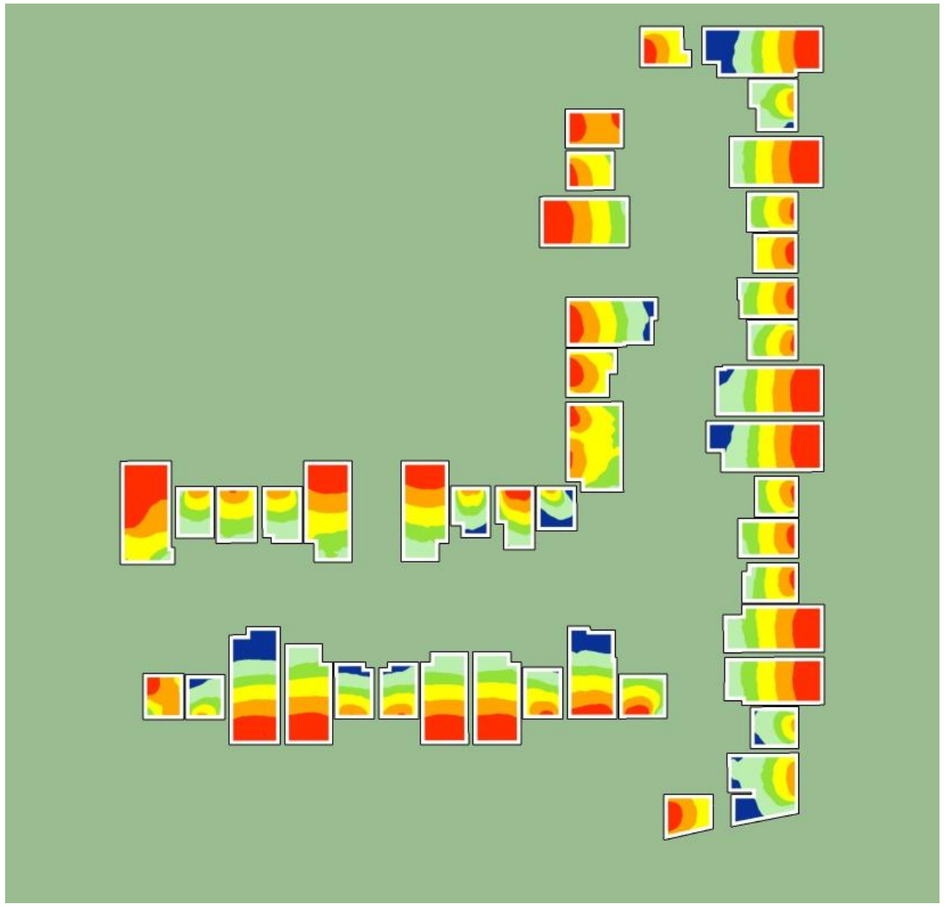
Radiance Plot - Level 02



3rd Floor Layout – Naming Convention



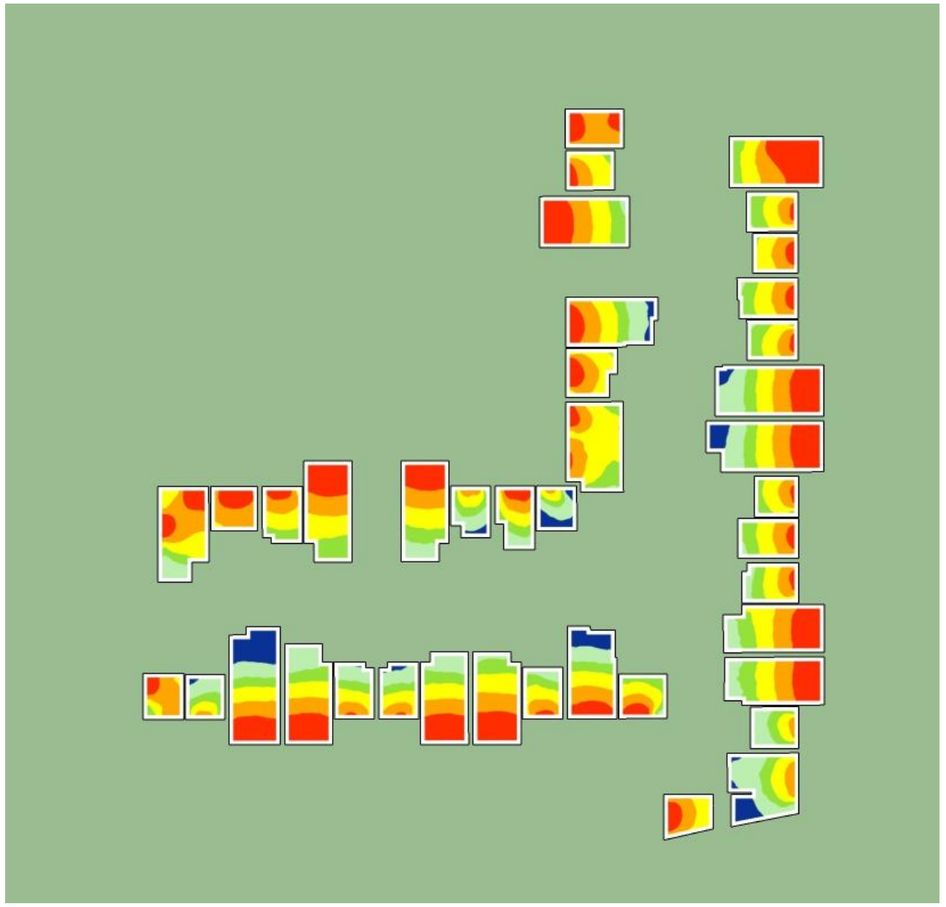
Radiance Plot - Level 03



4th Floor Layout – Naming Convention



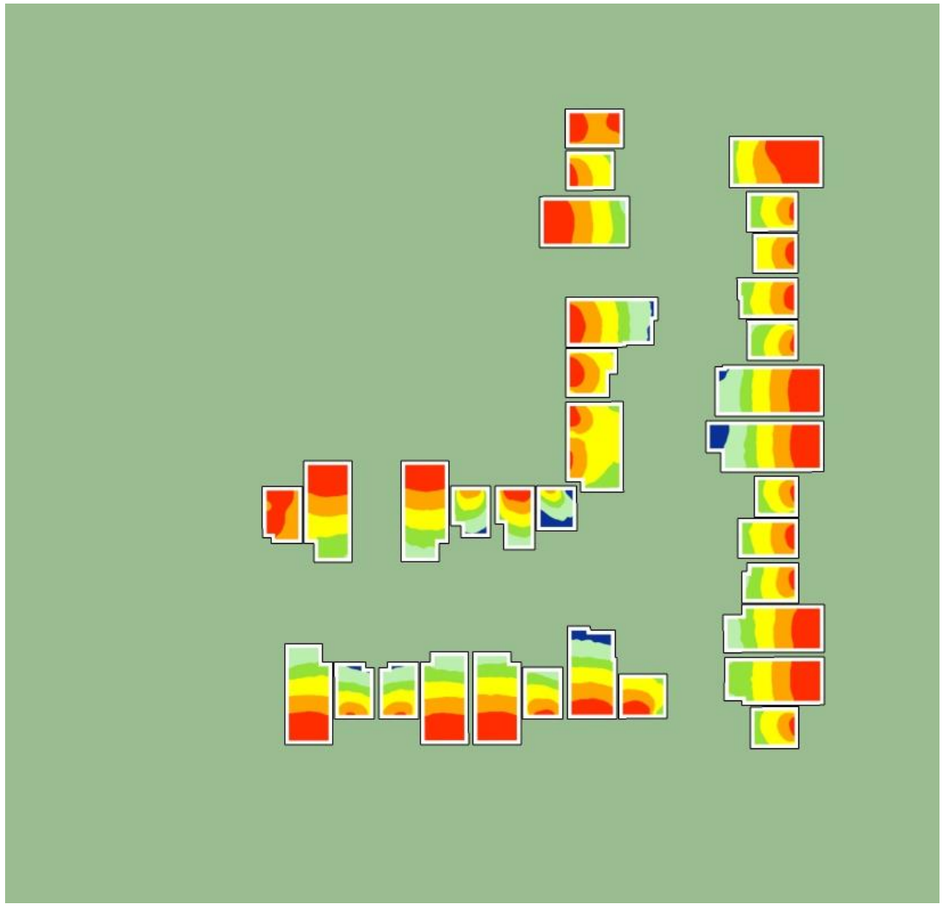
Radiance Plot - Level 04



5th Floor Layout – Naming Convention



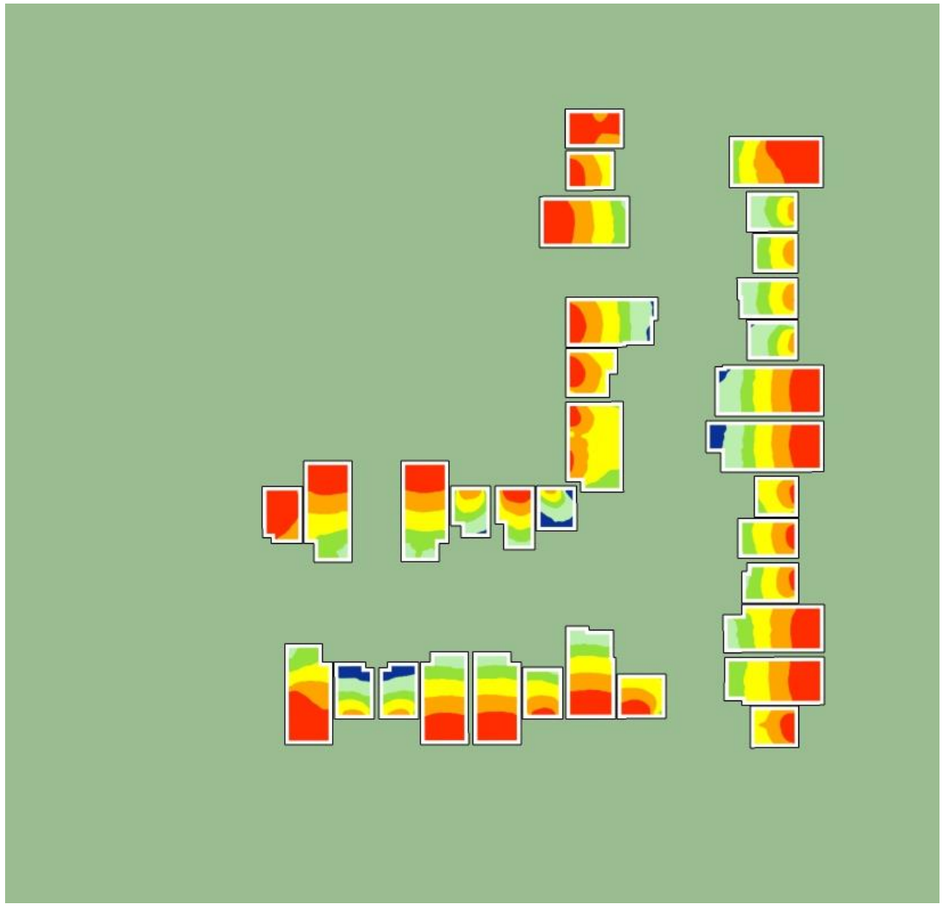
Radiance Plot - Level 05



6th Floor Layout – Naming Convention



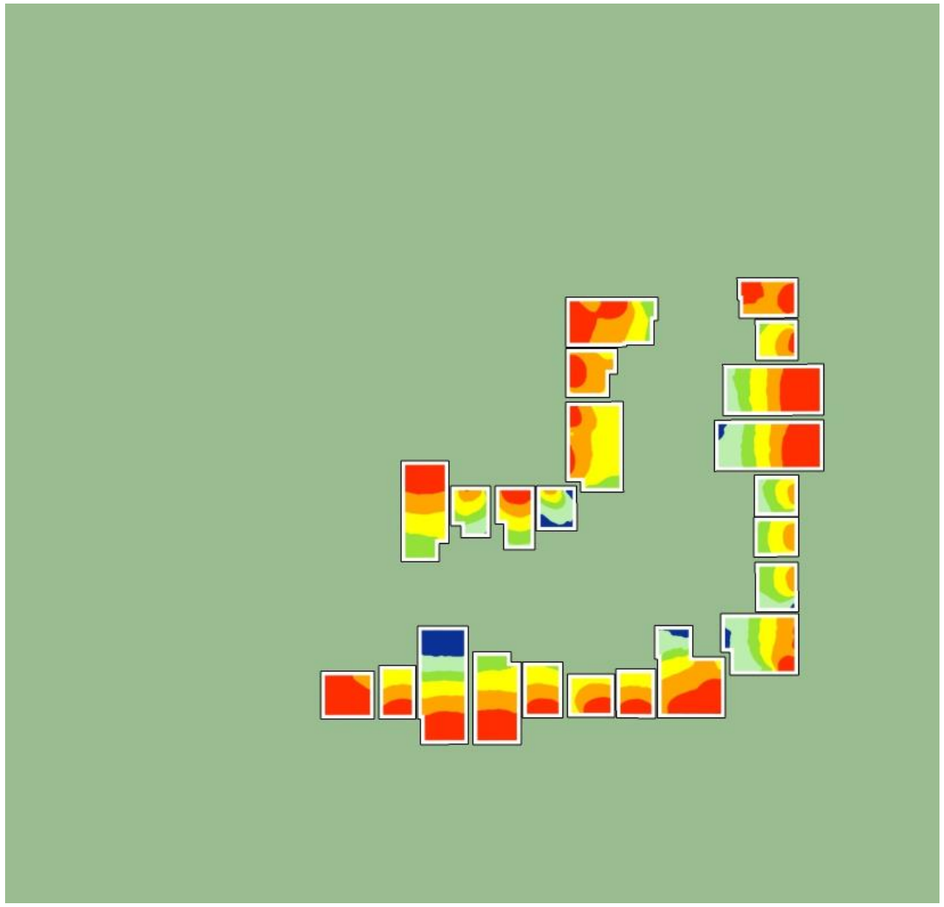
Radiance Plot - Level 06



7th Floor Layout – Naming Convention



Radiance Plot - Level 07



8th Floor Layout – Naming Convention



Radiance Plot - Level 08



NA.2 Minimum daylight provision

For all habitable rooms

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

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

A-v30 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
00A07	Bedroom	100	100	Pass
00A08c	Living/Kitchen	73	200	Pass
00A09c	Living/Kitchen	57	200	Pass
00A10	Bedroom	100	100	Pass
00A11	Bedroom	100	100	Pass
00A12c	Living/Kitchen	96	200	Pass
00A13	Bedroom	100	100	Pass
00A14	Bedroom	100	100	Pass
00A15	Bedroom	100	100	Pass
00A16c	Living/Kitchen	68	200	Pass
01A01	Bedroom	96	100	Pass
01A02c	Living/Kitchen	41	200	Marginal
01A03	Bedroom	95	100	Pass
01A04c	Living/Kitchen	65	200	Pass
01A05c	Living/Kitchen	65	200	Pass
01A06	Bedroom	79	100	Pass
01A07	Bedroom	93	100	Pass
01A08c	Living/Kitchen	64	200	Pass
01A09c	Living/Kitchen	51	200	Pass
01A10	Bedroom	100	100	Pass
01A11	Bedroom	100	100	Pass
01A12c	Living/Kitchen	90	200	Pass
01A13	Bedroom	100	100	Pass
01A14	Bedroom	100	100	Pass
01A15	Bedroom	95	100	Pass
01A16c	Living/Kitchen	73	200	Pass
01A17c	Living/Kitchen	63	200	Pass
01A18	Bedroom	77	100	Pass
01A19	Bedroom	100	100	Pass
01A20	Bedroom	51	100	Pass
01A21c	Living/Kitchen	65	200	Pass
01A22	Bedroom	100	100	Pass
01A23c	Living/Kitchen	51	200	Pass
01A27	Bedroom	100	100	Pass
01A28c	Living/Kitchen	49	200	Marginal
01A29	Bedroom	100	100	Pass
01A33	Bedroom	85	100	Pass
01A34	Bedroom	100	100	Pass
01A35c	Living/Kitchen	59	200	Pass
01A36c	Living/Kitchen	56	200	Pass
01A37	Bedroom	100	100	Pass
01A38	Bedroom	100	100	Pass
01A39	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

A-v30 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
01A40c	Living/Kitchen	61	200	Pass
01A41c	Living/Kitchen	64	200	Pass
01A42	Bedroom	100	100	Pass
01A43c	Living/Kitchen	36	200	Fail
01A44	Bedroom	100	100	Pass
02A01	Bedroom	100	100	Pass
02A02c	Living/Kitchen	46	200	Marginal
02A03	Bedroom	92	100	Pass
02A04c	Living/Kitchen	65	200	Pass
02A05c	Living/Kitchen	65	200	Pass
02A06	Bedroom	79	100	Pass
02A07	Bedroom	76	100	Pass
02A08c	Living/Kitchen	72	200	Pass
02A09c	Living/Kitchen	51	200	Pass
02A10	Bedroom	100	100	Pass
02A11	Bedroom	100	100	Pass
02A12c	Living/Kitchen	93	200	Pass
02A13	Bedroom	100	100	Pass
02A14	Bedroom	100	100	Pass
02A15	Bedroom	98	100	Pass
02A16c	Living/Kitchen	74	200	Pass
02A17c	Living/Kitchen	64	200	Pass
02A18	Bedroom	78	100	Pass
02A19	Bedroom	100	100	Pass
02A20	Bedroom	53	100	Pass
02A21c	Living/Kitchen	71	200	Pass
02A22	Bedroom	100	100	Pass
02A23c	Living/Kitchen	55	200	Pass
02A24c	Living/Kitchen	77	200	Pass
02A25	Bedroom	100	100	Pass
02A26	Bedroom	100	100	Pass
02A27	Bedroom	100	100	Pass
02A28c	Living/Kitchen	51	200	Pass
02A29	Bedroom	100	100	Pass
02A30c	Living/Kitchen	70	200	Pass
02A31	Bedroom	100	100	Pass
02A32	Bedroom	100	100	Pass
02A33	Bedroom	100	100	Pass
02A34	Bedroom	100	100	Pass
02A35c	Living/Kitchen	61	200	Pass
02A36c	Living/Kitchen	56	200	Pass
02A37	Bedroom	100	100	Pass
02A38	Bedroom	100	100	Pass
02A39	Bedroom	100	100	Pass
02A40c	Living/Kitchen	66	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

A-v30 Type

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
02A41c	Living/Kitchen	67	200	Pass
02A42	Bedroom	100	100	Pass
02A43c	Living/Kitchen	38	200	Fail
02A44	Bedroom	100	100	Pass
03A01	Bedroom	100	100	Pass
03A02c	Living/Kitchen	47	200	Marginal
03A03	Bedroom	96	100	Pass
03A04c	Living/Kitchen	69	200	Pass
03A05c	Living/Kitchen	65	200	Pass
03A06	Bedroom	89	100	Pass
03A07	Bedroom	78	100	Pass
03A08c	Living/Kitchen	68	200	Pass
03A09c	Living/Kitchen	50	200	Pass
03A10	Bedroom	86	100	Pass
03A11	Bedroom	100	100	Pass
03A12c	Living/Kitchen	93	200	Pass
03A13	Bedroom	100	100	Pass
03A14	Bedroom	100	100	Pass
03A15	Bedroom	100	100	Pass
03A16c	Living/Kitchen	76	200	Pass
03A17c	Living/Kitchen	66	200	Pass
03A18	Bedroom	80	100	Pass
03A19	Bedroom	100	100	Pass
03A20	Bedroom	57	100	Pass
03A21c	Living/Kitchen	71	200	Pass
03A22	Bedroom	100	100	Pass
03A23c	Living/Kitchen	54	200	Pass
03A24c	Living/Kitchen	78	200	Pass
03A25	Bedroom	100	100	Pass
03A26	Bedroom	100	100	Pass
03A27	Bedroom	100	100	Pass
03A28c	Living/Kitchen	50	200	Pass
03A29	Bedroom	94	100	Pass
03A30c	Living/Kitchen	70	200	Pass
03A31	Bedroom	100	100	Pass
03A32	Bedroom	100	100	Pass
03A33	Bedroom	100	100	Pass
03A34	Bedroom	100	100	Pass
03A35c	Living/Kitchen	62	200	Pass
03A36c	Living/Kitchen	57	200	Pass
03A37	Bedroom	100	100	Pass
03A38	Bedroom	100	100	Pass
03A39	Bedroom	100	100	Pass
03A40c	Living/Kitchen	69	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

A-v30 Type

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
03A41c	Living/Kitchen	68	200	Pass
03A42	Bedroom	89	100	Pass
03A43c	Living/Kitchen	24	200	Fail
03A44	Bedroom	100	100	Pass
04A01	Bedroom	100	100	Pass
04A02c	Living/Kitchen	51	200	Pass
04A03	Bedroom	100	100	Pass
04A04c	Living/Kitchen	79	200	Pass
04A05c	Living/Kitchen	67	200	Pass
04A06	Bedroom	93	100	Pass
04A07	Bedroom	97	100	Pass
04A08c	Living/Kitchen	65	200	Pass
04A09c	Living/Kitchen	50	200	Pass
04A10	Bedroom	94	100	Pass
04A11	Bedroom	100	100	Pass
04A12c	Living/Kitchen	76	200	Pass
04A13	Bedroom	100	100	Pass
04A15	Bedroom	100	100	Pass
04A16c	Living/Kitchen	80	200	Pass
04A17c	Living/Kitchen	69	200	Pass
04A18	Bedroom	87	100	Pass
04A19	Bedroom	100	100	Pass
04A20	Bedroom	61	100	Pass
04A21c	Living/Kitchen	79	200	Pass
04A22	Bedroom	100	100	Pass
04A23c	Living/Kitchen	56	200	Pass
04A24c	Living/Kitchen	78	200	Pass
04A25	Bedroom	100	100	Pass
04A26	Bedroom	100	100	Pass
04A30c	Living/Kitchen	86	200	Pass
04A31	Bedroom	100	100	Pass
04A32	Bedroom	100	100	Pass
04A33	Bedroom	100	100	Pass
04A34	Bedroom	100	100	Pass
04A35c	Living/Kitchen	62	200	Pass
04A36c	Living/Kitchen	60	200	Pass
04A37	Bedroom	100	100	Pass
04A38	Bedroom	100	100	Pass
04A39	Bedroom	100	100	Pass
04A40c	Living/Kitchen	73	200	Pass
04A41c	Living/Kitchen	68	200	Pass
04A42	Bedroom	100	100	Pass
04A43c	Living/Kitchen	25	200	Fail
04A44	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

A-v30 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
05A01	Bedroom	100	100	Pass
05A02c	Living/Kitchen	56	200	Pass
05A03	Bedroom	100	100	Pass
05A04c	Living/Kitchen	75	200	Pass
05A05c	Living/Kitchen	69	200	Pass
05A06	Bedroom	95	100	Pass
05A07	Bedroom	95	100	Pass
05A08c	Living/Kitchen	68	200	Pass
05A15	Bedroom	100	100	Pass
05A16c	Living/Kitchen	78	200	Pass
05A17c	Living/Kitchen	69	200	Pass
05A18	Bedroom	90	100	Pass
05A19	Bedroom	100	100	Pass
05A20	Bedroom	60	100	Pass
05A21c	Living/Kitchen	81	200	Pass
05A22	Bedroom	100	100	Pass
05A23c	Living/Kitchen	59	200	Pass
05A24c	Living/Kitchen	80	200	Pass
05A25	Bedroom	100	100	Pass
05A26	Bedroom	100	100	Pass
05A30c	Living/Kitchen	91	200	Pass
05A31	Bedroom	100	100	Pass
05A32	Bedroom	100	100	Pass
05A33	Bedroom	100	100	Pass
05A34	Bedroom	100	100	Pass
05A35c	Living/Kitchen	66	200	Pass
05A36c	Living/Kitchen	60	200	Pass
05A37	Bedroom	100	100	Pass
05A38	Bedroom	100	100	Pass
05A39	Bedroom	100	100	Pass
05A40c	Living/Kitchen	71	200	Pass
05A41c	Living/Kitchen	73	200	Pass
05A42	Bedroom	100	100	Pass
06A01	Bedroom	100	100	Pass
06A02c	Living/Kitchen	70	200	Pass
06A03	Bedroom	100	100	Pass
06A04c	Living/Kitchen	74	200	Pass
06A05c	Living/Kitchen	71	200	Pass
06A06	Bedroom	74	100	Pass
06A07	Bedroom	71	100	Pass
06A08c	Living/Kitchen	81	200	Pass
06A15	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

A-v30 **Type**

Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
06A16c	Living/Kitchen	76	200	Pass
06A17c	Living/Kitchen	71	200	Pass
06A18	Bedroom	95	100	Pass
06A19	Bedroom	100	100	Pass
06A20	Bedroom	64	100	Pass
06A21c	Living/Kitchen	85	200	Pass
06A22	Bedroom	100	100	Pass
06A23c	Living/Kitchen	60	200	Pass
06A24c	Living/Kitchen	81	200	Pass
06A25	Bedroom	100	100	Pass
06A26	Bedroom	100	100	Pass
06A30c	Living/Kitchen	87	200	Pass
06A31	Bedroom	100	100	Pass
06A32	Bedroom	100	100	Pass
06A33	Bedroom	100	100	Pass
06A34	Bedroom	98	100	Pass
06A35c	Living/Kitchen	64	200	Pass
06A36c	Living/Kitchen	61	200	Pass
06A37	Bedroom	100	100	Pass
06A38	Bedroom	100	100	Pass
06A39	Bedroom	100	100	Pass
06A40c	Living/Kitchen	75	200	Pass
06A41c	Living/Kitchen	81	200	Pass
06A42	Bedroom	100	100	Pass
07A01c	Living/Kitchen	77	200	Pass
07A02	Bedroom	100	100	Pass
07A03	Bedroom	100	100	Pass
07A04	Bedroom	100	100	Pass
07A05c	Living/Kitchen	83	200	Pass
07A06c	Living/Kitchen	53	200	Pass
07A07	Bedroom	100	100	Pass
07A08	Bedroom	100	100	Pass
07A09c	Living/Kitchen	78	200	Pass
07A10	Bedroom	98	100	Pass
07A11	Bedroom	100	100	Pass
07A12	Bedroom	69	100	Pass
07A13c	Living/Kitchen	90	200	Pass
07A14	Bedroom	100	100	Pass
07A15c	Living/Kitchen	89	200	Pass
07A16	Bedroom	100	100	Pass
07A17	Bedroom	100	100	Pass
07A18c	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

A-v30	Type			
Ref	Type	Percentage within Target Lux	BS/EN17037 Annex AN Target Lux	Check
07A19c	Living/Kitchen	63	200	Pass
07A20	Bedroom	100	100	Pass
07A21	Bedroom	100	100	Pass
07A22	Bedroom	98	100	Pass
07A23c	Living/Kitchen	48	200	Marginal
08A01c	Living/Kitchen	88	200	Pass
08A02	Bedroom	100	100	Pass
08A03	Bedroom	100	100	Pass
08A04c	Living/Kitchen	81	200	Pass
08A05c	Living/Kitchen	70	200	Pass
08A06	Bedroom	98	100	Pass
08A07	Bedroom	100	100	Pass
08A08c	Living/Kitchen	80	200	Pass
08A09	Bedroom	100	100	Pass
08A10	Bedroom	100	100	Pass
08A11	Bedroom	100	100	Pass
08A12c	Living/Kitchen	100	200	Pass
08A13	Bedroom	100	100	Pass
08A14c	Living/Kitchen	99	200	Pass
08A15c	Living/Kitchen	100	200	Pass
08A16	Bedroom	100	100	Pass
08A17	Bedroom	100	100	Pass
08A18	Bedroom	100	100	Pass
08A19	Bedroom	100	100	Pass
08A20c	Living/Kitchen	61	200	Pass
08A21	Bedroom	100	100	Pass
08A22c	Living/Kitchen	100	200	Pass
GFL Communal				
00X01L	Living	83	150	Pass
00X02L	Living	51	150	Pass

Summary

The majority of rooms comply with requirements.

Where rooms do not comply the Architect will provide compensatory measures.

97% of rooms comply with the BS/EN 17037 Annex NA room targets for 50% of the floor area tested.
(99% if we include marginal results)

The average compliant areas achieving the relevant target Lx for all bedrooms is 96% and all Living/Kitchen spaces 68% both 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 or infer that an 80% pass rate is considered careful layout design.

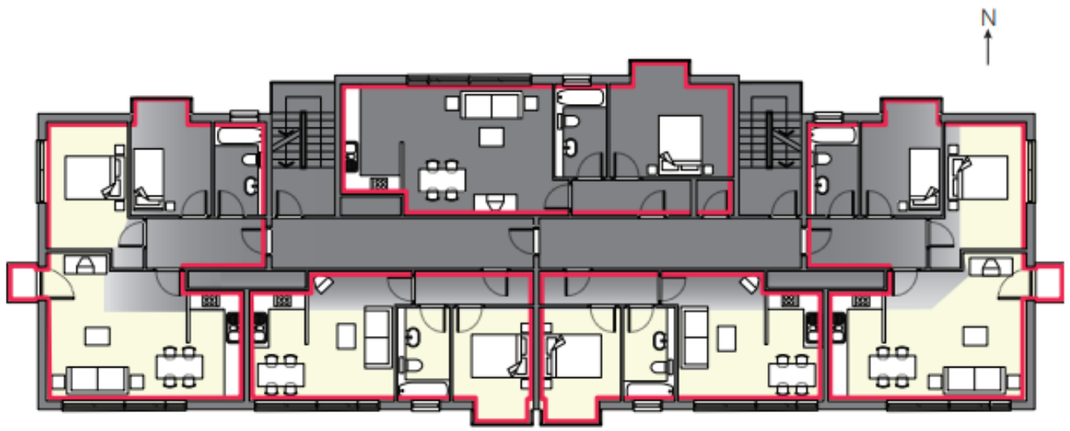


Figure 26: Careful layout design means that four out of the five flats shown have a south-facing living room

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

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

Sunlight to living rooms

Receives 1.5 hours of sunlight on 21st March

A-v30 Block	Floor	Window/Room	Ref	Hrs of Sun	Pass		Quality	
A	F0	R08	00.A.08	7.8	Pass			High
A	F0	R09	00.A.09	7.2	Pass			High
A	F0	R12	00.A.12	1.5	Pass	Min		
A	F0	R16	00.A.16	0.0	North			
A	F1	R02	01.A.02	4.8	Pass			High
A	F1	R04	01.A.04	8.2	Pass			High
A	F1	R05	01.A.05	8.5	Pass			High
A	F1	R08	01.A.08	9.0	Pass			High
A	F1	R9	01.A.9	9.0	Pass			High
A	F1	R12	01.A.12	3.0	Pass		Medium	
A	F1	R16	01.A.16	0.0	North			
A	F1	R17	01.A.17	0.0	North			
A	F1	R21	01.A.21	0.0	North			
A	F1	R23	01.A.23	0.0	North			
A	F1	R28	01.A.28	5.3	Pass			High
A	F1	R35	01.A.35	3.8	Pass		Medium	
A	F1	R36	01.A.36	3.8	Pass		Medium	
A	F1	R40	01.A.40	4.7	Pass			High
A	F1	R41	01.A.41	5.0	Pass			High
A	F1	R43	01.A.43	3.0	Pass		Medium	
A	F2	R02	02.A.02	4.8	Pass			High
A	F2	R04	02.A.04	8.5	Pass			High
A	F2	R05	02.A.05	8.8	Pass			High
A	F2	R08	02.A.08	9.7	Pass			High
A	F2	R09	02.A.09	10.0	Pass			High
A	F2	R12	02.A.12	3.8	Pass		Medium	
A	F2	R16	02.A.16	0.0	North			
A	F2	R17	02.A.17	0.0	North			
A	F2	R21	02.A.21	0.0	North			
A	F2	R23	02.A.23	0.2	North			
A	F2	R24	02.A.24	2.0	Pass	Min		
A	F2	R28	02.A.28	5.7	Pass			High
A	F2	R30	02.A.30	5.7	Pass			High
A	F2	R35	02.A.35	4.3	Pass			High
A	F2	R36	02.A.36	4.3	Pass			High
A	F2	R40	02.A.40	4.7	Pass			High
A	F2	R41	02.A.41	5.0	Pass			High
A	F2	R43	02.A.43	3.0	Pass		Medium	

Sunlight to living rooms

Receives 1.5 hours of sunlight on 21st March

A-v30 Block	Floor	Window/Room	Ref	Hrs of Sun	Pass		Quality	
A	F3	R02	03.A.02	5.3	Pass			High
A	F3	R04	03.A.04	9.2	Pass			High
A	F3	R05	03.A.05	9.7	Pass			High
A	F3	R08	03.A.08	10.5	Pass			High
A	F3	R09	03.A.09	10.2	Pass			High
A	F3	R12	03.A.12	3.8	Pass		Medium	
A	F3	R16	03.A.16	0.0	North			
A	F3	R17	03.A.17	0.0	North			
A	F3	R21	03.A.21	0.0	North			
A	F3	R23	03.A.23	0.3	North			
A	F3	R24	03.A.24	2.3	Pass	Min		
A	F3	R28	03.A.28	5.8	Pass			High
A	F3	R30	03.A.30	5.8	Pass			High
A	F3	R35	03.A.35	5.3	Pass			High
A	F3	R36	03.A.36	5.0	Pass			High
A	F3	R40	03.A.40	4.7	Pass			High
A	F3	R41	03.A.41	5.0	Pass			High
A	F3	R43	03.A.43	2.2	Pass	Min		
A	F4	R02	04.A.02	7.0	Pass			High
A	F4	R04	04.A.04	10.5	Pass			High
A	F4	R05	04.A.05	10.2	Pass			High
A	F4	R08	04.A.08	10.5	Pass			High
A	F4	R09	04.A.09	10.2	Pass			High
A	F4	R12	04.A.12	3.8	Pass		Medium	
A	F4	R16	04.A.16	0.0	North			
A	F4	R17	04.A.17	0.0	North			
A	F4	R21	04.A.21	0.0	North			
A	F4	R23	04.A.23	1.2	Marginal			
A	F4	R24	04.A.24	3.0	Pass		Medium	
A	F4	R30	04.A.30	6.0	Pass			High
A	F4	R35	04.A.35	5.7	Pass			High
A	F4	R36	04.A.36	5.7	Pass			High
A	F4	R40	04.A.40	5.0	Pass			High
A	F4	R41	04.A.41	5.2	Pass			High
A	F4	R43	04.A.43	2.3	Pass	Min		

Sunlight to living rooms

Receives 1.5 hours of sunlight on 21st March

A-v30 Block	Floor	Window/Room	Ref	Hrs of Sun	Pass			Quality	
A	F5	R02	05.A.02	7.7	Pass				High
A	F5	R04	05.A.04	10.5	Pass				High
A	F5	R05	05.A.05	10.2	Pass				High
A	F5	R08	05.A.08	10.5	Pass				High
A	F5	R16	05.A.16	0.0	North				
A	F5	R17	05.A.17	0.0	North				
A	F5	R21	05.A.21	0.0	North				
A	F5	R23	05.A.23	1.2	Marginal				
A	F5	R24	05.A.24	3.3	Pass			Medium	
A	F5	R30	05.A.30	6.0	Pass				High
A	F5	R35	05.A.35	5.8	Pass				High
A	F5	R36	05.A.36	6.0	Pass				High
A	F5	R40	05.A.40	5.3	Pass				High
A	F5	R41	05.A.41	5.5	Pass				High
A	F6	R02	06.A.02	8.0	Pass				High
A	F6	R04	06.A.04	10.5	Pass				High
A	F6	R05	06.A.05	10.2	Pass				High
A	F6	R08	06.A.08	10.5	Pass				High
A	F6	R16	06.A.16	0.0	North				
A	F6	R17	06.A.17	0.0	North				
A	F6	R21	06.A.21	0.0	North				
A	F6	R23	06.A.23	1.5	Pass		Min		
A	F6	R24	06.A.24	4.7	Pass				High
A	F6	R30	06.A.30	6.0	Pass				High
A	F6	R35	06.A.35	5.8	Pass				High
A	F6	R36	06.A.36	6.0	Pass				High
A	F6	R40	06.A.40	5.5	Pass				High
A	F6	R41	06.A.41	5.7	Pass				High
A	F7	R01	07.A.01	7.8	Pass				High
A	F7	R05	07.A.05	10.5	Pass				High
A	F7	R06	07.A.06	10.2	Pass				High
A	F7	R09	07.A.09	0.0	North				
A	F7	R13	07.A.13	0.0	North				
A	F7	R15	07.A.15	3.2	Pass			Medium	
A	F7	R18	07.A.18	5.8	Pass				High
A	F7	R19	07.A.19	6.0	Pass				High
A	F7	R23	07.A.23	6.0	Pass				High

Sunlight to living rooms

Receives 1.5 hours of sunlight on 21st March

A-v30 Block	Floor	Window/Room	Ref	Hrs of Sun	Pass		Quality	
A	F8	R01	08.A.01	7.8	Pass			High
A	F8	R04	08.A.04	8.3	Pass			High
A	F8	R05	08.A.05	9.3	Pass			High
A	F8	R08	08.A.08	0.0	North			
A	F8	R12	08.A.12	0.0	North			
A	F8	R14	08.A.14	4.7	Pass			High
A	F8	R15	08.A.15	6.0	Pass			High
A	F8	R20	08.A.20	6.0	Pass			High
A	F8	R22	08.A.22	6.7	Pass			High

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

This would be consistent with good design for applications in constrained urban / city environments.

Where rooms do not comply the Architect will provide compensatory measures.

Summary

Sunlight to living rooms:

76% of tested lower Living rooms receive 1.5hrs of sunlight on the test day of the 21st March *(78% including marginals)*

This is generally 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.

> *43.3.17 It is recommended that for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on 21 March. If as a result of new development an existing garden or amenity area does not meet the above, and the area that can receive two hours of sun on 21 March is less than 0.80 times its former value, then the loss of sunlight is likely to be noticeable. If a detailed calculation cannot be carried out, it is recommended that the centre of the area should receive at least two hours of sunlight on 21 March*

> *3.3.3 The availability of sunlight should be checked for all open spaces where it will be required. This would normally include:*
> *• gardens, such as the main back garden of a house or communal gardens including courtyards and roof terraces*
> *• parks and playing fields*
> *• children's playgrounds*
> *• outdoor swimming pools and paddling pools, and other areas of recreational water such as marinas and boating lakes*
> *• sitting out areas such as those between non-domestic buildings and in public squares*
> *• nature reserves (which may have special requirements for sunlight if rare plants are growing there).*

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

The amenities of the following Building Groups were tested.

- Shared / communal Spaces but not Private balconies are (or should be) tested.

BRE 2-hour Shadow Plots

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

- **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



			Shadow to amenity spaces			
v30		**Design**	**2-hour Sunlight - 21st March**			
			Check > 50%			
Block	Level	Zone	Ref	Description	Proposed	Result
BNew	F0	Combined	New.Combined	Provided Amnelty	59%	Pass

The provided amenity space complies with 50% target requirement.

Conclusion

The new provided amenity space complies with the BRE 2hr requirements.

Architects Commentary Compensatory Measures.

General

The design is constrained by its location, site shape and orientation. As an urban infill scheme with competing design constraints and objectives it is specifically covered by clauses 6.6/6.7 of the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities – amended July 2023:

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

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

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

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

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

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

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

Development Solar Orientation

The site has specific constraints pertaining to its shape and orientation, its historical context and city centre location which directly effects the daylight/sunlight opportunities within the proposed development. The architect has endeavoured to design apartment units which exceed standards and achieve good average daylight factors in this urban infill site. Where site constraints have made sunlight/shadowing standards unachievable compensatory measures have been made and details of this are provide in the architect's statement at the end of this report.

- The Triangular shape and orientation of the site creates the inevitable scenario of having some north facing facades.
- It was not possible to place additional windows to the sides of façades due to overlooking issues.
- There is an granted but lapsed permission on this site and this development seeks to provide a better design and site utilisation while maintaining a nett neutral/positive impact on neighbours.
- The site is occupied by a derelict factory building. It is mainly a large double volume building block with saw tooth roof, divided into two spaces bounding the rear boundary walls.

Site constraints and Constraints.

The site is occupied by a derelict factory building. It is mainly a large double volume building block with saw tooth roof, divided into two spaces bounding the rear boundary walls.

On Dolphin's Barn Street, the site is adjacent to a row of two-storey dwellings to the South while to the North, there are three storey commercial and residential units. Immediately to the south of the site is the existing mixed use Earls Court building which ranges from 8-12 floors in height.

The site has a sort of triangle shape. The North and West are bounded by residential units. The housing along the North on Emerald Square has very narrow gardens, most of it are occupied by ground floor extensions. First floor windows are approximately 7.5m from the boundary. Due to its proximity and size, it can be sensitive to any development on the site.

The housing along Reuben Street has a generous garden size with rear extensions in different sizes, these gardens are generally 19m long.

On the South side, the site is bounded by a scrap yard and further south by Earlscourt housing building which has up to 12 storeys. The location and orientation in relation to the site has affected the levels of sunlight received on the south side by partially blocking it. This affects specially the lower floor levels.

Comparison with granted but lapsed development

The site has a granted but lapsed permission that has been designed with a first-floor podium built against the boundary walls along Emerald Square properties and the main building block steps down at the rear, ending with a three-storey building against the boundary wall along Reuben Street.

While the proposed building is overall one storey higher at the rear than the granted but lapsed permission, the measures taken to give reasonable setbacks from its boundary has achieved quite favourable results, given the density of the scheme on such a restrictive site.

These mitigation measures were implemented during the design process of the proposed scheme in order to reduce the level of impact on the existing houses whilst maintaining appropriate density for the proposed scheme.

The results, as demonstrated in this report, indicates that a higher building won't negatively affect the existing properties when compared to the granted but lapsed permission, the nett result is neutral/positive.

Notwithstanding, the level of effect the proposed scheme would cause in general terms is quite favourable and consistent with existing and emerging trends.

Room/Floor Layout Design

The architects have worked closely with Chris Shackleton Consulting to achieve the highest results. The living room has typically floor to ceiling windows measuring 2.25m height by 2.5m wide. The balconies have been designed to be accessed on the side of the living spaces to allow maximum sunlight entering these rooms.

As per the architect's design statement, the main material finish of the building is brick, and the balconies are open with metal balustrade open bars to allow sunlight in the rooms.

All effort has been made to fully comply with the BRE guidelines but in exceptional circumstances, due to design constraints, a minority of rooms receive limited sunlight due to its orientation and location on L shaped corners. A variety of mitigation measures were taken to compensate as such, increased floor area, dual aspect, bigger balcony and/or wall to wall door & window system.

See specific measures or rationality of why some units are not meeting the minimum daylight provision:

1-09, 2-11, 3-11, and 4-10 apartments although are not meeting the minimum Daylight Provision values, they are dual aspect, with a 23% larger area than the minimum requirement, totalling 55.36 sqm.

1-10, 2-12, and 3-12 are marginally compliant with the Minimum Daylight Provision this is due the overall apartment area to be 12% higher than the minimum required, reaching a total of 50.37 sqm.

The living room in apartment 1-04 is also marginally compliant with the Minimum Daylight Provision. The apartment area is 13% higher than the minimum required, reaching 82.42 sqm, and features a dual aspect layout along with its own entrance from the Ground Floor.

Lastly, the living room in apartment 7-09 is marginally compliant due to its 8.93m depth, which is compensated by its high floor level (7th floor), dual aspect design, and a 13% increase in area beyond the minimum requirement, with 79.49sqm.

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**
  - **97%** *(99% including marginals)* of rooms comply with the BS/EN 17037 Annex NA room targets for 50% of the floor area tested.
  - The average compliant areas achieving the relevant target Lx for
    - all bedrooms is **86%** and
    - all Living/Kitchen spaces **68%**
    - both in excess of the required 50%
- **Sunlight to rooms:**
  - **76%** *(78% including marginals)* of Living rooms comply with the 1.5hr BRE test on the 21st March.
  - This is generally consistent with the BRE defined "careful layout design" 80% target.
- **Sunlight on the Ground SOG (Shadow)**
  - The new provided amenity space complies with the BRE 2hr requirements.

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

Summary – Overall

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

Change/Impact to neighbouring buildings in the adjoining residential areas.
Baseline: Permitted but lapsed Application on the site Reg. Ref.: 3853/17 and ABP Ref.: 302149-18

- **Skylight- VSC**
  - **96**% *(100% if marginals are included)* of tested windows pass the relevant VSC checks.
  - Average VSC change ratio is nominal at **0.97**
  - The results are consistent with those of the granted/lapsed permission and the nett change to impact is neutral/positive.
- **Sunlight APSH & WPSH**
  - **100%** tested windows pass the relevant Annual Sunlight APSH requirements.
  - **83%** *(100% including negligible)* pass the relevant Winter Sunlight WPSH requirements
  - The average change ratio for sunlight is APSH:**0.94** and WPSH: **1.73**
- **Shadow**
  - **95%** *(100% including marginals)* of the Gardens tested comply with the BRE requirements
  - The average change ratio for shadow/sunlight is **1.05**

Performance of the proposed design

- **Target Illuminance E_T**
  - **97%** *(99% including marginals)* of rooms comply with the BS/EN 17037 Annex NA room targets for 50% of the floor area tested.
  - The average compliant areas achieving the relevant target Lx for
    - all bedrooms is **86%** and
    - all Living/Kitchen spaces **68%**
    - both in excess of the required 50%
- **Sunlight to rooms:**
  - **76%** *(78% including marginals)* of Living rooms comply with the 1.5hr BRE test on the 21st March.
  - This is generally consistent with the BRE defined "careful layout design" 80% target.
- **Sunlight on the Ground SOG (Shadow)**
  - The new provided amenity space complies with the BRE 2hr requirements.

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 an infill and regeneration project in an un-developed lot.

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 A – E_T results - Tabulated

Minimum daylight provision — *For all habitable room*

Location Dublin 14,900 lx

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
00A07	Bedroom	23	Fail	100	Pass
00A08c	Living/Kitchen	52	Pass	100	Pass
00A09c	Living/Kitchen	41	Marginal	90	Marginal
00A10	Bedroom	17	Fail	100	Pass
00A11	Bedroom	69	Pass	100	Pass
00A12c	Living/Kitchen	77	Pass	100	Pass
00A13	Bedroom	22	Fail	100	Pass
00A14	Bedroom	33	Fail	100	Pass
00A15	Bedroom	19	Fail	100	Pass
00A16c	Living/Kitchen	47	Marginal	100	Pass
01A01	Bedroom	25	Fail	96	Pass
01A02c	Living/Kitchen	25	Fail	70	Fail
01A03	Bedroom	19	Fail	95	Pass
01A04c	Living/Kitchen	46	Marginal	100	Pass
01A05c	Living/Kitchen	46	Marginal	100	Pass
01A06	Bedroom	12	Fail	79	Marginal
01A07	Bedroom	16	Fail	93	Marginal
01A08c	Living/Kitchen	47	Marginal	100	Pass
01A09c	Living/Kitchen	37	Fail	74	Fail
01A10	Bedroom	18	Fail	100	Pass
01A11	Bedroom	77	Pass	100	Pass
01A12c	Living/Kitchen	70	Pass	100	Pass
01A13	Bedroom	11	Fail	100	Pass
01A14	Bedroom	18	Fail	100	Pass
01A15	Bedroom	12	Fail	95	Pass
01A16c	Living/Kitchen	52	Pass	100	Pass
01A17c	Living/Kitchen	46	Marginal	100	Pass
01A18	Bedroom	7	Fail	77	Marginal
01A19	Bedroom	29	Fail	100	Pass
01A20	Bedroom	5	Fail	51	Fail
01A21c	Living/Kitchen	28	Fail	100	Pass
01A22	Bedroom	41	Marginal	100	Pass
01A23c	Living/Kitchen	32	Fail	81	Marginal
01A27	Bedroom	30	Fail	100	Pass
01A28c	Living/Kitchen	35	Fail	73	Fail
01A29	Bedroom	26	Fail	100	Pass
01A33	Bedroom	15	Fail	85	Marginal
01A34	Bedroom	26	Fail	100	Pass
01A35c	Living/Kitchen	44	Marginal	81	Marginal
01A36c	Living/Kitchen	41	Marginal	84	Marginal
01A37	Bedroom	24	Fail	100	Pass
01A38	Bedroom	33	Fail	100	Pass
01A39	Bedroom	27	Fail	100	Pass
01A40c	Living/Kitchen	45	Marginal	100	Pass
01A41c	Living/Kitchen	46	Marginal	100	Pass
01A42	Bedroom	17	Fail	100	Pass
01A43c	Living/Kitchen	17	Fail	82	Marginal
01A44	Bedroom	61	Pass	100	Pass

Minimum daylight provision — *For all habitable room*

Location Dublin 14,900 lx

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
02A01	Bedroom	28	Fail	100	Pass
02A02c	Living/Kitchen	28	Fail	75	Fail
02A03	Bedroom	21	Fail	92	Marginal
02A04c	Living/Kitchen	46	Marginal	100	Pass
02A05c	Living/Kitchen	46	Marginal	100	Pass
02A06	Bedroom	18	Fail	79	Marginal
02A07	Bedroom	12	Fail	76	Marginal
02A08c	Living/Kitchen	52	Pass	100	Pass
02A09c	Living/Kitchen	39	Fail	73	Fail
02A10	Bedroom	21	Fail	100	Pass
02A11	Bedroom	86	Pass	100	Pass
02A12c	Living/Kitchen	71	Pass	100	Pass
02A13	Bedroom	11	Fail	100	Pass
02A14	Bedroom	20	Fail	100	Pass
02A15	Bedroom	12	Fail	98	Pass
02A16c	Living/Kitchen	52	Pass	100	Pass
02A17c	Living/Kitchen	46	Marginal	100	Pass
02A18	Bedroom	7	Fail	78	Marginal
02A19	Bedroom	33	Fail	100	Pass
02A20	Bedroom	5	Fail	53	Fail
02A21c	Living/Kitchen	29	Fail	100	Pass
02A22	Bedroom	45	Marginal	100	Pass
02A23c	Living/Kitchen	35	Fail	89	Marginal
02A24c	Living/Kitchen	56	Pass	100	Pass
02A25	Bedroom	41	Marginal	100	Pass
02A26	Bedroom	100	Pass	100	Pass
02A27	Bedroom	48	Marginal	100	Pass
02A28c	Living/Kitchen	37	Fail	74	Fail
02A29	Bedroom	18	Fail	100	Pass
02A30c	Living/Kitchen	52	Pass	100	Pass
02A31	Bedroom	21	Fail	100	Pass
02A32	Bedroom	50	Pass	100	Pass
02A33	Bedroom	35	Fail	100	Pass
02A34	Bedroom	24	Fail	100	Pass
02A35c	Living/Kitchen	46	Marginal	94	Marginal
02A36c	Living/Kitchen	43	Marginal	85	Marginal
02A37	Bedroom	27	Fail	100	Pass
02A38	Bedroom	34	Fail	100	Pass
02A39	Bedroom	29	Fail	100	Pass
02A40c	Living/Kitchen	48	Marginal	100	Pass
02A41c	Living/Kitchen	49	Marginal	100	Pass
02A42	Bedroom	16	Fail	100	Pass
02A43c	Living/Kitchen	18	Fail	84	Marginal
02A44	Bedroom	62	Pass	100	Pass

Minimum daylight provision — *For all habitable room*

Location Dublin 14,900 lx

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
03A02c	Living/Kitchen	31	Fail	74	Fail
03A03	Bedroom	26	Fail	96	Pass
03A04c	Living/Kitchen	50	Pass	100	Pass
03A05c	Living/Kitchen	49	Marginal	100	Pass
03A06	Bedroom	20	Fail	89	Marginal
03A07	Bedroom	15	Fail	78	Marginal
03A08c	Living/Kitchen	48	Marginal	100	Pass
03A09c	Living/Kitchen	39	Fail	73	Fail
03A10	Bedroom	4	Fail	86	Marginal
03A11	Bedroom	74	Pass	100	Pass
03A12c	Living/Kitchen	70	Pass	100	Pass
03A13	Bedroom	11	Fail	100	Pass
03A14	Bedroom	20	Fail	100	Pass
03A15	Bedroom	13	Fail	100	Pass
03A16c	Living/Kitchen	52	Pass	100	Pass
03A17c	Living/Kitchen	47	Marginal	100	Pass
03A18	Bedroom	8	Fail	80	Marginal
03A19	Bedroom	34	Fail	100	Pass
03A20	Bedroom	5	Fail	57	Fail
03A21c	Living/Kitchen	29	Fail	100	Pass
03A22	Bedroom	48	Marginal	100	Pass
03A23c	Living/Kitchen	35	Fail	88	Marginal
03A24c	Living/Kitchen	57	Pass	100	Pass
03A25	Bedroom	41	Marginal	100	Pass
03A26	Bedroom	100	Pass	100	Pass
03A27	Bedroom	47	Marginal	100	Pass
03A28c	Living/Kitchen	36	Fail	74	Fail
03A29	Bedroom	9	Fail	94	Marginal
03A30c	Living/Kitchen	54	Pass	100	Pass
03A31	Bedroom	23	Fail	100	Pass
03A32	Bedroom	54	Pass	100	Pass
03A33	Bedroom	35	Fail	100	Pass
03A34	Bedroom	24	Fail	100	Pass
03A35c	Living/Kitchen	46	Marginal	94	Marginal
03A36c	Living/Kitchen	44	Marginal	86	Marginal
03A37	Bedroom	25	Fail	100	Pass
03A38	Bedroom	36	Fail	100	Pass
03A39	Bedroom	27	Fail	100	Pass
03A40c	Living/Kitchen	49	Marginal	100	Pass
03A41c	Living/Kitchen	50	Pass	100	Pass
03A42	Bedroom	5	Fail	89	Marginal
03A43c	Living/Kitchen	8	Fail	77	Marginal
03A44	Bedroom	62	Pass	100	Pass

Minimum daylight provision — *For all habitable room*

Location Dublin 14,900 lx

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
04A01	Bedroom	36	Fail	100	Pass
04A02c	Living/Kitchen	35	Fail	79	Marginal
04A03	Bedroom	29	Fail	100	Pass
04A04c	Living/Kitchen	56	Pass	100	Pass
04A05c	Living/Kitchen	51	Pass	100	Pass
04A06	Bedroom	20	Fail	93	Marginal
04A07	Bedroom	22	Fail	97	Pass
04A08c	Living/Kitchen	48	Marginal	100	Pass
04A09c	Living/Kitchen	37	Fail	71	Fail
04A10	Bedroom	7	Fail	94	Marginal
04A11	Bedroom	76	Pass	100	Pass
04A12c	Living/Kitchen	50	Pass	100	Pass
04A13	Bedroom	94	Pass	100	Pass
04A15	Bedroom	42	Marginal	100	Pass
04A16c	Living/Kitchen	56	Pass	100	Pass
04A17c	Living/Kitchen	48	Marginal	100	Pass
04A18	Bedroom	9	Fail	87	Marginal
04A19	Bedroom	34	Fail	100	Pass
04A20	Bedroom	5	Fail	61	Fail
04A21c	Living/Kitchen	31	Fail	100	Pass
04A22	Bedroom	50	Pass	100	Pass
04A23c	Living/Kitchen	36	Fail	91	Marginal
04A24c	Living/Kitchen	57	Pass	100	Pass
04A25	Bedroom	41	Marginal	100	Pass
04A26	Bedroom	100	Pass	100	Pass
04A30c	Living/Kitchen	68	Pass	100	Pass
04A31	Bedroom	22	Fail	100	Pass
04A32	Bedroom	51	Pass	100	Pass
04A33	Bedroom	40	Marginal	100	Pass
04A34	Bedroom	28	Fail	100	Pass
04A35c	Living/Kitchen	46	Marginal	95	Pass
04A36c	Living/Kitchen	44	Marginal	88	Marginal
04A37	Bedroom	32	Fail	100	Pass
04A38	Bedroom	37	Fail	100	Pass
04A39	Bedroom	29	Fail	100	Pass
04A40c	Living/Kitchen	52	Pass	100	Pass
04A41c	Living/Kitchen	50	Pass	100	Pass
04A42	Bedroom	9	Fail	100	Pass
04A43c	Living/Kitchen	9	Fail	79	Marginal
04A44	Bedroom	61	Pass	100	Pass

Minimum daylight provision

For all habitable room

Location Dublin 14,900 lx

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
05A01	Bedroom	45	Marginal	100	Pass
05A02c	Living/Kitchen	40	Marginal	87	Marginal
05A03	Bedroom	32	Fail	100	Pass
05A04c	Living/Kitchen	55	Pass	100	Pass
05A05c	Living/Kitchen	51	Pass	100	Pass
05A06	Bedroom	20	Fail	95	Pass
05A07	Bedroom	19	Fail	95	Pass
05A08c	Living/Kitchen	51	Pass	100	Pass
05A15	Bedroom	100	Pass	100	Pass
05A16c	Living/Kitchen	56	Pass	100	Pass
05A17c	Living/Kitchen	50	Pass	100	Pass
05A18	Bedroom	12	Fail	90	Marginal
05A19	Bedroom	37	Fail	100	Pass
05A20	Bedroom	5	Fail	60	Fail
05A21c	Living/Kitchen	31	Fail	100	Pass
05A22	Bedroom	56	Pass	100	Pass
05A23c	Living/Kitchen	38	Fail	94	Marginal
05A24c	Living/Kitchen	58	Pass	100	Pass
05A25	Bedroom	42	Marginal	100	Pass
05A26	Bedroom	100	Pass	100	Pass
05A30c	Living/Kitchen	73	Pass	100	Pass
05A31	Bedroom	24	Fail	100	Pass
05A32	Bedroom	53	Pass	100	Pass
05A33	Bedroom	45	Marginal	100	Pass
05A34	Bedroom	24	Fail	100	Pass
05A35c	Living/Kitchen	50	Pass	97	Pass
05A36c	Living/Kitchen	45	Marginal	88	Marginal
05A37	Bedroom	32	Fail	100	Pass
05A38	Bedroom	44	Marginal	100	Pass
05A39	Bedroom	31	Fail	100	Pass
05A40c	Living/Kitchen	52	Pass	100	Pass
05A41c	Living/Kitchen	53	Pass	100	Pass
05A42	Bedroom	24	Fail	100	Pass

Minimum daylight provision

For all habitable room

Location Dublin 14,900 lx

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
06A01	Bedroom	50	Pass	100	Pass
06A02c	Living/Kitchen	51	Pass	100	Pass
06A03	Bedroom	41	Marginal	100	Pass
06A04c	Living/Kitchen	54	Pass	100	Pass
06A05c	Living/Kitchen	52	Pass	100	Pass
06A06	Bedroom	11	Fail	74	Fail
06A07	Bedroom	8	Fail	71	Fail
06A08c	Living/Kitchen	64	Pass	100	Pass
06A15	Bedroom	100	Pass	100	Pass
06A16c	Living/Kitchen	54	Pass	100	Pass
06A17c	Living/Kitchen	51	Pass	100	Pass
06A18	Bedroom	15	Fail	95	Pass
06A19	Bedroom	39	Fail	100	Pass
06A20	Bedroom	5	Fail	64	Fail
06A21c	Living/Kitchen	34	Fail	100	Pass
06A22	Bedroom	63	Pass	100	Pass
06A23c	Living/Kitchen	40	Marginal	94	Marginal
06A24c	Living/Kitchen	59	Pass	100	Pass
06A25	Bedroom	68	Pass	100	Pass
06A26	Bedroom	100	Pass	100	Pass
06A30c	Living/Kitchen	71	Pass	100	Pass
06A31	Bedroom	9	Fail	100	Pass
06A32	Bedroom	19	Fail	100	Pass
06A33	Bedroom	15	Fail	100	Pass
06A34	Bedroom	9	Fail	98	Pass
06A35c	Living/Kitchen	48	Marginal	97	Pass
06A36c	Living/Kitchen	45	Marginal	90	Marginal
06A37	Bedroom	33	Fail	100	Pass
06A38	Bedroom	41	Marginal	100	Pass
06A39	Bedroom	31	Fail	100	Pass
06A40c	Living/Kitchen	54	Pass	100	Pass
06A41c	Living/Kitchen	55	Pass	100	Pass
06A42	Bedroom	65	Pass	100	Pass

Minimum daylight provision

For all habitable room

Location Dublin 14,900 lx

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
07A01c	Living/Kitchen	63	Pass	95	Pass
07A02	Bedroom	65	Pass	100	Pass
07A03	Bedroom	58	Pass	100	Pass
07A04	Bedroom	59	Pass	100	Pass
07A05c	Living/Kitchen	59	Pass	100	Pass
07A06c	Living/Kitchen	40	Marginal	75	Fail
07A07	Bedroom	60	Pass	100	Pass
07A08	Bedroom	100	Pass	100	Pass
07A09c	Living/Kitchen	54	Pass	100	Pass
07A10	Bedroom	16	Fail	98	Pass
07A11	Bedroom	48	Marginal	100	Pass
07A12	Bedroom	5	Fail	69	Fail
07A13c	Living/Kitchen	39	Fail	100	Pass
07A14	Bedroom	87	Pass	100	Pass
07A15c	Living/Kitchen	73	Pass	100	Pass
07A16	Bedroom	100	Pass	100	Pass
07A17	Bedroom	36	Fail	100	Pass
07A18c	Living/Kitchen	56	Pass	100	Pass
07A19c	Living/Kitchen	50	Pass	96	Pass
07A20	Bedroom	11	Fail	100	Pass
07A21	Bedroom	21	Fail	100	Pass
07A22	Bedroom	13	Fail	98	Pass
07A23c	Living/Kitchen	33	Fail	96	Pass

Minimum daylight provision

For all habitable room

Location Dublin 14,900 lx

Ref	Type	Percentage within 300lx	EN17037 Check @ 50%	Percentage within 100lx	EN17037 Check @ 95%
08A01c	Living/Kitchen	71	Pass	100	Pass
08A02	Bedroom	87	Pass	100	Pass
08A03	Bedroom	48	Marginal	100	Pass
08A04c	Living/Kitchen	58	Pass	100	Pass
08A05c	Living/Kitchen	54	Pass	100	Pass
08A06	Bedroom	71	Pass	98	Pass
08A07	Bedroom	100	Pass	100	Pass
08A08c	Living/Kitchen	56	Pass	100	Pass
08A09	Bedroom	53	Pass	100	Pass
08A10	Bedroom	62	Pass	100	Pass
08A11	Bedroom	35	Fail	100	Pass
08A12c	Living/Kitchen	83	Pass	100	Pass
08A13	Bedroom	80	Pass	100	Pass
08A14c	Living/Kitchen	80	Pass	100	Pass
08A15c	Living/Kitchen	73	Pass	100	Pass
08A16	Bedroom	76	Pass	100	Pass
08A17	Bedroom	75	Pass	100	Pass
08A18	Bedroom	62	Pass	100	Pass
08A19	Bedroom	73	Pass	100	Pass
08A20c	Living/Kitchen	46	Marginal	100	Pass
08A21	Bedroom	86	Pass	100	Pass
08A22c	Living/Kitchen	84	Pass	100	Pass
GFL Communal					
00X01L	Living	50	Pass	92	Marginal
00X02L	Living	28	Fail	76	Marginal
		Count	**289**	**Count**	**289**
		Pass	**103**	**Pass**	**227**
		Pass Rate 300lx/50%	**36%**	**Pass Rate 100lx/95%**	**79%**
		Marginal	52	Marginal	42
		Pass Margina	54%	Pass Margina	93%

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 %
A	97%	99%	A	36%	54%	A	79%	93%
Total	**97%**	**99%**	**Total**	**36%**	**54%**	**Total**	**79%**	**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.

Appendix 2

Impact on Neighbours against Baseline: Existing

Analysis against a standard Existing Baseline.

For information only.

Design Model

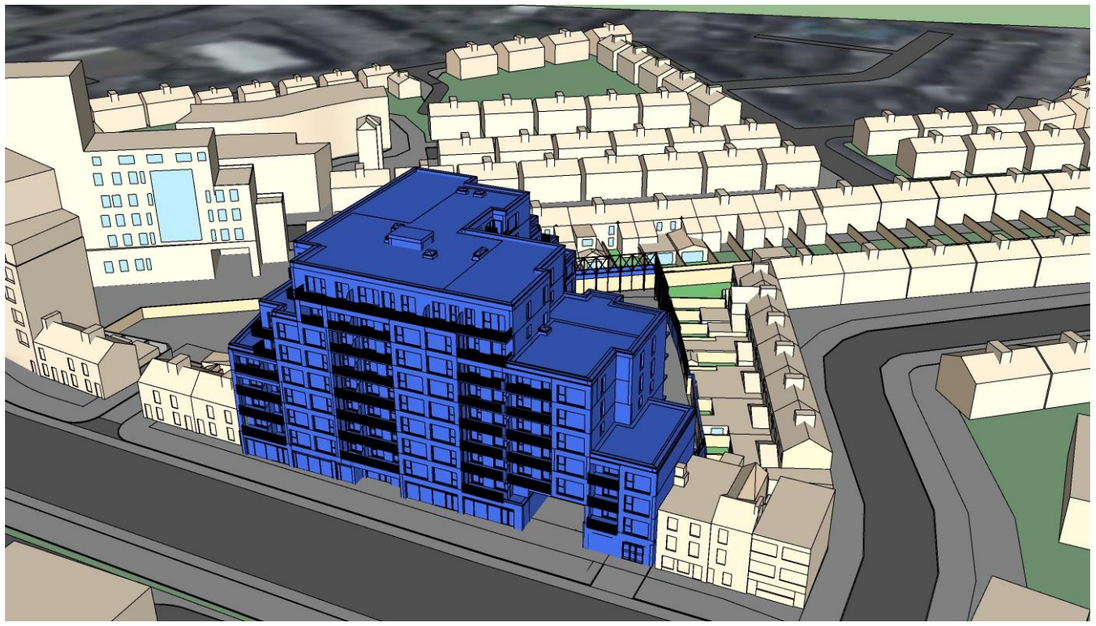
Full 3D models of the proposed development, granted/lapsed permission and the surrounding neighbouring properties were provided by the Architect. These had been modelled from survey information and drawings provided in plan, elevation, and section formats. The model was geo-referenced to its correct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

In these images “Cream” indicates surrounding environment, “Purple” the existing buildings on site to be demolished “blue” this proposal variation and “red” the granted/lapsed permission on this site.

In this appendix we examine the impact against the existing situation. These results are based on the information and models provided.



Existing Model



Proposed 2025 – v30

Scope of this Report

Scope is as before impact on neighbours:

- Skylight VSC
- Sunlight Annual ASPH and Winter WPSH
- Sunlight on the Ground SOG aka Shadow.

Consistent Impact Terminology

Impact terms used in the older permission were as follows. To match the previous report and for consistency, we have been asked to utilise the same terminology.

- “Negligible” for compliance with the guidelines
- “Minor” for variance of approx. 20% from guidelines
- “Moderate” for variance of approx. 20% from guidelines
- “Major” for variance of approx. 20% from guidelines
- These may be classified as Adverse or Beneficial
- In each case the variance normally measured from the ratio may also be considered from the minimum target.

Impact on neighbours

Adjacent Properties - Light from the Sky impact on neighbouring properties

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

We have investigated this impact under clause 2.2.7

> ***2.2.7 If this VSC is greater than 27% then enough skylight should still be reaching the window of the existing building. This value of VSC typically supplies enough daylight to a standard room when combined with a window of normal dimensions, with glass area around 10% or more of the floor area. Any reduction below this level should be kept to a minimum. If the VSC, with the new development in place, is both less than 27% and less than 0.80 times its former value, occupants of the existing building will notice the reduction in the amount of skylight. The area lit by the window is likely to appear gloomier, and electric lighting will be needed more of the time. . . .***
>
> ***2.2.6 Any reduction in the total amount of skylight can be calculated by finding the VSC at the centre of each main window. In the case of a floor-to-ceiling window such as a patio door, a point 1.6 m above ground (or balcony level for an upper storey) on the centre line of the window may be used. For a bay window, the centre window facing directly outwards can be taken as the main window. If a room has two or more windows of equal size, the mean of their VSCs may be taken. The reference point is in the external plane of the window wall. Windows to bathrooms, toilets, storerooms, circulation areas, and garages need not be analysed. . . .***

Tabulated Results – Skylight VSC – Baseline Existing (Standard).

	Skylight to habitable rooms							
v30	**VSC**							
Design	*Check > 27% or ratio > 0.8*							
Ref	**Floor**	**Window**	**Ref**	**Existing**	**Proposed**	**Ratio**	**Result**	**Classification**
B1	**F0**	**W1**	1.0.1	29.6	26.6	0.90	Pass	***Negligible***
B1	F0	W2	1.0.2	32.5	29.3	0.90	Pass	***Negligible***
B1	F0	W3	1.0.3	30.2	26.7	0.88	Pass	***Negligible***
B1	F0	W4	1.0.4	23.5	20.5	0.88	Pass	***Negligible***
B1	F0	W5	1.0.5	22.7	19.9	0.87	Pass	***Negligible***
B1	F0	W6	1.0.6	29.0	21.9	0.75	Marginal	***Minor Adverse***
B1	F0	W7	1.0.7	22.5	13.8	0.61	Fail	***Moderate Adverse***
B1	F0	W8	1.0.8	23.6	11.8	0.50	Fail	***Major Adverse***
B1	F0	W9	1.0.9	26.9	13.2	0.49	Fail	***Major Adverse***
B1	F0	W10	1.0.10	20.6	10.6	0.51	Fail	***Major Adverse***
B1	F1	W1	1.1.1	33.7	29.4	0.87	Pass	***Negligible***
B1	F1	W2	1.1.2	34.1	28.2	0.83	Pass	***Negligible***
B1	F1	W3	1.1.3	29.2	22.8	0.78	Marginal	***Minor Adverse***
B1	F1	W4	1.1.4	34.4	26.0	0.75	Marginal	***Minor Adverse***
B1	F1	W5	1.1.5	34.2	24.3	0.71	Marginal	***Minor Adverse***
B1	F1	W6	1.1.6	34.1	22.1	0.65	Fail	***Moderate Adverse***
B1	F1	W7	1.1.7	32.9	20.3	0.62	Fail	***Moderate Adverse***
B1	F1	W8	1.1.8	31.6	19.8	0.63	Fail	***Moderate Adverse***
B2	**F0**	**W1**	2.0.1	34.5	29.1	0.84	Pass	***Negligible***
B2	F0	W2	2.0.2	21.9	16.5	0.75	Marginal	***Minor Adverse***
B2	F0	W3	2.0.3	22.4	19.6	0.87	Pass	***Negligible***
B2	F0	W4	2.0.4	30.0	23.6	0.79	Marginal	***Minor Adverse***
B2	F0	W5	2.0.5	16.6	11.7	0.70	Marginal	***Minor Adverse***
B2	F0	W6	2.0.6	28.5	21.8	0.76	Marginal	***Minor Adverse***
B2	F0	W7	2.0.7	24.4	18.8	0.77	Marginal	***Minor Adverse***
B2	F0	W8	2.0.8	22.6	17.7	0.78	Marginal	***Minor Adverse***
B2	F0	W9	2.0.9	27.9	22.6	0.81	Marginal	***Minor Adverse***
B2	F0	W10	2.0.10	21.3	19.7	0.93	Pass	***Negligible***
B2	F0	W11	2.0.11	21.9	17.8	0.81	Pass	***Negligible***
B2	F0	W12	2.0.12	33.6	31.2	0.93	Pass	***Negligible***
B2	F0	W13	2.0.13	27.1	25.6	0.94	Pass	***Negligible***
B2	F0	W14	2.0.14	19.7	18.4	0.93	Pass	***Negligible***
B2	F0	W15	2.0.15	32.0	29.8	0.93	Pass	***Negligible***
B2	F1	W1	2.1.1	31.9	25.7	0.81	Pass	***Negligible***
B2	F1	W2	2.1.2	30.6	25.2	0.82	Pass	***Negligible***
B2	F1	W3	2.1.3	29.8	23.1	0.77	Marginal	***Minor Adverse***
B2	F1	W4	2.1.4	36.8	29.0	0.79	Pass	***Negligible***
B2	F1	W5	2.1.5	34.1	27.4	0.80	Pass	***Negligible***
B2	F1	W6	2.1.6	32.7	26.3	0.80	Pass	***Negligible***
B2	F1	W7	2.1.7	31.3	26.9	0.86	Pass	***Negligible***
B2	F1	W8	2.1.8	31.8	27.2	0.85	Pass	***Negligible***
B2	F1	W9	2.1.9	35.6	31.0	0.87	Pass	***Negligible***
B2	F1	W10	2.1.10	30.5	27.5	0.90	Pass	***Negligible***
B2	F1	W11	2.1.11	33.3	31.8	0.96	Pass	***Negligible***

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

	Skylight to habitable rooms							
v30	**VSC**							
Design	*Check > 27% or ratio > 0.8*							
Ref	**Floor**	**Window**	**Ref**	**Existing**	**Proposed**	**Ratio**	**Result**	**Classification**
B3	**F0**	**W1**	3.0.1	16.8	10.5	0.62	Fail	***Moderate Adverse***
B3	F0	W2	3.0.2	23.7	19.8	0.83	Pass	***Negligible***
B3	F0	W3	3.0.3	28.9	23.7	0.82	Pass	***Negligible***
B3	F0	W4	3.0.4	28.0	23.3	0.83	Pass	***Negligible***
B3	F1	W1	3.1.1	29.8	24.0	0.81	Pass	***Negligible***
B3	F1	W2	3.1.2	33.2	27.0	0.81	Pass	***Negligible***
B3	F1	W3	3.1.3	32.9	27.5	0.83	Pass	***Negligible***
B3	F1	W4	3.1.4	29.8	26.8	0.90	Pass	***Negligible***
B3	F1	W5	3.1.5	28.4	25.9	0.91	Pass	***Negligible***
B3	F1	W6	3.1.6	22.8	20.9	0.92	Pass	***Negligible***
B4	**F1**	**W1**	4.1.1	35.3	30.7	0.87	Pass	***Negligible***
B4	F1	W2	4.1.2	34.7	30.4	0.88	Pass	***Negligible***
B4	F2	W1	4.2.1	36.6	32.8	0.90	Pass	***Negligible***
B4	F2	W2	4.2.2	36.1	32.5	0.90	Pass	***Negligible***
B4	F3	W1	4.3.1	37.5	34.7	0.93	Pass	***Negligible***
B4	F3	W2	4.3.2	37.2	34.5	0.93	Pass	***Negligible***
B5	F0	W1	5.0.1	19.7	19.7	1.00	Pass	***Negligible***
B5	**F1**	**W1**	5.1.1	18.7	21.8	1.17	Pass	***Minor Beneficial***
B5	F1	W2	5.1.2	33.4	31.8	0.95	Pass	***Negligible***
B5	F1	W3	5.1.3	29.7	29.7	1.00	Pass	***Negligible***
B5	F1	W4	5.1.4	35.9	34.8	0.97	Pass	***Negligible***
B5	F2	W1	5.2.1	28.6	28.6	1.00	Pass	***Negligible***
B5	F2	W2	5.2.2	36.9	35.5	0.96	Pass	***Negligible***

Conclusion

The impact on neighbours tested against the existing situation:
70% ***(88%** if marginals are included)* of tested windows comply with the 27%, 0.8 ratio requirements for habitable rooms.

The average change ratio for VSC is **0.83**

The proposed development has impact in terms of the BRE guidelines to the skylight for some neighbours.

Adjacent Properties - Sunlight into living spaces

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

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

While not all windows relate to living rooms, we have for completeness tested all of them. Note only windows which face within 90˚of due South require testing.

Tabulated Results – Sunlight APSH & WPSH – Baseline Existing Standard.

Sunlight on windows to living room spaces check														
v30			Annual - 25% and Winter - 5%											
Design				Check > 25% or ratio > 0.8					Check > 5% or ratio > 0.8					
Ref	Floor	Window	Ref	Existing	Proposed	Ratio	Result	Classification	Existing	Proposed	Ratio	Result	Classification	
B1	F0	W1	1.0.1	67.1	61.7	0.92	Pass	*Negligible*	15.1	11.4	0.76	Pass	*Negligible*	
B1	F0	W2	1.0.2	74.4	67.7	0.91	Pass	*Negligible*	21.8	17.1	0.78	Pass	*Negligible*	
B1	F0	W3	1.0.3	73.0	66.1	0.91	Pass	*Negligible*	16.6	13.1	0.79	Pass	*Negligible*	
B1	F0	W4	1.0.4	59.9	53.2	0.89	Pass	*Negligible*	4.7	3.9	0.83	Pass	*Moderate Adverse*	**2
B1	F0	W5	1.0.5	55.6	48.7	0.88	Pass	*Negligible*	4.0	3.7	0.90	Pass	*Moderate Adverse*	**2
B1	F0	W6	1.0.6	69.5	60.3	0.87	Pass	*Negligible*	13.3	8.2	0.61	Pass	*Negligible*	
B1	F0	W7	1.0.7	57.2	40.4	0.71	Pass	*Negligible*	4.1	1.3	0.32	Fail	*Moderate Adverse*	**2
B1	F0	W8	1.0.8	50.0	28.4	0.57	Pass	*Negligible*	7.7	0.2	0.02	Fail	*Major Adverse*	
B1	F0	W9	1.0.9	61.5	37.5	0.61	Pass	*Negligible*	12.6	1.9	0.15	Fail	*Major Adverse*	
B1	F0	W10	1.0.10	48.6	27.4	0.56	Pass	*Negligible*	8.2	1.6	0.20	Fail	*Major Adverse*	
B1	F1	W1	1.1.1	75.8	65.9	0.87	Pass	*Negligible*	26.4	17.6	0.67	Pass	*Negligible*	
B1	F1	W2	1.1.2	82.6	68.2	0.83	Pass	*Negligible*	25.9	14.6	0.56	Pass	*Negligible*	
B1	F1	W3	1.1.3	65.3	50.7	0.78	Pass	*Negligible*	20.6	8.2	0.40	Pass	*Negligible*	
B1	F1	W4	1.1.4	84.1	66.5	0.79	Pass	*Negligible*	27.0	11.7	0.43	Pass	*Negligible*	
B1	F1	W5	1.1.5	82.6	62.8	0.76	Pass	*Negligible*	25.8	8.8	0.34	Pass	*Negligible*	
B1	F1	W6	1.1.6	83.1	59.6	0.72	Pass	*Negligible*	26.7	6.4	0.24	Pass	*Negligible*	
B1	F1	W7	1.1.7	78.9	56.5	0.72	Pass	*Negligible*	22.9	4.4	0.19	Marginal	*Major Adverse*	
B1	F1	W8	1.1.8	74.3	53.4	0.72	Pass	*Negligible*	20.4	4.1	0.20	Marginal	*Major Adverse*	

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

**1

**2 Baseline winter sunlight to windows noted thus are minimal and thus Impact on these windows is also negligible, albeit that the ratios may be appear as disproportionately low.

Most windows face North and only windows which face within 90˚of due South require testing.

Conclusion

The impact on neighbours tested against the existing situation:

100% of tested windows comply with the annual APSH and
67% *(78% including marginals)* with the winter WPSH requirements for sunlight or overall requirement.

The average change ratio for sunlight is APSH:**0.78** and WPSH: **0.47**

The proposed development complies with the BRE guidelines in relation to annual but not winter sunlight availability to neighbours.

Adjacent Properties – Sunlight on the Ground (Shadow)
Gardens and Open spaces

Tests for the availability of sunlight in amenity areas.

3.3.17 It is recommended that for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on 21 March. If as a result of new development an existing garden or amenity area does not meet the above, and the area that can receive two hours of sun on 21 March is less than 0.80 times its former value, then the loss of sunlight is likely to be noticeable. If a detailed calculation cannot be carried out, it is recommended that the centre of the area should receive at least two hours of sunlight on 21 March

3.3.3 The availability of sunlight should be checked for all open spaces where it will be required. This would normally include:
• gardens, such as the main back garden of a house or communal gardens including courtyards and roof terraces
• parks and playing fields
• children's playgrounds
• outdoor swimming pools and paddling pools, and other areas of recreational water such as marinas and boating lakes
• sitting out areas such as those between non-domestic buildings and in public squares
• nature reserves (which may have special requirements for sunlight if rare plants are growing there).

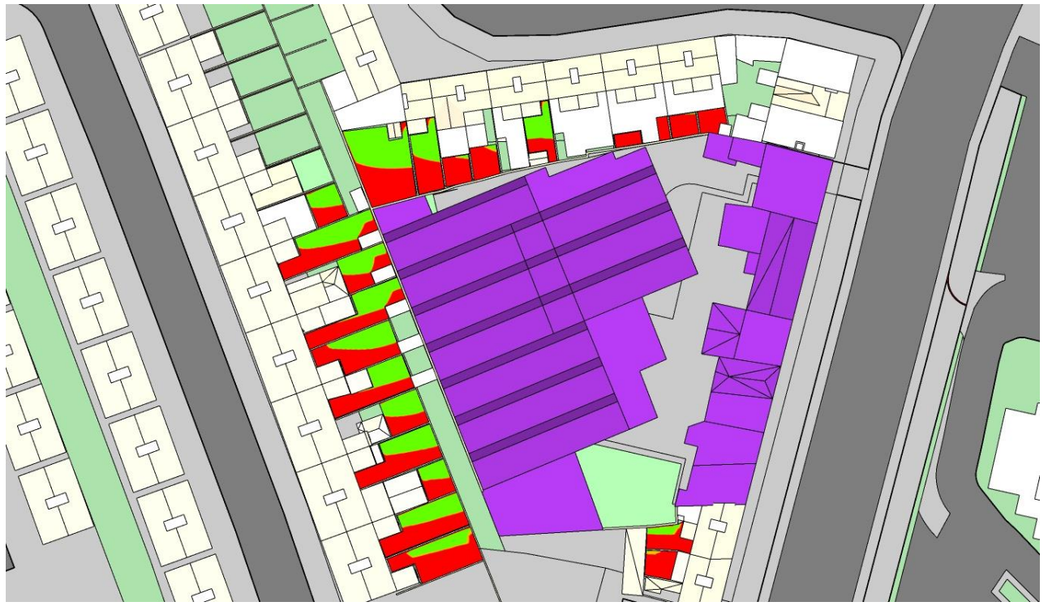
The amenities of the following properties were tested.

- Rear gardens to Window Groups 1, 2 & 3

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** is marginal or borderline - just below the 2-hour requirement



Existing



Proposed 2024-v22

Tabulated Results – Shadow – Baseline granted/lapsed Application.

	v30		Design	2-hour Sunlight - 21st March					
				Check > 50% or ratio > 0.8					
Block	Zone	Ref	Description	Existing	Proposed	Ratio	Result	Classification	
B1	A1	1.A1	Rear Garden	53%	45%	0.85	Pass	***Negligible***	
B1	A2	1.A2	Rear Garden	46%	33%	0.72	Marginal	***Minor adverse***	
B1	A3	1.A3	Rear Garden	3%	0%	0.00	Fail	***Major Adverse***	
B1	A4	1.A4	Rear Garden	4%	0%	0.00	Fail	***Major Adverse***	
B1	A5	1.A5	Rear Garden	60%	22%	0.37	Fail	***Major adverse***	
B1	A6	1.A6	Rear Garden	0%	0%		Pass	***Negligible***	
B1	A7	1.A7	Rear Garden	0%	0%		Pass	***Negligible***	
B1	A8	1.A8	Rear Garden	2%	0%	0.00	Fail	***Moderate Adverse***	**3
B1	A9	1.A9	Rear Garden	0%	0%		Pass	***Negligible***	
B2	A1	2.A1	Rear Garden	25%	25%	1.00	Pass	***Negligible***	
B2	A2	2.A2	Rear Garden	40%	40%	1.00	Pass	***Negligible***	
B2	A3	2.A3	Rear Garden	43%	43%	1.00	Pass	***Negligible***	
B2	A4	2.A4	Rear Garden	40%	40%	1.00	Pass	***Negligible***	
B2	A5	2.A5	Rear Garden	55%	55%	1.00	Pass	***Negligible***	
B2	A6	2.A6	Rear Garden	39%	39%	1.00	Pass	***Negligible***	
B2	A7	2.A7	Rear Garden	42%	42%	1.00	Pass	***Negligible***	
B2	A8	2.A8	Rear Garden	41%	40%	0.98	Pass	***Negligible***	
B2	A9	2.A9	Rear Garden	54%	49%	0.91	Pass	***Negligible***	
B2	A10	2.A10	Rear Garden	46%	44%	0.96	Pass	***Negligible***	
B2	A11	2.A11	Rear Garden	52%	50%	0.96	Pass	***Negligible***	
B3	A1	3.A1	Rear Garden	25%	19%	0.76	Marginal	***Minor Adverse***	
B3	A2	3.A2	Rear Garden	1%	1%	1.00	Pass	***Negligible***	

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

***3 Some of the amenity spaces receive nominal light over an exceedingly small area, change impact to these spaces will show a disproportionate change ratio not consistent with the spirit of the guidelines. Percentage changes of around 2% are classified here as negligible.*

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

The impact on neighbours tested against the existing situation:

73% *(82% if we include marginals)* of tested neighbouring amenity spaces pass the BRE 2-hours of sunlight on the 21st of March or 0.8 ratio requirement.

The average change ratio for the tested amenity spaces **0.76**

There is significant impact to some gardens.

Comparison with the analysis in the main body of the report.

Summary - Impact on Neighbours

Change/Impact to neighbouring buildings in the adjoining residential areas.
Baseline: The existing situation.

- **Skylight- VSC**
  - **70**% *(88% if marginals are included)* of tested windows pass the relevant VSC checks.
  - Average VSC change ratio is nominal at **0.83**
  - The results are consistent with those of the granted/lapsed permission and the nett change to impact is neutral/positive.
- **Sunlight APSH & WPSH**
  - **100%** tested windows pass the relevant Annual Sunlight APSH requirements.
  - **67%** *(78% including negligible)* pass the relevant Winter Sunlight WPSH requirements
  - The average change ratio for sunlight is APSH:**0.78** and WPSH: **0.47**
- **Shadow**
  - **73%** *(82% including marginals)* of the Gardens tested comply with the BRE requirements
  - The average change ratio for shadow/sunlight is **0.76**

The results show that the impacts of this proposed development against the existing baseline have significant impact on its neighbours.

Summary - Impact on Neighbours

Change/Impact to neighbouring buildings in the adjoining residential areas.
Baseline: Permitted but lapsed Application on the site Reg. Ref.: 3853/17 and ABP Ref.: 302149-18

- **Skylight- VSC**
  - **96**% *(100% if marginals are included)* of tested windows pass the relevant VSC checks.
  - Average VSC change ratio is nominal at **0.97**
  - The results are consistent with those of the granted/lapsed permission and the nett change to impact is neutral/positive.
- **Sunlight APSH & WPSH**
  - **100%** tested windows pass the relevant Annual Sunlight APSH requirements.
  - **83%** *(100% including negligible)* pass the relevant Winter Sunlight WPSH requirements
  - The average change ratio for sunlight is APSH:**0.94** and WPSH: **1.73**
- **Shadow**
  - **95%** *(100% including marginals)* of the Gardens tested comply with the BRE requirements
  - The average change ratio for shadow/sunlight is **1.05**

The results show that the impacts of this proposed development are generally consistent with those of the granted but lapsed permission and may be classified as neutral / beneficial.

Appendix 3

Impact on Neighbours against Baseline: Live SHD application

Analysis against the live SHD application as a Baseline.

For information only.

Design Model

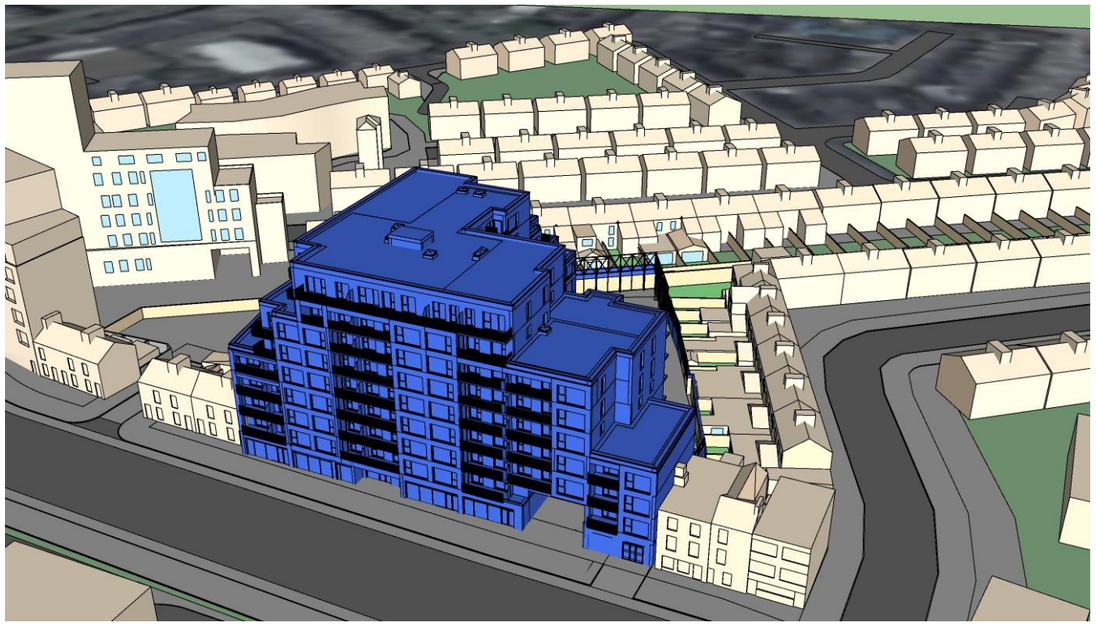
Full 3D models of the proposed development, granted/lapsed permission and the surrounding neighbouring properties were provided by the Architect. These had been modelled from survey information and drawings provided in plan, elevation, and section formats. The model was geo-referenced to its correct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

In these images “Cream” indicates surrounding environment, “blue” represent both the Live SHD 2021 and also the proposed 2024 design.

In this appendix we examine the impact against the existing situation. These results are based on the information and models provided.



Live SHD application - 2021



Proposed 2025 – v30

Scope of this Report

Scope is as before impact on neighbours:

- Skylight VSC
- Sunlight Annual ASPH and Winter WPSH
- Sunlight on the Ground SOG aka Shadow.

Consistent Impact Terminology

Impact terms used in the older permission were as follows. To match the previous report and for consistency, we have been asked to utilise the same terminology.

- “Negligible” for compliance with the guidelines
- “Minor” for variance of approx. 20% from guidelines
- “Moderate” for variance of approx. 20% from guidelines
- “Major” for variance of approx. 20% from guidelines
- These may be classified as Adverse or Beneficial
- In each case the variance normally measured from the ratio may also be considered from the minimum target.

Impact on neighbours

Adjacent Properties - Light from the Sky impact on neighbouring properties

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

We have investigated this impact under clause 2.2.7

> ***2.2.7 If this VSC is greater than 27% then enough skylight should still be reaching the window of the existing building. This value of VSC typically supplies enough daylight to a standard room when combined with a window of normal dimensions, with glass area around 10% or more of the floor area. Any reduction below this level should be kept to a minimum. If the VSC, with the new development in place, is both less than 27% and less than 0.80 times its former value, occupants of the existing building will notice the reduction in the amount of skylight. The area lit by the window is likely to appear gloomier, and electric lighting will be needed more of the time. . . .***
>
> ***2.2.6 Any reduction in the total amount of skylight can be calculated by finding the VSC at the centre of each main window. In the case of a floor-to-ceiling window such as a patio door, a point 1.6 m above ground (or balcony level for an upper storey) on the centre line of the window may be used. For a bay window, the centre window facing directly outwards can be taken as the main window. If a room has two or more windows of equal size, the mean of their VSCs may be taken. The reference point is in the external plane of the window wall. Windows to bathrooms, toilets, storerooms, circulation areas, and garages need not be analysed. . . .***

Tabulated Results – Skylight VSC – Baseline Active SHD

Skylight to habitable rooms								
v30	**VSC - Baseline SHD Active**							
Design	*Check > 27% or ratio > 0.8*							
Ref	**Floor**	**Window**	**Ref**	**SHD Active**	**Proposed**	**Ratio**	**Result**	**Classification**
B1	**F0**	**W1**	1.0.1	26.8	26.6	0.99	Pass	***Negligible***
B1	F0	W2	1.0.2	29.6	29.3	0.99	Pass	***Negligible***
B1	F0	W3	1.0.3	27.2	26.7	0.98	Pass	***Negligible***
B1	F0	W4	1.0.4	22.9	20.5	0.90	Pass	***Negligible***
B1	F0	W5	1.0.5	21.5	19.9	0.92	Pass	***Negligible***
B1	F0	W6	1.0.6	22.6	21.9	0.97	Pass	***Negligible***
B1	F0	W7	1.0.7	14.9	13.8	0.93	Pass	***Negligible***
B1	F0	W8	1.0.8	14.1	11.8	0.84	Pass	***Negligible***
B1	F0	W9	1.0.9	15.5	13.2	0.85	Pass	***Negligible***
B1	F0	W10	1.0.10	13.1	10.6	0.81	Pass	***Negligible***
B1	F1	W1	1.1.1	29.6	29.4	1.00	Pass	***Negligible***
B1	F1	W2	1.1.2	28.6	28.2	0.98	Pass	***Negligible***
B1	F1	W3	1.1.3	23.1	22.8	0.99	Pass	***Negligible***
B1	F1	W4	1.1.4	26.3	26.0	0.99	Pass	***Negligible***
B1	F1	W5	1.1.5	25.0	24.3	0.97	Pass	***Negligible***
B1	F1	W6	1.1.6	23.3	22.1	0.95	Pass	***Negligible***
B1	F1	W7	1.1.7	21.8	20.3	0.93	Pass	***Negligible***
B1	F1	W8	1.1.8	21.4	19.8	0.92	Pass	***Negligible***
B2	**F0**	**W1**	2.0.1	29.4	29.1	0.99	Pass	***Negligible***
B2	F0	W2	2.0.2	16.9	16.5	0.98	Pass	***Negligible***
B2	F0	W3	2.0.3	20.1	19.6	0.97	Pass	***Negligible***
B2	F0	W4	2.0.4	22.3	23.6	1.06	Pass	***Minor Beneficial***
B2	F0	W5	2.0.5	11.9	11.7	0.98	Pass	***Negligible***
B2	F0	W6	2.0.6	19.9	21.8	1.09	Pass	***Minor Beneficial***
B2	F0	W7	2.0.7	18.2	18.8	1.03	Pass	***Minor Beneficial***
B2	F0	W8	2.0.8	17.3	17.7	1.02	Pass	***Minor Beneficial***
B2	F0	W9	2.0.9	20.1	22.6	1.12	Pass	***Minor Beneficial***
B2	F0	W10	2.0.10	18.3	19.7	1.08	Pass	***Minor Beneficial***
B2	F0	W11	2.0.11	17.2	17.8	1.04	Pass	***Minor Beneficial***
B2	F0	W12	2.0.12	27.3	31.2	1.14	Pass	***Minor Beneficial***
B2	F0	W13	2.0.13	22.1	25.6	1.16	Pass	***Minor Beneficial***
B2	F0	W14	2.0.14	18.0	18.4	1.02	Pass	***Negligible***
B2	F0	W15	2.0.15	30.1	29.8	0.99	Pass	***Negligible***
B2	F1	W1	2.1.1	25.9	25.7	0.99	Pass	***Negligible***
B2	F1	W2	2.1.2	25.6	25.2	0.98	Pass	***Negligible***
B2	F1	W3	2.1.3	23.0	23.1	1.00	Pass	***Negligible***
B2	F1	W4	2.1.4	27.9	29.0	1.04	Pass	***Negligible***
B2	F1	W5	2.1.5	26.8	27.4	1.02	Pass	***Negligible***
B2	F1	W6	2.1.6	25.7	26.3	1.02	Pass	***Minor Beneficial***
B2	F1	W7	2.1.7	25.9	26.9	1.04	Pass	***Minor Beneficial***
B2	F1	W8	2.1.8	26.4	27.2	1.03	Pass	***Minor Beneficial***
B2	F1	W9	2.1.9	30.0	31.0	1.03	Pass	***Minor Beneficial***
B2	F1	W10	2.1.10	27.6	27.5	1.00	Pass	***Negligible***
B2	F1	W11	2.1.11	32.1	31.8	0.99	Pass	***Negligible***

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

Skylight to habitable rooms								
v30	**VSC** - Baseline SHD Active							
Design	*Check > 27% or ratio > 0.8*							
Ref	**Floor**	**Window**	**Ref**	**SHD Active**	**Proposed**	**Ratio**	**Result**	**Classification**
B3	**F0**	**W1**	3.0.1	13.5	10.5	0.78	Marginal	***Minor Adverse***
B3	F0	W2	3.0.2	20.4	19.8	0.97	Pass	***Negligible***
B3	F0	W3	3.0.3	24.3	23.7	0.97	Pass	***Negligible***
B3	F0	W4	3.0.4	23.8	23.3	0.98	Pass	***Negligible***
B3	F1	W1	3.1.1	24.6	24.0	0.98	Pass	***Negligible***
B3	F1	W2	3.1.2	27.6	27.0	0.98	Pass	***Negligible***
B3	F1	W3	3.1.3	28.1	27.5	0.98	Pass	***Negligible***
B3	F1	W4	3.1.4	27.1	26.8	0.99	Pass	***Negligible***
B3	F1	W5	3.1.5	26.1	25.9	0.99	Pass	***Negligible***
B3	F1	W6	3.1.6	21.0	20.9	0.99	Pass	***Negligible***
B4	**F1**	**W1**	4.1.1	30.9	30.7	0.99	Pass	***Negligible***
B4	F1	W2	4.1.2	30.7	30.4	0.99	Pass	***Negligible***
B4	F2	W1	4.2.1	33.0	32.8	0.99	Pass	***Negligible***
B4	F2	W2	4.2.2	32.8	32.5	0.99	Pass	***Negligible***
B4	F3	W1	4.3.1	34.9	34.7	0.99	Pass	***Negligible***
B4	F3	W2	4.3.2	34.7	34.5	0.99	Pass	***Negligible***
B5	F0	W1	5.0.1	19.7	19.7	1.00	Pass	***Negligible***
B5	**F1**	**W1**	5.1.1	24.5	21.8	0.89	Pass	***Negligible***
B5	F1	W2	5.1.2	32.2	31.8	0.99	Pass	***Negligible***
B5	F1	W3	5.1.3	29.7	29.7	1.00	Pass	***Negligible***
B5	F1	W4	5.1.4	35.0	34.8	1.00	Pass	***Negligible***
B5	F2	W1	5.2.1	31.8	28.6	0.90	Pass	***Negligible***
B5	F2	W2	5.2.2	36.2	35.5	0.98	Pass	***Negligible***

Conclusion

The impact on neighbours tested against the live SHD application:
99% ***(100%** if marginals are included)* of tested windows comply with the 27%, 0.8 ratio requirements for habitable rooms.

The average change ratio for VSC is **0.99**

The proposed development has impact in terms of the BRE guidelines to the skylight for some neighbours.

Adjacent Properties - Sunlight into living spaces

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

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

While not all windows relate to living rooms, we have for completeness tested all of them. Note only windows which face within 90˚of due South require testing.

Tabulated Results – Sunlight APSH & WPSH – Baseline Active SHD.

Sunlight on windows to living room spaces check

v30 **Annual - 25% and Winter - 5%** - Baseline SHD Active

Design *Check > 25% or ratio > 0.8* *Check > 5% or ratio > 0.8*

Ref	Floor	Window	Ref	SHD Active	Proposed	Ratio	Result	Classification	SHD Active	Proposed	Ratio	Result	Classification	
B1	F0	W1	1.0.1	61.8	61.7	1.00	Pass	*Negligible*	11.2	11.4	1.02	Pass	*Negligible*	
B1	F0	W2	1.0.2	68.5	67.7	0.99	Pass	*Negligible*	17.2	17.1	0.99	Pass	*Negligible*	
B1	F0	W3	1.0.3	67.4	66.1	0.98	Pass	*Negligible*	13.5	13.1	0.97	Pass	*Negligible*	
B1	F0	W4	1.0.4	56.8	53.2	0.94	Pass	*Negligible*	7.7	3.9	0.51	PASS	*Negligible*	**1
B1	F0	W5	1.0.5	54.2	48.7	0.90	Pass	*Negligible*	6.4	3.7	0.57	Fail	*Moderate Adverse*	**2
B1	F0	W6	1.0.6	58.9	60.3	1.02	Pass	*Negligible*	6.8	8.2	1.19	Pass	*Negligible*	
B1	F0	W7	1.0.7	44.4	40.4	0.91	Pass	*Negligible*	0.3	1.3	4.25	Pass	*Minor Beneficial*	
B1	F0	W8	1.0.8	35.2	28.4	0.81	Pass	*Negligible*	0.1	0.2	2.00	Pass	*Minor Beneficial*	
B1	F0	W9	1.0.9	43.1	37.5	0.87	Pass	*Negligible*	1.7	1.9	1.09	Pass	*Minor Beneficial*	
B1	F0	W10	1.0.10	36.8	27.4	0.74	Pass	*Negligible*	1.6	1.6	1.05	Pass	*Minor Beneficial*	
B1	F1	W1	1.1.1	66.4	65.9	0.99	Pass	*Negligible*	17.6	17.6	1.00	Pass	*Negligible*	
B1	F1	W2	1.1.2	69.3	68.2	0.98	Pass	*Negligible*	14.8	14.6	0.98	Pass	*Negligible*	
B1	F1	W3	1.1.3	49.7	50.7	1.02	Pass	*Minor Beneficial*	7.8	8.2	1.04	Pass	*Minor Beneficial*	
B1	F1	W4	1.1.4	65.0	66.5	1.02	Pass	*Minor Beneficial*	11.0	11.7	1.06	Pass	*Minor Beneficial*	
B1	F1	W5	1.1.5	62.6	62.8	1.00	Pass	*Negligible*	7.9	8.8	1.11	Pass	*Minor Beneficial*	
B1	F1	W6	1.1.6	58.8	59.6	1.01	Pass	*Minor Beneficial*	5.8	6.4	1.09	Pass	*Minor Beneficial*	
B1	F1	W7	1.1.7	56.4	56.5	1.00	Pass	*Negligible*	4.0	4.4	1.10	Pass	*Minor Beneficial*	
B1	F1	W8	1.1.8	53.4	53.4	1.00	Pass	*Negligible*	3.6	4.1	1.15	Pass	*Minor Beneficial*	

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

**1 Window 1.0.4 complies with the APSH reduction of less than 4% requirement

**2 Baseline winter sunlight to windows noted thus are minimal and thus Impact on these windows is also negligible, albeit that the ratios may be appear as disproportionately low.

Most windows face North and only windows which face within 90˚of due South require testing.

Conclusion

The impact on neighbours tested against the existing situation:

100% of tested windows comply with the annual APSH and
94% with the winter WPSH requirements for sunlight or overall requirement.

The average change ratio for sunlight is APSH:**0.95** and WPSH: **1.23**

The proposed development complies with the BRE guidelines in relation to annual and mostly in relation to winter sunlight availability to neighbours.

Adjacent Properties – Sunlight on the Ground (Shadow)
Gardens and Open spaces

Tests for the availability of sunlight in amenity areas.

3.3.17 It is recommended that for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on 21 March. If as a result of new development an existing garden or amenity area does not meet the above, and the area that can receive two hours of sun on 21 March is less than 0.80 times its former value, then the loss of sunlight is likely to be noticeable. If a detailed calculation cannot be carried out, it is recommended that the centre of the area should receive at least two hours of sunlight on 21 March

3.3.3 The availability of sunlight should be checked for all open spaces where it will be required. This would normally include:
• gardens, such as the main back garden of a house or communal gardens including courtyards and roof terraces
• parks and playing fields
• children's playgrounds
• outdoor swimming pools and paddling pools, and other areas of recreational water such as marinas and boating lakes
• sitting out areas such as those between non-domestic buildings and in public squares
• nature reserves (which may have special requirements for sunlight if rare plants are growing there).

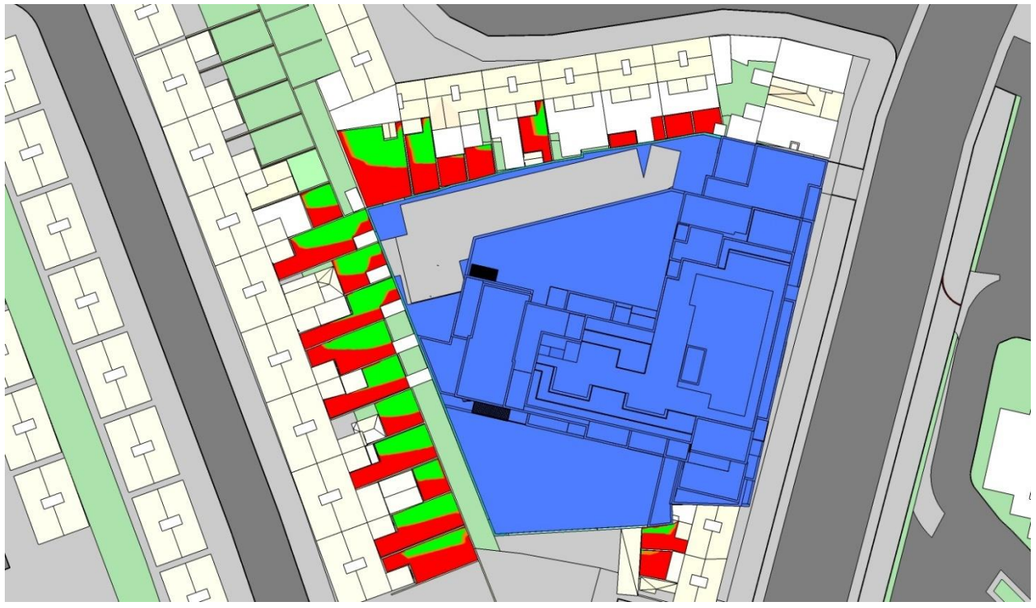
The amenities of the following properties were tested.

- Rear gardens to Window Groups 1, 2 & 3

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** is marginal or borderline - just below the 2-hour requirement



Live SHD application – 2021



Proposed 2024-v22

Tabulated Results – Shadow – Baseline granted/lapsed Application.

				Shadow to amenity spaces					
	v30		**Design**	**2-hour Sunlight - 21st March** - Baseline SHD Active					
				Check > 50% or ratio > 0.8					
Block	Zone	Ref	Description	SHD Active	Proposed	Ratio	Result	Classification	
B1	A1	1.A1	Rear Garden	44%	41%	0.93	Pass	***Negligible***	
B1	A2	1.A2	Rear Garden	43%	21%	0.49	Fail	***Minor Adverse***	
B1	A3	1.A3	Rear Garden	2%	0%	0.00	Fail	***Negligible***	**3
B1	A4	1.A4	Rear Garden	6%	0%	0.00	Fail	***Moderate Adverse***	
B1	A5	1.A5	Rear Garden	23%	20%	0.86	Pass	***Negligible***	
B1	A6	1.A6	Rear Garden	0%	0%		Pass	***Negligible***	
B1	A7	1.A7	Rear Garden	0%	0%		Pass	***Negligible***	
B1	A8	1.A8	Rear Garden	0%	0%		Pass	***Negligible***	
B1	A9	1.A9	Rear Garden	0%	0%		Pass	***Negligible***	
B2	A1	2.A1	Rear Garden	25%	25%	1.01	Pass	***Negligible***	
B2	A2	2.A2	Rear Garden	40%	40%	1.01	Pass	***Negligible***	
B2	A3	2.A3	Rear Garden	43%	43%	0.99	Pass	***Negligible***	
B2	A4	2.A4	Rear Garden	40%	40%	1.01	Pass	***Negligible***	
B2	A5	2.A5	Rear Garden	55%	55%	0.99	Pass	***Negligible***	
B2	A6	2.A6	Rear Garden	39%	39%	1.00	Pass	***Negligible***	
B2	A7	2.A7	Rear Garden	42%	42%	1.00	Pass	***Negligible***	
B2	A8	2.A8	Rear Garden	41%	40%	0.98	Pass	***Negligible***	
B2	A9	2.A9	Rear Garden	50%	50%	1.01	Pass	***Negligible***	
B2	A10	2.A10	Rear Garden	44%	44%	0.99	Pass	***Negligible***	
B2	A11	2.A11	Rear Garden	49%	50%	1.03	Pass	***Negligible***	
B3	A1	3.A1	Rear Garden	25%	18%	0.73	Marginal	***Minor Adverse***	
B3	A2	3.A2	Rear Garden	1%	1%	0.85	Pass	***Negligible***	

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

***3 Some of the amenity spaces receive nominal light over an exceedingly small area, change impact to these spaces will show a disproportionate change ratio not consistent with the spirit of the guidelines. Percentage changes of around 2% are classified here as negligible.*

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

The impact on neighbours tested against the existing situation:

82% *(86% if we include marginals)* of tested neighbouring amenity spaces pass the BRE 2-hours of sunlight on the 21st of March or 0.8 ratio requirement.

The average change ratio for the tested amenity spaces **0.83**

There is impact to some gardens.

Comparison with the analysis in the main body of the report.

Summary - Impact on Neighbours

Change/Impact to neighbouring buildings in the adjoining residential areas.
Baseline: Live SHD Application

- **Skylight- VSC**
  - **99**% *(100% if marginals are included)* of tested windows pass the relevant VSC checks.
  - Average VSC change ratio is nominal at **0.99**
  - The results are consistent with those of the granted/lapsed permission and the nett change to impact is neutral/positive.
- **Sunlight APSH & WPSH**
  - **100%** tested windows pass the relevant Annual Sunlight APSH requirements.
  - **94%** pass the relevant Winter Sunlight WPSH requirements
  - The average change ratio for sunlight is APSH:**0.95** and WPSH: **1.23**
- **Shadow**
  - **82%** *(86% including marginals)* of the Gardens tested comply with the BRE requirements
  - The average change ratio for shadow/sunlight is **0.83**

The results show that the impacts of this proposed development consistent with the Live SHD baseline and may be classified as neutral / beneficial.

Summary - Impact on Neighbours

Change/Impact to neighbouring buildings in the adjoining residential areas.
Baseline: Permitted but lapsed Application on the site Reg. Ref.: 3853/17 and ABP Ref.: 302149-18

- **Skylight- VSC**
  - **96**% *(100% if marginals are included)* of tested windows pass the relevant VSC checks.
  - Average VSC change ratio is nominal at **0.97**
  - The results are consistent with those of the granted/lapsed permission and the nett change to impact is neutral/positive.
- **Sunlight APSH & WPSH**
  - **100%** tested windows pass the relevant Annual Sunlight APSH requirements.
  - **83%** *(100% including negligible)* pass the relevant Winter Sunlight WPSH requirements
  - The average change ratio for sunlight is APSH:**0.94** and WPSH: **1.73**
- **Shadow**
  - **95%** *(100% including marginals)* of the Gardens tested comply with the BRE requirements
  - The average change ratio for shadow/sunlight is **1.05**

The results show that the impacts of this proposed development are generally consistent with those of the granted but lapsed permission and may be classified as neutral / beneficial.