

Local authority own housing development under section 179A of the planning & development act for lands at Mooretown, Swords, Co. Dublin

Daylight and Sunlight Assessment Report
Fingal County Council

"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." - BR 209

+353 (0) 1 288 0186

info@3ddesignbureau.com

www.3ddesignbureau.com



Creative & Technical 3D Solutions in
Design, Planning & Marketing.

Report Contents

1.0	Executive Summary	3
1.1	<i>Summary of Assessment.....</i>	3
1.2	<i>Scheme Performance Results Overview:.....</i>	4
1.3	<i>Supplementary Assessment Results Overview.....</i>	5
2.0	Guidelines / Standards	6
3.0	Glossary	9
3.1	<i>Terms and Definitions</i>	9
3.2	<i>Definition of Levels of Sunlight Exposure.....</i>	10
4.0	Methodology	11
4.1	<i>Impact Assessment, Window Selection Criteria.....</i>	11
4.2	<i>Preparing the analytical model</i>	12
4.3	<i>Quantitative Scheme Performance Assessment Overview.....</i>	13
5.0	Analysis of Results.....	16
5.1	<i>Analysis of Scheme Performance Results.....</i>	16
6.0	Conclusion	20
Appendix - Results.....		21
A.0	Scheme Performance	23
A.1	<i>Proposed Apartment Floor Plans.....</i>	23
A.2	<i>Spatial Daylight Autonomy (SDA) in Proposed Units.....</i>	29
A.3	<i>Sunlight Exposure (SE) in Proposed Units.....</i>	42
A.4	<i>Sun On Ground (SOG) in Proposed Outdoor Amenity Areas</i>	55
B.0	Supplementary Study Results.....	58
B.1	<i>SDA study, under the I.S. EN 17037 criteria</i>	58
B.2	<i>Supplementary No Sky Line (NSL) assessment in proposed units.</i>	71
C.0	Shadow Studies	84
C.1	<i>Shadow Study 21 March</i>	84
C.2	<i>Shadow Study 21 June</i>	90
C.3	<i>Shadow Study 21 December.....</i>	98

The following report has been prepared by 3D Design Bureau (3DDB). 3DDB have over 7 years experience in producing daylight and sunlight assessments for large scale planning applications and are recognised as experts in the field. This report has been reviewed and overseen by Nicholas Polley and Richard Dalton. Nicholas is CEO of 3D Design Bureau and is a qualified Building Services Engineer (B.Sc.(Eng) Dip Eng) with over 25 years experience in the industry. Richard is Associate Director of 3DDB and has a bachelors degree in Building Information Modelling (BIM) with over 20 years experience in the industry.

1.0 Executive Summary

1.1 Summary of Assessment

3D Design Bureau (3DDB) were commissioned to carry out a daylight and sunlight assessment for the proposed apartment and duplex units within the proposed housing development at Mooretown, Swords, Co. Dublin. A Sun On Ground (SOG) assessment, along with an accompanying shadow study, has been conducted to the public and communal open spaces throughout the proposed site.

It has been determined that the proposed housing development would not have an adverse affect on the existing neighbouring properties as it maintains adequate separation distances. This has been determined by following the methodology recommended within the BRE Guidelines, as detailed in section 4.1 on page 11 of this report. No further impact assessment has been carried out.

Scheme Performance

Daylight access for the habitable rooms within the proposed apartment and duplex units, as highlighted in Figure 1.1, have been assessed through a Spatial Daylight Autonomy (SDA) study.

Sunlight access for the same rooms has been quantified through a Sunlight Exposure (SE) assessment.

A Sun On Ground (SOG) study has also been carried out to indicate the level of sunlight on March 21st in the proposed public and communal open spaces throughout the proposed site.

The results of these scheme performance assessments, which are in accordance with the BRE Guidelines, can be found in section A.0 on page 23. These results are summarised in section 1.2 and explained in section “5.1 Analysis of Scheme Performance Results” on page 16.

Supplementary scheme performance studies have also been carried out. These include an SDA assessment under the I.S. EN 17037 criterion, and a No Sky Line (NSL) study within proposed habitable rooms. The results of the supplementary scheme performance assessments can be found in section B.0 on page 58.



Figure 1.1: Keyplan indicating the location of the assessed apartment and duplex units

1.2 Scheme Performance Results Overview: Spatial Daylight Autonomy (SDA):

Spatial Daylight Autonomy (SDA) BRE 209 Criteria	
Unit Count	87
Rooms Assessed	274
Without Trees	
Compliant	274
Non-compliant	0
Compliance Rate*	100%
Trees in Winter State (Proposed and Existing Trees)	
Compliant	274
Non-compliant	0
Compliance Rate*	100%
Trees in Summer State (Proposed and Existing Trees)	
Compliant	274
Non-compliant	0
Compliance Rate*	100%

Note: It is the expert opinion of 3DDB that the appropriate criteria for SDA assessments are that of the BRE Guidelines (BRE 209)

* SDA compliance rates stated are based on the residential units that have been assessed within the proposed apartment and duplex units only.

Sunlight Exposure (SE):

Sunlight Exposure (SE)	
Units Assessed	87
SE with trees as opaque objects	
Non-Compliant	5
Minimum	18
Medium	13
High	51
Compliance Rate*	c. 94%
SE without deciduous trees	
Non-Compliant	2
Minimum	12
Medium	15
High	58
Compliance Rate*	c. 98%

* SE compliance rates stated are based on the residential units that have been assessed within the proposed apartment and duplex units only.

Sun On Ground (SOG) in proposed gardens / amenity areas:

Sun On Ground (SOG) in proposed gardens / amenity areas	
Areas Assessed	17
Areas meeting the guidelines	17
Areas not meeting the guidelines	0
Compliance Rate*	100%

* SOG compliance rates stated are based on the proposed public and communal open spaces that have been assessed only.

1.3 Supplementary Assessment Results Overview

Spatial Daylight Autonomy (SDA) under I.S. EN 17037 Criterion:

Spatial Daylight Autonomy (SDA) under I.S. EN 17037 Criterion	
Unit Count	87
Rooms Assessed	274
Without Trees	
Compliant	237
Non-compliant	37
Compliance Rate*	c. 86%
Trees in Winter State (Proposed and Existing Trees)	
Compliant	232
Non-compliant	42
Compliance Rate*	c. 85%
Trees in Summer State (Proposed and Existing Trees)	
Compliant	217
Non-compliant	57
Compliance Rate*	c. 79%

Note: The study under the I.S. EN 17037 criterion should be considered a supplementary assessment. It is the expert opinion of 3DDB that the appropriate criteria are that of the BRE Guidelines (BRE 209)

* SDA compliance rates stated are based on the residential units that have been assessed within the proposed apartment and duplex units only.

No Sky Line (NSL):

No Sky Line (NSL):	
Unit Count	87
Rooms Assessed	274
Yes	272
No	2
Compliance Rate**	c. 99%

** As the BRE Guidelines do not provide a recommended minimum for NSL in proposed developments, compliance rates for NSL are calculated using a criteria applied by 3DDB.

* NSL compliance rates stated are based on the residential units that have been assessed within the proposed apartment and duplex units only.

2.0 Guidelines / Standards

Whilst the subject of this report is primarily related to scheme performance, this section refers to guidelines and standards for daylight and sunlight assessment for both impact assessment and scheme performance.

Summary

Neither the British Standard, European Standard, British Annex to the European Standard nor the BRE Guide set out rigid standards or limits. They are all considered advisory documents. The BRE Guide is preceded by the following very clear statement as to how the design advice contained therein should be used:

“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.”

That the recommendations of the BRE Guide are not suitable for rigid application to all developments in all contexts, is of particular importance in the context of national and local policies for the consolidation and densification of urban areas or when assessing applications for highly constrained sites (e.g. lands in close proximity or immediately to the south of residential lands). A compromise may have to be made concerning daylight and sunlight compliance to achieve national or local planning objectives.

It is the expert opinion of 3D Design Bureau, that the BRE Guidelines (BR 209) are the most appropriate guiding document for daylight and sunlight assessment. For daylight within proposed developments, a supplementary study has also been carried out under the criteria of *I.S. EN 17037*. The rationale for this opinion is outlined below.

Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities. (2023)

In July 2023, the Department of Housing, Planning and Local Government published a guidance document for new apartments, *Sustainable Urban Housing: Design Standards for New Apartments*. This document makes reference to, *EN 17037:2018: Daylight in Buildings* (the European Standard), *BS EN 17037:2018: Daylight in Buildings* (the UK National Annex to the European Standard) and to the 3rd edition of Building Research Establishment's *Site Layout Planning for Daylight and Sunlight: a Guide to Good Practice* (BR 209 2022).

Paragraph 6.7 of the 2023 apartment guidelines states:

“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 [sic] 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.”

As such, this report identifies where daylight and sunlight recommendations have and have not been achieved. Rationale and compensatory design solutions are the remits of the planning consultant and/or the project architect, these will also be included in this report where applicable.

Note: Section 3.2 of the Urban Development and Building Height Guidelines 2018, provides similar guidance as above. However, it should be noted that at the time of publication of the *Urban Development and Building Height Guidelines (2018)*, BR 209 was in the 2nd edition, first published in 2011. Since then, a 3rd edition of BR 209 has been published (June 2022) and the 2nd edition has been withdrawn. BR 209 no longer references *BS 8206-2:2008*, which has also been withdrawn. The standard used as reference in BR 209 edition 3 is *BS EN 17037*.

BRE - Site Layout Planning for Daylight and Sunlight: a Guide to Good Practice (2022)

This document will be referred to as *the BRE Guidelines* in this report.

At the time of writing this report, the BRE Guidelines are in the third edition (BR 209). The BRE Guidelines set out recommendations for appropriate levels of daylight and sunlight within a proposed development, as well as providing guidance on impacts arising from a proposed development to surrounding properties and amenity areas.

It is the expert opinion of 3D Design Bureau that the BRE Guidelines are the most appropriate guiding document for assessing daylight potential within a proposed development. The rationale for this opinion is outlined in the Dublin City Development Plan (2022-2028), which states:

“Prior to 2018, Ireland had no standard for daylight. In 2018, the National Standards Authority of Ireland adopted EN 17037 to directly become IS EN 17037. It is important to note that no amendments were made to this document and unlike BS EN 317037, it does not contain a national annex. It offers only a single target for new buildings (there are no space by space targets – e.g. a kitchen would have the same target as a warehouse or office). It does not offer guidance on how new developments will impact on surrounding existing environments. These limitations make it unsuitable for use in planning policy or during planning applications. BR 209 must still be used for this purpose.”

Whilst BRE Guidelines draws reference from BS EN 17037, there are some subtle differences between BR 209 and BS EN 17037. For the purposes of this report, the BRE Guidelines (BR 209) is considered the appropriate reference document.

EN 17037:2018: Daylight in Buildings (2018)

EN 17037 is a European Standard that provides recommendations for daylight within spaces. (Emphasis added)

EN 17037:2018 recommends that 300 lux should be received across 50% of a hypothetical reference plane of any room for half of the daylight hours of the year, with no less than 100 lux received across 95% of the reference plane. No distinction is made for the function of the room for target lux levels within this standard.

It is the opinion of 3D Design Bureau that these target values are less appropriate for proposed residential developments than the recommendations made in the BRE Guidelines, which apply room-specific target values for appropriate LUX levels.

Recommendations made in EN 17037 regarding Sunlight Exposure for proposed developments have been incorporated into the BRE Guidelines. As such, Sunlight Exposure is deemed the appropriate assessment for sunlight within habitable rooms of the proposed development.

EN 17037 also makes recommendations related to glare and quality of view out. These aspects are not addressed in this report as these assessments have less relevance in a residential context where occupants have the freedom to move about in order to improve level of glare or alter the view out.

I.S. EN 17037:2018 Daylight in Buildings (2018)

I.S. EN 17037 is a direct adoption of the European Standard EN 17037:2018 that provides recommendations for daylight within spaces.

The target values given within I.S. EN 17037 are directly adopted from EN 17037. As such, there are no room-specific recommendations for daylight. Because of these limitations, it is the expert opinion of 3D Design Bureau, that the recommendations made in the BRE Guidelines are more appropriate to use than those within I.S. EN 17037.

Regardless, a supplementary SDA study has been carried out on the proposed development using the criterion of I.S. EN 17037, with compliance rates stated. However, this should be considered a supplementary study.

BS EN 17037:2018: Daylight in Buildings (2018)

BS EN 17037 is the British Annex to the European Standard (see above). The British Annex acknowledges that a rigid application of the European Standard “may not be achievable”. It states “... *it is the opinion of the UK committee that the recommendations for daylight provision in a space [...] may not be achievable for some buildings, particularly dwellings.*”

In BS EN 17037, daylight recommendations differ depending on the function of a room. Target lux levels are applied across 50% of the reference plane of a room for half of the daylight hours. The target lux levels are:

- 200 Lux for kitchens
- 150 Lux for living rooms
- 100 Lux for bedrooms

No minimum is stated to be achieved across 95% of the working plane. If a space has dual purposes it is advised that the higher target value should be applied.

The Compact Growth Guidelines (2024)

The Compact Growth Guidelines offers guidance on compact growth principles as a means to promote sustainable development, efficient land use, and infrastructure while minimizing sprawl and environmental degradation, contributing to sustainable urban growth, enhance liveability and support broader planning objectives.

In regard to daylight, section 5.3.7 states:

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

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

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

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

The Compact Growth Guidelines should be applied within statutory development plans and during the consideration of individual planning applications. Flexibility in interpretation allows planning authorities to tailor recommendations to specific local contexts and planning objectives.

Fingal Development Plan (2023-2029)

The guidance provided in the Fingal County Council Development Plan 2023-2029 references the 2nd Edition of the BRE guidelines (BR 209).

Section 14.6.6.1 of the Fingal Development Plan states:

“Development shall be guided by the principles of Site Layout Planning for Daylight and Sunlight, A guide to good practice (Building Research Establishment Report, 2011) and/or any updated, or subsequent guidance, in this regard.”

The Fingal Development Plan allows for consideration of any updated or subsequent guidance. The 3rd edition of the BRE guidelines (BR 209), which was released in 2022, supersedes the 2nd edition.

Dublin City Development Plan (2022-2028)

Although the subject site is not within Dublin City Council the following section, regarding their Development Plan, has been included for information purposes.

Appendix 16 of the Dublin City Development Plan, 2022-2028 (DCC) provides direction to applicants and consultants conducting daylight and sunlight assessments, outlining the necessary information for inclusion in such reports.

The guidance provided in the DCC development plan was formulated prior to the publication of the 3rd Edition of the BRE guidelines (BR 209), but in anticipation of it. Section 5.0 of Appendix 16 of the DCC Development Plan states:

“Until such time when BR 209 is updated and all relevant and required information is included (i.e. removal of reference to BS 8206-2 and inclusion of metrics within BS EN 17037), the planning authority will request metrics from both BS 8206-2 and BS EN 17037. These are outlined below for clarity.”

BR 209 has since been updated, leading to the withdrawal of some requested assessments in the DCC Development Plan by the BRE and their replacement with more pertinent assessments. Below is the list of requested assessments in the DCC development plan and how they have been implemented in this report:

Performance of the Proposed Development

- Annual Probable Sunlight Hours (APSH) and Winter Probable Sunlight Hours (WPSH) on all relevant windows: APSH and WPSH is no longer recommended for scheme performance assessments under BR 209. They have been replaced with Sunlight Exposure (SE), which has been used for the assessment of sunlight in the habitable rooms of the proposed development. No APSH/WPSH assessment has been carried out in the scheme performance assessment of the proposed development.
- Sunlight on Ground (SOG) in all amenity spaces: A SOG assessment has been carried out for the amenity spaces of the proposed development.
- Average Daylight Factor (ADF) in all habitable rooms: BR 209 states that ADF is no longer recommended as a relevant method of assessment. ADF has been replaced with a target illuminance assessment. (See below). As such, no ADF assessment has been carried out on the proposed development.
- No Sky Line (NSL) in all habitable rooms: A NSL assessment has been conducted for the habitable rooms of the proposed development.
- Target Illuminance in all habitable rooms: A target illuminance assessment, also known as a Spatial Daylight Autonomy (SDA) assessment, has replaced ADF as the relevant metric for assessing daylight within proposed habitable spaces. The two recommended methodologies for this assessment are detailed in section 4.3.1 on page 13. An SDA assessment has been carried out on the habitable rooms of the proposed development.

3.0 Glossary

3.1 Terms and Definitions

Below is a list of daylight and sunlight terminology that may be used in this report depending on the assessments carried out.

Skylight

Non directional ambient light cast from the sky and environment.

Sunlight

Direct parallel rays of light emitted from the sun.

Daylight

Combined skylight and sunlight.

Overcast sky model

A completely overcast sky model, used for daylight calculation.

Cloudless sky model

A completely cloudless sky model, used for sunlight exposure calculation.

Model State

The model state is a term used to describe the configuration of the digital model used to run analysis. Model states will typically reflect a baseline state and a proposed or cumulative state. For a definition of the model states used in the analysis carried out in this report, please refer to "Preparing the analytical model" on page 12.

Vertical Sky Component (VSC)

Ratio of that part of illuminance, at a point on a given vertical plane, that is received directly from an overcast sky model, to illuminance on a horizontal plane due to an unobstructed hemisphere of this sky. Usually the 'given vertical plane' is the outside of a window wall. The VSC does not include reflected light, either from the ground or from other buildings.

Annual Probable Sunlight Hours (APSH) / Winter Probable Sunlight Hours (WPSH)

Annual Probable Sunlight Hours (APSH) and Winter Probable Sunlight Hours (WPSH) are a measure of sunlight that a given window may expect over a year period (1 Jan - 31 Dec), or the winter period (21 Sep - 21 Mar) respectively.

North facing windows may receive sunlight on only a handful of occasions in a year, and windows facing eastwards or westwards will receive sunlight only at certain times of the day. Taking this into account, the BRE Guidelines suggest that windows with an orientation within 90 degrees of due south should be assessed.

Sun On Ground (SOG)

Assessment of what portion of a garden or amenity space is capable of receiving 2 hours or more of direct sunlight on March 21st.

Sunlight Exposure (SE)

The number of hours of direct sunlight a room can expect to receive on a given date between February 1st and March 21st at a determined point on the windows.

Spatial Daylight Autonomy (SDA)

Spatial Daylight Autonomy assesses whether a space receives sufficient daylight on a working plane during standard operating hours on an annual basis. For compliance, the target value is achieved across 50% of the working plane for half of the occupied period.

No Sky Line (NSL)

The no sky line divides points on the working plane which can and cannot see the sky.

Working plane

Horizontal, vertical or inclined plane in which a visual task lies. Normally the working plane may be taken to be horizontal, 850 mm above the floor in houses and factories, 700 mm above the floor in offices. The plane is offset 300mm from the room boundaries under BR 209 criteria, and 500mm from the room boundaries under I.S. EN 17037 criteria.

LKD

Living / Kitchen / Dining room.

BRE Target Value

When assessing the effect a proposed development would have on a neighbouring property, a target value will be applied. This applied target value is generated as per the criteria set out for each study in the BRE Guidelines.

Alternative Target Value

It could be appropriate to use alternative target values when conducting assessment of effect on existing properties. If such instances occur the rationale will be clearly explained and the instances where the alternative target values have been applied will be clearly identified.

Level of BRE Compliance

Each table in the study that has a column identified as "Level of BRE Compliance", identifies how an assessed instance performs in relation to the appropriate target value. If the instance is in compliance with the recommendations as made in the BRE Guidelines the value will be expressed as "BRE Compliant". If the instance does not meet the criteria as set out in the BRE Guidelines a percentage will be expressed to determine the level of compliance with the recommendation. This value determines the definition of effect.

LUX

Lux is a standardised unit of measurement of light level intensity. A measurement of 1 lux is equal to the illumination of a one metre square surface that is one metre away from a single candle.

Unit numbers

The naming convention for the unit numbers within this assessment follows the convention "unit type" - "Block" - "unit number"
Example: 'K-3B-16' refers to: unit type 'K' located in block '3B' which is unit number '16' of that block.

3.2 Definition of Levels of Sunlight Exposure

For interiors, access to sunlight can be quantified. BR 209 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.

Level of Sunlight Exposure:

The level of sunlight exposure will be stated for each assessed room in the tables under section “A.3 Sunlight Exposure (SE) in Proposed Units” on page 42. Below is a list of the terms used to categorise the levels of sunlight exposure:

Below Minimum

Sunlight exposure will be categorised as ‘below minimum’ if the potential sunlight for the assessed room is less than 1.5 hours on March 21st. Note: the recommendation is that a room within a proposed unit is capable of receiving 1.5 hours of direct sunlight on March 21st. If an individual room does not achieve this recommendation, it does not mean that the unit is non compliant.

Minimum

A ‘minimum’ level of sunlight exposure will be stated if the potential sunlight for the assessed room is between 1.5 hours and 3 hours on March 21st.

Medium

A ‘medium’ level of sunlight exposure will be stated if the potential sunlight for the assessed room is between 3 hours and 4 hours on March 21st.

High

A ‘high’ level of sunlight exposure will be stated if the potential sunlight for the assessed room is greater than 4 hours on March 21st.

Unit Compliance:

In addition to the level of sunlight exposure expressed for each room, compliance will be stated on a unit-by-unit basis. A proposed unit is considered to be compliant if any habitable room within the unit is capable of receiving at least 1.5 hours of sunlight on the assessment date.

Non-Compliant

If no habitable rooms within a proposed unit can receive 1.5 hours of sunlight on the assessment date, the unit will be categorised as ‘Non-Compliant’.

Compliant

If at least one habitable room within a proposed unit can receive 1.5 hours or more of sunlight on the assessment date, the unit will be categorised as ‘Compliant’.

Typically unit compliance will be stated for the best performing room per unit only, with lesser performing rooms indicated with a dash (-). However, if more than one room in a given unit is considered to be the best performing room (i.e. they have the same number of SE hours on March 21st), then the unit compliance column will be populated in the first instance only.

4.0 Methodology

4.1 Impact Assessment, Window Selection Criteria

To determine the properties to be included in the impact assessment, the decision chart taken from the BRE Guidelines has been followed, as shown in Figure 4.2.

Accordingly, all properties within a distance of three times the height of the proposed development, as illustrated in Figure 4.1, have been considered for impact assessment.



Figure 4.1: Properties within three times the height of the proposed development

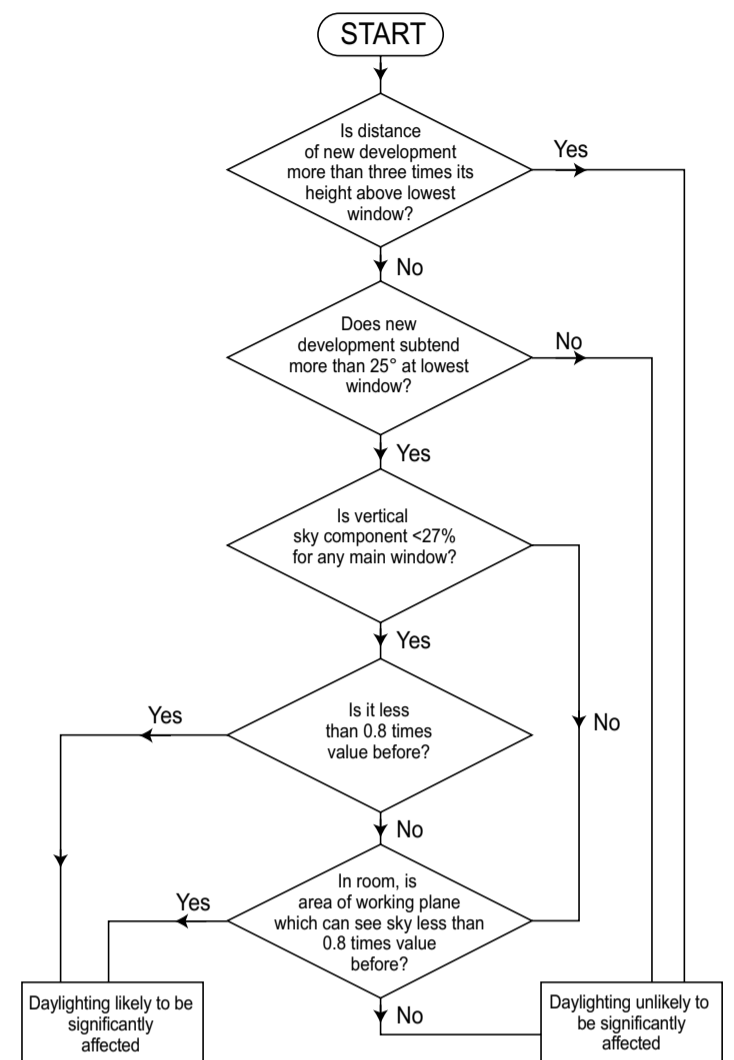


Figure 4.2: VSC decision chart, taken from BR 209.

As per the BRE Guidelines, a perpendicular section has been drawn from the main window wall of the potentially affected properties to determine if the proposed development subtends an angle of more than 25° at the lowest window.

If the proposed development subtends 25° in this section, then a VSC assessment should be conducted.

However, if the proposed development does not subtend 25° in a perpendicular section, daylight is unlikely to be significantly affected and no further assessment will be carried out.

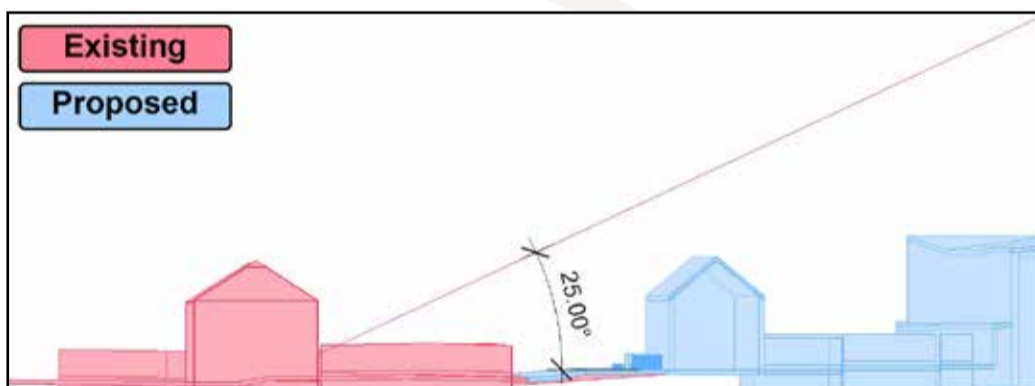


Figure 4.3: Section A-A taken through 82 Cianlea, Mooretown, Swords

The only existing neighbouring properties that are located within three times the height of the proposed development are: 80, 81, 82 and 83 Cianlea, which are located to the east of the subject site.

Figure 4.3 shows a perpendicular section taken through 82 Cianlea, provides an example of where an existing window is within 3 times the height of the proposed development but the proposed development does not subtend 25° when measured in a perpendicular section

The BRE Guidelines also apply the 25° rule to determine the need for an impact assessment for loss of sunlight (APSH/WPSH). They also advise that only windows with an orientation within 90° of due south should be assessed.

Given that the proposed development maintains sufficient separation from all existing neighbouring properties, according to the BRE decision chart as illustrated above, it is not deemed necessary to carry out any further impact assessment. The level of daylight and sunlight, received in any of the surrounding properties, is not likely to be adversely affected by the proposed development.

4.2 Preparing the analytical model

4.2.1 Building the Model States

The project architect, O'Briain Beary Architects, supplied 3DDB with AutoCAD drawings and 3D models of the proposed development from which a 3D analytical model was created. Landscape drawings were issued by the project landscape architects, Brady Shipman Martin. A combination of survey information, aerial photography, available online photography and/or ordnance survey information was used to model the surrounding context and assessed buildings. **Note:** as the information gathered from online sources is not as accurate as surveyed information, a reasonable tolerance should be allowed for to the placement of windows, boundary treatments and the results generated.

Analytical model state

As illustrated in Figure 4.4, the analytical model state reflects the subject site if the proposed development is constructed as per the submitted plans. This includes the properties that form the immediate surrounding context.



Figure 4.4: Model view of the analytical model state

Existing trees were placed using available on-line information, with assumptions made regarding exact size, position and species. Proposed trees were modelled using information provided by the project landscape architect.

All of the above information was subsequently used to prepare a digital analytical model in software specifically designed for daylight and sunlight analysis.

Relevant weather and climatic data has been obtained for this report using a localised EnergyPlus Weather File (IRL_Dublin.039690_IWEC.epw).

4.2.2 Trees

It is generally not possible to accurately represent trees in a digital 3D model as the size and shape will differ greatly from tree to tree. When modelling trees for this assessment assumptions have been made and tree geometry has been simplified.

For the purpose of the analysis carried out in this report, the position and size of existing trees have been estimated using available on-line information. The shape of the trees has been simplified and the species of each tree has been assumed. Simplified models of proposed trees within the development have also been included according to the information provided by the landscape architect.

BR 209 provides guidance on how trees should be treated depending on the study being carried out, as summarised below:

Spatial Daylight Autonomy (SDA)

BR 209 recommends when assessing daylight in a proposed building, it is appropriate to run the assessment with trees represented in both winter and summer conditions. Light transmittance values of 60% and 20% have been applied to the canopy of deciduous trees around the public areas for winter and summer assessments respectively. A light transmittance value of 20% has been applied to evergreen trees throughout the year. Units have also been assessed without trees to give an understanding of how the architecture performs should trees not be factored into the calculation.

I.S. EN 17037 does not give any guidance on how trees should be represented. For the purpose of this report, the SDA calculation under the I.S. EN 17037 criteria has been carried out with trees represented in both winter and summer conditions and without trees, using the same application of light transmittance for trees as stated above.

Sunlight Exposure (SE)

The BRE Guidelines state that as deciduous trees would not be in full leaf on the recommended assessment date (March 21st), sunlight would be expected to penetrate deciduous trees. However, as trees have so many variables, it is impossible to accurately represent how they would affect sunlight at a given time. The suggested methodology (BR 209) to allow for this is to run the sunlight exposure study in two states. Once with trees as opaque objects and secondly without deciduous trees in the assessment model. This gives a range of potential sunlight hours.

Sun On Ground (SOG)

The BRE Guidelines states that when assessing the impact of buildings on sunlight in gardens:

"...trees and shrubs are not normally included in the calculation unless a dense belt or group of evergreens is specifically planned as a windbreak or for privacy purposes. This is partly because the dappled shade of a tree is more pleasant than the deep shadow of a building (this applies especially to deciduous trees)."

As such, deciduous trees have not been included in the calculation of SOG, unless there is a dense belt present or a group of trees specifically planned as a windbreak or for privacy purposes. Evergreen trees are included in the SOG assessment.

No Sky Line (NSL)

Because some sky can usually be seen through a tree canopy, deciduous trees have not been included in the No Sky Line assessment model. Evergreen trees may be included in this assessment, particularly if there is a dense belt or group planned for windbreak or for privacy purposes.

Shadow Study

The hourly renderings of the shadow study have been generated with evergreen trees represented as opaque objects, where applicable, and without deciduous trees. This method best represents the methodology used for the impact assessment and allows for a better understanding of potential shadows cast by the proposed development through the tree canopy.

4.3 Quantitative Scheme Performance Assessment Overview

4.3.1 Spatial Daylight Autonomy in Proposed Habitable Rooms (SDA)

Since the publication of the 3rd edition of the BRE Guidelines (BR 209 - 2022), Spatial Daylight Autonomy (SDA) is the recommended metric for assessing daylight access within a proposed development. Spatial Daylight Autonomy replaces Average Daylight Factor (ADF) in this regard, which was the recommended metric under the 2nd edition of the BRE Guidelines (BR 209 - 2011).

Spatial Daylight Autonomy assesses whether a room receives sufficient daylight on a working plane during standard operating hours on an annual basis. A given target value should be achieved across 50% of the working plane for half of the daylight hours.

There are two methods for calculating SDA:

- **Calculation method using illuminance level:** This requires the use of a detailed daylight calculation method where hourly (or sub-hourly) internal daylight illuminance values for a typical year are computed using hourly (or sub-hourly) sky and sun conditions derived from climate data appropriate to the site. This calculation method determines daylight provision directly from simulated illuminance values on the reference plane. The illuminance value of at least half the required area of the space should equal or exceed the target values.
- **Calculation method using daylight factor:** The daylight factor method assumes a constant ratio between internal and external illuminance. The daylight factors in the space shall be calculated by any reliable method that is based on the ISO 15469:2004 standard overcast sky (TYPE 1 or TYPE 16). Daylight factors are to be predicted across grid of points on a plane 0.85m above the floor of the space. The daylight factor of at least half the required area of the space should equal or exceed the target values.

It is the opinion of 3DDB that the calculation method using illuminance level better represents a real-world scenario as it accounts for the quality of daylight based on orientation. As such, the illuminance methodology has been adopted for all SDA assessments in this report using a localised EnergyPlus Weather File (IRL_Dublin.039690_IWEC.epw) to apply the relevant climate information.

In terms of housing, BR 209 provides target SDA values to be received across at least 50% of the working plane for at least half the daylight hours. The target values differ based on the function of the room assessed:

- 200 Lux for kitchens
- 150 Lux for living rooms
- 100 Lux for bedrooms

Where rooms serve more than one function, the higher SDA target value should be taken. In new developments, some internal spaces (e.g. studio apartments, shared communal areas etc.) can possibly be of a nature that do not have a predefined target value in BR 209. In such instances, 3DDB have applied a target value they deem to be appropriate. In the case of this assessment, each apartment block contains a 'community room' on the ground floor. 3DDB recommends that an SDA target value of 150 Lux be applied to these spaces. The rationale for this target value is that the function of these rooms is most likely going to be similar to that of a living space. The community rooms have not been included in the calculated compliance rates.

Under I.S. EN 17037 at least 50% of the working plane should receive above 300 lux for at least half the daylight hours, with 95% of the working plane receiving above 100 Lux for all rooms. The target SDA values do not vary depending on the room function under this criteria.

This study has assessed the Spatial Daylight Autonomy (SDA) received in the habitable rooms of the proposed apartment and duplex units under the BR 209 criterion. The SDA of the proposed development has been calculated under the I.S. EN 17037 criterion as part of a supplementary assessment.

Defining Rooms

Definition of rooms has been taken directly from the architectural drawings supplied by the project architect.

In accordance with the BRE Guidelines circulation spaces, corridors, bathrooms etc. have not been assessed.

Indication of the assessed space in each room is provided in the floor plans that correspond to the SDA results in the appendix section "Proposed Apartment Floor Plans" on page 23.

Working Plane

The calculation of SDA is carried out on a hypothetical working plane which lies 850 mm from the finished floor level in residential units and 700 mm in academic and office spaces.

In the BR 209 study the working plane is offset 300 mm from the room boundaries. Under the I.S. EN 17037 criteria the working plane is offset 500 mm from the room boundaries. The working plane has a grid density of c. 300 mm.

Material Palette

Following consultation with the design team, material values used for SDA calculations are as per the table below:

Object	Material	Reflectance	Object	Material	Reflectance
					Transmittance
Exterior walls	Standard Brick	0.3	Interior Walls	Pastel paint	0.70
	Light Brick	0.4	Interior Ceiling	White paint	0.8
	Dark Brick	0.15	Interior Floor	Light timber	0.4
	Render	0.6	Glass	Miscellaneous	0.5
	Concrete	0.4		Double glazing	0.68
Ground cover	Paving	0.4		Maintenance factor	0.91
	Tarmac	0.2		Glass adjusted for maintenance	0.62
	Grass	0.2	Frosted glass	0.5	

Project Assessment

The results for the study on SDA can be found in the appendix results section A.2 on page 29.

Analysis of the results can be found in section 5.1.1 on page 16.

The results of the supplementary SDA study under the I.S. EN 17037 criterion can be found in section B.0 on page 58.

4.3.2 Sunlight Exposure in Proposed Habitable Rooms (SE)

Since the publication of the 3rd edition of the BRE Guidelines (BR 209 - 2022), Sunlight Exposure (SE) is the recommended metric for assessing sunlight access within a proposed development. Sunlight Exposure replaces APSH/WPSH in this regard, which was the recommended metric under the 2nd edition of the BRE Guidelines (BR 209 - 2011).

Sunlight exposure (SE) is a measure of sunlight that a given window may expect to receive on a given date between the 1st of February and the 21st of March. The BRE guidelines suggest that March 21st (equinox) is used as the assessment date.

In the presence of trees, SE results have been generated, both with deciduous trees as opaque objects and without the inclusion of deciduous trees, in accordance with the BRE Guidelines. Evergreen trees have been included as opaque objects, where applicable, in both states.

The level of sunlight exposure is categorised as follows:

- 1.5 Hours - Minimum
- 3 Hours - Medium
- 4 Hours - High

The recommendation for dwellings is that at least one habitable room, preferably a main living room, should receive at least the minimum criterion. Should no room within a given unit meet the recommended minimum level of sunlight exposure, it will be stated as non-compliant.

Sunlight exposure is carried out on habitable rooms within a proposed development. The assessment point for windows is 1.2m above the finished floor level, or 0.3m above the sill level (whichever is higher). If a room has multiple windows, the amount of sunlight received by each can be added together provided they occur at different times and sunlight hours are not double counted.

The criterion applies to rooms of all orientations, although if a room faces significantly north of due east or west it is unlikely to be met. As such, it is not always possible to achieve full compliance, especially in developments that contain single aspect units.

The sunlight exposure assessment focuses on habitable residential rooms of the proposed apartment and duplex units. Unless sunlight access is deemed important for the functionality of a non-residential room in a proposed development, it will not be included in the study, which remains limited to residential rooms. In the case of the proposed development, no SE assessment has been carried out on the proposed 'community rooms'.

Project Assessment

The results for the study on sunlight exposure can be found in the appendix results section A.3 on page 42, with analysis of the results in section 5.1.2 on page 17.

4.3.3 Sun On Ground in Proposed Outdoor Amenity Areas (SOG)

The BRE Guidelines recommend that for a garden or amenity area to appear adequately sunlit throughout the year, at least half of it should receive at least two hours of sunlight on March 21st.

March 21st, also known as the spring equinox, is chosen as the assessment date as daytime and night-time are of approximately equal duration on this date.

The analytical model for SOG assessment in proposed amenity areas includes evergreen trees, where applicable, as per the BRE Guidelines. Typically deciduous trees will not be included unless there is a particularly dense belt.

A quantitative SOG assessment has been carried out on the areas as indicated by the project architect. The shadow study and false colour plans allow for a qualitative assessment for all other areas.

The portion of each assessed space capable of receiving 2 hours of direct sunlight on March 21st has been calculated individually. These areas can be combined to give the development average where appropriate.

Project Assessment

The levels of sunlighting to the proposed public and communal open spaces located throughout the site, as indicated by the architect, have been assessed. However, it should be noted that the numbering of these spaces in the Daylight and Sunlight Assessment Report has been assigned by 3DDB specifically for the purposes of this report. If other consultants are referencing these spaces in their own reports, it is unlikely that they will be numbered the same.

The results for the study on sun on ground in the proposed outdoor amenity areas (including a visual representation in the form of 2-hour false colour plans) can be found in the appendix results section A.4 on page 55, with analysis of the results in section 5.1.3 on page 19.

4.3.4 No Sky Line in Proposed Habitable Rooms (NSL)

The no sky line divides the areas of the working plane which can receive direct skylight, from those which cannot. It indicates the distribution of direct daylight within a room.

The BRE Guidelines recommend the No Sky Line study as an appropriate metric for an impact assessment to daylight, but only where room layouts are known.

“The calculation can only be carried out where room layouts are known. Using estimated room layouts is likely to give inaccurate results and is not recommended.”

All advice given for NSL in the BRE Guidelines are in relation to impact assessments. NSL is not mentioned in the BRE section regarding daylight in new developments. Regardless, a NSL assessment was carried out on the proposed development as a supplementary study as it is requested in the DCC development plan 2022-2028. Although the proposed development is not located within Dublin City, the NSL study has been included to provide consistency across 3DDB daylight and sunlight assessments.

As the BRE Guidelines does not give advice on target NSL values for proposed rooms, no compliance rate has been stated. However a no skyline of 80% could be considered an appropriate figure given that the BRE Guidelines state that supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line.

The results of the supplementary NSL study can be found in section B.0 on page 58.

4.3.5 Qualitative Assessment - Shadow Study

A shadow study has been carried out to allow a qualitative comparison between the relevant model states, as outlined in section 4.2 on page 12. This visual representation of the shadows cast by the proposed development can be found in the hourly shadow diagrams in the appendix results section C.0 on page 84.

Hourly renderings have been shown from sunrise to sunset on the following dates in 2024:

- Spring equinox: March 21st Sunrise 6:32 | Sunset 18:32. (GMT)
- Summer solstice: June 21st. Sunrise 5:04 | Sunset 21:49. (BST)
- Winter solstice: December 21st Sunrise 8:45 | Sunset 16:00. (GMT)

The shadow study has been generated using the same model states as described in section 4.2.1. In certain cases, assumptions or estimations may have been made when modelling elements of the surrounding context and/or proposed site details when creating the various model states. Therefore, it is advisable for a reasonable tolerance to be applied when interpreting shadows in the qualitative assessment.

The hourly renderings of the shadow study will be generated without deciduous trees and with evergreen trees, where applicable, represented as opaque objects when present in the model states.

Note: The spring equinox (March 21st) and autumn equinox (21st September) yield similar shadows, albeit with a one hour difference as daylight saving time (BST) would be in effect. Only the spring equinox was included in the shadow study images in accordance with the BRE Guidelines.

5.0 Analysis of Results

5.1 Analysis of Scheme Performance Results

5.1.1 Spatial Daylight Autonomy (SDA)

This study has assessed the Spatial Daylight Autonomy (SDA) received in all habitable rooms within the residential portion of the apartment and duplex units within the proposed development. This has ensured that a clear understanding has been obtained regarding the daylight performance of these unit types.

This assessment consists of 87 no. units, which makes up approximately 274 no. habitable rooms across the proposed apartment and duplex units.

Under the criteria as set out in the BR 209, the SDA value in all assessed rooms meets or exceeds the appropriate target values in the summer and winter time calculations respectively. This gives a circa compliance rate of 100% within the assessed apartments.

I.S. EN 17037 sets out more onerous recommendations for SDA. As such, the number of habitable rooms achieving compliance under this standard is 217 with summer trees and 232 with the trees represented in the winter state. This gives a reduced circa compliance rate of 79% & 85% in the summer and winter time calculations respectively. The additional SDA assessment, under this standard, that does not include trees has shown a compliance rate of c. 86%.

In cases where rooms comply with the criteria of BR 209 but do not meet the criteria of I.S. EN 17037, it is the recommendation of 3D Design Bureau that these rooms will appear adequately daylit. This recommendation is based on the fact that BR 209 provides room-specific criteria, unlike I.S. EN 17037. BR 209 considers the varying daylight requirements for different room types, which I.S. EN 17037 does not account for.

The daylight assessment results demonstrate that the proposed apartments will benefit from ample natural light, meeting and exceeding the recommended minimum levels outlined in the BRE guidelines. The vast majority of the assessed units have shown daylight access substantially above the minimum threshold, ensuring that future residents will enjoy an abundance of natural daylight throughout the apartments.

Although not contributing to the calculated compliance rate, an SDA assessment of the ground floor, 'community rooms' in each apartment block, has also shown very favourable results.

The results for the study on SDA can be seen in section A.2 on page 29.

5.1.2 Sunlight Exposure (SE)

A sunlight exposure assessment has been carried out on all habitable rooms within the residential portion of the apartment and duplex units within the proposed development. The assessments have been carried out in two states:

- All trees represented as opaque objects.
- With the deciduous trees removed from the analytical model.

This approach is in accordance with the BRE Guidelines. Where a range of values is expressed in the following summary, this refers to the results generated with deciduous trees included as opaque objects and with deciduous trees not included in the model. Where applicable, evergreen trees where no light can penetrate all year round are included in both studies.

In total 87 no. units have been assessed. Using the rationale explained in section 3.2 on page 10, the level of sunlight exposure for 51-58 no. units is considered *high*, 13-15 no. *medium*, 12-18 no. have reached the *minimum* recommendation with 2-5 units below the *minimum* recommendation.

The SE assessment has shown that c. 94% - 98% of the assessed units meet the criteria for sunlight exposure as set out in the BRE Guidelines. **Note:** For a unit to be compliant under BR 209, only one habitable room within the unit needs to meet the guideline values.

There are 2 no. apartments that have no sunlight exposure on March 21st. These are identified in this report as apartments 'X1-2A-05' and 'X1-2A-11' in block 2A. Both of these units have a strong southerly aspect. The reason for non-compliance in both of these instances is due to the balcony above the windows of this unit type, which is c. 1800mm deep.

The BRE guidelines state that the SE assessment should be carried out on a given date between February 1st and March 21st, with a recommendation made that March 21st (equinox) be used. The assessments carried out for this report have followed this recommendation, with March 21st used as the assessment date. However, should February 1st have been used, apartment X1-2A-05 and X1-2A-11 in block 2A would have recorded a 'high' level of sunlight exposure. This is demonstrated in Figure 5.1 below.

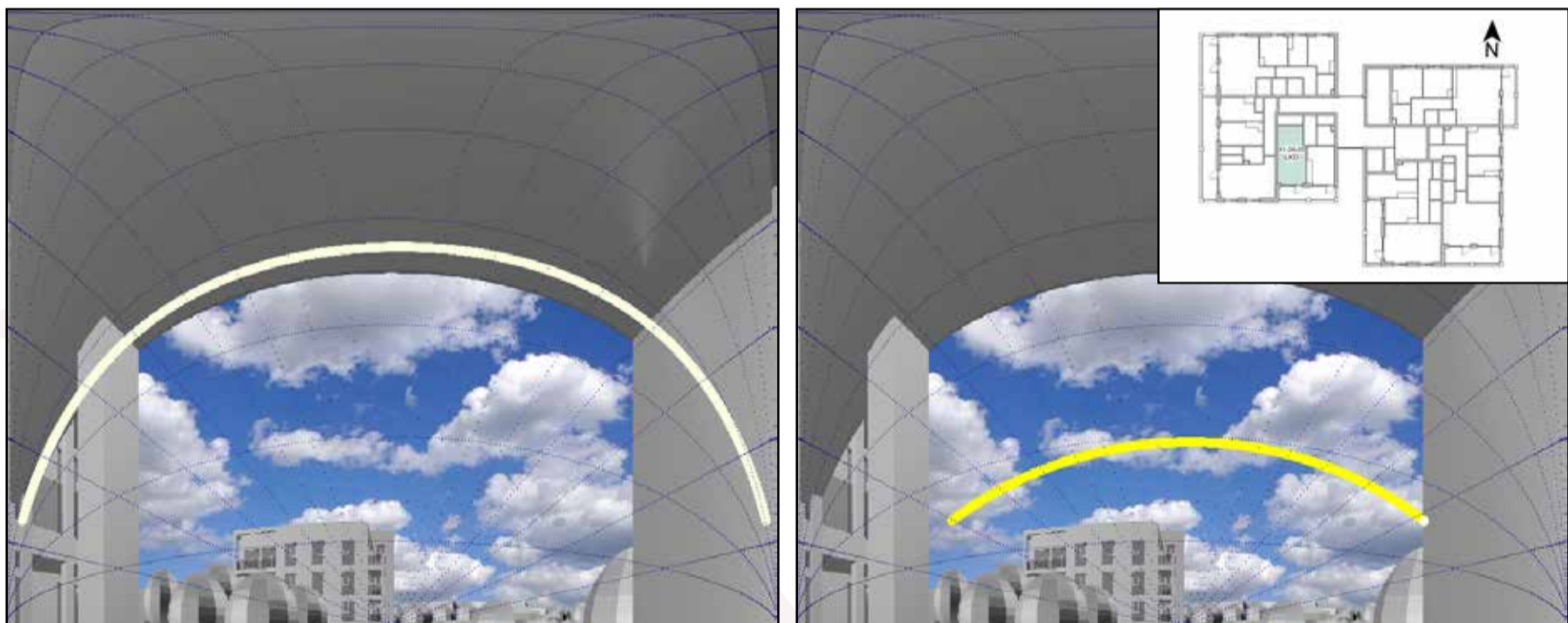


Figure 5.1: Sun path from LKD window of apartment X1-2A-05. Left: March 21st, Right: February 1st, Inset: room location.

Furthermore, whilst not achieving the recommended level of sunlight exposure on March 21st may be seen as a negative, there are some positives to take away from the depth of the balcony that result in this 'non-compliance'. The shading provided by the extra depth of the balconies for both of these units will help reduce solar gains during the summer months.

Apartment X1-2A-01 and X1-2A-17 are situated in the same position in block 2A, on the ground and 3rd floor respectively. These units both achieve a 'high' level of sunlight exposure even though the orientation and balcony depths are the same as those of apartment X1-2A-05 and X1-2A-11. This is because there is an increased head height to the overhanging elements on the lowest level and the upper level units.

There is one unit that has been categorised as achieving the 'minimum' level of SE on March 21st in the assessment without deciduous trees, but 'below minimum' in the assessment with deciduous trees as opaque objects. This is apartment X4-2A-08 in block 2A. This apartment is a 1st floor, dual aspect unit, with aspects to the north and east.

As illustrated in Figure 5.2 below, the east facing LKD window will have favourable sunlight access during the morning on March 21st, but this sunlight access is reduced once trees are factored into the calculation.

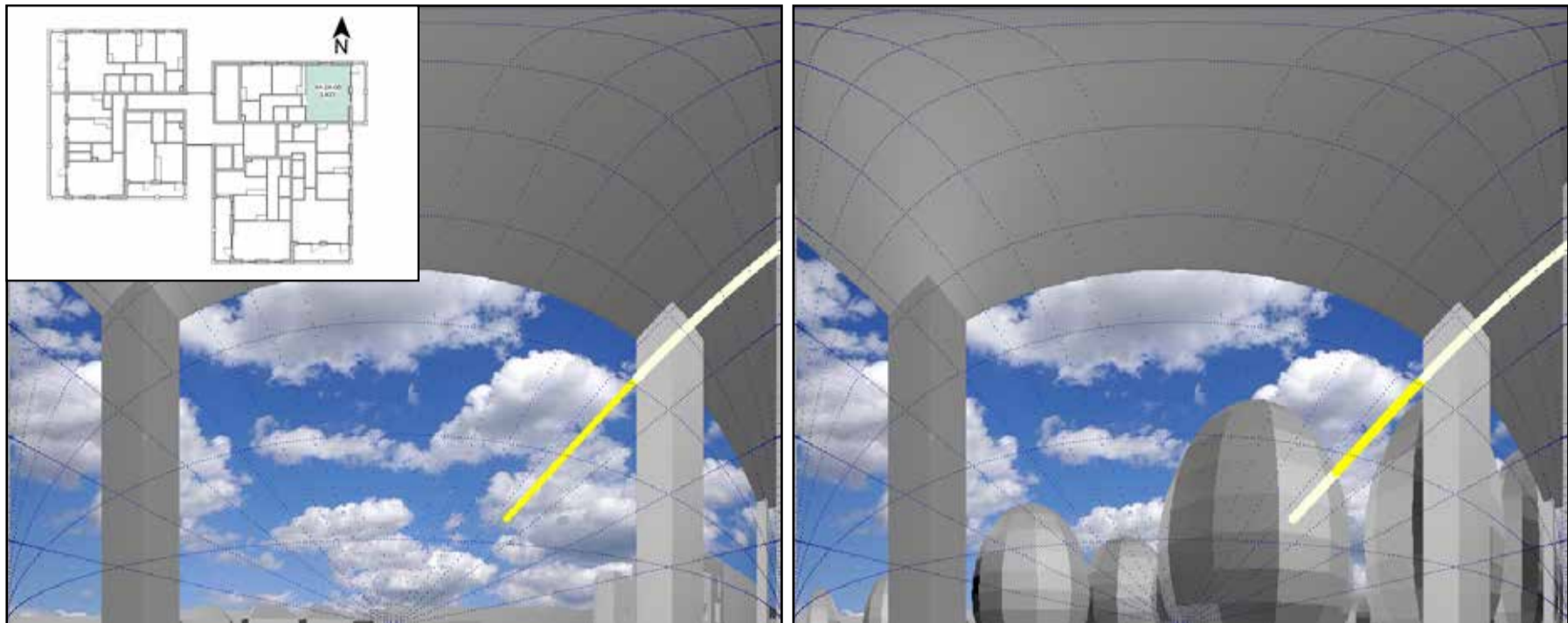


Figure 5.2: View out of the east facing LKD window of apartment X4-2A-08, with sun path indicated in yellow. Left: Without deciduous trees, Right: with deciduous trees as opaque objects, Inset: room location.

There is no equivalent room to apartment X4-2A-08 on the ground floor of block 2A as this space is allocated to bicycle storage. The equivalent room on the 2nd floor (X4-2A-14) benefits from being located at a higher level and as such is not as affected by trees.

Outside of the 'X type' apartments, in Block 2A, there only two other instances of non-compliance in the sunlight exposure assessment. These are located in apartments K-3B-16 and K-4A-06. In both instances the units show a 'high' level of SE in the assessment without trees, but 'below minimum' when the calculation is carried out with the trees as opaque objects.

Figure 5.3 below, show an example of this occurrence taken from the bedroom window of unit K-4A-06.

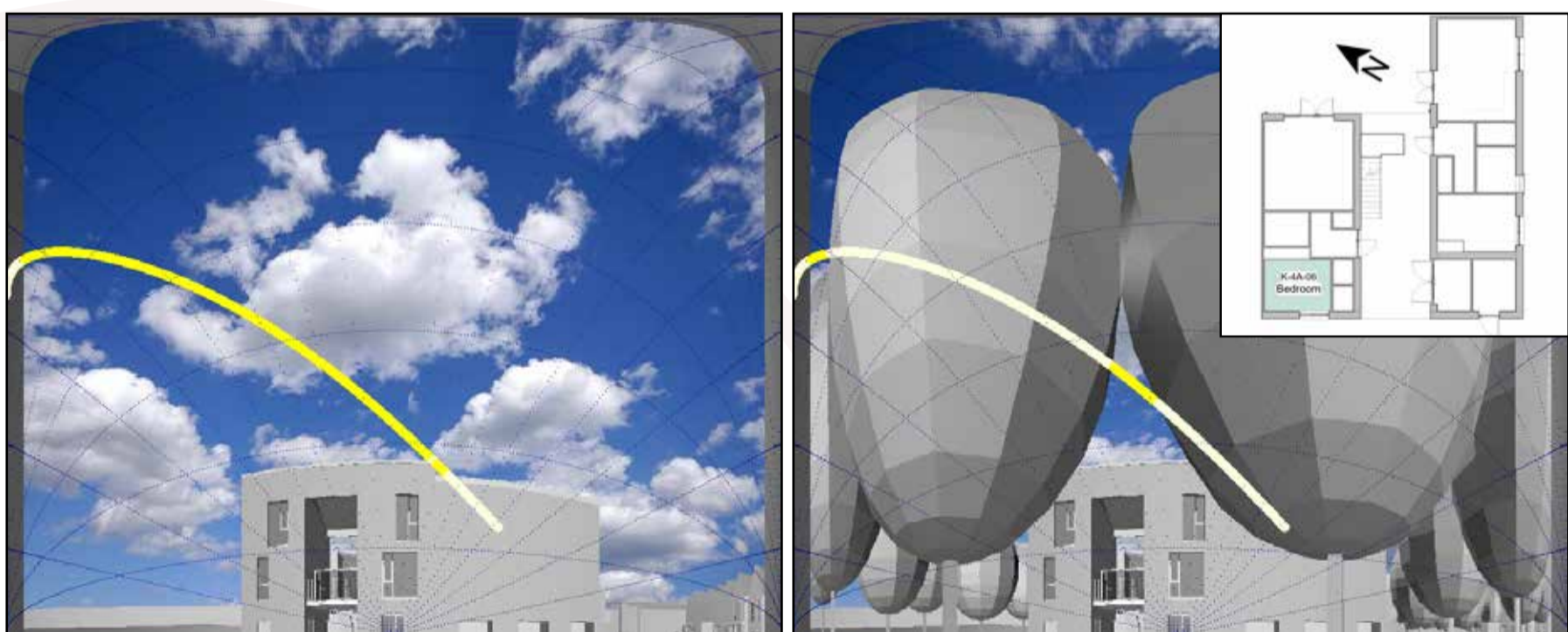


Figure 5.3: View out of the east facing LKD window of apartment K-4A-06, with sun path indicated in yellow. Left: Without deciduous trees, Right: with deciduous trees as opaque objects, Inset: room location.

Although trees have been shown to reduce the level of sunlight access to below the recommended level within some of the proposed units, it is important to note that the representation of trees in the assessments is either end of an extreme. The study with no deciduous trees represents a maximum value for sunlight potential. While the study with deciduous trees represented as opaque objects represents the worst case scenario regarding trees blocking sunlight access. In reality the sunlight exposure is likely to be somewhere between the two values. 3DDB do not advise the removal of trees in order to improve sunlight access, as trees form an integral part of the proposed development with regards to environmental and planning grounds along with biodiversity.

Notwithstanding the small number of units not meeting the recommended level of sunlight exposure on March 21st as discussed above, it is the expert opinion of 3DDB that the proposed apartment blocks perform very favourably in terms of sunlight exposure.

The results for the study on SE in the habitable rooms of the proposed units can be seen in section A.3 on page 42.

5.1.3 Sun On Ground in Proposed Outdoor Amenity Areas

This study has assessed the level of sunlight on March 21st within the proposed communal open spaces around the proposed apartment blocks.

In total 17 no. spaces have been assessed, all of which comfortably meet the criteria as set out in the BRE Guidelines.

All of the assessed spaces have a favourable orientation, without large obstructions to the south. These spaces will provide external amenity areas to the residents of the proposed development that will appear adequately sunlit throughout the year.

The results for the study on sunlighting in the proposed outdoor amenity spaces can be found in section A.4 on page 55.

A visual representation of these readings can be seen in the false colour plan in section A.4 and in the hourly shadow diagrams for March 21st in section C.1 on page 84 of the appendix section of this report.

6.0 Conclusion

3D Design Bureau (3DDB) were commissioned to carry out a daylight and sunlight assessment for the proposed apartment and duplex units within the proposed housing development at Mooretown, Swords, Co. Dublin. A Sun On Ground (SOG) assessment, along with an accompanying shadow study, has been conducted to the public and communal open spaces throughout the proposed site.

Following the BRE methodology, an initial impact assessment indicated that the proposed development would not have an adverse effect on the daylight and sunlight of the existing neighbouring properties due to adequate separation distances. As such, no further impact assessment was carried out.

The scheme performance assessment has shown very positive results. All assessed rooms achieve the daylight criteria as set out in the BRE Guidelines indicating favourable daylight access throughout the proposed apartment and duplex units. The vast majority of assessed units have achieved the recommended level of sunlight exposure, with a clear rationale given for the small number of instances where this was not achieved.

Lastly, all the public and communal open spaces that have been assessed have shown excellent sunlight potential.

The positive results throughout this report, demonstrate that daylight and sunlight were given due consideration during the design process of the apartment and duplex units within the proposed housing development.

Appendix - Results



+353 (0) 1 288 0186

info@3ddesignbureau.com

www.3ddesignbureau.com



**3D DESIGN
BUREAU**

Creative & Technical 3D Solutions in
Design, Planning & Marketing.

Appendix Contents

A.0	Scheme Performance	23
A.1	<i>Proposed Apartment Floor Plans</i>	23
A.3	<i>Sunlight Exposure (SE) in Proposed Units</i>	42
A.4	<i>Sun On Ground (SOG) in Proposed Outdoor Amenity Areas</i>	55
B.0	Supplementary Study Results.....	58
B.1	<i>SDA study, under the I.S. EN 17037 criteria</i>	58
B.2	<i>Supplementary No Sky Line (NSL) assessment in proposed units.....</i>	71
C.0	Shadow Studies	84
C.1	<i>Shadow Study 21 March.....</i>	84
C.2	<i>Shadow Study 21 June.....</i>	90
C.3	<i>Shadow Study 21 December.....</i>	98

Assessment criteria and detailed analysis of results can be found in the accompanying report.

A.0 Scheme Performance

A.1 Proposed Apartment Floor Plans

A.1.1 Proposed Floor Plans - Type X Apartments

Figure A.1: Block 2A - Site Location



Figure A.2: Block 2A - Level 00



Figure A.3: Block 2A - Level 01



Figure A.4: Block 2A - Level 02



Figure A.5: Block 2A - Level 03



Figure A.6: Block 2A - Level 04



A.1.2 Proposed Floor Plans - Type Y Apartments

Figure A.7: Block 2A - Site Location

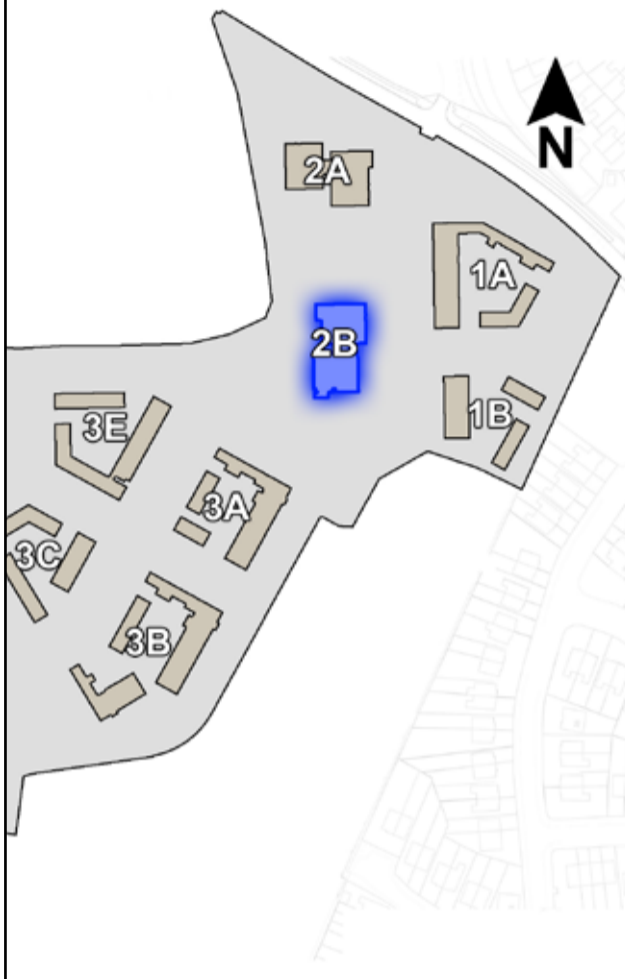


Figure A.8: Block 2B - Level 00

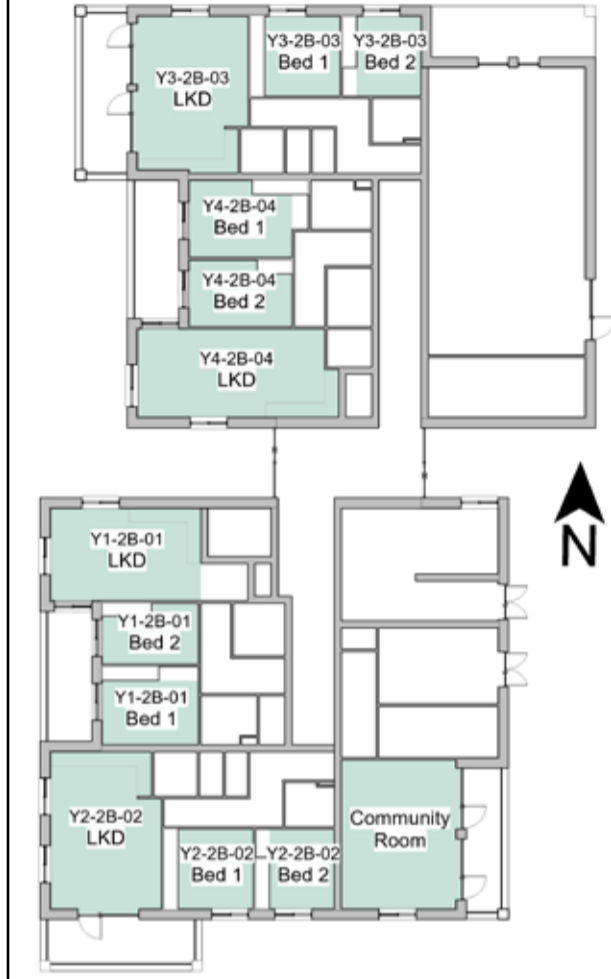


Figure A.9: Block 2B - Level 01

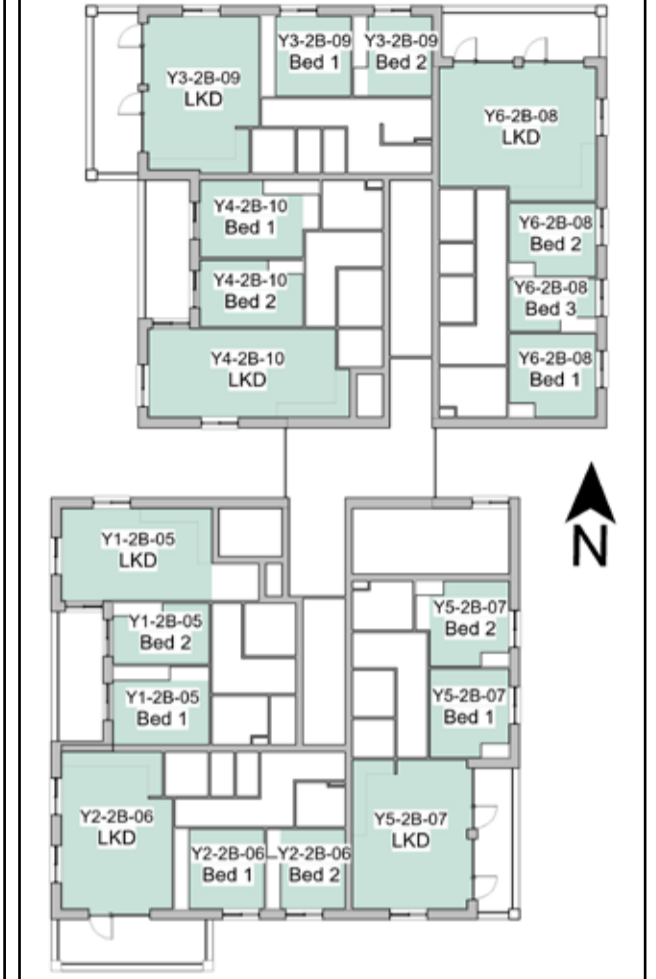


Figure A.10: Block 2B - Level 02

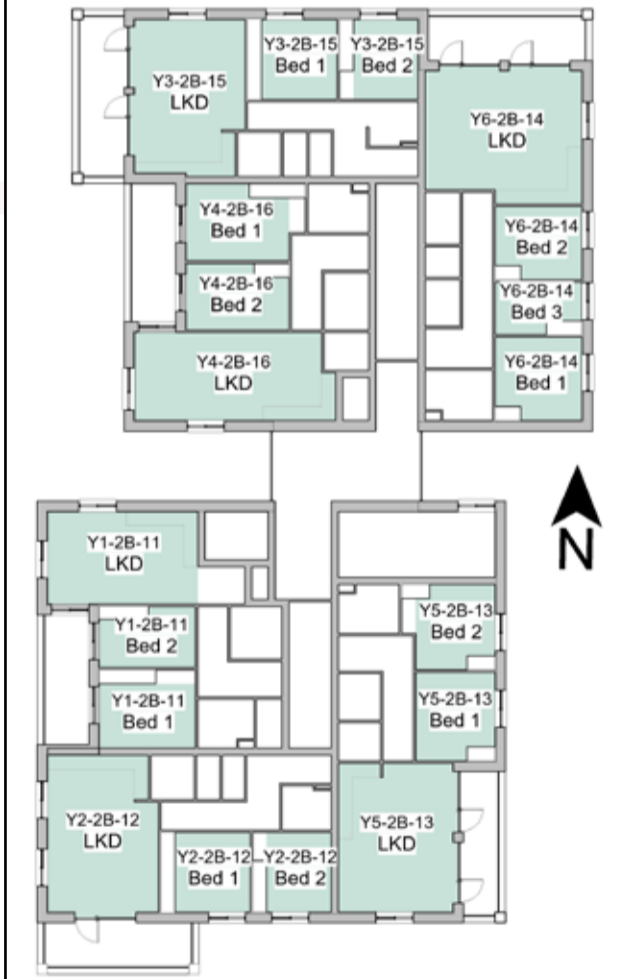


Figure A.11: Block 2B - Level 03

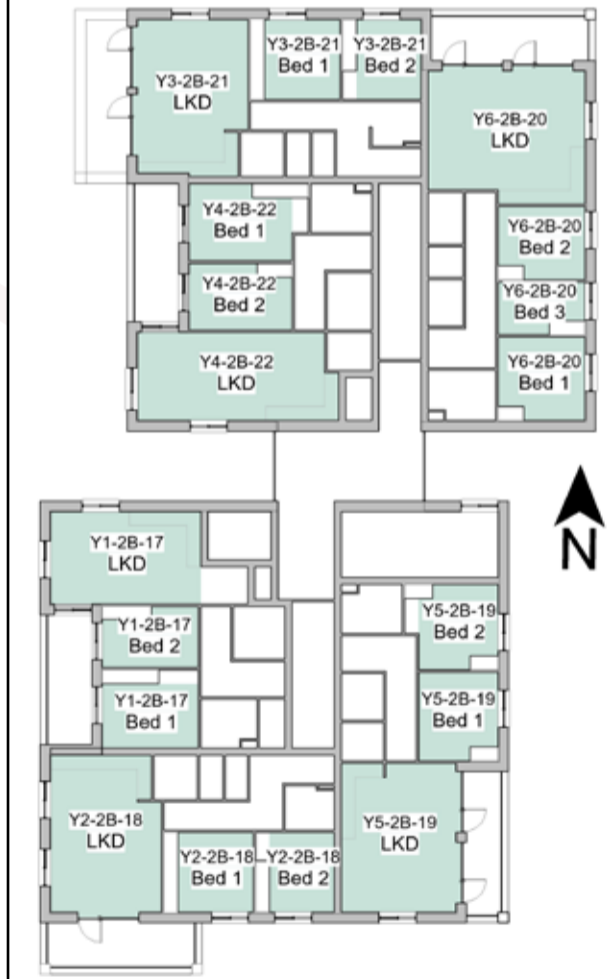
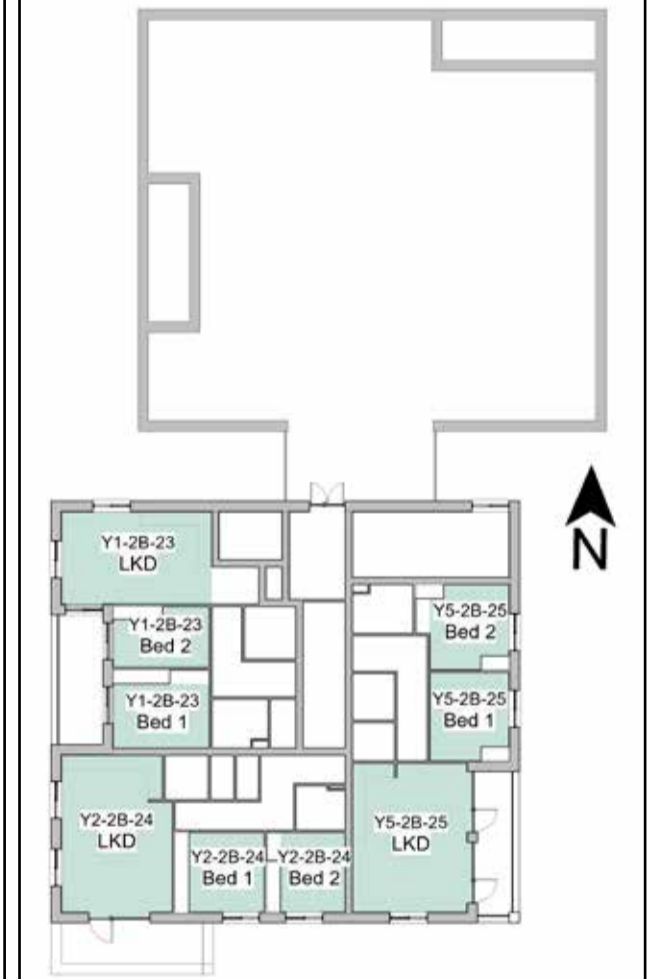


Figure A.12: Block 2B - Level 04



A.1.3 Proposed Floor Plans - Apartment Type H and Duplex Type J

Figure A.13: Apartment Type H and Duplex Type J - Site Locations

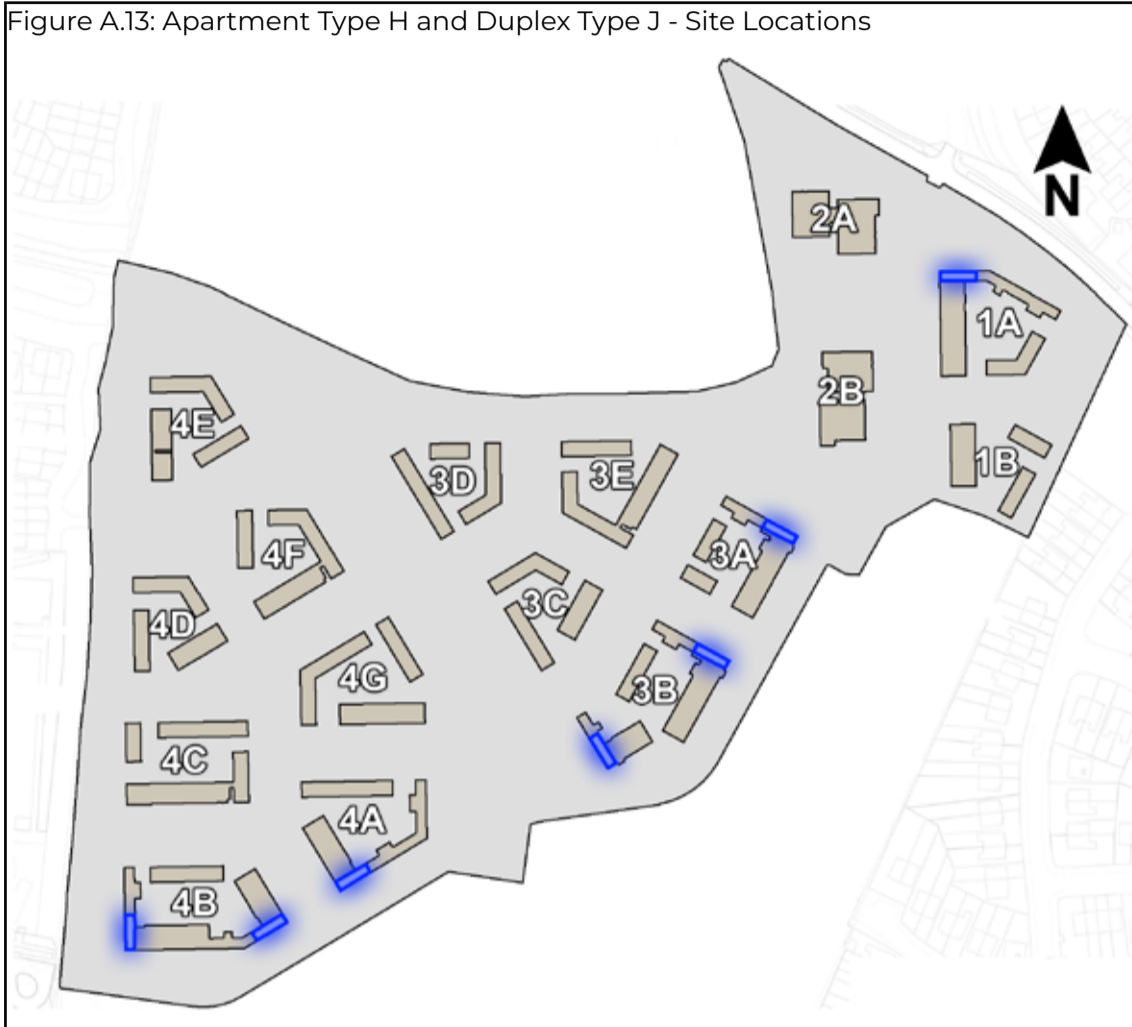


Figure A.14: Apartment Type H - Level 00

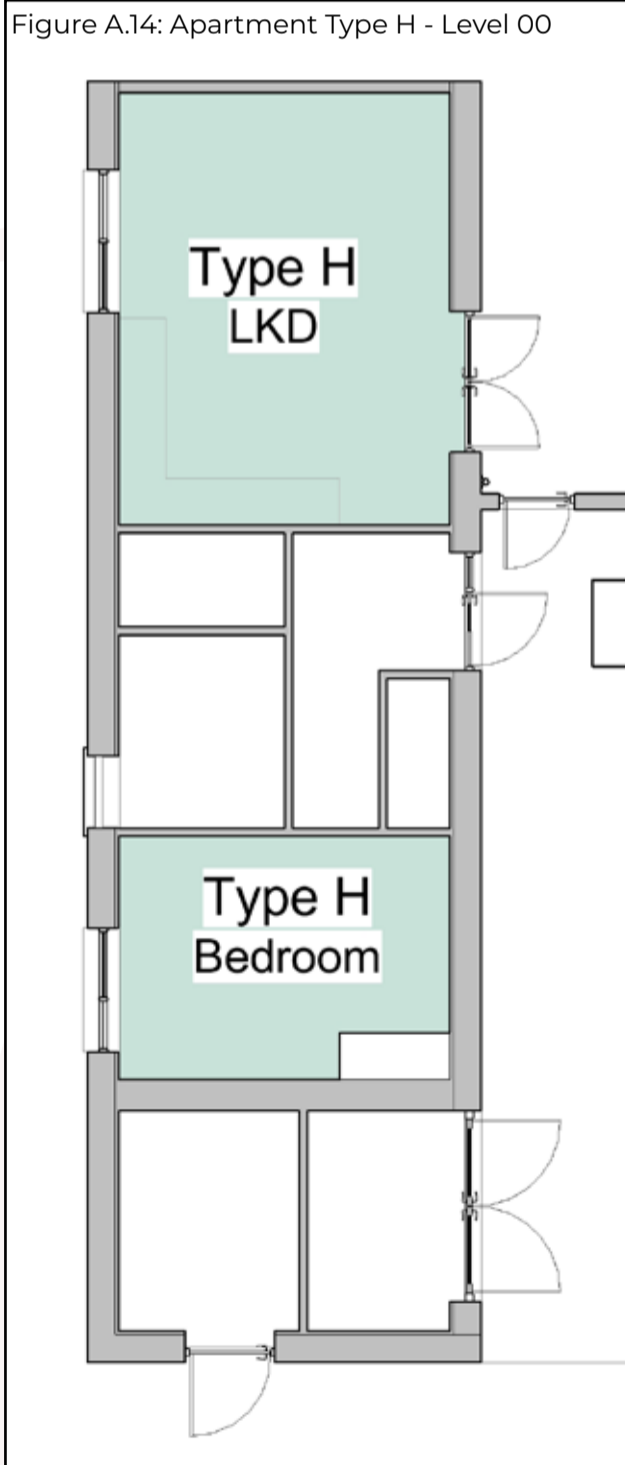


Figure A.15: Duplex Type J - Level 01

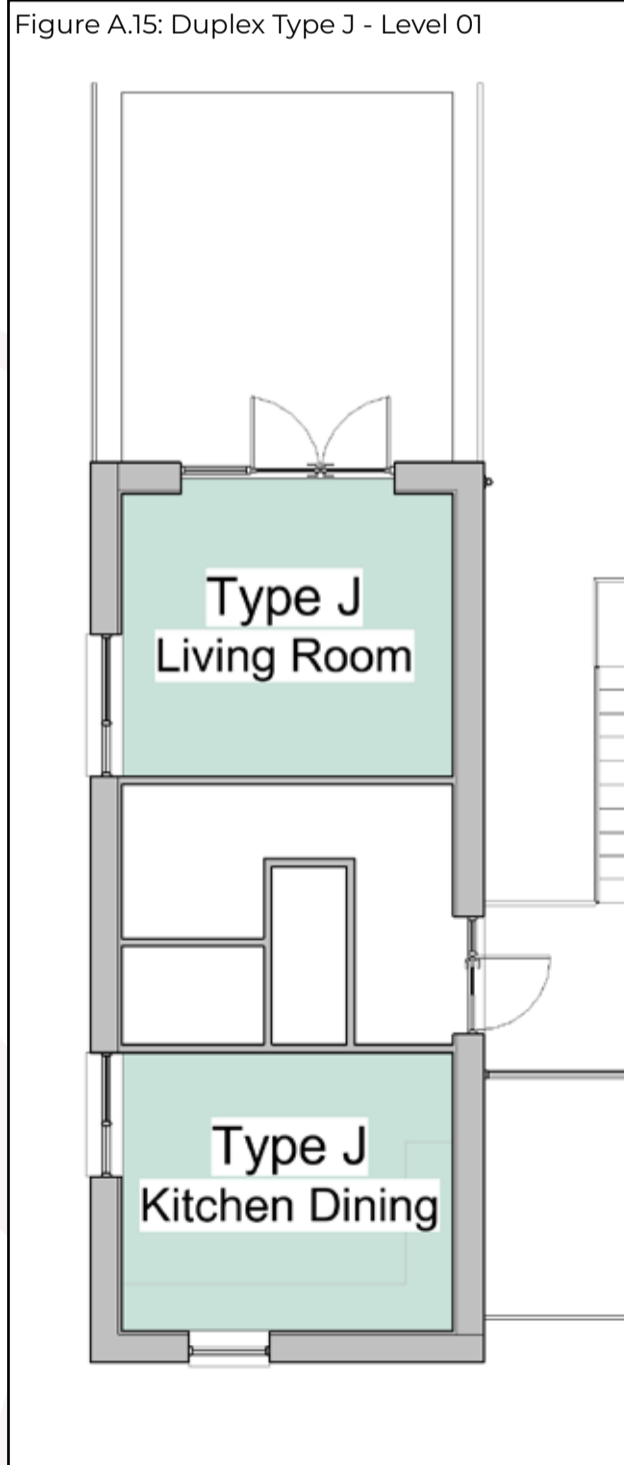
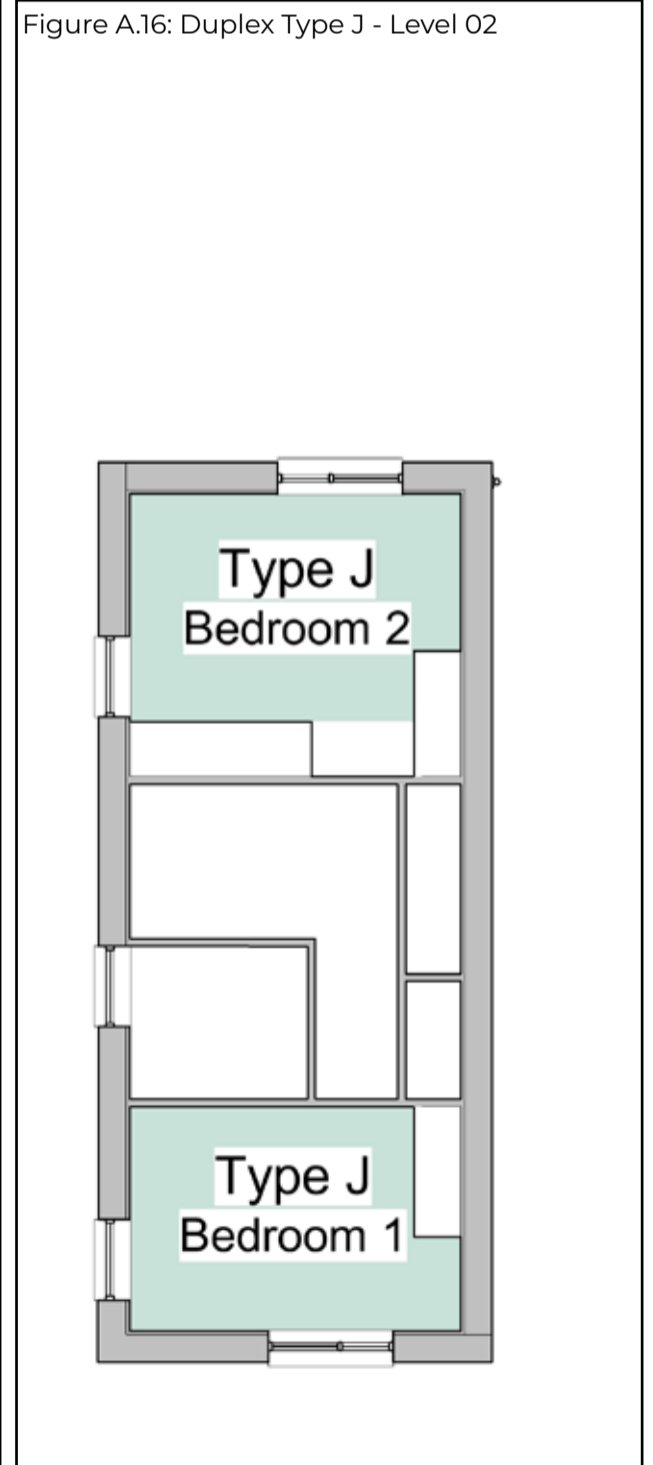


Figure A.16: Duplex Type J - Level 02



A.1.4 Proposed Floor Plans - Apartment Type K and Duplex Type L

Figure A.17: Apartment Type K and Duplex Type L - Site Locations

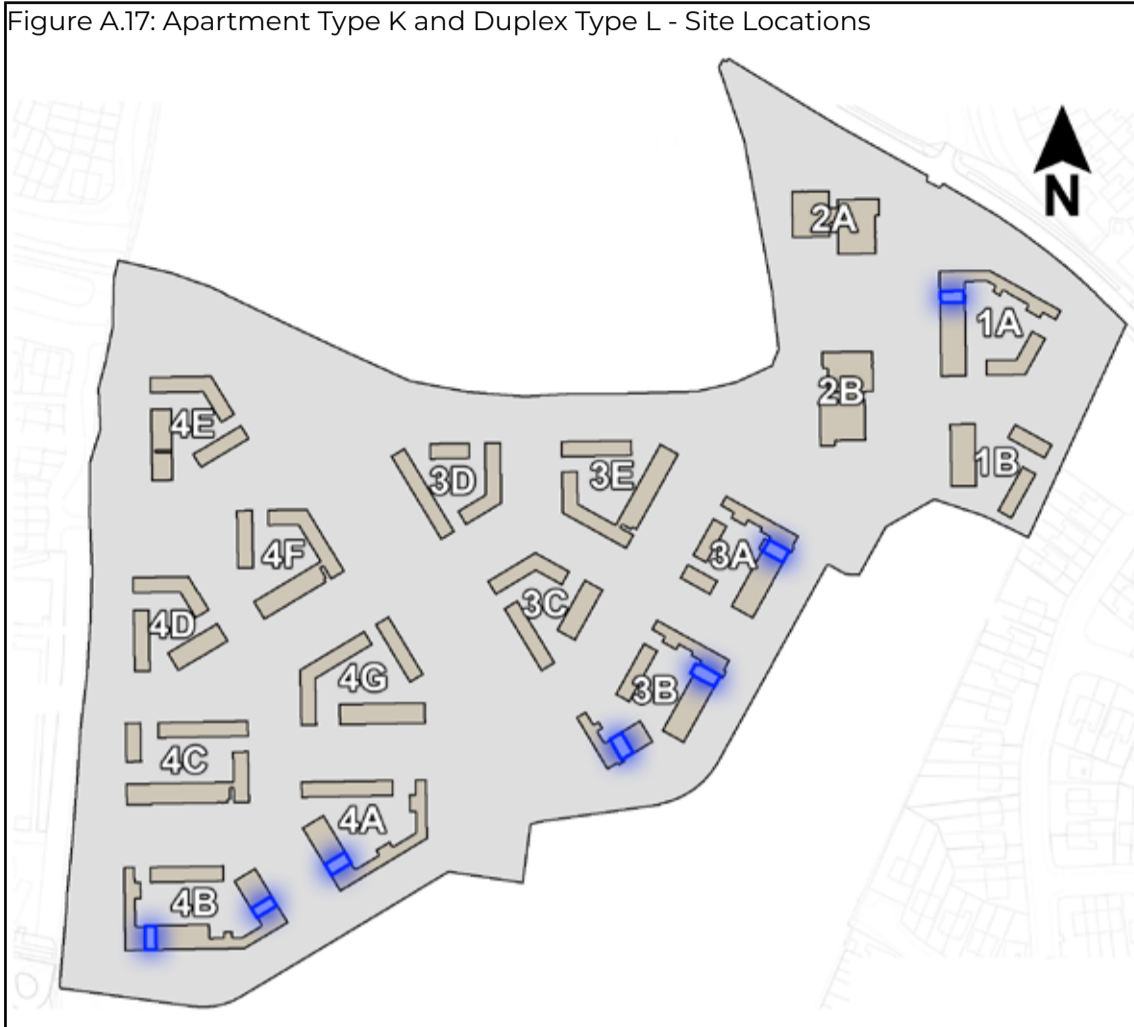


Figure A.18: Apartment Type K - Level 00

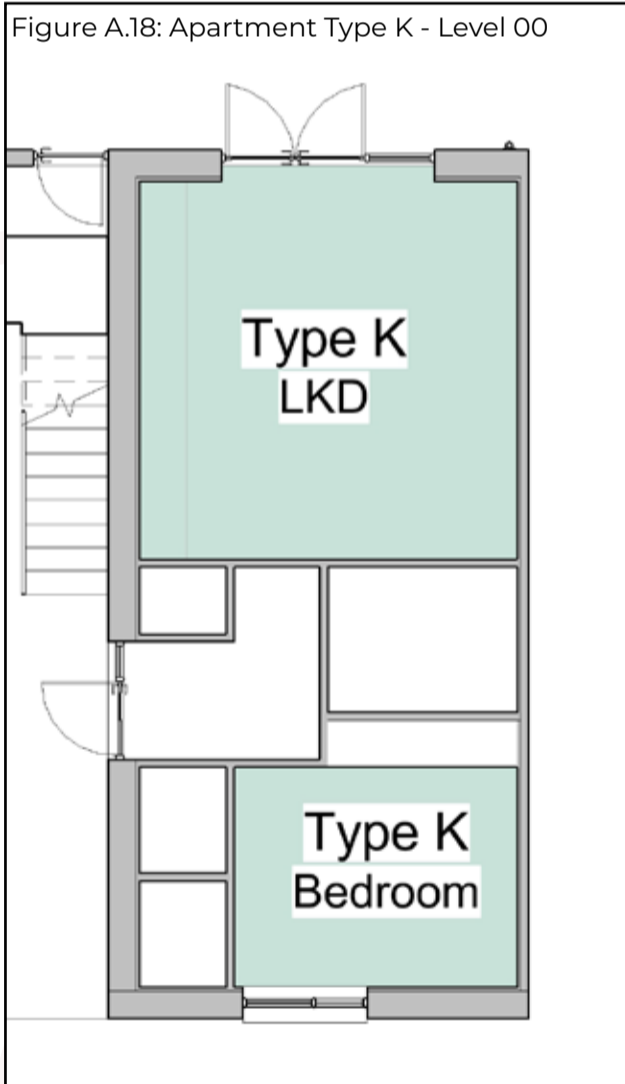


Figure A.19: Duplex Type L - Level 01

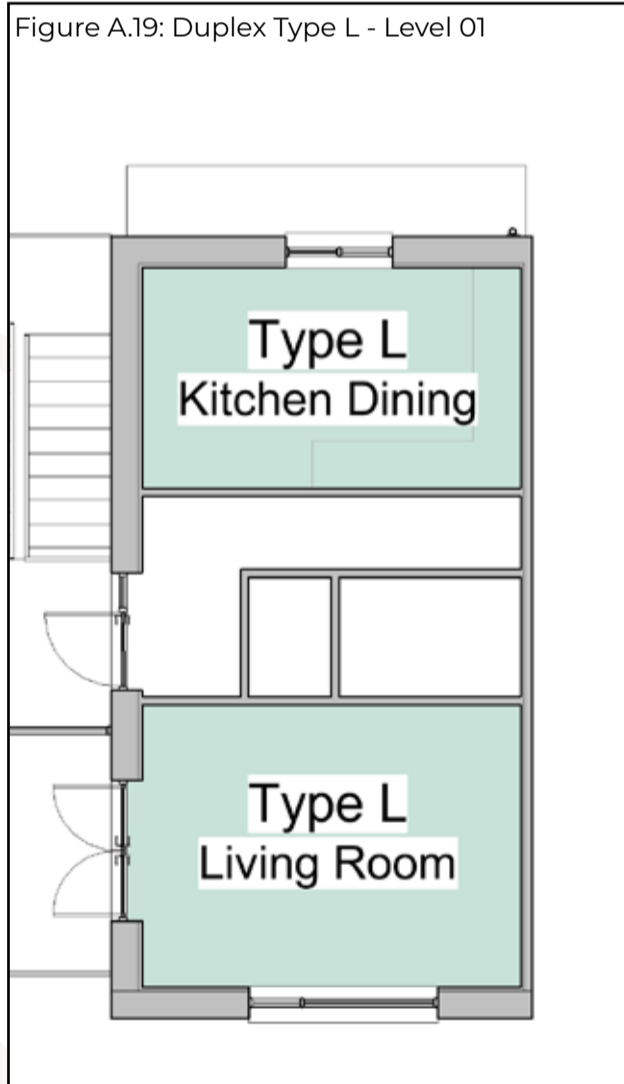
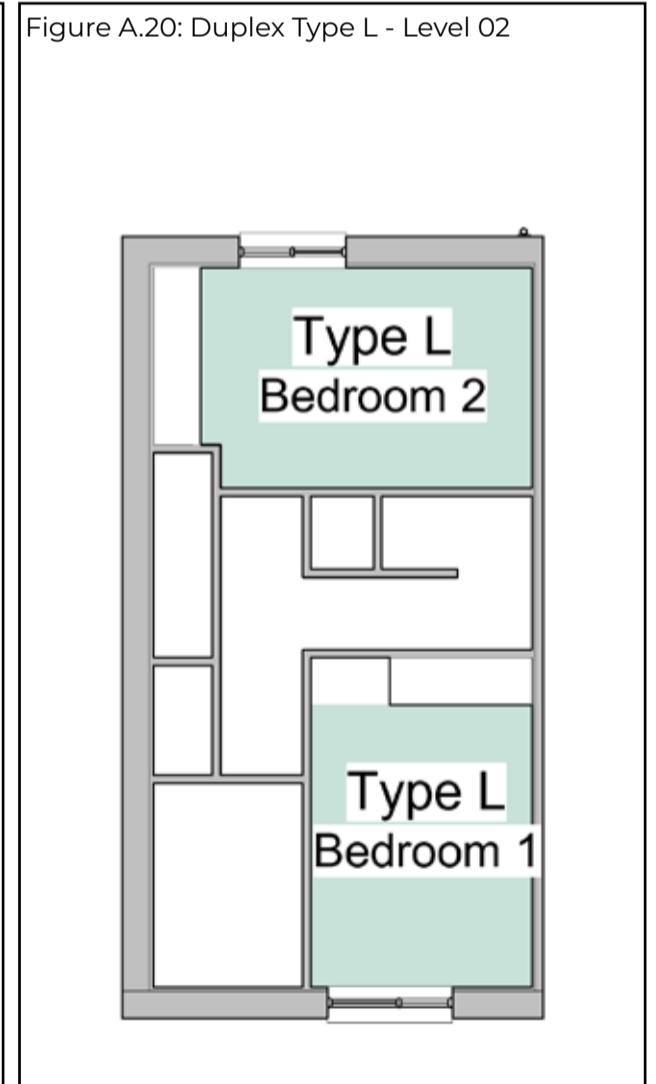


Figure A.20: Duplex Type L - Level 02



A.1.5 Proposed Floor Plans - Apartment Type M and Apartment Type N

Figure A.21: Apartment Type M and Apartment Type N - Site Locations

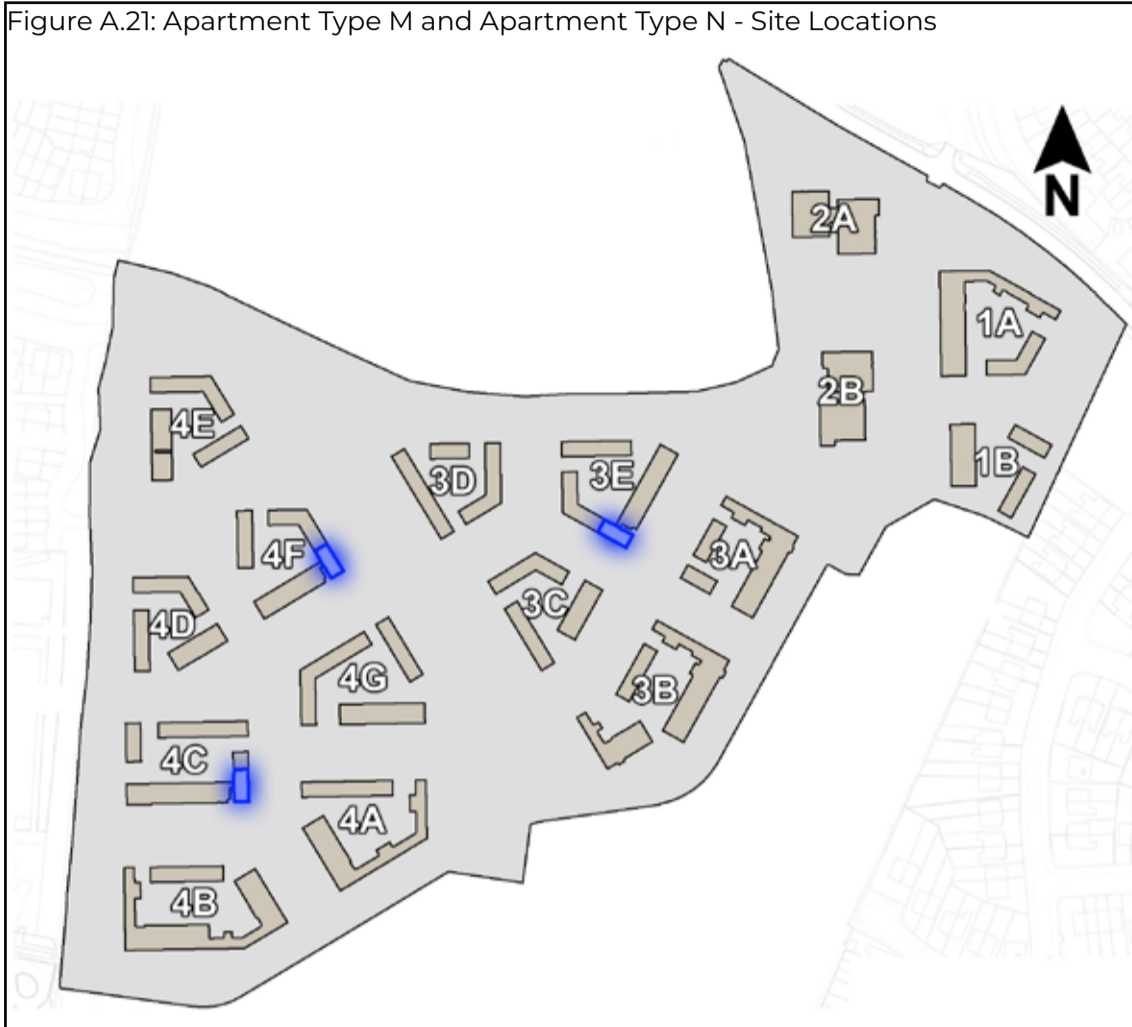


Figure A.22: Apartment Type M - Level 00

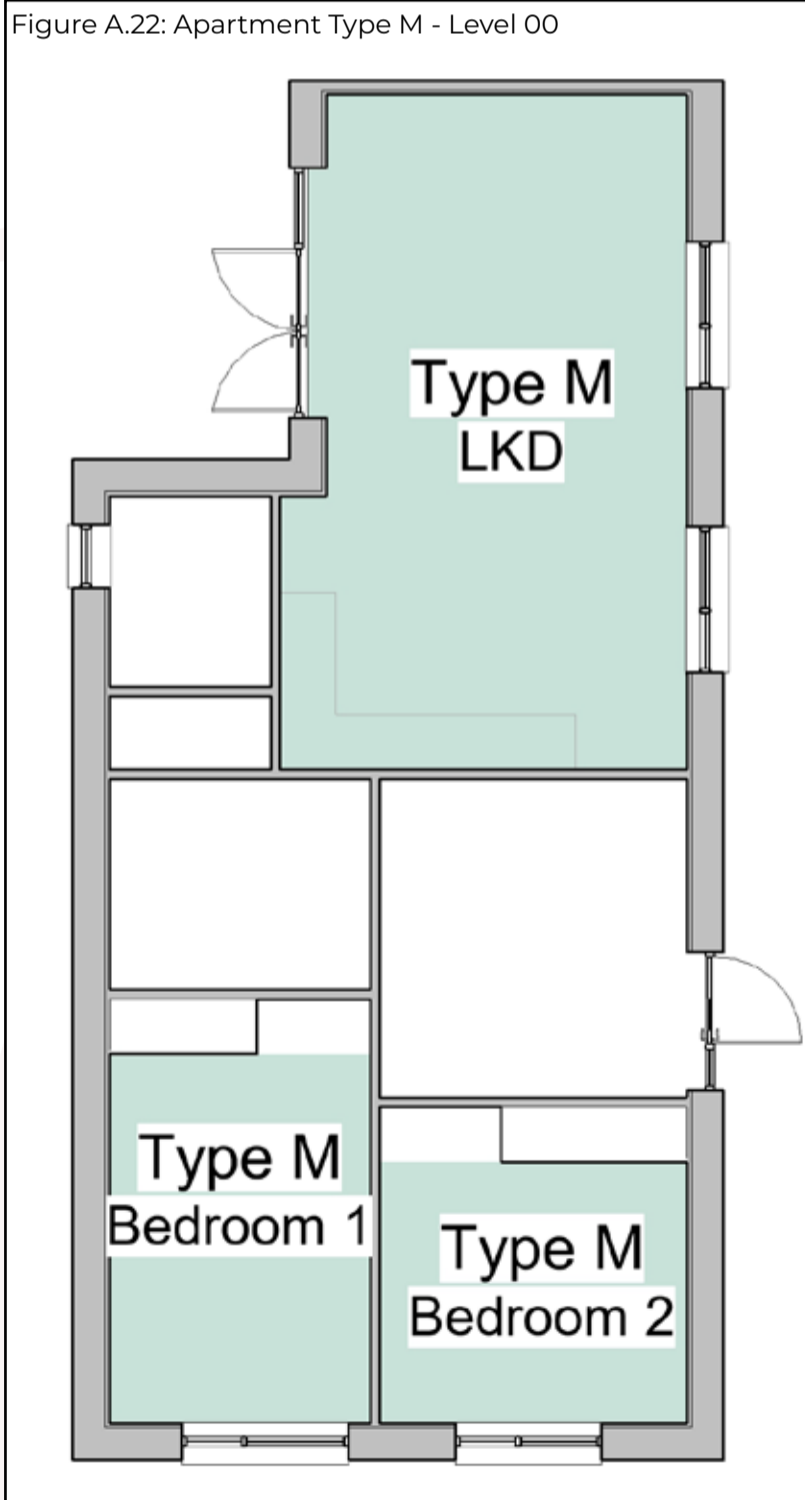
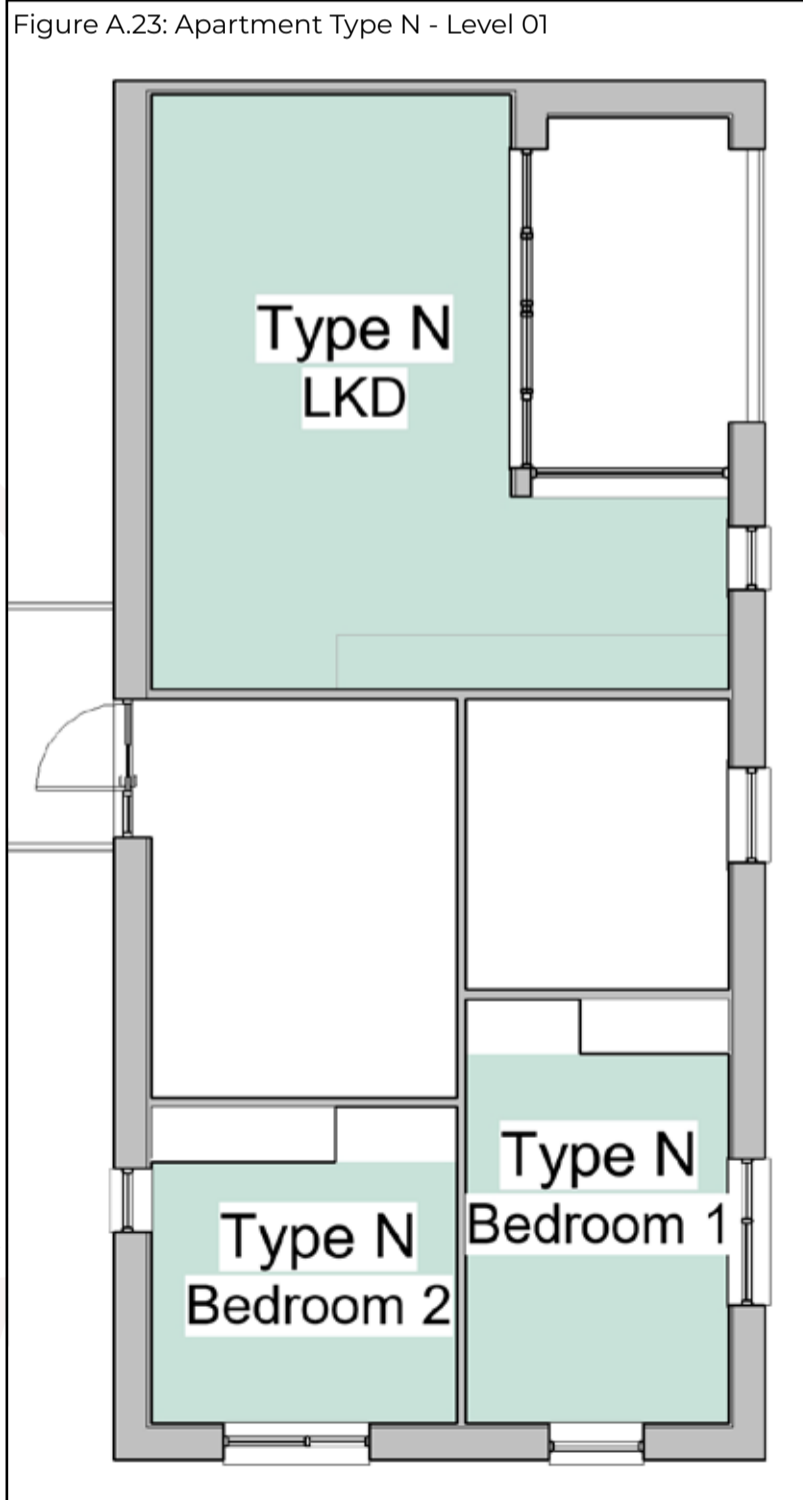


Figure A.23: Apartment Type N - Level 01



A.1.6 Proposed Floor Plans - Duplex Type P

Figure A.24: Duplex Type P - Site Locations



Figure A.25: Duplex Type P - Level 00

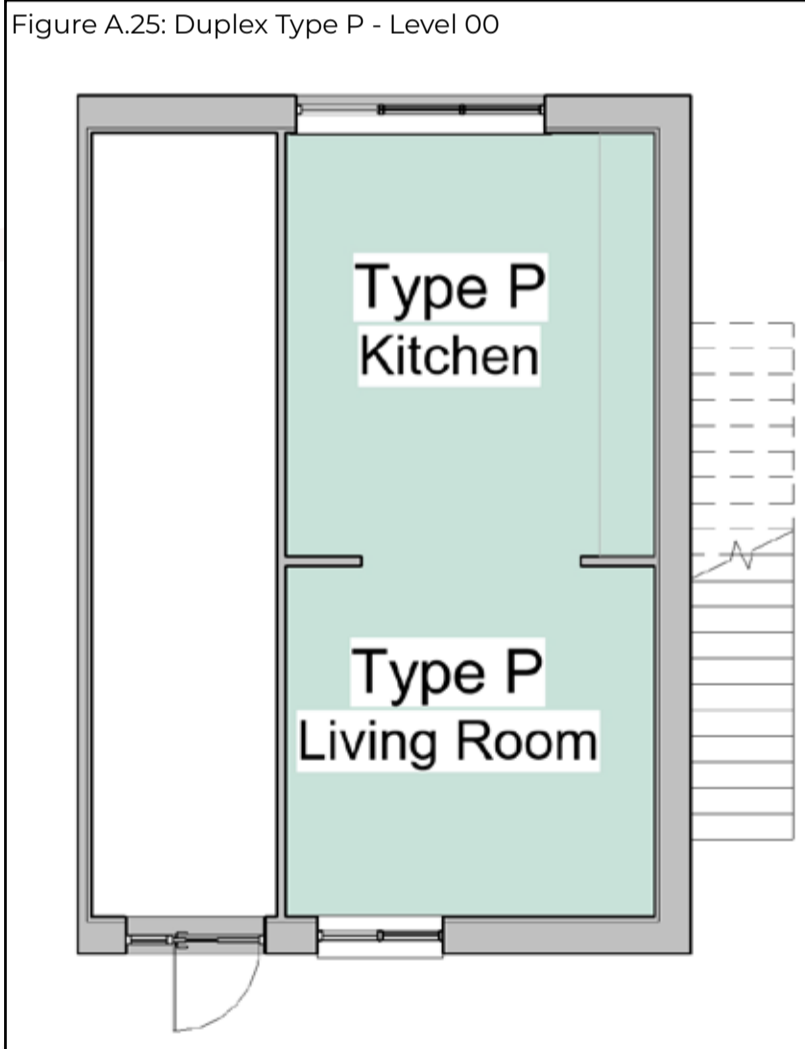
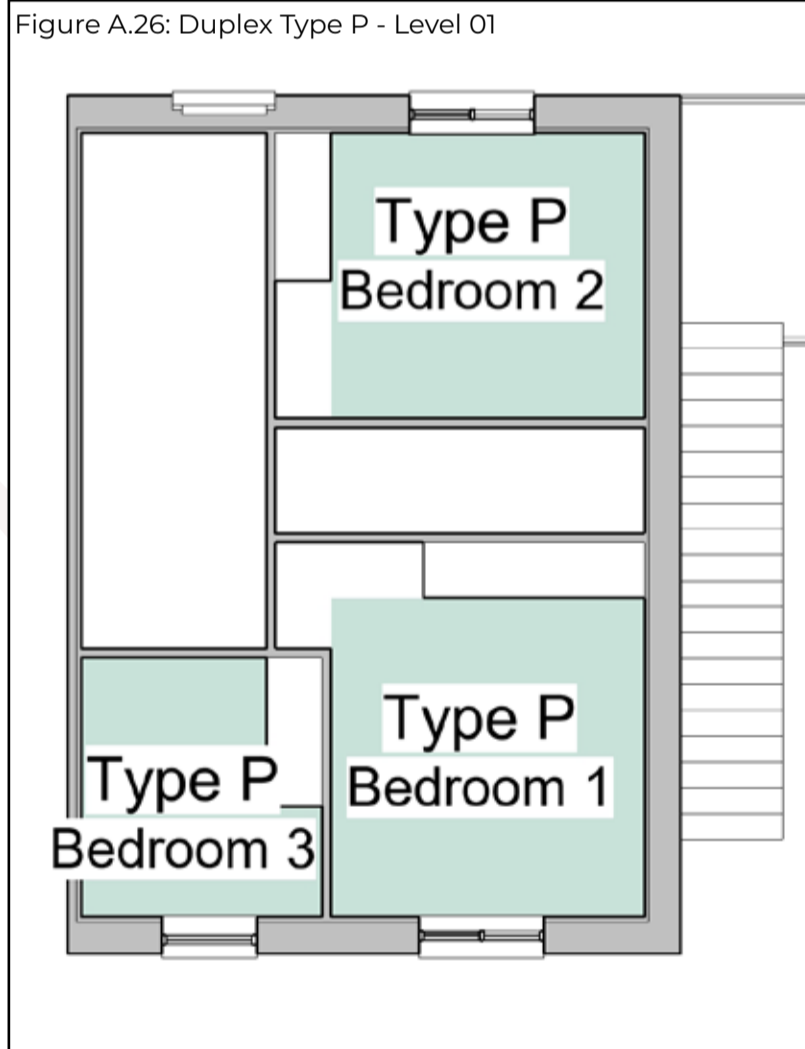


Figure A.26: Duplex Type P - Level 01



A.2 Spatial Daylight Autonomy (SDA) in Proposed Units

Below is an example of the table used to describe the spatial daylight autonomy results in proposed units.

Table Example. A.2 - Scheme Performance SDA						
Unit Number	Room Description	Target Lux*	% of area above target Lux* (recommendation >50%)			Compliance with BR 209 Criteria
			Without Trees	Winter	Summer	
A	B	C	D	E	F	G

A: Unit Number

This column identifies the assessed unit. All unit numbers are determined by the architect's drawings. The naming convention for the unit numbers follows the convention "unit type" - "Block" - "unit number". Example: 'K-3B-16' refers to: unit type 'K' located in block '3B' which is unit number '16' of that block.

B: Room Description

Room Description details which room in the unit has been assessed, e.g. bedroom, LKD, etc.

C: Target Lux

Under BR 209 the appropriate target lux levels to be achieved across 50% of the working plane of a room differ depending on the room type. Kitchens have a target lux of 200, living rooms have a target lux of 150 and bedrooms have a target lux of 100. In a room providing more than one function, such as an LKD, the higher target value should be taken i.e. 200 Lux.

D: % of area above target Lux (Without Trees)

BR 209 recommends target lux levels to be achieved across at least 50% of the working plane for at least half the daylight hours. The target values differ depending on the room function, 200 lux for Kitchens, 150 lux for Living Rooms or 100 lux for Bedrooms.

This column states percentage of the working plane of the assessed room that is capable of receiving more than the appropriate target lux for at least half the daylight hours with trees excluded from the analytical model. The figures shown in this column should be considered part of a supplementary study that helps identify if trees are having an effect on daylight within the proposed units.

E: % of area above target Lux (Winter)

BR 209 recommends target lux levels to be achieved across at least 50% of the working plane for at least half the daylight hours. The target values differ depending on the room function, 200 lux for Kitchens, 150 lux for Living Rooms or 100 lux for Bedrooms.

This column states percentage of the working plane of the assessed room that is capable of receiving more than the appropriate target lux for at least half the daylight hours with deciduous trees in the winter state, i.e. bare branch.

F: % of area above target Lux (Summer)

BR 209 recommends target lux levels to be achieved across at least 50% of the working plane for at least half the daylight hours. The target values differ depending on the room function, 200 lux for Kitchens, 150 lux for Living Rooms or 100 lux for Bedrooms.

This column states percentage of the working plane of the assessed room that is capable of receiving more than the appropriate target lux for at least half the daylight hours with deciduous trees in full foliage.

G: Compliance with BR 209 Criteria

This column states if the assessed room achieves the recommended level of daylight as per BR 209 with consideration to the various tree states.

If the target lux level is achieved across more than 50% of the working plane, for half the daylight hours, both with and without trees, this column will state: *'Compliant'*.

If the target lux level is not achieved across more than 50% of the working plane, for half the daylight hours, both with and without trees, this column will state: *'Non-compliant'*.

If the target lux level is achieved across more than 50% of the working plane, for half the daylight hours, without trees but is not achieved with trees, this column will state: *'Trees affecting compliance'*.

If the target lux level is achieved across more than 50% of the working plane, for half the daylight hours, with the trees in the winter state but is not achieved with trees in the summer state, this column will state: *'Trees affecting compliance (summer only)'*.

Compliance rates will be stated for SDA compliance with trees in all of the above states.

It should be noted that the figures displayed in the table of results have been rounded off. A manual calculation of these figures may yield a negligible difference and should not be considered an error.

A.2.1 SDA Results: Block 1A

Table No. A.2.1 - SDA Results: Block 1A						
Unit Number	Room Description	Target Lux*	% of area above target Lux* (recommendation >50%)			Compliance with BR 209 Criteria*
			Without Trees***	Winter**	Summer**	
K-1A-08	LKD	200	99%	92%	76%	Compliant
K-1A-08	Bedroom	100	100%	100%	100%	Compliant
L-1A-09	Kitchen Dining	200	99%	99%	98%	Compliant
L-1A-09	Living Room	150	100%	100%	100%	Compliant
L-1A-09	Bedroom 1	100	100%	100%	100%	Compliant
L-1A-09	Bedroom 2	100	100%	100%	100%	Compliant
J-1A-10	Kitchen Dining	200	100%	100%	100%	Compliant
J-1A-10	Living Room	150	100%	100%	100%	Compliant
J-1A-10	Bedroom 1	100	100%	100%	100%	Compliant
J-1A-10	Bedroom 2	100	100%	100%	100%	Compliant
H-1A-11	LKD	200	100%	100%	100%	Compliant
H-1A-11	Bedroom	100	100%	100%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13.
 ** Under the BR 209 study the SDA has been calculated with trees represented with both winter and summer foliage.
 *** The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.
 The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 16.
 For floor plans of the assessed units please refer to section A.1 on page 23.

A.2.2 SDA Results: Block 2A

Table No. A.2.2 - SDA Results: Block 2A						
Unit Number	Room Description	Target Lux*	% of area above target Lux* (recommendation >50%)			Compliance with BR 209 Criteria*
			Without Trees***	Winter**	Summer**	
Community Room	Community Room	150	100%	100%	100%	Compliant
X1-2A-01	LKD	200	62%	59%	54%	Compliant
X1-2A-01	Bedroom 1	100	100%	100%	100%	Compliant
X2-2A-02	LKD	200	100%	100%	99%	Compliant
X2-2A-02	Bedroom 1	100	100%	100%	94%	Compliant
X2-2A-02	Bedroom 2	100	100%	100%	100%	Compliant
X5-2A-03	LKD	200	100%	100%	100%	Compliant
X5-2A-03	Bedroom 1	100	100%	100%	100%	Compliant
X5-2A-03	Bedroom 2	100	100%	100%	100%	Compliant
X5-2A-03	Bedroom 3	100	100%	100%	100%	Compliant
X3-2A-04	LKD	200	100%	100%	100%	Compliant
X3-2A-04	Bedroom 1	100	96%	93%	87%	Compliant
X3-2A-04	Bedroom 2	100	100%	99%	94%	Compliant
X1-2A-05	LKD	200	62%	61%	58%	Compliant
X1-2A-05	Bedroom 1	100	100%	100%	100%	Compliant
X2-2A-06	LKD	200	100%	100%	100%	Compliant
X2-2A-06	Bedroom 1	100	100%	100%	100%	Compliant
X2-2A-06	Bedroom 2	100	100%	100%	100%	Compliant
X5-2A-07	LKD	200	100%	100%	100%	Compliant
X5-2A-07	Bedroom 1	100	100%	100%	100%	Compliant
X5-2A-07	Bedroom 2	100	100%	100%	100%	Compliant
X5-2A-07	Bedroom 3	100	100%	100%	100%	Compliant
X4-2A-08	LKD	200	100%	98%	76%	Compliant
X4-2A-08	Bedroom 1	100	100%	100%	100%	Compliant
X4-2A-08	Bedroom 2	100	100%	100%	100%	Compliant
X6-2A-09	LKD	200	100%	100%	100%	Compliant
X6-2A-09	Bedroom 1	100	100%	100%	100%	Compliant
X6-2A-09	Bedroom 2	100	100%	100%	100%	Compliant
X6-2A-09	Bedroom 3	100	100%	100%	100%	Compliant
X3-2A-10	LKD	200	100%	100%	100%	Compliant
X3-2A-10	Bedroom 1	100	96%	94%	93%	Compliant
X3-2A-10	Bedroom 2	100	100%	100%	100%	Compliant
X1-2A-11	LKD	200	66%	65%	64%	Compliant
X1-2A-11	Bedroom 1	100	100%	100%	100%	Compliant
X2-2A-12	LKD	200	100%	100%	100%	Compliant
X2-2A-12	Bedroom 1	100	100%	100%	100%	Compliant
X2-2A-12	Bedroom 2	100	100%	100%	100%	Compliant
X5-2A-13	LKD	200	100%	100%	100%	Compliant
X5-2A-13	Bedroom 1	100	100%	100%	100%	Compliant
X5-2A-13	Bedroom 2	100	100%	100%	100%	Compliant
X5-2A-13	Bedroom 3	100	100%	100%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13.

** Under the BR 209 study the SDA has been calculated with trees represented with both winter and summer foliage.

*** The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.

The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 16.

For floor plans of the assessed units please refer to section A.1 on page 23.

A.2.3 SDA Results: Block 2A

Table No. A.2.3 - SDA Results: Block 2A						
Unit Number	Room Description	Target Lux*	% of area above target Lux* (recommendation >50%)			Compliance with BR 209 Criteria*
			Without Trees***	Winter**	Summer**	
X4-2A-14	LKD	200	100%	100%	100%	Compliant
X4-2A-14	Bedroom 1	100	100%	100%	100%	Compliant
X4-2A-14	Bedroom 2	100	100%	100%	100%	Compliant
X6-2A-15	LKD	200	100%	100%	100%	Compliant
X6-2A-15	Bedroom 1	100	100%	100%	100%	Compliant
X6-2A-15	Bedroom 2	100	100%	100%	100%	Compliant
X6-2A-15	Bedroom 3	100	100%	100%	100%	Compliant
X3-2A-16	LKD	200	100%	100%	100%	Compliant
X3-2A-16	Bedroom 1	100	96%	96%	96%	Compliant
X3-2A-16	Bedroom 2	100	100%	100%	100%	Compliant
X1-2A-17	LKD	200	85%	85%	83%	Compliant
X1-2A-17	Bedroom 1	100	100%	100%	100%	Compliant
X2-2A-18	LKD	200	100%	100%	100%	Compliant
X2-2A-18	Bedroom 1	100	100%	100%	100%	Compliant
X2-2A-18	Bedroom 2	100	100%	100%	100%	Compliant
X5-2A-19	LKD	200	100%	100%	100%	Compliant
X5-2A-19	Bedroom 1	100	100%	100%	100%	Compliant
X5-2A-19	Bedroom 2	100	100%	100%	100%	Compliant
X5-2A-19	Bedroom 3	100	100%	100%	100%	Compliant
X4-2A-20	LKD	200	100%	100%	100%	Compliant
X4-2A-20	Bedroom 1	100	100%	100%	100%	Compliant
X4-2A-20	Bedroom 2	100	100%	100%	100%	Compliant
X6-2A-21	LKD	200	100%	100%	100%	Compliant
X6-2A-21	Bedroom 1	100	100%	100%	100%	Compliant
X6-2A-21	Bedroom 2	100	100%	100%	100%	Compliant
X6-2A-21	Bedroom 3	100	100%	100%	100%	Compliant
X3-2A-22	LKD	200	100%	100%	100%	Compliant
X3-2A-22	Bedroom 1	100	96%	96%	96%	Compliant
X3-2A-22	Bedroom 1	100	100%	100%	100%	Compliant
X4-2A-23	LKD	200	100%	100%	100%	Compliant
X4-2A-23	Bedroom 1	100	100%	100%	100%	Compliant
X4-2A-23	Bedroom 2	100	100%	100%	100%	Compliant
X6-2A-24	LKD	200	100%	100%	100%	Compliant
X6-2A-24	Bedroom 1	100	100%	100%	100%	Compliant
X6-2A-24	Bedroom 2	100	100%	100%	100%	Compliant
X6-2A-24	Bedroom 3	100	100%	100%	100%	Compliant
X3-2A-25	LKD	200	100%	100%	100%	Compliant
X3-2A-25	Bedroom 1	100	100%	100%	100%	Compliant
X3-2A-25	Bedroom 1	100	100%	100%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13.
 ** Under the BR 209 study the SDA has been calculated with trees represented with both winter and summer foliage.
 *** The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.
 The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 16.
 For floor plans of the assessed units please refer to section A.1 on page 23.

A.2.4 SDA Results: Block 2B

Table No. A.2.3 - SDA Results: Block 2B						
Unit Number	Room Description	Target Lux*	% of area above target Lux* (recommendation >50%)			Compliance with BR 209 Criteria*
			Without Trees***	Winter**	Summer**	
Community Room	Community Room	150	100%	100%	95%	Compliant
Y1-2B-01	LKD	200	89%	78%	70%	Compliant
Y1-2B-01	Bedroom 1	100	100%	100%	99%	Compliant
Y1-2B-01	Bedroom 2	100	100%	100%	100%	Compliant
Y2-2B-02	LKD	200	100%	100%	100%	Compliant
Y2-2B-02	Bedroom 1	100	100%	100%	100%	Compliant
Y2-2B-02	Bedroom 2	100	100%	100%	100%	Compliant
Y3-2B-03	LKD	200	100%	100%	100%	Compliant
Y3-2B-03	Bedroom 1	100	100%	100%	100%	Compliant
Y3-2B-03	Bedroom 2	100	100%	100%	100%	Compliant
Y4-2B-04	LKD	200	53%	51%	50%	Compliant
Y4-2B-04	Bedroom 1	100	100%	100%	100%	Compliant
Y4-2B-04	Bedroom 2	100	100%	100%	100%	Compliant
Y1-2B-05	LKD	200	99%	92%	83%	Compliant
Y1-2B-05	Bedroom 1	100	100%	100%	100%	Compliant
Y1-2B-05	Bedroom 2	100	100%	100%	100%	Compliant
Y2-2B-06	LKD	200	100%	100%	100%	Compliant
Y2-2B-06	Bedroom 1	100	100%	100%	100%	Compliant
Y2-2B-06	Bedroom 2	100	100%	100%	100%	Compliant
Y5-2B-07	LKD	200	100%	100%	100%	Compliant
Y5-2B-07	Bedroom 1	100	100%	100%	100%	Compliant
Y5-2B-07	Bedroom 2	100	100%	100%	100%	Compliant
Y6-2B-08	LKD	200	100%	100%	100%	Compliant
Y6-2B-08	Bedroom 1	100	100%	100%	100%	Compliant
Y6-2B-08	Bedroom 2	100	100%	100%	100%	Compliant
Y6-2B-08	Bedroom 3	100	100%	100%	100%	Compliant
Y3-2B-09	LKD	200	100%	100%	100%	Compliant
Y3-2B-09	Bedroom 1	100	100%	100%	100%	Compliant
Y3-2B-09	Bedroom 2	100	100%	100%	100%	Compliant
Y4-2B-10	LKD	200	59%	57%	56%	Compliant
Y4-2B-10	Bedroom 1	100	100%	100%	100%	Compliant
Y4-2B-10	Bedroom 2	100	100%	100%	100%	Compliant
Y1-2B-11	LKD	200	99%	99%	99%	Compliant
Y1-2B-11	Bedroom 1	100	100%	100%	100%	Compliant
Y1-2B-11	Bedroom 2	100	100%	100%	100%	Compliant
Y2-2B-12	LKD	200	100%	100%	100%	Compliant
Y2-2B-12	Bedroom 1	100	100%	100%	100%	Compliant
Y2-2B-12	Bedroom 2	100	100%	100%	100%	Compliant
Y5-2B-13	LKD	200	100%	100%	100%	Compliant
Y5-2B-13	Bedroom 1	100	100%	100%	100%	Compliant
Y5-2B-13	Bedroom 2	100	100%	100%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13.
 ** Under the BR 209 study the SDA has been calculated with trees represented with both winter and summer foliage.
 *** The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.
 The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 16.
 For floor plans of the assessed units please refer to section A.1 on page 23.

A.2.5 SDA Results: Block 2B

Table No. A.2.4 - SDA Results: Block 2B						
Unit Number	Room Description	Target Lux*	% of area above target Lux* (recommendation >50%)			Compliance with BR 209 Criteria*
			Without Trees***	Winter**	Summer**	
Y6-2B-14	LKD	200	100%	100%	100%	Compliant
Y6-2B-14	Bedroom 1	100	100%	100%	100%	Compliant
Y6-2B-14	Bedroom 2	100	100%	100%	100%	Compliant
Y6-2B-14	Bedroom 3	100	100%	100%	100%	Compliant
Y3-2B-15	LKD	200	100%	100%	100%	Compliant
Y3-2B-15	Bedroom 1	100	100%	100%	100%	Compliant
Y3-2B-15	Bedroom 2	100	100%	100%	100%	Compliant
Y4-2B-16	LKD	200	62%	61%	60%	Compliant
Y4-2B-16	Bedroom 1	100	100%	100%	100%	Compliant
Y4-2B-16	Bedroom 2	100	100%	100%	100%	Compliant
Y1-2B-17	LKD	200	100%	100%	100%	Compliant
Y1-2B-17	Bedroom 1	100	100%	100%	100%	Compliant
Y1-2B-17	Bedroom 2	100	100%	100%	100%	Compliant
Y2-2B-18	LKD	200	100%	100%	100%	Compliant
Y2-2B-18	Bedroom 1	100	100%	100%	100%	Compliant
Y2-2B-18	Bedroom 2	100	100%	100%	100%	Compliant
Y5-2B-19	LKD	200	100%	100%	100%	Compliant
Y5-2B-19	Bedroom 1	100	100%	100%	100%	Compliant
Y5-2B-19	Bedroom 2	100	100%	100%	100%	Compliant
Y6-2B-20	LKD	200	100%	100%	100%	Compliant
Y6-2B-20	Bedroom 1	100	100%	100%	100%	Compliant
Y6-2B-20	Bedroom 2	100	100%	100%	100%	Compliant
Y6-2B-20	Bedroom 3	100	100%	100%	100%	Compliant
Y3-2B-21	LKD	200	100%	100%	100%	Compliant
Y3-2B-21	Bedroom 1	100	100%	100%	100%	Compliant
Y3-2B-21	Bedroom 2	100	100%	100%	100%	Compliant
Y4-2B-22	LKD	200	70%	70%	69%	Compliant
Y4-2B-22	Bedroom 1	100	100%	100%	100%	Compliant
Y4-2B-22	Bedroom 2	100	100%	100%	100%	Compliant
Y1-2B-23	LKD	200	100%	100%	100%	Compliant
Y1-2B-23	Bedroom 1	100	100%	100%	100%	Compliant
Y1-2B-23	Bedroom 2	100	100%	100%	100%	Compliant
Y2-2B-24	LKD	200	100%	100%	100%	Compliant
Y2-2B-24	Bedroom 1	100	100%	100%	100%	Compliant
Y2-2B-24	Bedroom 2	100	100%	100%	100%	Compliant
Y5-2B-25	LKD	200	100%	100%	100%	Compliant
Y5-2B-25	Bedroom 1	100	100%	100%	100%	Compliant
Y5-2B-25	Bedroom 2	100	100%	100%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13.

** Under the BR 209 study the SDA has been calculated with trees represented with both winter and summer foliage.

*** The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.

The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 16.

For floor plans of the assessed units please refer to section A.1 on page 23.

A.2.6 SDA Results: Block 3A

Table No. A.2.5 - SDA Results: Block 3A						
Unit Number	Room Description	Target Lux*	% of area above target Lux* (recommendation >50%)			Compliance with BR 209 Criteria*
			Without Trees***	Winter**	Summer**	
L-3A-07	Kitchen Dining	200	97%	97%	95%	Compliant
L-3A-07	Living Room	150	100%	100%	100%	Compliant
L-3A-07	Bedroom 1	100	100%	100%	100%	Compliant
L-3A-07	Bedroom 2	100	100%	100%	100%	Compliant
K-3A-08	LKD	200	90%	82%	66%	Compliant
K-3A-08	Bedroom	100	100%	100%	100%	Compliant
H-3A-09	LKD	200	100%	97%	76%	Compliant
H-3A-09	Bedroom	100	100%	100%	80%	Compliant
J-3A-10	Kitchen Dining	200	100%	100%	95%	Compliant
J-3A-10	Living Room	150	100%	100%	100%	Compliant
J-3A-10	Bedroom 1	100	100%	100%	100%	Compliant
J-3A-10	Bedroom 2	100	100%	100%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13.
 ** Under the BR 209 study the SDA has been calculated with trees represented with both winter and summer foliage.
 *** The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.
 The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 16.
 For floor plans of the assessed units please refer to section A.1 on page 23.

A.2.7 SDA Results: Block 3B

Table No. A.2.6 - SDA Results: Block 3B						
Unit Number	Room Description	Target Lux*	% of area above target Lux* (recommendation >50%)			Compliance with BR 209 Criteria*
			Without Trees***	Winter**	Summer**	
J-3B-03	Kitchen Dining	200	100%	100%	100%	Compliant
J-3B-03	Living Room	150	100%	100%	100%	Compliant
J-3B-03	Bedroom 1	100	100%	100%	100%	Compliant
J-3B-03	Bedroom 2	100	100%	100%	100%	Compliant
H-3B-04	LKD	200	100%	100%	97%	Compliant
H-3B-04	Bedroom	100	100%	100%	100%	Compliant
L-3B-05	Kitchen Dining	200	97%	97%	97%	Compliant
L-3B-05	Living Room	150	100%	100%	100%	Compliant
L-3B-05	Bedroom 1	100	100%	100%	100%	Compliant
L-3B-05	Bedroom 2	100	100%	100%	100%	Compliant
K-3B-06	LKD	200	92%	87%	68%	Compliant
K-3B-06	Bedroom	100	100%	100%	100%	Compliant
L-3B-15	Kitchen Dining	200	95%	95%	94%	Compliant
L-3B-15	Living Room	150	100%	100%	100%	Compliant
L-3B-15	Bedroom 1	100	100%	100%	100%	Compliant
L-3B-15	Bedroom 2	100	100%	100%	100%	Compliant
K-3B-16	LKD	200	93%	77%	60%	Compliant
K-3B-16	Bedroom	100	100%	100%	100%	Compliant
J-3B-17	Kitchen Dining	200	100%	100%	100%	Compliant
J-3B-17	Living Room	150	100%	100%	100%	Compliant
J-3B-17	Bedroom 1	100	100%	100%	100%	Compliant
J-3B-17	Bedroom 2	100	100%	100%	100%	Compliant
H-3B-18	LKD	200	100%	100%	95%	Compliant
H-3B-18	Bedroom	100	100%	100%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13.

** Under the BR 209 study the SDA has been calculated with trees represented with both winter and summer foliage.

*** The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.

The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 16.

For floor plans of the assessed units please refer to section A.1 on page 23.

A.2.8 SDA Results: Block 3E

Table No. A.2.7 - SDA Results: Block 3E						
Unit Number	Room Description	Target Lux*	% of area above target Lux* (recommendation >50%)			Compliance with BR 209 Criteria*
			Without Trees***	Winter**	Summer**	
P-3E-06	Kitchen	200	100%	100%	85%	Compliant
P-3E-06	Living Room	150	86%	77%	53%	Compliant
P-3E-06	Bedroom 1	100	100%	100%	100%	Compliant
P-3E-06	Bedroom 2	100	100%	100%	100%	Compliant
P-3E-06	Bedroom 3	100	100%	100%	100%	Compliant
N-3E-07	LKD	200	100%	99%	96%	Compliant
N-3E-07	Bedroom 1	100	100%	100%	100%	Compliant
N-3E-07	Bedroom 2	100	100%	100%	100%	Compliant
M-3E-08	LKD	200	100%	100%	100%	Compliant
M-3E-08	Bedroom 1	100	100%	100%	100%	Compliant
M-3E-08	Bedroom 2	100	100%	100%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13.
 ** Under the BR 209 study the SDA has been calculated with trees represented with both winter and summer foliage.
 *** The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.
 The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 16.
 For floor plans of the assessed units please refer to section A.1 on page 23.

A.2.9 SDA Results: Block 4A

Table No. A.2.8 - SDA Results: Block 4A						
Unit Number	Room Description	Target Lux*	% of area above target Lux* (recommendation >50%)			Compliance with BR 209 Criteria*
			Without Trees***	Winter**	Summer**	
L-4A-05	Kitchen Dining	200	96%	95%	95%	Compliant
L-4A-05	Living Room	150	100%	100%	100%	Compliant
L-4A-05	Bedroom 1	100	100%	100%	100%	Compliant
L-4A-05	Bedroom 2	100	100%	100%	100%	Compliant
K-4A-06	LKD	200	88%	88%	83%	Compliant
K-4A-06	Bedroom	100	100%	100%	86%	Compliant
H-4A-07	LKD	200	100%	100%	100%	Compliant
H-4A-07	Bedroom	100	100%	100%	100%	Compliant
J-4A-08	Kitchen Dining	200	100%	100%	100%	Compliant
J-4A-08	Living Room	150	100%	100%	100%	Compliant
J-4A-08	Bedroom 1	100	100%	100%	100%	Compliant
J-4A-08	Bedroom 2	100	100%	100%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13.
 ** Under the BR 209 study the SDA has been calculated with trees represented with both winter and summer foliage.
 *** The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.
 The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 16.
 For floor plans of the assessed units please refer to section A.1 on page 23.

A.2.10 SDA Results: Block 4B

Table No. A.2.9 - SDA Results: Block 4B						
Unit Number	Room Description	Target Lux*	% of area above target Lux* (recommendation >50%)			Compliance with BR 209 Criteria*
			Without Trees***	Winter**	Summer**	
K-4B-04	LKD	200	74%	74%	72%	Compliant
K-4B-04	Bedroom	100	100%	100%	100%	Compliant
L-4B-05	Kitchen Dining	200	97%	97%	97%	Compliant
L-4B-05	Living Room	150	100%	100%	100%	Compliant
L-4B-05	Bedroom 1	100	100%	100%	100%	Compliant
L-4B-05	Bedroom 2	100	100%	100%	100%	Compliant
H-4B-06	LKD	200	100%	100%	100%	Compliant
H-4B-06	Bedroom	100	100%	100%	100%	Compliant
J-4B-07	Kitchen Dining	200	100%	100%	100%	Compliant
J-4B-07	Living Room	150	100%	100%	100%	Compliant
J-4B-07	Bedroom 1	100	100%	100%	100%	Compliant
J-4B-07	Bedroom 2	100	100%	100%	100%	Compliant
L-4B-15	Kitchen Dining	200	94%	94%	94%	Compliant
L-4B-15	Living Room	150	100%	100%	100%	Compliant
L-4B-15	Bedroom 1	100	100%	100%	100%	Compliant
L-4B-15	Bedroom 2	100	100%	100%	100%	Compliant
K-4B-16	LKD	200	88%	80%	67%	Compliant
K-4B-16	Bedroom	100	100%	100%	100%	Compliant
H-4B-17	LKD	200	100%	100%	100%	Compliant
H-4B-17	Bedroom	100	100%	100%	100%	Compliant
J-4B-18	Kitchen Dining	200	100%	100%	100%	Compliant
J-4B-18	Living Room	150	100%	100%	100%	Compliant
J-4B-18	Bedroom 1	100	100%	100%	100%	Compliant
J-4B-18	Bedroom 2	100	100%	100%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13.

** Under the BR 209 study the SDA has been calculated with trees represented with both winter and summer foliage.

*** The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.

The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 16.

For floor plans of the assessed units please refer to section A.1 on page 23.

A.2.11 SDA Results: Block 4C

Table No. A.2.10 - SDA Results: Block 4C						
Unit Number	Room Description	Target Lux*	% of area above target Lux* (recommendation >50%)			Compliance with BR 209 Criteria*
			Without Trees***	Winter**	Summer**	
M-4C-02	LKD	200	100%	100%	100%	Compliant
M-4C-02	Bedroom 1	100	100%	100%	100%	Compliant
M-4C-02	Bedroom 2	100	100%	100%	100%	Compliant
N-4C-03	LKD	200	97%	92%	80%	Compliant
N-4C-03	Bedroom 1	100	100%	100%	100%	Compliant
N-4C-03	Bedroom 2	100	100%	100%	100%	Compliant
P-4C-04	Kitchen	200	100%	100%	99%	Compliant
P-4C-04	Living Room	150	98%	92%	72%	Compliant
P-4C-04	Bedroom 1	100	100%	100%	100%	Compliant
P-4C-04	Bedroom 2	100	100%	100%	100%	Compliant
P-4C-04	Bedroom 3	100	100%	100%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13.
 ** Under the BR 209 study the SDA has been calculated with trees represented with both winter and summer foliage.
 *** The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.
 The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 16.
 For floor plans of the assessed units please refer to section A.1 on page 23.

A.2.12 SDA Results: Block 4F

Table No. A.2.11 - SDA Results: Block 4F						
Unit Number	Room Description	Target Lux*	% of area above target Lux* (recommendation >50%)			Compliance with BR 209 Criteria*
			Without Trees***	Winter**	Summer**	
P-4F-05	Kitchen	200	100%	100%	95%	Compliant
P-4F-05	Living Room	150	98%	91%	68%	Compliant
P-4F-05	Bedroom 1	100	100%	100%	100%	Compliant
P-4F-05	Bedroom 2	100	100%	100%	100%	Compliant
P-4F-05	Bedroom 3	100	100%	100%	100%	Compliant
N-4F-06	LKD	200	94%	90%	80%	Compliant
N-4F-06	Bedroom 1	100	100%	100%	100%	Compliant
N-4F-06	Bedroom 2	100	100%	100%	100%	Compliant
M-4F-07	LKD	200	100%	100%	100%	Compliant
M-4F-07	Bedroom 1	100	100%	100%	100%	Compliant
M-4F-07	Bedroom 2	100	100%	100%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13.
 ** Under the BR 209 study the SDA has been calculated with trees represented with both winter and summer foliage.
 *** The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.
 The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 16.
 For floor plans of the assessed units please refer to section A.1 on page 23.

A.3 Sunlight Exposure (SE) in Proposed Units

Below is an example of the table used to describe the SE performance of proposed habitable rooms.

Table Example. A.3 - Scheme Performance Sunlight Exposure							
Unit Number	Room Description	Deciduous Trees as Opaque Objects			Without Deciduous Trees		
		SE Hours on March 21st	Level of SE on March 21st	Unit compliance based on highest performing room	SE Hours on March 21st	Level of SE on March 21st	Unit compliance based on highest performing room
A	B	C	D	E	F	G	H

A: Unit Number

This column identifies the assessed unit. All unit numbers are determined by the architect's drawings. The naming convention for the unit numbers follows the convention "unit type" - "Block" - "unit number". Example: 'K-3B-16' refers to: unit type 'K' located in block '3B' which is unit number '16' of that block.

B: Room Description

Room Description details which room of the unit has been assessed, e.g. bedroom, living room, etc.

C: SE Hours on March 21st (Deciduous Trees as Opaque Objects)

This column will state the number of hours the assessed room can expect to receive on March 21st with the assessment carried out with deciduous trees as opaque objects.

D: Level of SE on March 21st (Deciduous Trees as Opaque Objects)

BR 209 recommends a minimum sunlight exposure of 1.5 hours for a proposed unit with preference given to main living rooms. BR 209 categorise sunlight exposure as minimum, medium and high, this column will categorise the level of sunlight exposure with deciduous trees as opaque objects based on the following:

- Less than 1.5 hours: *Below minimum*,
- Between 1.5 hours and 3 hours: *Minimum*
- Between 3 hours and 4 hours: *Medium*
- More than 4 hours: *High*

E: Unit compliance based on highest performing room (Deciduous Trees as Opaque Objects)

A proposed unit is considered to be compliant provided any habitable room within the unit is capable of receiving at least 1.5 hours of sunlight on the assessment date. This column will identify the highest performing room within a unit and state compliance for the associated unit based on that room with the assessment carried out with deciduous trees as opaque objects.

Typically unit compliance will be stated for the best performing room per unit only, with lesser performing rooms indicated with a dash (-).

F: SE Hours on March 21st (Without Deciduous Trees)

This column will state the number of hours the assessed room can expect to receive on March 21st with the assessment carried out without deciduous trees.

G: Level of SE on March 21st (Without Deciduous Trees)

BR 209 recommends a minimum sunlight exposure of 1.5 hours for a proposed unit with preference given to main living rooms. BR 209 categorise sunlight exposure as minimum, medium and high, this column will categorise the level of sunlight exposure without deciduous trees using the same criteria as the study with deciduous trees as opaque objects.

H: Unit compliance based on highest performing room (Without Deciduous Trees)

A proposed unit is considered to be compliant provided any habitable room within the unit is capable of receiving at least 1.5 hours of sunlight on March 21st. This column will identify the highest performing room within a unit and state compliance for the associated unit based on that room with the assessment carried out without deciduous trees. Typically only one room per unit will be populated in this column, with lesser performing rooms indicated with a dash (-).

It should be noted that the figures displayed in the table of results have been rounded off. A manual calculation of these figures may yield a negligible difference and should not be considered an error.

A.3.1 SE Results: Block 1A

Table No. A.3.1 - Sunlight Exposure Results: Block 1A							
Unit Number	Room Description	Deciduous Trees as Opaque Objects*			Without Deciduous Trees*		
		SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**	SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**
K-1A-08	LKD	2.90	Minimum	-	4.30	High	Compliant
K-1A-08	Bedroom	3.80	Medium	Compliant	3.80	Medium	-
L-1A-09	Kitchen Dining	3.60	Medium	-	3.60	Medium	-
L-1A-09	Living Room	4.20	High	Compliant	4.20	High	Compliant
L-1A-09	Bedroom 1	3.80	Medium	-	3.80	Medium	-
L-1A-09	Bedroom 2	3.50	Medium	-	3.50	Medium	-
J-1A-10	Kitchen Dining	3.30	Medium	-	3.60	Medium	-
J-1A-10	Living Room	3.50	Medium	-	3.50	Medium	-
J-1A-10	Bedroom 1	3.80	Medium	Compliant	3.80	Medium	Compliant
J-1A-10	Bedroom 2	3.70	Medium	-	3.70	Medium	-
H-1A-11	LKD	5.00	High	Compliant	5.00	High	Compliant
H-1A-11	Bedroom	0.00	Below Minimum	-	0.00	Below Minimum	-

* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.
 ** The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 17.
 *** For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 10.
 For floor plans of the assessed units please refer to section A.1 on page 23.

A.3.2 SE Results: Block 2A

Table No. A.3.2 - Sunlight Exposure Results: Block 2A							
Unit Number	Room Description	Deciduous Trees as Opaque Objects*			Without Deciduous Trees*		
		SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**	SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**
X1-2A-01	LKD	4.50	High	Compliant	4.50	High	Compliant
X1-2A-01	Bedroom 1	0.00	Below Minimum	-	0.00	Below Minimum	-
X2-2A-02	LKD	6.80	High	Compliant	8.60	High	Compliant
X2-2A-02	Bedroom 1	1.10	Below Minimum	-	1.50	Minimum	-
X2-2A-02	Bedroom 2	2.10	Minimum	-	2.10	Minimum	-
X5-2A-03	LKD	2.10	Minimum	Compliant	2.10	Minimum	Compliant
X5-2A-03	Bedroom 1	0.00	Below Minimum	-	0.00	Below Minimum	-
X5-2A-03	Bedroom 2	0.00	Below Minimum	-	0.00	Below Minimum	-
X5-2A-03	Bedroom 3	0.00	Below Minimum	-	0.00	Below Minimum	-
X3-2A-04	LKD	8.80	High	Compliant	9.20	High	Compliant
X3-2A-04	Bedroom 1	1.80	Minimum	-	1.80	Minimum	-
X3-2A-04	Bedroom 2	1.80	Minimum	-	2.00	Minimum	-
X1-2A-05	LKD	0.00	Below Minimum	Non-Compliant	0.00	Below Minimum	Non-Compliant
X1-2A-05	Bedroom 1	0.00	Below Minimum	-	0.00	Below Minimum	-
X2-2A-06	LKD	8.40	High	Compliant	8.40	High	Compliant
X2-2A-06	Bedroom 1	1.50	Minimum	-	1.50	Minimum	-
X2-2A-06	Bedroom 2	1.70	Minimum	-	1.70	Minimum	-
X5-2A-07	LKD	1.80	Minimum	Compliant	1.80	Minimum	Compliant
X5-2A-07	Bedroom 1	0.00	Below Minimum	-	0.00	Below Minimum	-
X5-2A-07	Bedroom 2	0.00	Below Minimum	-	0.00	Below Minimum	-
X5-2A-07	Bedroom 3	0.00	Below Minimum	-	0.00	Below Minimum	-
X4-2A-08	LKD	1.20	Below Minimum	Non-Compliant	1.70	Minimum	Compliant
X4-2A-08	Bedroom 1	0.00	Below Minimum	-	0.00	Below Minimum	-
X4-2A-08	Bedroom 2	0.00	Below Minimum	-	0.00	Below Minimum	-
X6-2A-09	LKD	1.20	Below Minimum	-	3.00	Medium	-
X6-2A-09	Bedroom 1	2.70	Minimum	Compliant	3.70	Medium	Compliant
X6-2A-09	Bedroom 2	1.20	Below Minimum	-	3.00	Medium	-
X6-2A-09	Bedroom 3	1.60	Minimum	-	3.70	Medium	-
X3-2A-10	LKD	9.30	High	Compliant	9.30	High	Compliant
X3-2A-10	Bedroom 1	1.50	Minimum	-	1.50	Minimum	-
X3-2A-10	Bedroom 2	1.60	Minimum	-	1.60	Minimum	-
X1-2A-11	LKD	0.00	Below Minimum	Non-Compliant	0.00	Below Minimum	Non-Compliant
X1-2A-11	Bedroom 1	0.00	Below Minimum	-	0.00	Below Minimum	-
X2-2A-12	LKD	8.40	High	Compliant	8.40	High	Compliant
X2-2A-12	Bedroom 1	1.50	Minimum	-	1.50	Minimum	-
X2-2A-12	Bedroom 2	1.70	Minimum	-	1.70	Minimum	-
X5-2A-13	LKD	1.80	Minimum	Compliant	1.80	Minimum	Compliant
X5-2A-13	Bedroom 1	0.00	Below Minimum	-	0.00	Below Minimum	-
X5-2A-13	Bedroom 2	0.00	Below Minimum	-	0.00	Below Minimum	-
X5-2A-13	Bedroom 3	0.00	Below Minimum	-	0.00	Below Minimum	-

* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.
 ** The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 17.
 *** For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 10.
 For floor plans of the assessed units please refer to section A.1 on page 23.

A.3.3 SE Results: Block 2A

Table No. A.3.3 - Sunlight Exposure Results: Block 2A							
Unit Number	Room Description	Deciduous Trees as Opaque Objects*			Without Deciduous Trees*		
		SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**	SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**
X4-2A-14	LKD	1.90	Minimum	Compliant	1.90	Minimum	Compliant
X4-2A-14	Bedroom 1	0.00	Below Minimum	-	0.00	Below Minimum	-
X4-2A-14	Bedroom 2	0.00	Below Minimum	-	0.00	Below Minimum	-
X6-2A-15	LKD	3.50	Medium	-	3.70	Medium	Compliant
X6-2A-15	Bedroom 1	3.40	Medium	-	3.70	Medium	-
X6-2A-15	Bedroom 2	2.90	Minimum	-	3.70	Medium	-
X6-2A-15	Bedroom 3	3.70	Medium	Compliant	3.70	Medium	-
X3-2A-16	LKD	9.30	High	Compliant	9.30	High	Compliant
X3-2A-16	Bedroom 1	1.50	Minimum	-	1.50	Minimum	-
X3-2A-16	Bedroom 2	1.60	Minimum	-	1.60	Minimum	-
X1-2A-17	LKD	4.50	High	-	4.50	High	-
X1-2A-17	Bedroom 1	5.00	High	Compliant	5.00	High	Compliant
X2-2A-18	LKD	8.40	High	Compliant	8.40	High	Compliant
X2-2A-18	Bedroom 1	3.80	Medium	-	3.80	Medium	-
X2-2A-18	Bedroom 2	3.80	Medium	-	3.80	Medium	-
X5-2A-19	LKD	4.40	High	Compliant	4.40	High	Compliant
X5-2A-19	Bedroom 1	0.00	Below Minimum	-	0.00	Below Minimum	-
X5-2A-19	Bedroom 2	0.00	Below Minimum	-	0.00	Below Minimum	-
X5-2A-19	Bedroom 3	0.00	Below Minimum	-	0.00	Below Minimum	-
X4-2A-20	LKD	1.90	Minimum	Compliant	1.90	Minimum	Compliant
X4-2A-20	Bedroom 1	0.00	Below Minimum	-	0.00	Below Minimum	-
X4-2A-20	Bedroom 2	0.00	Below Minimum	-	0.00	Below Minimum	-
X6-2A-21	LKD	3.70	Medium	Compliant	3.70	Medium	Compliant
X6-2A-21	Bedroom 1	3.70	Medium	-	3.70	Medium	-
X6-2A-21	Bedroom 2	3.70	Medium	-	3.70	Medium	-
X6-2A-21	Bedroom 3	3.70	Medium	-	3.70	Medium	-
X3-2A-22	LKD	9.30	High	Compliant	9.30	High	Compliant
X3-2A-22	Bedroom 1	1.50	Minimum	-	1.50	Minimum	-
X3-2A-22	Bedroom 1	1.50	Minimum	-	1.50	Minimum	-
X4-2A-23	LKD	4.10	High	Compliant	4.10	High	Compliant
X4-2A-23	Bedroom 1	0.00	Below Minimum	-	0.00	Below Minimum	-
X4-2A-23	Bedroom 2	0.00	Below Minimum	-	0.00	Below Minimum	-
X6-2A-24	LKD	7.90	High	Compliant	7.90	High	Compliant
X6-2A-24	Bedroom 1	3.70	Medium	-	3.70	Medium	-
X6-2A-24	Bedroom 2	3.70	Medium	-	3.70	Medium	-
X6-2A-24	Bedroom 3	3.70	Medium	-	3.70	Medium	-
X3-2A-25	LKD	8.40	High	Compliant	8.40	High	Compliant
X3-2A-25	Bedroom 1	3.80	Medium	-	3.80	Medium	-
X3-2A-25	Bedroom 1	2.00	Minimum	-	2.00	Minimum	-

* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.
 ** The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 17.
 *** For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 10.
 For floor plans of the assessed units please refer to section A.1 on page 23.

A.3.4 SE Results: Block 2B

Table No. A.3.4 - Sunlight Exposure Results: Block 2B							
Unit Number	Room Description	Deciduous Trees as Opaque Objects*			Without Deciduous Trees*		
		SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**	SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**
Y1-2B-01	LKD	3.60	Medium	Compliant	3.80	Medium	Compliant
Y1-2B-01	Bedroom 1	1.50	Minimum	-	1.50	Minimum	-
Y1-2B-01	Bedroom 2	2.00	Minimum	-	2.00	Minimum	-
Y2-2B-02	LKD	3.80	Medium	-	4.60	High	-
Y2-2B-02	Bedroom 1	4.20	High	-	6.00	High	-
Y2-2B-02	Bedroom 2	5.40	High	Compliant	8.00	High	Compliant
Y3-2B-03	LKD	2.00	Minimum	Compliant	2.00	Minimum	Compliant
Y3-2B-03	Bedroom 1	0.00	Below Minimum	-	0.00	Below Minimum	-
Y3-2B-03	Bedroom 2	0.00	Below Minimum	-	0.00	Below Minimum	-
Y4-2B-04	LKD	1.70	Minimum	-	2.60	Minimum	Compliant
Y4-2B-04	Bedroom 1	2.00	Minimum	Compliant	2.00	Minimum	-
Y4-2B-04	Bedroom 2	1.00	Below Minimum	-	1.00	Below Minimum	-
Y1-2B-05	LKD	3.70	Medium	Compliant	3.80	Medium	Compliant
Y1-2B-05	Bedroom 1	1.50	Minimum	-	1.50	Minimum	-
Y1-2B-05	Bedroom 2	1.60	Minimum	-	1.60	Minimum	-
Y2-2B-06	LKD	4.50	High	-	4.50	High	-
Y2-2B-06	Bedroom 1	6.00	High	-	6.00	High	-
Y2-2B-06	Bedroom 2	8.00	High	Compliant	8.00	High	Compliant
Y5-2B-07	LKD	8.40	High	Compliant	9.10	High	Compliant
Y5-2B-07	Bedroom 1	3.10	Medium	-	3.70	Medium	-
Y5-2B-07	Bedroom 2	3.00	Medium	-	3.70	Medium	-
Y6-2B-08	LKD	3.70	Medium	Compliant	3.70	Medium	Compliant
Y6-2B-08	Bedroom 1	2.60	Minimum	-	3.70	Medium	-
Y6-2B-08	Bedroom 2	2.90	Minimum	-	3.00	Medium	-
Y6-2B-08	Bedroom 3	3.00	Medium	-	3.00	Medium	-
Y3-2B-09	LKD	1.60	Minimum	Compliant	1.60	Minimum	Compliant
Y3-2B-09	Bedroom 1	0.00	Below Minimum	-	0.00	Below Minimum	-
Y3-2B-09	Bedroom 2	0.00	Below Minimum	-	0.00	Below Minimum	-
Y4-2B-10	LKD	2.60	Minimum	Compliant	2.60	Minimum	Compliant
Y4-2B-10	Bedroom 1	1.60	Minimum	-	1.60	Minimum	-
Y4-2B-10	Bedroom 2	1.00	Below Minimum	-	1.00	Below Minimum	-
Y1-2B-11	LKD	3.80	Medium	Compliant	3.80	Medium	Compliant
Y1-2B-11	Bedroom 1	1.50	Minimum	-	1.50	Minimum	-
Y1-2B-11	Bedroom 2	1.60	Minimum	-	1.60	Minimum	-
Y2-2B-12	LKD	4.50	High	-	4.50	High	-
Y2-2B-12	Bedroom 1	6.00	High	-	6.00	High	-
Y2-2B-12	Bedroom 2	8.00	High	Compliant	8.00	High	Compliant
Y5-2B-13	LKD	9.10	High	Compliant	9.10	High	Compliant
Y5-2B-13	Bedroom 1	3.70	Medium	-	3.70	Medium	-
Y5-2B-13	Bedroom 2	3.70	Medium	-	3.70	Medium	-

* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.
 ** The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 17.
 *** For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 10.
 For floor plans of the assessed units please refer to section A.1 on page 23.

A.3.5 SE Results: Block 2B

Table No. A.3.5 - Sunlight Exposure Results: Block 2B							
Unit Number	Room Description	Deciduous Trees as Opaque Objects*			Without Deciduous Trees*		
		SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**	SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**
Y6-2B-14	LKD	3.70	Medium	Compliant	3.70	Medium	Compliant
Y6-2B-14	Bedroom 1	3.70	Medium	-	3.70	Medium	-
Y6-2B-14	Bedroom 2	3.70	Medium	-	3.70	Medium	-
Y6-2B-14	Bedroom 3	3.70	Medium	-	3.70	Medium	-
Y3-2B-15	LKD	1.60	Minimum	Compliant	1.60	Minimum	Compliant
Y3-2B-15	Bedroom 1	0.00	Below Minimum	-	0.00	Below Minimum	-
Y3-2B-15	Bedroom 2	0.00	Below Minimum	-	0.00	Below Minimum	-
Y4-2B-16	LKD	2.60	Minimum	Compliant	2.60	Minimum	Compliant
Y4-2B-16	Bedroom 1	1.60	Minimum	-	1.60	Minimum	-
Y4-2B-16	Bedroom 2	1.00	Below Minimum	-	1.00	Below Minimum	-
Y1-2B-17	LKD	3.80	Medium	Compliant	3.80	Medium	Compliant
Y1-2B-17	Bedroom 1	1.50	Minimum	-	1.50	Minimum	-
Y1-2B-17	Bedroom 2	1.60	Minimum	-	1.60	Minimum	-
Y2-2B-18	LKD	4.50	High	-	4.50	High	-
Y2-2B-18	Bedroom 1	6.00	High	-	6.00	High	-
Y2-2B-18	Bedroom 2	8.00	High	Compliant	8.00	High	Compliant
Y5-2B-19	LKD	9.10	High	Compliant	9.10	High	Compliant
Y5-2B-19	Bedroom 1	3.70	Medium	-	3.70	Medium	-
Y5-2B-19	Bedroom 2	3.70	Medium	-	3.70	Medium	-
Y6-2B-20	LKD	3.70	Medium	Compliant	3.70	Medium	Compliant
Y6-2B-20	Bedroom 1	3.70	Medium	-	3.70	Medium	-
Y6-2B-20	Bedroom 2	3.70	Medium	-	3.70	Medium	-
Y6-2B-20	Bedroom 3	3.70	Medium	-	3.70	Medium	-
Y3-2B-21	LKD	4.20	High	Compliant	4.20	High	Compliant
Y3-2B-21	Bedroom 1	0.00	Below Minimum	-	0.00	Below Minimum	-
Y3-2B-21	Bedroom 2	0.00	Below Minimum	-	0.00	Below Minimum	-
Y4-2B-22	LKD	2.60	Minimum	-	2.60	Minimum	-
Y4-2B-22	Bedroom 1	3.20	Medium	Compliant	3.20	Medium	Compliant
Y4-2B-22	Bedroom 2	1.00	Below Minimum	-	1.00	Below Minimum	-
Y1-2B-23	LKD	5.20	High	Compliant	5.20	High	Compliant
Y1-2B-23	Bedroom 1	1.50	Minimum	-	1.50	Minimum	-
Y1-2B-23	Bedroom 2	3.20	Medium	-	3.20	Medium	-
Y2-2B-24	LKD	9.40	High	Compliant	9.40	High	Compliant
Y2-2B-24	Bedroom 1	9.10	High	-	9.10	High	-
Y2-2B-24	Bedroom 2	9.10	High	-	9.10	High	-
Y5-2B-25	LKD	9.10	High	Compliant	9.10	High	Compliant
Y5-2B-25	Bedroom 1	3.70	Medium	-	3.70	Medium	-
Y5-2B-25	Bedroom 2	3.70	Medium	-	3.70	Medium	-

* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.
 ** The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 17.
 *** For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 10.
 For floor plans of the assessed units please refer to section A.1 on page 23.

A.3.6 SE Results: Block 3A

Table No. A.3.6 - Sunlight Exposure Results: Block 3A							
Unit Number	Room Description	Deciduous Trees as Opaque Objects*			Without Deciduous Trees*		
		SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**	SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**
L-3A-07	Kitchen Dining	1.90	Minimum	-	1.90	Minimum	-
L-3A-07	Living Room	5.60	High	Compliant	5.60	High	Compliant
L-3A-07	Bedroom 1	5.30	High	-	5.30	High	-
L-3A-07	Bedroom 2	1.90	Minimum	-	1.90	Minimum	-
K-3A-08	LKD	0.30	Below Minimum	-	0.30	Below Minimum	-
K-3A-08	Bedroom	5.30	High	Compliant	5.30	High	Compliant
H-3A-09	LKD	2.50	Minimum	Compliant	3.70	Medium	Compliant
H-3A-09	Bedroom	0.00	Below Minimum	-	0.00	Below Minimum	-
J-3A-10	Kitchen Dining	5.00	High	-	5.10	High	-
J-3A-10	Living Room	2.80	Minimum	-	2.80	Minimum	-
J-3A-10	Bedroom 1	5.30	High	Compliant	5.30	High	Compliant
J-3A-10	Bedroom 2	2.00	Minimum	-	2.00	Minimum	-

* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.
 ** The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 17.
 *** For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 10.
 For floor plans of the assessed units please refer to section A.1 on page 23.

A.3.7 SE Results: Block 3B

Table No. A.3.7 - Sunlight Exposure Results: Block 3B							
Unit Number	Room Description	Deciduous Trees as Opaque Objects*			Without Deciduous Trees*		
		SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**	SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**
J-3B-03	Kitchen Dining	4.90	High	-	5.10	High	-
J-3B-03	Living Room	2.80	Minimum	-	2.80	Minimum	-
J-3B-03	Bedroom 1	5.30	High	Compliant	5.30	High	Compliant
J-3B-03	Bedroom 2	2.00	Minimum	-	2.00	Minimum	-
H-3B-04	LKD	2.40	Minimum	Compliant	3.80	Medium	Compliant
H-3B-04	Bedroom	0.00	Below Minimum	-	0.00	Below Minimum	-
L-3B-05	Kitchen Dining	1.90	Minimum	-	1.90	Minimum	-
L-3B-05	Living Room	3.60	Medium	-	5.60	High	Compliant
L-3B-05	Bedroom 1	5.30	High	Compliant	5.30	High	-
L-3B-05	Bedroom 2	1.90	Minimum	-	1.90	Minimum	-
K-3B-06	LKD	0.40	Below Minimum	-	0.40	Below Minimum	-
K-3B-06	Bedroom	2.80	Minimum	Compliant	5.30	High	Compliant
L-3B-15	Kitchen Dining	0.00	Below Minimum	-	0.00	Below Minimum	-
L-3B-15	Living Room	4.90	High	-	7.40	High	Compliant
L-3B-15	Bedroom 1	7.00	High	Compliant	7.00	High	-
L-3B-15	Bedroom 2	0.00	Below Minimum	-	0.00	Below Minimum	-
K-3B-16	LKD	0.10	Below Minimum	-	0.10	Below Minimum	-
K-3B-16	Bedroom	1.00	Below Minimum	Non-Compliant	7.00	High	Compliant
J-3B-17	Kitchen Dining	6.60	High	-	9.40	High	Compliant
J-3B-17	Living Room	5.60	High	-	5.60	High	-
J-3B-17	Bedroom 1	8.00	High	Compliant	9.40	High	-
J-3B-17	Bedroom 2	5.30	High	-	5.30	High	-
H-3B-18	LKD	2.70	Minimum	Compliant	5.60	High	Compliant
H-3B-18	Bedroom	2.10	Minimum	-	5.50	High	-

* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.
 ** The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 17.
 *** For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 10.
 For floor plans of the assessed units please refer to section A.1 on page 23.

A.3.8 SE Results: Block 3E

Table No. A.3.8 - Sunlight Exposure Results: Block 3E							
Unit Number	Room Description	Deciduous Trees as Opaque Objects*			Without Deciduous Trees*		
		SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**	SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**
P-3E-06	Kitchen	0.00	Below Minimum	-	0.00	Below Minimum	-
P-3E-06	Living Room	2.70	Minimum	-	2.80	Minimum	-
P-3E-06	Bedroom 1	5.20	High	Compliant	5.20	High	Compliant
P-3E-06	Bedroom 2	0.00	Below Minimum	-	0.00	Below Minimum	-
P-3E-06	Bedroom 3	5.10	High	-	5.10	High	-
N-3E-07	LKD	6.30	High	-	6.40	High	-
N-3E-07	Bedroom 1	9.40	High	Compliant	9.40	High	Compliant
N-3E-07	Bedroom 2	4.70	High	-	5.30	High	-
M-3E-08	LKD	6.50	High	Compliant	7.20	High	Compliant
M-3E-08	Bedroom 1	3.10	Medium	-	5.30	High	-
M-3E-08	Bedroom 2	2.00	Minimum	-	5.30	High	-

* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.
 ** The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 17.
 *** For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 10.
 For floor plans of the assessed units please refer to section A.1 on page 23.

A.3.9 SE Results: Block 4A

Table No. A.3.9 - Sunlight Exposure Results: Block 4A							
Unit Number	Room Description	Deciduous Trees as Opaque Objects*			Without Deciduous Trees*		
		SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**	SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**
L-4A-05	Kitchen Dining	0.70	Below Minimum	-	0.70	Below Minimum	-
L-4A-05	Living Room	3.10	Medium	-	5.80	High	Compliant
L-4A-05	Bedroom 1	4.40	High	Compliant	5.40	High	-
L-4A-05	Bedroom 2	1.70	Minimum	-	1.70	Minimum	-
K-4A-06	LKD	1.20	Below Minimum	Non-Compliant	1.20	Below Minimum	-
K-4A-06	Bedroom	0.90	Below Minimum	-	4.80	High	Compliant
H-4A-07	LKD	4.60	High	-	7.20	High	Compliant
H-4A-07	Bedroom	5.90	High	Compliant	7.10	High	-
J-4A-08	Kitchen Dining	6.80	High	-	9.40	High	Compliant
J-4A-08	Living Room	6.70	High	-	7.20	High	-
J-4A-08	Bedroom 1	9.20	High	Compliant	9.40	High	-
J-4A-08	Bedroom 2	6.80	High	-	6.80	High	-

* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.
 ** The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 17.
 *** For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 10.
 For floor plans of the assessed units please refer to section A.1 on page 23.

A.3.10 SE Results: Block 4B

Table No. A.3.10 - Sunlight Exposure Results: Block 4B							
Unit Number	Room Description	Deciduous Trees as Opaque Objects*			Without Deciduous Trees*		
		SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**	SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**
K-4B-04	LKD	3.10	Medium	Compliant	3.10	Medium	Compliant
K-4B-04	Bedroom	0.50	Below Minimum	-	1.90	Minimum	-
L-4B-05	Kitchen Dining	4.90	High	-	4.90	High	-
L-4B-05	Living Room	2.30	Minimum	-	2.30	Minimum	-
L-4B-05	Bedroom 1	1.90	Minimum	-	1.90	Minimum	-
L-4B-05	Bedroom 2	5.30	High	Compliant	5.30	High	Compliant
H-4B-06	LKD	5.10	High	-	7.10	High	Compliant
H-4B-06	Bedroom	5.70	High	Compliant	7.00	High	-
J-4B-07	Kitchen Dining	6.00	High	-	7.00	High	-
J-4B-07	Living Room	7.00	High	-	7.20	High	-
J-4B-07	Bedroom 1	6.80	High	-	6.80	High	-
J-4B-07	Bedroom 2	8.90	High	Compliant	8.90	High	Compliant
L-4B-15	Kitchen Dining	0.00	Below Minimum	-	0.00	Below Minimum	-
L-4B-15	Living Room	6.60	High	-	9.40	High	Compliant
L-4B-15	Bedroom 1	9.10	High	Compliant	9.10	High	-
L-4B-15	Bedroom 2	0.00	Below Minimum	-	0.00	Below Minimum	-
K-4B-16	LKD	0.00	Below Minimum	-	0.00	Below Minimum	-
K-4B-16	Bedroom	2.70	Minimum	Compliant	9.10	High	Compliant
H-4B-17	LKD	1.60	Minimum	Compliant	4.00	High	Compliant
H-4B-17	Bedroom	1.60	Minimum	-	3.80	Medium	-
J-4B-18	Kitchen Dining	5.20	High	-	9.10	High	-
J-4B-18	Living Room	3.90	Medium	-	4.00	High	-
J-4B-18	Bedroom 1	9.40	High	Compliant	9.40	High	Compliant
J-4B-18	Bedroom 2	3.70	Medium	-	3.70	Medium	-

* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.
 ** The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 17.
 *** For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 10.
 For floor plans of the assessed units please refer to section A.1 on page 23.

A.3.11 SE Results: Block 4C

Table No. A.3.11 - Sunlight Exposure Results: Block 4C							
Unit Number	Room Description	Deciduous Trees as Opaque Objects*			Without Deciduous Trees*		
		SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**	SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**
M-4C-02	LKD	3.50	Medium	-	3.70	Medium	-
M-4C-02	Bedroom 1	4.60	High	-	6.30	High	-
M-4C-02	Bedroom 2	5.50	High	Compliant	8.50	High	Compliant
N-4C-03	LKD	3.00	Medium	-	3.00	Medium	-
N-4C-03	Bedroom 1	7.10	High	-	8.90	High	-
N-4C-03	Bedroom 2	8.10	High	Compliant	9.10	High	Compliant
P-4C-04	Kitchen	0.00	Below Minimum	-	0.00	Below Minimum	-
P-4C-04	Living Room	4.40	High	-	5.50	High	-
P-4C-04	Bedroom 1	8.70	High	Compliant	8.70	High	Compliant
P-4C-04	Bedroom 2	0.00	Below Minimum	-	0.00	Below Minimum	-
P-4C-04	Bedroom 3	8.60	High	-	8.60	High	-

* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.
 ** The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 17.
 *** For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 10.
 For floor plans of the assessed units please refer to section A.1 on page 23.

A.3.12 SE Results: Block 4F

Table No. A.3.12 - Sunlight Exposure Results: Block 4F							
Unit Number	Room Description	Deciduous Trees as Opaque Objects*			Without Deciduous Trees*		
		SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**	SE Hours on March 21st	Level of SE on March 21st***	Unit compliance based on highest performing room**
P-4F-05	Kitchen	0.00	Below Minimum	-	0.00	Below Minimum	-
P-4F-05	Living Room	1.40	Below Minimum	-	3.00	Medium	-
P-4F-05	Bedroom 1	6.50	High	-	6.90	High	Compliant
P-4F-05	Bedroom 2	0.00	Below Minimum	-	0.00	Below Minimum	-
P-4F-05	Bedroom 3	6.80	High	Compliant	6.80	High	-
N-4F-06	LKD	1.00	Below Minimum	-	1.00	Below Minimum	-
N-4F-06	Bedroom 1	5.50	High	Compliant	6.80	High	-
N-4F-06	Bedroom 2	4.90	High	-	7.00	High	Compliant
M-4F-07	LKD	2.80	Minimum	-	3.60	Medium	-
M-4F-07	Bedroom 1	4.70	High	Compliant	7.20	High	Compliant
M-4F-07	Bedroom 2	4.20	High	-	7.10	High	-

* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.
 ** The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 17.
 *** For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 10.
 For floor plans of the assessed units please refer to section A.1 on page 23.

A.4 Sun On Ground (SOG) in Proposed Outdoor Amenity Areas

Below is an example of the table used to describe SOG in proposed gardens and amenity spaces.

Table Example. A.4 - Scheme Performance SOG					
Assigned Area Number	Assessed Area	Area Capable of Receiving 2 Hours of Sunlight on March 21st	Recommended Minimum	Level of Compliance with BRE Guidelines	Meets BR 209 Criteria
A	B	C	D	E	F

A: Assigned Area Number

This column indicates the number that 3DDB have assigned to the assessed areas, which is included for the sole purpose of aiding in the identification of the corresponding space shown in the corresponding figure.

B: Assessed Area

This column identifies the assessed garden/amenity area.

C: Area Capable of Receiving 2 Hours of Sunlight on March 21st

The percentage of the proposed area that can receive more than 2 hours of sunlight on March 21st.

D: Recommended Minimum

The BRE Guidelines state that the percentage of a garden/amenity area that can receive more than 2 hours of sunlight on March 21st should be 50%. The target value for all spaces is set to 50%.

E: Level of Compliance with BRE Guidelines

This column states the compliance of the assessed space with the *BRE Target Value*. If the assessed garden or amenity area complies with the BRE Guidelines this cell will state "*BRE Compliant*". If the garden or amenity area does not meet the criteria as set out in the BRE Guidelines, a percentage of compliance with the *recommended minimum* will be stated.

F: Meets BR 209 Criteria

This column states if the assessed area achieves the recommended level of sunlight on March 21st as per BR 209.

It should be noted that the figures displayed in the table of results have been rounded off. A manual calculation of these figures may yield a negligible difference and should not be considered an error.

A.4.1 Sun On Ground in Proposed Outdoor Amenity Areas

Table No. A.4.1 - SOG in Proposed Outdoor Amenity Areas Results:

Assigned Area Number	Assessed Area	Area Capable of Receiving 2 Hours of Sunlight on March 21st	Recommended minimum	Level of Compliance with BRE Guidelines*	Meets BR 209 Criteria*
1	Class 2 Open Space	100.00%	50.00%	BRE Compliant	Yes
2	Class 2 Open Space	99.94%	50.00%	BRE Compliant	Yes
3	Class 2 Open Space	99.80%	50.00%	BRE Compliant	Yes
4	Class 2 Open Space	99.32%	50.00%	BRE Compliant	Yes
5	Other Landscape Space	87.80%	50.00%	BRE Compliant	Yes
6	Other Landscape Space	99.46%	50.00%	BRE Compliant	Yes

* The BRE Guidelines recommend that for a garden or amenity 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 March 21st.



Figure A.27: Indication of the amenity areas that have been analysed

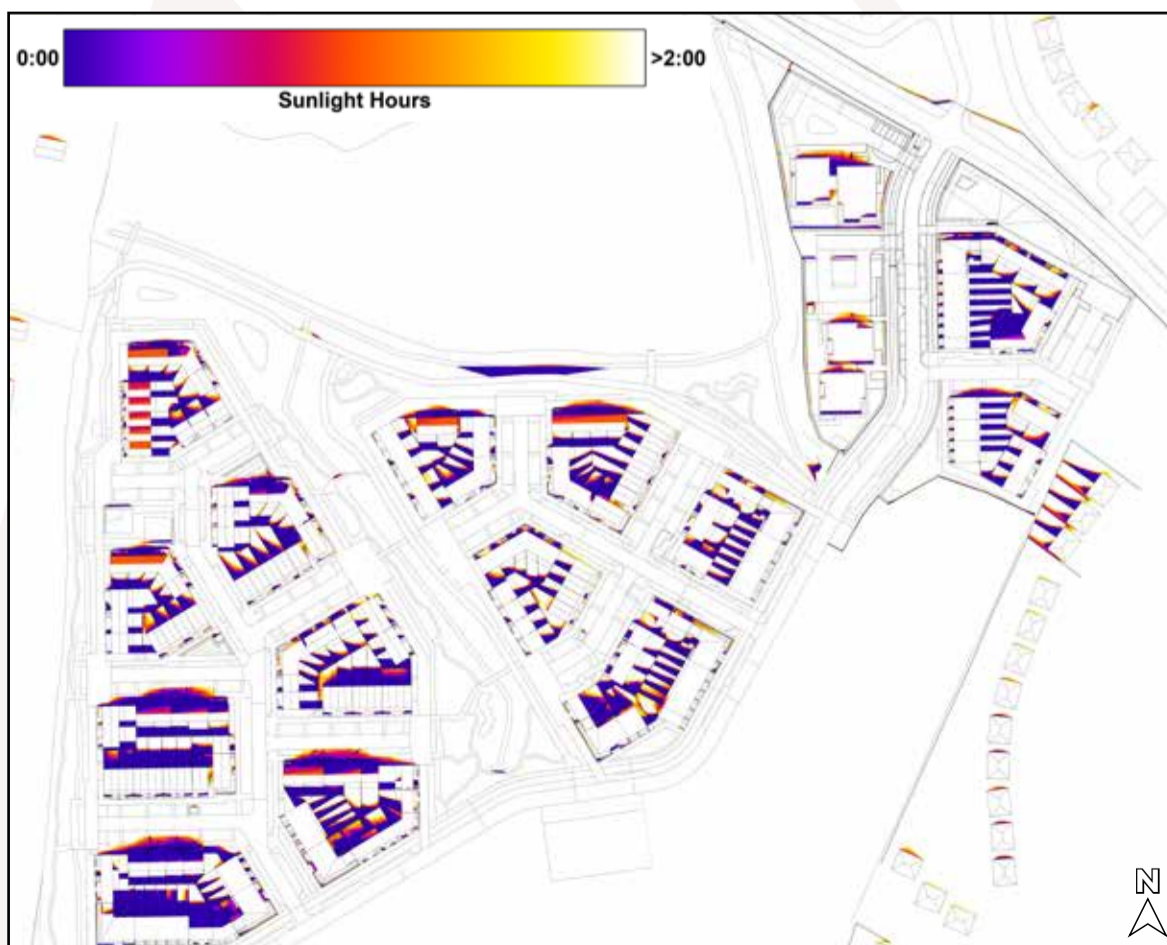


Figure A.28: Area capable of receiving 2 hours of sunlight on March 21st shown in white

A.4.2 Sun On Ground in Proposed Outdoor Amenity Areas

Table No. A.4.2 - SOG in Proposed Outdoor Amenity Areas Results:

Assigned Area Number	Assessed Area	Area Capable of Receiving 2 Hours of Sunlight on March 21st	Recommended minimum	Level of Compliance with BRE Guidelines*	Meets BR 209 Criteria*
7	Pocket Park Open Space	100.00%	50.00%	BRE Compliant	Yes
8	Pocket Park Open Space	99.60%	50.00%	BRE Compliant	Yes
9	Pocket Park Open Space	97.30%	50.00%	BRE Compliant	Yes
10	Pocket Park Open Space	92.15%	50.00%	BRE Compliant	Yes
11	Pocket Park Open Space	100.00%	50.00%	BRE Compliant	Yes
12	Pocket Park Open Space	98.95%	50.00%	BRE Compliant	Yes
13	Pocket Park Open Space	100.00%	50.00%	BRE Compliant	Yes
14	Pocket Park Open Space	99.70%	50.00%	BRE Compliant	Yes
15	Communal Open Space	99.45%	50.00%	BRE Compliant	Yes
16	Communal Open Space	94.61%	50.00%	BRE Compliant	Yes
17	Communal Open Space	93.10%	50.00%	BRE Compliant	Yes

* The BRE Guidelines recommend that for a garden or amenity 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 March 21st.



Figure A.29: Indication of the amenity areas that have been analysed

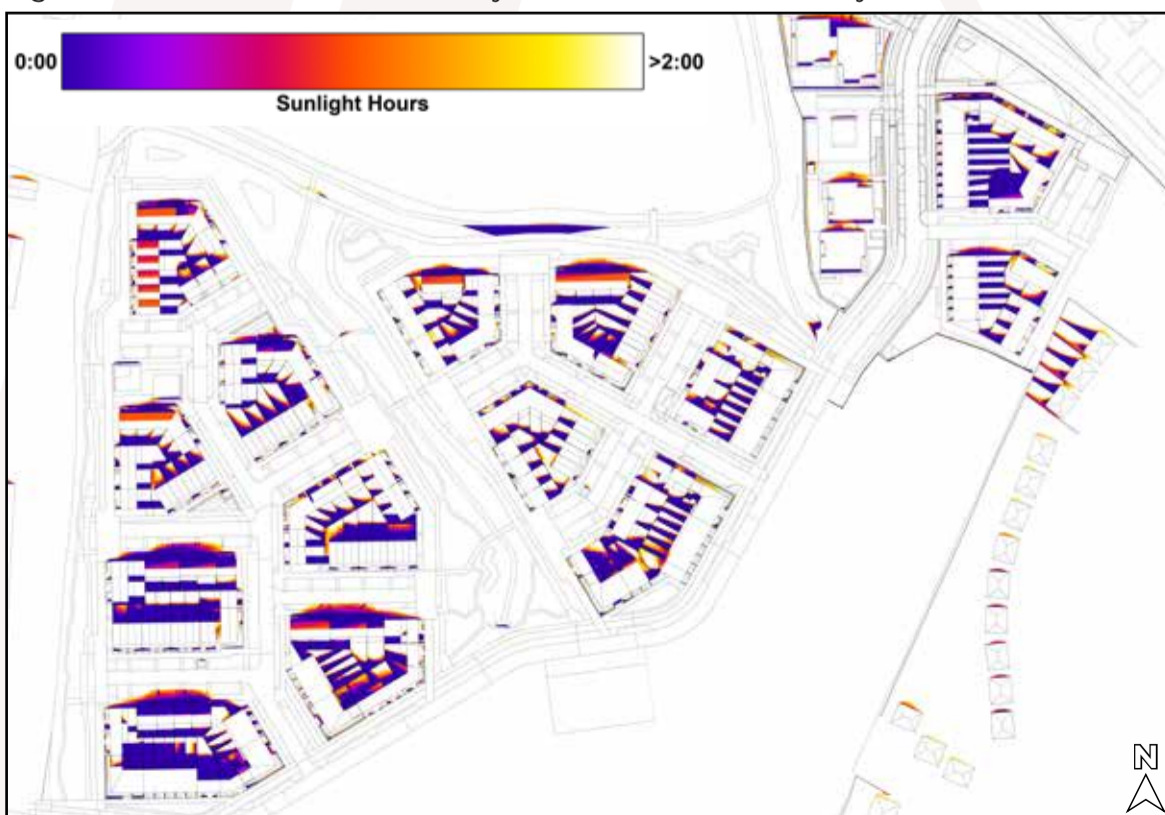


Figure A.30: Area capable of receiving 2 hours of sunlight on March 21st shown in white

B.0 Supplementary Study Results

B.1 SDA study, under the I.S. EN 17037 criteria

Below is an example of the table used to describe the supplementary study results for proposed units in the assessment of SDA under the I.S. EN 17037 criteria.

Unit Number	Room Description	No Trees		Winter Trees		Summer Trees		Compliance with I.S. EN 17037 Criteria
		Area above 300 Lux	Area above 100 Lux	Area above 300 Lux	Area above 100 Lux	Area above 300 Lux	Area above 100 Lux	
A	B	C	D	E	F	G	H	I

A: Unit Number

This column identifies the assessed unit. All unit numbers are determined by the architect's drawings. The naming convention for the unit numbers follows the convention "unit type" - "Block" - "unit number". Example: 'K-3B-16' refers to: unit type 'K' located in block '3B' which is unit number '16' of that block.

B: Room Description

Room Description details which room in the unit has been assessed, e.g. bedroom, LKD, etc.

C: % of area above 300 Lux (No Trees)

I.S. EN 17037 recommends at least 50% of the working plane receives above 300 lux for at least half the daylight hours. This column states percentage of the working plane of the assessed room that is capable of receiving more than 300 lux for at least half the daylight hours when the assessment is carried out without trees in the analytical model.

D: % of area above 100 Lux (No Trees)

I.S. EN 17037 recommends at least 95% of the working plane receives above 100 lux for at least half the daylight hours. This column states percentage of the working plane of the assessed room that is capable of receiving more than 100 lux for at least half the daylight hours when the assessment is carried out without trees in the analytical model.

E: % of area above 300 Lux (Winter Trees)

I.S. EN 17037 recommends at least 50% of the working plane receives above 300 lux for at least half the daylight hours. This column states percentage of the working plane of the assessed room that is capable of receiving more than 300 lux for at least half the daylight hours when the trees in the analytical model are configured in the winter state i.e. bare branch.

F: % of area above 100 Lux (Winter Trees)

I.S. EN 17037 recommends at least 95% of the working plane receives above 100 lux for at least half the daylight hours. This column states percentage of the working plane of the assessed room that is capable of receiving more than 100 lux for at least half the daylight hours when the trees in the analytical model are configured in the winter state i.e. bare branch.

G: % of area above 300 Lux (Summer Trees)

I.S. EN 17037 recommends at least 50% of the working plane receives above 300 lux for at least half the daylight hours. This column states percentage of the working plane of the assessed room that is capable of receiving more than 300 lux for at least half the daylight hours when the trees in the analytical model are configured in the summer state i.e. full leaf.

H: % of area above 100 Lux (Summer Trees)

I.S. EN 17037 recommends at least 95% of the working plane receives above 100 lux for at least half the daylight hours. This column states percentage of the working plane of the assessed room that is capable of receiving more than 100 lux for at least half the daylight hours when the trees in the analytical model are configured in the summer state i.e. full leaf.

I: Compliance with I.S. EN 17037 Criteria

This column states if the assessed room achieves the recommended level of daylight as per I.S. EN 17037 with consideration to the various tree states.

If the recommended lux levels are achieved on the working plane, for half the daylight hours, both with and without trees, this column will state: *'Compliant'*.

If the recommended lux levels are not achieved on the working plane, for half the daylight hours, both with and without trees, this column will state: *'Non-compliant'*.

If the recommended lux levels are achieved on the working plane, for half the daylight hours, without trees but are not achieved with trees, this column will state: *'Trees affecting compliance'*.

If the recommended lux levels are achieved on the working plane, for half the daylight hours, with the trees in the winter state but are not achieved with trees in the summer state, this column will state: *'Trees affecting compliance (summer only)'*.

Compliance rates will be stated for SDA compliance with trees in all of the above states.

It should be noted that the figures displayed in the table of results have been rounded off. A manual calculation of these

B.1.1 Supplementary SDA Results (I.S. EN 17037 criteria): Block 1A

Table No. B.1.1 - Supplementary SDA Results (I.S. EN 17037 criteria): Block 1A								
Unit Number	Room Description	No Trees		Winter Trees		Summer Trees		Compliance with I.S. EN 17037 Criteria*
		Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	
K-1A-08	LKD	59%	100%	56%	100%	46%	100%	Trees affecting compliance (summer only)
K-1A-08	Bedroom	70%	100%	65%	100%	59%	100%	Compliant
L-1A-09	Kitchen Dining	91%	100%	91%	100%	88%	100%	Compliant
L-1A-09	Living Room	100%	100%	100%	100%	100%	100%	Compliant
L-1A-09	Bedroom 1	100%	100%	100%	100%	96%	100%	Compliant
L-1A-09	Bedroom 2	73%	100%	73%	100%	70%	100%	Compliant
J-1A-10	Kitchen Dining	100%	100%	99%	100%	91%	100%	Compliant
J-1A-10	Living Room	100%	100%	100%	100%	100%	100%	Compliant
J-1A-10	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
J-1A-10	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
H-1A-11	LKD	99%	100%	95%	100%	92%	100%	Compliant
H-1A-11	Bedroom	76%	100%	64%	100%	57%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13. For floor plans of the assessed units please refer to section A.1 on page 23.

B.1.2 Supplementary SDA Results (I.S. EN 17037 criteria): Block 2A

Table No. B.1.2 - Supplementary SDA Results (I.S. EN 17037 criteria): Block 2A								
Unit Number	Room Description	No Trees		Winter Trees		Summer Trees		Compliance with I.S. EN 17037 Criteria*
		Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	
Community Room	Community Room	100%	100%	100%	100%	99%	100%	Compliant
X1-2A-01	LKD	42%	100%	37%	100%	36%	94%	Non-compliant
X1-2A-01	Bedroom 1	73%	100%	67%	100%	62%	100%	Compliant
X2-2A-02	LKD	100%	100%	100%	100%	88%	100%	Compliant
X2-2A-02	Bedroom 1	41%	100%	29%	100%	20%	94%	Non-compliant
X2-2A-02	Bedroom 2	60%	100%	37%	100%	35%	100%	Trees affecting compliance
X5-2A-03	LKD	100%	100%	100%	100%	92%	100%	Compliant
X5-2A-03	Bedroom 1	96%	100%	81%	100%	63%	100%	Compliant
X5-2A-03	Bedroom 2	100%	100%	78%	100%	52%	100%	Compliant
X5-2A-03	Bedroom 3	100%	100%	64%	100%	45%	100%	Trees affecting compliance (summer only)
X3-2A-04	LKD	100%	100%	100%	100%	100%	100%	Compliant
X3-2A-04	Bedroom 1	6%	96%	4%	94%	2%	92%	Non-compliant
X3-2A-04	Bedroom 2	20%	100%	11%	100%	4%	98%	Non-compliant
X1-2A-05	LKD	41%	100%	39%	100%	36%	100%	Non-compliant
X1-2A-05	Bedroom 1	68%	100%	65%	100%	64%	100%	Compliant
X2-2A-06	LKD	100%	100%	100%	100%	100%	100%	Compliant
X2-2A-06	Bedroom 1	41%	100%	35%	100%	30%	100%	Non-compliant
X2-2A-06	Bedroom 2	56%	100%	54%	100%	44%	100%	Trees affecting compliance (summer only)
X5-2A-07	LKD	100%	100%	100%	100%	100%	100%	Compliant
X5-2A-07	Bedroom 1	100%	100%	98%	100%	88%	100%	Compliant
X5-2A-07	Bedroom 2	100%	100%	100%	100%	86%	100%	Compliant
X5-2A-07	Bedroom 3	100%	100%	100%	100%	82%	100%	Compliant
X4-2A-08	LKD	91%	100%	70%	100%	50%	100%	Compliant
X4-2A-08	Bedroom 1	99%	100%	76%	100%	59%	100%	Compliant
X4-2A-08	Bedroom 2	100%	100%	81%	100%	47%	100%	Trees affecting compliance (summer only)
X6-2A-09	LKD	100%	100%	100%	100%	91%	100%	Compliant
X6-2A-09	Bedroom 1	100%	100%	80%	100%	58%	100%	Compliant
X6-2A-09	Bedroom 2	100%	100%	84%	100%	49%	100%	Trees affecting compliance (summer only)
X6-2A-09	Bedroom 3	100%	100%	58%	100%	42%	100%	Trees affecting compliance (summer only)
X3-2A-10	LKD	100%	100%	100%	100%	100%	100%	Compliant
X3-2A-10	Bedroom 1	4%	98%	4%	96%	2%	94%	Non-compliant
X3-2A-10	Bedroom 2	11%	100%	11%	100%	5%	100%	Non-compliant
X1-2A-11	LKD	42%	100%	42%	100%	42%	100%	Non-compliant
X1-2A-11	Bedroom 1	79%	100%	76%	100%	73%	100%	Compliant
X2-2A-12	LKD	100%	100%	100%	100%	100%	100%	Compliant
X2-2A-12	Bedroom 1	41%	100%	41%	100%	35%	100%	Non-compliant
X2-2A-12	Bedroom 2	56%	100%	56%	100%	54%	100%	Compliant
X5-2A-13	LKD	100%	100%	100%	100%	100%	100%	Compliant
X5-2A-13	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
X5-2A-13	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
X5-2A-13	Bedroom 3	100%	100%	100%	100%	100%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13. For floor plans of the assessed units please refer to section A.1 on page 23.

B.1.3 Supplementary SDA Results (I.S. EN 17037 criteria): Block 2A

Table No. B.1.3 - Supplementary SDA Results (I.S. EN 17037 criteria): Block 2A								
Unit Number	Room Description	No Trees		Winter Trees		Summer Trees		Compliance with I.S. EN 17037 Criteria*
		Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	
X4-2A-14	LKD	95%	100%	88%	100%	79%	100%	Compliant
X4-2A-14	Bedroom 1	100%	100%	99%	100%	99%	100%	Compliant
X4-2A-14	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
X6-2A-15	LKD	100%	100%	100%	100%	100%	100%	Compliant
X6-2A-15	Bedroom 1	100%	100%	100%	100%	80%	100%	Compliant
X6-2A-15	Bedroom 2	100%	100%	100%	100%	87%	100%	Compliant
X6-2A-15	Bedroom 3	100%	100%	100%	100%	75%	100%	Compliant
X3-2A-16	LKD	100%	100%	100%	100%	100%	100%	Compliant
X3-2A-16	Bedroom 1	6%	98%	6%	98%	4%	98%	Non-compliant
X3-2A-16	Bedroom 2	16%	100%	16%	100%	11%	100%	Non-compliant
X1-2A-17	LKD	63%	100%	63%	100%	63%	100%	Compliant
X1-2A-17	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
X2-2A-18	LKD	100%	100%	100%	100%	100%	100%	Compliant
X2-2A-18	Bedroom 1	76%	100%	76%	100%	76%	100%	Compliant
X2-2A-18	Bedroom 2	98%	100%	98%	100%	96%	100%	Compliant
X5-2A-19	LKD	100%	100%	100%	100%	100%	100%	Compliant
X5-2A-19	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
X5-2A-19	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
X5-2A-19	Bedroom 3	100%	100%	100%	100%	100%	100%	Compliant
X4-2A-20	LKD	99%	100%	98%	100%	94%	100%	Compliant
X4-2A-20	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
X4-2A-20	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
X6-2A-21	LKD	100%	100%	100%	100%	100%	100%	Compliant
X6-2A-21	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
X6-2A-21	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
X6-2A-21	Bedroom 3	100%	100%	100%	100%	100%	100%	Compliant
X3-2A-22	LKD	100%	100%	100%	100%	100%	100%	Compliant
X3-2A-22	Bedroom 1	6%	98%	6%	98%	6%	98%	Non-compliant
X3-2A-22	Bedroom 1	20%	100%	20%	100%	18%	100%	Non-compliant
X4-2A-23	LKD	100%	100%	100%	100%	100%	100%	Compliant
X4-2A-23	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
X4-2A-23	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
X6-2A-24	LKD	100%	100%	100%	100%	100%	100%	Compliant
X6-2A-24	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
X6-2A-24	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
X6-2A-24	Bedroom 3	100%	100%	100%	100%	100%	100%	Compliant
X3-2A-25	LKD	100%	100%	100%	100%	100%	100%	Compliant
X3-2A-25	Bedroom 1	83%	100%	81%	100%	81%	100%	Compliant
X3-2A-25	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13. For floor plans of the assessed units please refer to section A.1 on page 23.

B.1.4 Supplementary SDA Results (I.S. EN 17037 criteria): Block 2B

Table No. B.1.4 - Supplementary SDA Results (I.S. EN 17037 criteria): Block 2B								
Unit Number	Room Description	No Trees		Winter Trees		Summer Trees		Compliance with I.S. EN 17037 Criteria*
		Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	
Community Room	Community Room	100%	100%	100%	100%	28%	100%	Trees affecting compliance (summer only)
Y1-2B-01	LKD	69%	100%	63%	100%	57%	100%	Compliant
Y1-2B-01	Bedroom 1	23%	100%	17%	100%	12%	100%	Non-compliant
Y1-2B-01	Bedroom 2	28%	100%	19%	100%	17%	100%	Non-compliant
Y2-2B-02	LKD	100%	100%	100%	100%	100%	100%	Compliant
Y2-2B-02	Bedroom 1	100%	100%	86%	100%	55%	100%	Compliant
Y2-2B-02	Bedroom 2	100%	100%	100%	100%	75%	100%	Compliant
Y3-2B-03	LKD	100%	100%	100%	100%	100%	100%	Compliant
Y3-2B-03	Bedroom 1	79%	100%	71%	100%	64%	100%	Compliant
Y3-2B-03	Bedroom 2	100%	100%	88%	100%	75%	100%	Compliant
Y4-2B-04	LKD	40%	95%	38%	90%	36%	85%	Non-compliant
Y4-2B-04	Bedroom 1	19%	100%	17%	100%	17%	100%	Non-compliant
Y4-2B-04	Bedroom 2	27%	100%	25%	100%	25%	100%	Non-compliant
Y1-2B-05	LKD	76%	100%	71%	100%	67%	100%	Compliant
Y1-2B-05	Bedroom 1	18%	100%	18%	100%	15%	100%	Non-compliant
Y1-2B-05	Bedroom 2	22%	100%	22%	100%	17%	100%	Non-compliant
Y2-2B-06	LKD	100%	100%	100%	100%	100%	100%	Compliant
Y2-2B-06	Bedroom 1	100%	100%	100%	100%	98%	100%	Compliant
Y2-2B-06	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
Y5-2B-07	LKD	100%	100%	100%	100%	94%	100%	Compliant
Y5-2B-07	Bedroom 1	100%	100%	91%	100%	58%	100%	Compliant
Y5-2B-07	Bedroom 2	100%	100%	78%	100%	48%	100%	Trees affecting compliance (summer only)
Y6-2B-08	LKD	99%	100%	98%	100%	75%	100%	Compliant
Y6-2B-08	Bedroom 1	100%	100%	100%	100%	97%	100%	Compliant
Y6-2B-08	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
Y6-2B-08	Bedroom 3	100%	100%	100%	100%	100%	100%	Compliant
Y3-2B-09	LKD	100%	100%	100%	100%	100%	100%	Compliant
Y3-2B-09	Bedroom 1	100%	100%	98%	100%	89%	100%	Compliant
Y3-2B-09	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
Y4-2B-10	LKD	44%	100%	43%	99%	41%	97%	Non-compliant
Y4-2B-10	Bedroom 1	15%	100%	14%	100%	14%	100%	Non-compliant
Y4-2B-10	Bedroom 2	23%	100%	23%	100%	23%	100%	Non-compliant
Y1-2B-11	LKD	79%	100%	78%	100%	77%	100%	Compliant
Y1-2B-11	Bedroom 1	20%	100%	18%	100%	18%	100%	Non-compliant
Y1-2B-11	Bedroom 2	28%	100%	25%	100%	22%	100%	Non-compliant
Y2-2B-12	LKD	100%	100%	100%	100%	100%	100%	Compliant
Y2-2B-12	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
Y2-2B-12	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
Y5-2B-13	LKD	100%	100%	100%	100%	100%	100%	Compliant
Y5-2B-13	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
Y5-2B-13	Bedroom 2	100%	100%	100%	100%	93%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13. For floor plans of the assessed units please refer to section A.1 on page 23.

B.1.5 Supplementary SDA Results (I.S. EN 17037 criteria): Block 2B

Table No. B.1.5 - Supplementary SDA Results (I.S. EN 17037 criteria): Block 2B								
Unit Number	Room Description	No Trees		Winter Trees		Summer Trees		Compliance with I.S. EN 17037 Criteria*
		Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	
Y6-2B-14	LKD	100%	100%	100%	100%	99%	100%	Compliant
Y6-2B-14	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
Y6-2B-14	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
Y6-2B-14	Bedroom 3	100%	100%	100%	100%	100%	100%	Compliant
Y3-2B-15	LKD	100%	100%	100%	100%	100%	100%	Compliant
Y3-2B-15	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
Y3-2B-15	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
Y4-2B-16	LKD	48%	100%	46%	100%	45%	100%	Non-compliant
Y4-2B-16	Bedroom 1	18%	100%	17%	100%	17%	100%	Non-compliant
Y4-2B-16	Bedroom 2	23%	100%	23%	100%	23%	100%	Non-compliant
Y1-2B-17	LKD	82%	100%	82%	100%	80%	100%	Compliant
Y1-2B-17	Bedroom 1	22%	100%	20%	100%	20%	100%	Non-compliant
Y1-2B-17	Bedroom 2	31%	100%	28%	100%	25%	100%	Non-compliant
Y2-2B-18	LKD	100%	100%	100%	100%	100%	100%	Compliant
Y2-2B-18	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
Y2-2B-18	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
Y5-2B-19	LKD	100%	100%	100%	100%	100%	100%	Compliant
Y5-2B-19	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
Y5-2B-19	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
Y6-2B-20	LKD	100%	100%	100%	100%	100%	100%	Compliant
Y6-2B-20	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
Y6-2B-20	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
Y6-2B-20	Bedroom 3	100%	100%	100%	100%	100%	100%	Compliant
Y3-2B-21	LKD	100%	100%	100%	100%	100%	100%	Compliant
Y3-2B-21	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
Y3-2B-21	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
Y4-2B-22	LKD	56%	100%	56%	100%	54%	100%	Compliant
Y4-2B-22	Bedroom 1	76%	100%	76%	100%	76%	100%	Compliant
Y4-2B-22	Bedroom 2	79%	100%	79%	100%	79%	100%	Compliant
Y1-2B-23	LKD	92%	100%	92%	100%	91%	100%	Compliant
Y1-2B-23	Bedroom 1	77%	100%	77%	100%	77%	100%	Compliant
Y1-2B-23	Bedroom 2	72%	100%	72%	100%	69%	100%	Compliant
Y2-2B-24	LKD	100%	100%	100%	100%	100%	100%	Compliant
Y2-2B-24	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
Y2-2B-24	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
Y5-2B-25	LKD	100%	100%	100%	100%	100%	100%	Compliant
Y5-2B-25	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
Y5-2B-25	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13. For floor plans of the assessed units please refer to section A.1 on page 23.

B.1.6 Supplementary SDA Results (I.S. EN 17037 criteria): Block 3A

Table No. B.1.6 - Supplementary SDA Results (I.S. EN 17037 criteria): Block 3A								
Unit Number	Room Description	No Trees		Winter Trees		Summer Trees		Compliance with I.S. EN 17037 Criteria*
		Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	
L-3A-07	Kitchen Dining	83%	100%	81%	100%	77%	100%	Compliant
L-3A-07	Living Room	100%	100%	100%	100%	100%	100%	Compliant
L-3A-07	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
L-3A-07	Bedroom 2	63%	100%	63%	100%	63%	100%	Compliant
K-3A-08	LKD	53%	100%	49%	100%	41%	100%	Trees affecting compliance
K-3A-08	Bedroom	98%	100%	91%	100%	81%	100%	Compliant
H-3A-09	LKD	90%	100%	78%	100%	47%	100%	Trees affecting compliance (summer only)
H-3A-09	Bedroom	70%	100%	45%	100%	15%	85%	Trees affecting compliance
J-3A-10	Kitchen Dining	100%	100%	94%	100%	66%	100%	Compliant
J-3A-10	Living Room	100%	100%	100%	100%	100%	100%	Compliant
J-3A-10	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
J-3A-10	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13. For floor plans of the assessed units please refer to section A.1 on page 23.

B.1.7 Supplementary SDA Results (I.S. EN 17037 criteria): Block 3B

Table No. B.1.7 - Supplementary SDA Results (I.S. EN 17037 criteria): Block 3B								
Unit Number	Room Description	No Trees		Winter Trees		Summer Trees		Compliance with I.S. EN 17037 Criteria*
		Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	
J-3B-03	Kitchen Dining	100%	100%	99%	100%	95%	100%	Compliant
J-3B-03	Living Room	100%	100%	100%	100%	100%	100%	Compliant
J-3B-03	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
J-3B-03	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
H-3B-04	LKD	91%	100%	87%	100%	79%	100%	Compliant
H-3B-04	Bedroom	70%	100%	60%	100%	45%	100%	Trees affecting compliance (summer only)
L-3B-05	Kitchen Dining	86%	100%	82%	100%	77%	100%	Compliant
L-3B-05	Living Room	100%	100%	100%	100%	100%	100%	Compliant
L-3B-05	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
L-3B-05	Bedroom 2	66%	100%	64%	100%	63%	100%	Compliant
K-3B-06	LKD	54%	100%	51%	100%	42%	100%	Trees affecting compliance (summer only)
K-3B-06	Bedroom	94%	100%	87%	100%	85%	100%	Compliant
L-3B-15	Kitchen Dining	74%	100%	73%	100%	69%	100%	Compliant
L-3B-15	Living Room	100%	100%	100%	100%	100%	100%	Compliant
L-3B-15	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
L-3B-15	Bedroom 2	69%	100%	67%	100%	63%	100%	Compliant
K-3B-16	LKD	51%	100%	46%	100%	37%	100%	Trees affecting compliance
K-3B-16	Bedroom	100%	100%	78%	100%	56%	100%	Compliant
J-3B-17	Kitchen Dining	100%	100%	100%	100%	95%	100%	Compliant
J-3B-17	Living Room	100%	100%	100%	100%	100%	100%	Compliant
J-3B-17	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
J-3B-17	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
H-3B-18	LKD	99%	100%	93%	100%	70%	100%	Compliant
H-3B-18	Bedroom	100%	100%	70%	100%	40%	100%	Trees affecting compliance (summer only)

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13.
For floor plans of the assessed units please refer to section A.1 on page 23.

B.1.8 Supplementary SDA Results (I.S. EN 17037 criteria): Block 3E

Table No. B.1.8 - Supplementary SDA Results (I.S. EN 17037 criteria): Block 3E								
Unit Number	Room Description	No Trees		Winter Trees		Summer Trees		Compliance with I.S. EN 17037 Criteria*
		Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	
P-3E-06	Kitchen	75%	100%	69%	100%	55%	100%	Compliant
P-3E-06	Living Room	20%	100%	15%	100%	11%	97%	Non-compliant
P-3E-06	Bedroom 1	100%	100%	91%	100%	81%	100%	Compliant
P-3E-06	Bedroom 2	93%	100%	93%	100%	82%	100%	Compliant
P-3E-06	Bedroom 3	100%	100%	100%	100%	100%	100%	Compliant
N-3E-07	LKD	60%	100%	50%	100%	41%	100%	Trees affecting compliance (summer only)
N-3E-07	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
N-3E-07	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
M-3E-08	LKD	100%	100%	100%	100%	96%	100%	Compliant
M-3E-08	Bedroom 1	100%	100%	80%	100%	62%	100%	Compliant
M-3E-08	Bedroom 2	100%	100%	100%	100%	98%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13. For floor plans of the assessed units please refer to section A.1 on page 23.

B.1.9 Supplementary SDA Results (I.S. EN 17037 criteria): Block 4A

Table No. B.1.9 - Supplementary SDA Results (I.S. EN 17037 criteria): Block 4A								
Unit Number	Room Description	No Trees		Winter Trees		Summer Trees		Compliance with I.S. EN 17037 Criteria*
		Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	
L-4A-05	Kitchen Dining	78%	100%	78%	100%	78%	100%	Compliant
L-4A-05	Living Room	100%	100%	100%	100%	94%	100%	Compliant
L-4A-05	Bedroom 1	100%	100%	100%	100%	85%	100%	Compliant
L-4A-05	Bedroom 2	66%	100%	66%	100%	64%	100%	Compliant
K-4A-06	LKD	51%	100%	51%	100%	49%	100%	Trees affecting compliance (summer only)
K-4A-06	Bedroom	96%	100%	63%	100%	17%	87%	Trees affecting compliance (summer only)
H-4A-07	LKD	100%	100%	99%	100%	98%	100%	Compliant
H-4A-07	Bedroom	100%	100%	100%	100%	100%	100%	Compliant
J-4A-08	Kitchen Dining	100%	100%	100%	100%	100%	100%	Compliant
J-4A-08	Living Room	100%	100%	100%	100%	100%	100%	Compliant
J-4A-08	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
J-4A-08	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13. For floor plans of the assessed units please refer to section A.1 on page 23.

B.1.10 Supplementary SDA Results (I.S. EN 17037 criteria): Block 4B

Table No. B.1.10 - Supplementary SDA Results (I.S. EN 17037 criteria): Block 4B

Unit Number	Room Description	No Trees		Winter Trees		Summer Trees		Compliance with I.S. EN 17037 Criteria*
		Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	
K-4B-04	LKD	49%	100%	49%	100%	48%	100%	Non-compliant
K-4B-04	Bedroom	74%	100%	67%	100%	59%	100%	Compliant
L-4B-05	Kitchen Dining	82%	100%	82%	100%	81%	100%	Compliant
L-4B-05	Living Room	100%	100%	100%	100%	100%	100%	Compliant
L-4B-05	Bedroom 1	98%	100%	94%	100%	87%	100%	Compliant
L-4B-05	Bedroom 2	78%	100%	78%	100%	78%	100%	Compliant
H-4B-06	LKD	99%	100%	98%	100%	97%	100%	Compliant
H-4B-06	Bedroom	100%	100%	100%	100%	99%	100%	Compliant
J-4B-07	Kitchen Dining	100%	100%	100%	100%	100%	100%	Compliant
J-4B-07	Living Room	100%	100%	100%	100%	100%	100%	Compliant
J-4B-07	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
J-4B-07	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
L-4B-15	Kitchen Dining	74%	100%	73%	100%	71%	100%	Compliant
L-4B-15	Living Room	100%	100%	100%	100%	100%	100%	Compliant
L-4B-15	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
L-4B-15	Bedroom 2	63%	100%	63%	100%	63%	100%	Compliant
K-4B-16	LKD	51%	100%	49%	100%	42%	100%	Trees affecting compliance
K-4B-16	Bedroom	100%	100%	93%	100%	76%	100%	Compliant
H-4B-17	LKD	99%	100%	96%	100%	78%	100%	Compliant
H-4B-17	Bedroom	91%	100%	69%	100%	49%	100%	Trees affecting compliance (summer only)
J-4B-18	Kitchen Dining	100%	100%	100%	100%	94%	100%	Compliant
J-4B-18	Living Room	100%	100%	100%	100%	100%	100%	Compliant
J-4B-18	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
J-4B-18	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13. For floor plans of the assessed units please refer to section A.1 on page 23.

B.1.11 Supplementary SDA Results (I.S. EN 17037 criteria): Block 4C

Table No. B.1.11 - Supplementary SDA Results (I.S. EN 17037 criteria): Block 4C								
Unit Number	Room Description	No Trees		Winter Trees		Summer Trees		Compliance with I.S. EN 17037 Criteria*
		Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	
M-4C-02	LKD	100%	100%	98%	100%	92%	100%	Compliant
M-4C-02	Bedroom 1	98%	100%	90%	100%	85%	100%	Compliant
M-4C-02	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
N-4C-03	LKD	33%	100%	28%	100%	22%	100%	Non-compliant
N-4C-03	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
N-4C-03	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
P-4C-04	Kitchen	75%	100%	73%	100%	63%	100%	Compliant
P-4C-04	Living Room	28%	100%	20%	100%	17%	100%	Non-compliant
P-4C-04	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
P-4C-04	Bedroom 2	93%	100%	93%	100%	89%	100%	Compliant
P-4C-04	Bedroom 3	100%	100%	100%	100%	100%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13. For floor plans of the assessed units please refer to section A.1 on page 23.

B.1.12 Supplementary SDA Results (I.S. EN 17037 criteria): Block 4F

Table No. B.1.12 - Supplementary SDA Results (I.S. EN 17037 criteria): Block 4F								
Unit Number	Room Description	No Trees		Winter Trees		Summer Trees		Compliance with I.S. EN 17037 Criteria*
		Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	
P-4F-05	Kitchen	74%	100%	70%	100%	61%	100%	Compliant
P-4F-05	Living Room	28%	100%	19%	100%	10%	99%	Non-compliant
P-4F-05	Bedroom 1	100%	100%	100%	100%	88%	100%	Compliant
P-4F-05	Bedroom 2	93%	100%	93%	100%	89%	100%	Compliant
P-4F-05	Bedroom 3	100%	100%	100%	100%	100%	100%	Compliant
N-4F-06	LKD	30%	100%	25%	100%	19%	100%	Non-compliant
N-4F-06	Bedroom 1	100%	100%	100%	100%	100%	100%	Compliant
N-4F-06	Bedroom 2	100%	100%	100%	100%	100%	100%	Compliant
M-4F-07	LKD	100%	100%	96%	100%	92%	100%	Compliant
M-4F-07	Bedroom 1	100%	100%	87%	100%	68%	100%	Compliant
M-4F-07	Bedroom 2	100%	100%	100%	100%	90%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.3.1 on page 13. For floor plans of the assessed units please refer to section A.1 on page 23.

B.2 Supplementary No Sky Line (NSL) assessment in proposed units.

Below is an example of the table used to describe the supplementary assessment results for 'No Sky Line' in proposed units.

Table Example. B.2 - Supplementary NSL Results:			
Unit Number	Room Description	No Sky Line (NSL)	
		% of room where the sky is visible from the working plane	Above 80%
A	B	C	D

A: Unit Number

This column identifies the assessed unit. All unit numbers are determined by the architect's drawings. The naming convention for the unit numbers follows the convention "unit type" - "Block" - "unit number". Example: 'K-3B-16' refers to: unit type 'K' located in block '3B' which is unit number '16' of that block.

B: Room Description

Room Description details which room in the unit has been assessed, e.g. bedroom, LKD, etc.

C: % of room where the sky is visible from the working plane

This column states the percentage of the room from which there is a direct line of sight to the sky when assessed at the working plane height, which is 850mm above the finished floor level in residential rooms or 700mm above the finished floor level in offices or classrooms.

D: Above 80%

Whilst the BRE Guidelines only provide recommendations for NSL in the context of an impact analysis, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."

If this column states: 'Yes', it signifies that the sky will be visible from more than 80% of the working plane.

If this column states: 'No', it signifies that the sky will be visible from less than 80% of the working plane and supplementary electric lighting may be required.

B.2.1 Supplementary NSL Results: Block 1A

Table No. B.2.1 - Supplementary NSL Results: Block 1A			
Unit Number	Room Description	No Sky Line (NSL)	
		% of room where the sky is visible from the working plane	Above 80%*
K-1A-08	LKD	94%	Yes
K-1A-08	Bedroom	100%	Yes
L-1A-09	Kitchen Dining	91%	Yes
L-1A-09	Living Room	100%	Yes
L-1A-09	Bedroom 1	100%	Yes
L-1A-09	Bedroom 2	90%	Yes
J-1A-10	Kitchen Dining	100%	Yes
J-1A-10	Living Room	100%	Yes
J-1A-10	Bedroom 1	100%	Yes
J-1A-10	Bedroom 2	97%	Yes
H-1A-11	LKD	100%	Yes
H-1A-11	Bedroom	99%	Yes

* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."
For floor plans of the assessed units please refer to section A.1 on page 23.

B.2.2 Supplementary NSL Results: Block 2A

Table No. B.2.2 - Supplementary NSL Results: Block 2A			
Unit Number	Room Description	No Sky Line (NSL)	
		% of room where the sky is visible from the working plane	Above 80%*
Community Room	Community Room	100%	Yes
X1-2A-01	LKD	96%	Yes
X1-2A-01	Bedroom 1	100%	Yes
X2-2A-02	LKD	100%	Yes
X2-2A-02	Bedroom 1	99%	Yes
X2-2A-02	Bedroom 2	98%	Yes
X5-2A-03	LKD	100%	Yes
X5-2A-03	Bedroom 1	98%	Yes
X5-2A-03	Bedroom 2	96%	Yes
X5-2A-03	Bedroom 3	98%	Yes
X3-2A-04	LKD	99%	Yes
X3-2A-04	Bedroom 1	78%	No
X3-2A-04	Bedroom 2	86%	Yes
X1-2A-05	LKD	99%	Yes
X1-2A-05	Bedroom 1	100%	Yes
X2-2A-06	LKD	100%	Yes
X2-2A-06	Bedroom 1	99%	Yes
X2-2A-06	Bedroom 2	98%	Yes
X5-2A-07	LKD	100%	Yes
X5-2A-07	Bedroom 1	98%	Yes
X5-2A-07	Bedroom 2	96%	Yes
X5-2A-07	Bedroom 3	98%	Yes
X4-2A-08	LKD	100%	Yes
X4-2A-08	Bedroom 1	97%	Yes
X4-2A-08	Bedroom 2	97%	Yes
X6-2A-09	LKD	100%	Yes
X6-2A-09	Bedroom 1	97%	Yes
X6-2A-09	Bedroom 2	98%	Yes
X6-2A-09	Bedroom 3	98%	Yes
X3-2A-10	LKD	99%	Yes
X3-2A-10	Bedroom 1	78%	No
X3-2A-10	Bedroom 2	86%	Yes
X1-2A-11	LKD	99%	Yes
X1-2A-11	Bedroom 1	100%	Yes
X2-2A-12	LKD	100%	Yes
X2-2A-12	Bedroom 1	99%	Yes
X2-2A-12	Bedroom 2	98%	Yes
X5-2A-13	LKD	100%	Yes
X5-2A-13	Bedroom 1	98%	Yes
X5-2A-13	Bedroom 2	96%	Yes
X5-2A-13	Bedroom 3	98%	Yes

* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."
For floor plans of the assessed units please refer to section A.1 on page 23.

B.2.3 Supplementary NSL Results: Block 2A

Table No. B.2.3 - Supplementary NSL Results: Block 2A			
Unit Number	Room Description	No Sky Line (NSL)	
		% of room where the sky is visible from the working plane	Above 80%*
X4-2A-14	LKD	100%	Yes
X4-2A-14	Bedroom 1	97%	Yes
X4-2A-14	Bedroom 2	97%	Yes
X6-2A-15	LKD	100%	Yes
X6-2A-15	Bedroom 1	97%	Yes
X6-2A-15	Bedroom 2	98%	Yes
X6-2A-15	Bedroom 3	98%	Yes
X3-2A-16	LKD	100%	Yes
X3-2A-16	Bedroom 1	85%	Yes
X3-2A-16	Bedroom 2	87%	Yes
X1-2A-17	LKD	100%	Yes
X1-2A-17	Bedroom 1	100%	Yes
X2-2A-18	LKD	100%	Yes
X2-2A-18	Bedroom 1	99%	Yes
X2-2A-18	Bedroom 2	99%	Yes
X5-2A-19	LKD	100%	Yes
X5-2A-19	Bedroom 1	98%	Yes
X5-2A-19	Bedroom 2	96%	Yes
X5-2A-19	Bedroom 3	98%	Yes
X4-2A-20	LKD	100%	Yes
X4-2A-20	Bedroom 1	97%	Yes
X4-2A-20	Bedroom 2	97%	Yes
X6-2A-21	LKD	100%	Yes
X6-2A-21	Bedroom 1	97%	Yes
X6-2A-21	Bedroom 2	98%	Yes
X6-2A-21	Bedroom 3	98%	Yes
X3-2A-22	LKD	100%	Yes
X3-2A-22	Bedroom 1	92%	Yes
X3-2A-22	Bedroom 1	96%	Yes
X4-2A-23	LKD	100%	Yes
X4-2A-23	Bedroom 1	97%	Yes
X4-2A-23	Bedroom 2	97%	Yes
X6-2A-24	LKD	100%	Yes
X6-2A-24	Bedroom 1	98%	Yes
X6-2A-24	Bedroom 2	98%	Yes
X6-2A-24	Bedroom 3	98%	Yes
X3-2A-25	LKD	100%	Yes
X3-2A-25	Bedroom 1	91%	Yes
X3-2A-25	Bedroom 1	98%	Yes

* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."

For floor plans of the assessed units please refer to section A.1 on page 23.

B.2.4 Supplementary NSL Results: Block 2B

Table No. B.2.4 - Supplementary NSL Results: Block 2B			
Unit Number	Room Description	No Sky Line (NSL)	
		% of room where the sky is visible from the working plane	Above 80%*
Community Room	Community Room	100%	Yes
Y1-2B-01	LKD	99%	Yes
Y1-2B-01	Bedroom 1	97%	Yes
Y1-2B-01	Bedroom 2	99%	Yes
Y2-2B-02	LKD	100%	Yes
Y2-2B-02	Bedroom 1	97%	Yes
Y2-2B-02	Bedroom 2	98%	Yes
Y3-2B-03	LKD	100%	Yes
Y3-2B-03	Bedroom 1	97%	Yes
Y3-2B-03	Bedroom 2	99%	Yes
Y4-2B-04	LKD	98%	Yes
Y4-2B-04	Bedroom 1	96%	Yes
Y4-2B-04	Bedroom 2	98%	Yes
Y1-2B-05	LKD	99%	Yes
Y1-2B-05	Bedroom 1	97%	Yes
Y1-2B-05	Bedroom 2	99%	Yes
Y2-2B-06	LKD	100%	Yes
Y2-2B-06	Bedroom 1	96%	Yes
Y2-2B-06	Bedroom 2	98%	Yes
Y5-2B-07	LKD	100%	Yes
Y5-2B-07	Bedroom 1	98%	Yes
Y5-2B-07	Bedroom 2	99%	Yes
Y6-2B-08	LKD	100%	Yes
Y6-2B-08	Bedroom 1	97%	Yes
Y6-2B-08	Bedroom 2	97%	Yes
Y6-2B-08	Bedroom 3	97%	Yes
Y3-2B-09	LKD	100%	Yes
Y3-2B-09	Bedroom 1	97%	Yes
Y3-2B-09	Bedroom 2	99%	Yes
Y4-2B-10	LKD	98%	Yes
Y4-2B-10	Bedroom 1	96%	Yes
Y4-2B-10	Bedroom 2	98%	Yes
Y1-2B-11	LKD	99%	Yes
Y1-2B-11	Bedroom 1	97%	Yes
Y1-2B-11	Bedroom 2	97%	Yes
Y2-2B-12	LKD	100%	Yes
Y2-2B-12	Bedroom 1	96%	Yes
Y2-2B-12	Bedroom 2	98%	Yes
Y5-2B-13	LKD	100%	Yes
Y5-2B-13	Bedroom 1	97%	Yes
Y5-2B-13	Bedroom 2	97%	Yes

* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."
For floor plans of the assessed units please refer to section A.1 on page 23.

B.2.5 Supplementary NSL Results: Block 2B

Table No. B.2.5 - Supplementary NSL Results: Block 2B			
Unit Number	Room Description	No Sky Line (NSL)	
		% of room where the sky is visible from the working plane	Above 80%*
Y6-2B-14	LKD	100%	Yes
Y6-2B-14	Bedroom 1	97%	Yes
Y6-2B-14	Bedroom 2	97%	Yes
Y6-2B-14	Bedroom 3	97%	Yes
Y3-2B-15	LKD	100%	Yes
Y3-2B-15	Bedroom 1	97%	Yes
Y3-2B-15	Bedroom 2	99%	Yes
Y4-2B-16	LKD	99%	Yes
Y4-2B-16	Bedroom 1	96%	Yes
Y4-2B-16	Bedroom 2	98%	Yes
Y1-2B-17	LKD	99%	Yes
Y1-2B-17	Bedroom 1	97%	Yes
Y1-2B-17	Bedroom 2	97%	Yes
Y2-2B-18	LKD	100%	Yes
Y2-2B-18	Bedroom 1	96%	Yes
Y2-2B-18	Bedroom 2	98%	Yes
Y5-2B-19	LKD	100%	Yes
Y5-2B-19	Bedroom 1	97%	Yes
Y5-2B-19	Bedroom 2	96%	Yes
Y6-2B-20	LKD	100%	Yes
Y6-2B-20	Bedroom 1	97%	Yes
Y6-2B-20	Bedroom 2	97%	Yes
Y6-2B-20	Bedroom 3	97%	Yes
Y3-2B-21	LKD	100%	Yes
Y3-2B-21	Bedroom 1	96%	Yes
Y3-2B-21	Bedroom 2	99%	Yes
Y4-2B-22	LKD	100%	Yes
Y4-2B-22	Bedroom 1	98%	Yes
Y4-2B-22	Bedroom 2	99%	Yes
Y1-2B-23	LKD	100%	Yes
Y1-2B-23	Bedroom 1	98%	Yes
Y1-2B-23	Bedroom 2	98%	Yes
Y2-2B-24	LKD	100%	Yes
Y2-2B-24	Bedroom 1	96%	Yes
Y2-2B-24	Bedroom 2	98%	Yes
Y5-2B-25	LKD	100%	Yes
Y5-2B-25	Bedroom 1	97%	Yes
Y5-2B-25	Bedroom 2	96%	Yes

* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."
For floor plans of the assessed units please refer to section A.1 on page 23.

B.2.6 Supplementary NSL Results: Block 3A

Table No. B.2.6 - Supplementary NSL Results: Block 3A			
Unit Number	Room Description	No Sky Line (NSL)	
		% of room where the sky is visible from the working plane	Above 80%*
L-3A-07	Kitchen Dining	92%	Yes
L-3A-07	Living Room	99%	Yes
L-3A-07	Bedroom 1	98%	Yes
L-3A-07	Bedroom 2	91%	Yes
K-3A-08	LKD	99%	Yes
K-3A-08	Bedroom	94%	Yes
H-3A-09	LKD	100%	Yes
H-3A-09	Bedroom	98%	Yes
J-3A-10	Kitchen Dining	99%	Yes
J-3A-10	Living Room	100%	Yes
J-3A-10	Bedroom 1	100%	Yes
J-3A-10	Bedroom 2	97%	Yes

* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."
For floor plans of the assessed units please refer to section A.1 on page 23.

B.2.7 Supplementary NSL Results: Block 3B

Table No. B.2.7 - Supplementary NSL Results: Block 3B			
Unit Number	Room Description	No Sky Line (NSL)	
		% of room where the sky is visible from the working plane	Above 80%*
J-3B-03	Kitchen Dining	99%	Yes
J-3B-03	Living Room	100%	Yes
J-3B-03	Bedroom 1	100%	Yes
J-3B-03	Bedroom 2	97%	Yes
H-3B-04	LKD	100%	Yes
H-3B-04	Bedroom	98%	Yes
L-3B-05	Kitchen Dining	92%	Yes
L-3B-05	Living Room	99%	Yes
L-3B-05	Bedroom 1	98%	Yes
L-3B-05	Bedroom 2	91%	Yes
K-3B-06	LKD	99%	Yes
K-3B-06	Bedroom	94%	Yes
L-3B-15	Kitchen Dining	92%	Yes
L-3B-15	Living Room	99%	Yes
L-3B-15	Bedroom 1	98%	Yes
L-3B-15	Bedroom 2	91%	Yes
K-3B-16	LKD	99%	Yes
K-3B-16	Bedroom	94%	Yes
J-3B-17	Kitchen Dining	99%	Yes
J-3B-17	Living Room	100%	Yes
J-3B-17	Bedroom 1	100%	Yes
J-3B-17	Bedroom 2	97%	Yes
H-3B-18	LKD	100%	Yes
H-3B-18	Bedroom	99%	Yes

* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."
For floor plans of the assessed units please refer to section A.1 on page 23.

B.2.8 Supplementary NSL Results: Block 3E

Table No. B.2.8 - Supplementary NSL Results: Block 3E			
Unit Number	Room Description	No Sky Line (NSL)	
		% of room where the sky is visible from the working plane	Above 80%*
P-3E-06	Kitchen	100%	Yes
P-3E-06	Living Room	93%	Yes
P-3E-06	Bedroom 1	97%	Yes
P-3E-06	Bedroom 2	96%	Yes
P-3E-06	Bedroom 3	97%	Yes
N-3E-07	LKD	99%	Yes
N-3E-07	Bedroom 1	99%	Yes
N-3E-07	Bedroom 2	98%	Yes
M-3E-08	LKD	99%	Yes
M-3E-08	Bedroom 1	99%	Yes
M-3E-08	Bedroom 2	98%	Yes

* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."
For floor plans of the assessed units please refer to section A.1 on page 23.

B.2.9 Supplementary NSL Results: Block 4A

Table No. B.2.9 - Supplementary NSL Results: Block 4A			
Unit Number	Room Description	No Sky Line (NSL)	
		% of room where the sky is visible from the working plane	Above 80%*
L-4A-05	Kitchen Dining	92%	Yes
L-4A-05	Living Room	99%	Yes
L-4A-05	Bedroom 1	98%	Yes
L-4A-05	Bedroom 2	91%	Yes
K-4A-06	LKD	99%	Yes
K-4A-06	Bedroom	94%	Yes
H-4A-07	LKD	100%	Yes
H-4A-07	Bedroom	100%	Yes
J-4A-08	Kitchen Dining	99%	Yes
J-4A-08	Living Room	100%	Yes
J-4A-08	Bedroom 1	100%	Yes
J-4A-08	Bedroom 2	100%	Yes

* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."
For floor plans of the assessed units please refer to section A.1 on page 23.

B.2.10 Supplementary NSL Results: Block 4B

Table No. B.2.10 - Supplementary NSL Results: Block 4B			
Unit Number	Room Description	No Sky Line (NSL)	
		% of room where the sky is visible from the working plane	Above 80%*
K-4B-04	LKD	84%	Yes
K-4B-04	Bedroom	94%	Yes
L-4B-05	Kitchen Dining	92%	Yes
L-4B-05	Living Room	99%	Yes
L-4B-05	Bedroom 1	98%	Yes
L-4B-05	Bedroom 2	91%	Yes
H-4B-06	LKD	100%	Yes
H-4B-06	Bedroom	99%	Yes
J-4B-07	Kitchen Dining	99%	Yes
J-4B-07	Living Room	100%	Yes
J-4B-07	Bedroom 1	100%	Yes
J-4B-07	Bedroom 2	97%	Yes
L-4B-15	Kitchen Dining	92%	Yes
L-4B-15	Living Room	99%	Yes
L-4B-15	Bedroom 1	98%	Yes
L-4B-15	Bedroom 2	91%	Yes
K-4B-16	LKD	99%	Yes
K-4B-16	Bedroom	94%	Yes
H-4B-17	LKD	100%	Yes
H-4B-17	Bedroom	99%	Yes
J-4B-18	Kitchen Dining	99%	Yes
J-4B-18	Living Room	100%	Yes
J-4B-18	Bedroom 1	100%	Yes
J-4B-18	Bedroom 2	97%	Yes

* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."
For floor plans of the assessed units please refer to section A.1 on page 23.

B.2.11 Supplementary NSL Results: Block 4C

Table No. B.2.11 - Supplementary NSL Results: Block 4C			
Unit Number	Room Description	No Sky Line (NSL)	
		% of room where the sky is visible from the working plane	Above 80%*
M-4C-02	LKD	99%	Yes
M-4C-02	Bedroom 1	99%	Yes
M-4C-02	Bedroom 2	98%	Yes
N-4C-03	LKD	98%	Yes
N-4C-03	Bedroom 1	99%	Yes
N-4C-03	Bedroom 2	98%	Yes
P-4C-04	Kitchen	99%	Yes
P-4C-04	Living Room	92%	Yes
P-4C-04	Bedroom 1	97%	Yes
P-4C-04	Bedroom 2	96%	Yes
P-4C-04	Bedroom 3	97%	Yes

* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."
For floor plans of the assessed units please refer to section A.1 on page 23.

B.2.12 Supplementary NSL Results: Block 4F

Table No. B.2.12 - Supplementary NSL Results: Block 4F			
Unit Number	Room Description	No Sky Line (NSL)	
		% of room where the sky is visible from the working plane	Above 80%*
P-4F-05	Kitchen	99%	Yes
P-4F-05	Living Room	96%	Yes
P-4F-05	Bedroom 1	99%	Yes
P-4F-05	Bedroom 2	96%	Yes
P-4F-05	Bedroom 3	98%	Yes
N-4F-06	LKD	98%	Yes
N-4F-06	Bedroom 1	99%	Yes
N-4F-06	Bedroom 2	98%	Yes
M-4F-07	LKD	99%	Yes
M-4F-07	Bedroom 1	99%	Yes
M-4F-07	Bedroom 2	98%	Yes

* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."
For floor plans of the assessed units please refer to section A.1 on page 23.

March 21st 7:00



March 21st 8:00



C.0 Shadow Studies
 C.1 Shadow Study 21 March
 March 21st
 Sunrise 6:32 | Sunset 18:32

Project: Local authority own housing development under section 179A of the planning & development act for lands at Moortown, Swords, Co. Dublin

Proposed Apartment Blocks	Proposed Duplex & Apartments	Proposed Houses
---------------------------	------------------------------	-----------------

 **3D DESIGN BUREAU**

March 21st 9:00



March 21st 10:00



March 21st
Sunrise 6:32 | Sunset 18:32

Project: Local authority own housing development under section 179A of the planning & development act for lands at Moortown, Swords, Co. Dublin

Proposed
Apartment
Blocks

Proposed
Duplex &
Apartments

Proposed
Houses

March 21st 11:00



March 21st 12:00



March 21st
Sunrise 6:32 | Sunset 18:32

Project: Local authority own housing development under section 179A of the planning & development act for lands at Moortown, Swords, Co. Dublin

Proposed
Apartment
Blocks

Proposed
Duplex &
Apartments

Proposed
Houses

March 21st 13:00



March 21st 14:00



March 21st
Sunrise 6:32 | Sunset 18:32

Project: Local authority own housing development under section 179A of the planning & development act for lands at Moortown, Swords, Co. Dublin

Proposed
Apartment
Blocks

Proposed
Duplex &
Apartments

Proposed
Houses

March 21st 15:00



March 21st 16:00



March 21st
Sunrise 6:32 | Sunset 18:32

Project: Local authority own housing development under section 179A of the planning & development act for lands at Moortown, Swords, Co. Dublin

Proposed
Apartment
Blocks

Proposed
Duplex &
Apartments

Proposed
Houses

March 21st 17:00



March 21st 18:00



March 21st
Sunrise 6:32 | Sunset 18:32

Project: Local authority own housing development under section 179A of the planning & development act for lands at Moortown, Swords, Co. Dublin

Proposed Apartment Blocks	Proposed Duplex & Apartments	Proposed Houses
---------------------------	------------------------------	-----------------

June 21st 6:00



June 21st 7:00



C.2 Shadow Study 21 June

June 21st
Sunrise 5:03 | Sunset 21:50

Project: Local authority own housing development under section 179A of the planning & development act for lands at Moortown, Swords, Co. Dublin

Proposed Apartment Blocks

Proposed Duplex & Apartments

Proposed Houses

June 21st 8:00



June 21st 9:00



June 21st
Sunrise 5:03 | Sunset 21:50

Project: Local authority own housing development under section 179A of the planning & development act for lands at Moortown, Swords, Co. Dublin

Proposed Apartment Blocks	Proposed Duplex & Apartments	Proposed Houses
---------------------------	------------------------------	-----------------

June 21st 10:00



June 21st 11:00



June 21st
Sunrise 5:03 | Sunset 21:50

Project: Local authority own housing development under section 179A of the planning & development act for lands at Moortown, Swords, Co. Dublin

Proposed
Apartment
Blocks

Proposed
Duplex &
Apartments

Proposed
Houses

June 21st 12:00



June 21st 13:00



June 21st
Sunrise 5:03 | Sunset 21:50

Project: Local authority own housing development under section 179A of the planning & development act for lands at Moortown, Swords, Co. Dublin

Proposed
Apartment
Blocks

Proposed
Duplex &
Apartments

Proposed
Houses

June 21st 14:00



June 21st 15:00



June 21st
Sunrise 5:03 | Sunset 21:50

Project: Local authority own housing development under section 179A of the planning & development act for lands at Moortown, Swords, Co. Dublin

Proposed Apartment Blocks	Proposed Duplex & Apartments	Proposed Houses
---------------------------	------------------------------	-----------------

June 21st 16:00



June 21st 17:00



June 21st
Sunrise 5:03 | Sunset 21:50

Project: Local authority own housing development under section 179A of the planning & development act for lands at Moortown, Swords, Co. Dublin

Proposed
Apartment
Blocks

Proposed
Duplex &
Apartments

Proposed
Houses

June 21st 18:00



June 21st 19:00



June 21st
Sunrise 5:03 | Sunset 21:50

Project: Local authority own housing development under section 179A of the planning & development act for lands at Moortown, Swords, Co. Dublin

Proposed Apartment Blocks	Proposed Duplex & Apartments	Proposed Houses
---------------------------	------------------------------	-----------------

June 21st 20:00



June 21st 21:00



June 21st
Sunrise 5:03 | Sunset 21:50

Project: Local authority own housing development under section 179A of the planning & development act for lands at Moortown, Swords, Co. Dublin

Proposed Apartment Blocks	Proposed Duplex & Apartments	Proposed Houses
---------------------------	------------------------------	-----------------

December 21st 9:00



December 21st 10:00



C.3 Shadow Study 21 December

December 21st
Sunrise 8:46 | Sunset 15:59

Project: Local authority own housing development under section 179A of the planning & development act for lands at Moortown, Swords, Co. Dublin

Proposed
Apartment
Blocks

Proposed
Duplex &
Apartments

Proposed
Houses

December 21st 11:00



December 21st 12:00



December 21st
Sunrise 8:46 | Sunset 15:59

Project: Local authority own housing development under section 179A of the planning & development act for lands at Moortown, Swords, Co. Dublin

Proposed
Apartment
Blocks

Proposed
Duplex &
Apartments

Proposed
Houses

December 21st 13:00



December 21st 14:00



December 21st
Sunrise 8:46 | Sunset 15:59

Project: Local authority own housing development under section 179A of the planning & development act for lands at Moortown, Swords, Co. Dublin

Proposed
Apartment
Blocks

Proposed
Duplex &
Apartments

Proposed
Houses

December 21st 15:00



December 21st 16:00



December 21st
Sunrise 8:46 | Sunset 15:59

Project: Local authority own housing development under section 179A of the planning & development act for lands at Moortown, Swords, Co. Dublin

Proposed
Apartment
Blocks

Proposed
Duplex &
Apartments

Proposed
Houses