gia CHARTERED SURVEYORS

DAYLIGHT & SUNLIGHT

INTERNAL DAYLIGHT & SUNLIGHT REPORT

Riverside House

16 July 2021

GIA No: **18055**

PROJECT DATA:

Client	**MDPL (Woolwich) Ltd**
Architect	**Osel Architecture**
Project Title	**Riverside House**
Project Number	**18055**

REPORT DATA:

Report Title	**Internal Daylight & Sunlight Report**
GIA Department	**Daylight & Sunlight**
Dated	**16 July 2021**

Prepared by	**FC/KST**
Checked by	**KST**
Type	**Planning**

Revisions	No:	Date:	Notes:	Signed:

SOURCES OF INFORMATION:

Information Received	**IR-03-06-18055**
Release Number	**Rel_02_18055_DSD**
Issue Number	**03**
Site Photos	**GIA**
3D models	**VERTEX**
OS Data	**FIND Maps**

Map data

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1 EXECUTIVE SUMMARY

1.1 EXECUTIVE SUMMARY

The Riverside House Permitted Development proposal consists of two office buildings with a link block, which are proposed to be converted into 209 new dwellinghouses. The purpose of this report is to ascertain whether the new dwellinghouses proposed will provide future occupants with access to adequate natural light.

The existing buildings are considered to offer an excellent opportunity for conversion into dwellinghouses given their form, large areas of fenestration and largely unobstructed southerly aspect.

It is important to note that as a Permitted Development, no changes can be made to the buildings massing or façades, therefore the daylight and sunlight availability are fixed, it is then a matter of how the layouts evolve to respond to the levels of light available to the buildings façades.

In ascertaining if the development provides adequate natural light to all habitable rooms, GIA have undertake technical assessments in accordance with the BRE Guidelines for daylight: Average Daylight Factor (ADF); No-Sky Line (NSL); and Room Depth Criterion (RDC); and for sunlight: Annual and Winter Probable Sunlight Hours (APSH and WPSH). The results of which are presented within this report.

The results concluded that all dwellinghouses are considered adequately daylit with:

- 492 (100%) of the 492 proposed habitable rooms see good daylight amenity as they meet the levels recommended by BRE for their room use;
- In terms of daylight distribution, 430 (87%) meet the recommendation for NSL; and
- All applicable rooms have been designed in accordance with the RDC.

Overall, the daylight amenity provided by this permitted development is excellent, particularly given the site's location within an area undergoing regeneration.

In terms of sunlight, 109 (96%) of the 113 applicable living rooms meet or exceed both the APSH and WPSH recommendations which is an excellent result for an urban location. The remaining four living rooms see lower sunlight availability as a function of the existing building fabric and emerging context. Lower sunlight availability on the lowest floors is typically seen within a built-up urban location and the levels seen are in line with those of the emerging context.

We therefore conclude that overall, the proposed dwelinghouses of Riverside House offer future residents good daylight and sunlight amenity, and are considered to provide adequate natural light in accordance with The Town and Country Planning (Permitted Development and Miscellaneous Amendments) (England) (Coronavirus) Regulations 2020.

2 INTRODUCTION

2.1 INTRODUCTION AND OBJECTIVE

GIA has been instructed to provide a report upon the potential availability of Daylight and Sunlight to the proposed accommodation within the permitted development scheme prepared by Osel Architecture.

The permitted development rights Class O requires the *"provision of adequate natural light in all habitable rooms of the dwellinghouses"*. In the absence of guidance on the appropriate methodology, we have sought to define this as part of the report using established methods of assessment.

With this is mind, GIA was specifically instructed to carry out the following:

- To create a 3D computer model of the proposal based upon drawings prepared by Osel Architecture.
- Carry out a daylight assessment using the methodologies set out in the BRE guidance for Average Daylight Factor, No-Sky Line and Room Depth Criterion.
- Carry out a sunlight assessment using the methodologies set out in the BRE guidance for Annual and Winter Probable Sunlight Hours (APSH and WPSH) to the fenestration facing within 90° of due south.
- Prepare a report setting out the analysis and our findings.

3 LEGISLATION & GUIDANCE

3.1 TOWN AND COUNTRY PLANNING, ENGLAND

The Town and Country Planning (Permitted Development and Miscellaneous Amendments) (England) (Coronavirus) Regulations 2020

The Town and Country Planning (General Permitted Development) (England) Order 2015 No. 596 was amended in June 2020 and came into force on 1st August 2020. The amendments contain a requirement for natural light to be provided to habitable rooms within dwellinghouses, where a conversion from offices to dwellinghouses is proposed. The relevant extracts are:

"Schedule 2, Part 3 Changes of use, Class O – offices to dwellinghouses O.2–(1) Development under Class O is permitted subject to the condition that before beginning the development, the developer must apply to the local planning authority for a determination as to whether the prior approval of the authority will be required as to–

(e) the provision of adequate natural light in all habitable rooms of the dwellinghouses."

The document then continues that:

(2A) Where the application relates to prior approval as to adequate natural light, the local planning authority must refuse prior approval if adequate natural light is not provided in all the habitable rooms of the dwellinghouses.

GIA note however that the regulations do not state how 'adequate natural light' should be assessed. We consider that the most appropriate method of assessment is to apply the methods set out in the BRE handbook for new development: 'Site Layout Planning for Daylight and Sunlight a Guide to Good Practice (2011)' as this is the standard approach used by National, Regional and Local Planning Policy.

When assessing the scheme, it is important to consider:

- The BRE guidance is provided for new developments where it is within the gift of a developer to optimise the site layout, massing, orientation, building footprint and fenestration of a proposed building in response to its context, whilst for a permitted development, these aspects are fixed and thus the only aspect that can be optimised for good daylight within a permitted development is its layouts.
- As noted in the following section, the BRE guidance gives numerical guidelines but states that these are intended *'to help rather than constrain the designer'* and may be applied flexibly, particularly where a high degree of obstruction my be unavoidable.

3.2 BRE GUIDELINES

The Building Research Establishment (BRE) have set out in their handbook 'Site Layout Planning for Daylight and Sunlight a Guide to Good Practice (2011)', guidelines and methodology for the measurement and assessment of daylight and sunlight within proposed buildings.

This document states that it is intended to be used in conjunction with the daylight recommendations found within the British Standard BS8206-2:2008 and The Applications Manual on Window Design of the Chartered Institution of Building Services Engineers (CIBSE. 1999).

The guide also provides advice on site layout planning to determine the quality of daylight and sunlight within open spaces between buildings.

It is important to note, however, that this document is a guide and states that its aim *"is to help rather than constrain the designer"*.

The document provides advice, but also clearly states that it *"is not mandatory and this document should not be seen as an instrument of planning policy."* The report also acknowledges in its introduction that *"in special circumstances the developer or planning authority may wish to use different target values. For example, in a historic city centre a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings."*

It is an inevitable consequence of the built-up urban environment that daylight and sunlight will be more limited in these areas. It is well acknowledged that in such situations there may be many other conflicting and potentially more important planning and urban design matters to consider other than just the provision of ideal levels of daylight and sunlight.

In May 2019 the British Standard BS8206-2:2008 was superseded by the new European Standard on daylight "BS EN 17037:2018 Daylight in buildings". The Standard adopts a new methodology for testing daylight and sunlight in proposed developments based on climatic data as opposed the 'Standard CIE overcast sky' adopted in BS8206-2:2008, and also includes views out and glare.

Following on from the review of the European Standard by a dedicated commission of UK experts (which included the author of the BRE BR209 guidance Dr. Paul Littlefair), the British Standard Institution appended to BS EN 17037:2018 a UK National Annex which brings the recommended light levels in line with those of BS8206-2:2008.

BRE is currently looking to update and re-publish BR209 to align their guidance with the new BS EN 17037:2018 in 2020. Until then, the position of BRE can be summarised from a post by Dr. Littlefair on the LinkedIn Planning Daylight & Sunlight Group (BRE BR209): *"Until BR 209 is rewritten, we are adopting a flexible approach to applying the two standards, for example in assessing the daylight and sunlight available in new buildings. So, for example, if we were reviewing a daylight report for a local authority, we would consider it reasonable to accept either average daylight factor tables using BS 8206 or median daylight factors/median illuminance calculated using EN 17037, provided they were calculated and presented properly".*

Given the above and the reference to the BRE guidance in planning policies, the assessments within this report are carried out with the criteria and methodologies set out in BRE BR209 and BS8206-2:2008. It is not considered that calculations undertaken according to BS EN 17037:2018 would alter the conclusions meaningfully.

Daylight

The BRE set out various methods for assessing the daylight within a proposed building within section 2.1 and Appendix C of the handbook. These are summarised below.

Vertical Sky Component (VSC)

This method of assessment can be undertaken using a skylight indicator or a Waldram diagram. It measures from a single point, at the centre of the window (if known at the early design stage), the quantum of sky visible taking into account all external obstructions. Whilst these obstructions can be either other buildings or the general landscape, trees are usually ignored unless they form a continuous or dense belt of obstruction.

The VSC method is a useful 'rule of thumb' but has some significant limitations in determining the true

quality of daylight within a proposed building. It does not take into account the size of the window, any reflected light off external obstructions, any reflected light within the room, or the use to which that room is put. Appendix C of the guide goes into more detail on these matters and sets forward alternative methods for assessment to overcome these limitations.

Appendix C of the BRE guide: Interior Daylighting Recommendations, states:

"The British Standard Code of practice for daylighting (BS 8206-2) and the CIBSE Lighting Guide LG 10 Daylighting and window design contain advice and guidance on interior daylighting. The guidance contained in this publication (BR 209) is intended to be used with BS 8206-2 and LG 10. Both these publications refer to BR 209.

For skylight BS 8206-2 and LG 10 put forward three main criteria, based on average daylight factor (ADF); room depth; and the position of the no sky line."

These assessments are set out below.

Average Daylight Factor (ADF)

"If a predominantly daylit appearance is required, then the ADF should be 5% or more if there is no supplementary electric lighting, or 2% or more if supplementary electric lighting is provided. There are additional recommendations for dwellings of 2% for kitchens, 1.5% for living rooms and 1% for bedrooms. These additional recommendations are minimum values of ADF which should be attained even if a predominantly daylit appearance is not achievable."

This method of assessment takes into account the total glazed area to the room, the transmittance quality of the glazing proposed, the total area of the room surfaces including ceilings and floors, and the internal average reflectance for the room being assessed. The method also takes into account the Vertical Sky Component and the quantum of reflected light off external surfaces.

This is, therefore, a significantly more detailed method of assessment than the Vertical Sky Component method set out above.

Room Depth Criterion (RDC)

Where it has access to daylight from windows in one wall only, the depth of a room can become a factor in determining the quantity of light within it. The BRE guidance provides a simple method for examining the ratio of room depth to window area. However, whilst it does take into account internal surface reflections, this method also has significant limitations in that it does not take into account any obstructions outside the window and therefore draws no input from the quantity of light entering the room.

No Sky Line (NSL)

This third method of assessment is a simple test to establish where within the proposed room the sky will be visible through the windows, taking into account external obstructions. The assessment is undertaken at working plane height (850mm above floor level) and the method of calculation is set out in Appendix D of the BRE handbook.

Appendix C of the BRE handbook states *"If a significant area of the working plane (normally more than 20%) lies beyond the no sky line (ie it receives no direct skylight) then the distribution of daylight in the room will look poor and supplementary electric lighting will be required."* To guarantee a satisfactory daylight uniformity, the area which does not receive direct skylight should not exceed 20% of the floor area, as quantified in the BS 8206 Part2 2008.

Summary

The Average Daylight Factor gives a more detailed assessment of the daylight within a room and takes into account the highest number of factors in establishing a quantitative output.

However, the conclusion of Appendix C of the BRE guide states:

"[All three of] the criteria need to be satisfied if the whole of the room is to look adequately daylit. Even if the amount of daylight in a room (given by the Average Daylight Factor) is sufficient, the overall daylight appearance will be impaired if its distribution is poor."

In most urban areas it is important to recognise that the distribution of daylight within a room may be difficult to achieve, given the built up nature of the environment. Consequently, most local authorities seek to ensure that there is sufficient daylight within the room as determined by the Average

Daylight Factor calculation. However, the additional recommendations of the BRE and British Standard for residential accommodation, set out above, ought not to be overlooked.

Sunlight

The BRE provide guidance in respect of sunlight quality for new developments within section 3.1 of the handbook. It is generally acknowledged that the presence of sunlight is more significant in residential accommodation than it is in commercial properties, and this is reflected in the BRE document.

It states, *"in housing, the main requirement for sunlight is in living rooms, where it is valued at any time of the day, but especially in the afternoon. Sunlight is also required in conservatories. It is viewed as less important in bedrooms and in kitchens where people prefer it in the morning rather than the afternoon."*

The BRE guide considers the critical aspects of orientation and overshadowing in determining the availability of sunlight at a proposed development site.

The guide proposes minimizing the number of dwellings whose living room face solely north unless there is some compensating factor such as an appealing view to the north, and it suggests a number of techniques to do so. Further more, it discusses massing solutions with a sensitive approach to overshadowing, so as to maximize access to sunlight.

At the same time it acknowledges that the site's existing urban environment may impose orientation or overshadowing constraints which may not be possible to overcome.

To quantify sunlight access for interiors where sunlight is expected, it refers to the BS 82606-2 criterion of Annual Probable Sunlight Hours. APSH is defined as *"the total number of hours in the year that the sun is expected to shine on unobstructed ground, allowing for average levels of cloudiness at the location in question."* In line with the recommendation, APSH is measured from a point on the inside face of the window, should the locations have been decided. If these are unknown, sunlight availability is checked at points 1.6m above the ground or the lowest storey level on each main window wall, and no more than 5m apart. If a room has multiple windows on the same wall or on adjacent walls, the highest value of APSH should be taken into account. If a room has two windows on opposite walls, the APSH for each can be added together.

The summary of section 3.1 of the guide states as follows:

"In general, a dwelling or non-domestic building which has a particular requirement for sunlight, will appear reasonably sunlit provided that:

- *At least one main window faces within 90 degrees of due south, and*
- *The centre of at least one window to a main living room can receive 25% of annual probable sunlight hours, including at least 5% of annual probable sunlight hours in the winter months between 21 September and 21 March. "*

In paragraph 3.1.11 the BRE guidance suggests that if a room faces significantly North of due East or West it is unlikely to meet the recommended levels proposed by the BS 8206-2. As such, it is clear that only windows facing within 90 degrees of due South can be assessed using this methodology.

It is also worth noting how paragraph 5.3 of the BS 8206-2 suggests that with regards to sunlight duration *"the degree of satisfaction is related to the expectation of sunlight. If a room is necessarily north facing or if the building is in a densely-built urban area, the absence of sunlight is more acceptable than when its exclusion seems arbitrary"*.

4 METHODOLOGY

In order to undertake the daylight and sunlight assessments set out in the previous pages, we have prepared a three dimensional computer model and used specialist lighting simulation software.

The three dimensional representation of the development has been modelled using the scheme drawings provided to us by Osel Architecture. This has been placed in the context of its surrounding buildings which have been modelled from photogrammetry and planning drawings (for neighbouring consents). This allows for a precise model, which in turn ensures that analysis accurately represents the amount of daylight and sunlight available to the building facades and internal spaces, considering all of the surrounding obstructions and orientation.

Owing to the site's location within a regeneration area, there are extant consents that would impact the availability of daylight and sunlight to the development. Therefore, as a worst-case scenario, all assessments have been undertaken with the approved massing of the neighbouring extant contents in place.

4.1 SIMULATION ASSUMPTIONS

Where no values for reflectance, transmittance and maintenance factor were specified by the designer the following values from *BS 8206-2:2008, Annex A, tables A.1-A.6* were used for the calculation of Average Daylight Factor values. These values are shown in Table 1.

The glazing transmittance of the existing buildings windows is not known, therefore an reasonable assumption of clear double glazing as been used, with a slightly reduced Visible Light Transmittance of 0.7. Once the relevant maintenance factors were applied, a TV(normal) used within the assessment was 0.52.

Table 01: Typical reflectance, transmittance and maintenance factors

REFLECTANCE VALUES:	
Surrounding	0.2
Pavement	0.2
Grass	0.1
Water	0.1
Yellow brick	0.3
Red brick	0.2
Portland Stone	0.6
Concrete	0.4
Internal walls (light grey)	0.68
Internal ceiling (white paint)	0.85
Internal floor (medium veneer)	0.3
Internal floor (light veneer)	0.4

TRANSMITTANCE VALUES	TV
Triple glazing (Low-E): Pilkington K Glass 4/12/4/12/4 Argon filled 90%	0.63
Double glazing (Low-E): Pilkington K Glass 4/16/4 Argon filled 90%	0.75
Single glazing: Pilkington Optifloat Clear 4mm Annealed	0.90

MAINTENANCE FACTORS: GLAZING TYPE	TV (Normal)	A.3	A.4	A.5	A.6	TV (Total)
Triple Low-E (frames modelled)	0.63	8	1	1	1	0.58
Triple Low-E (frames not modelled)	0.63	8	1	1	0.8	0.46
Triple Low-E (inclined, frames modelled)	0.63	8	2	1	1	0.53
Triple Low-E (inclined, frames not modelled)	0.63	8	2	1	0.8	0.42
Triple Low-E (horizontal, frames modelled)	0.63	8	3	1	1	0.48
Triple Low-E (horizontal, frames not modelled)	0.63	8	3	1	0.8	0.38
Double Low-E (frames modelled)	0.75	8	1	1	1	0.69
Double Low-E (frames not modelled)	0.75	8	1	1	0.8	0.55
Double Low-E (inclined, frames modelled)	0.75	8	2	1	1	0.63
Double Low-E (inclined, frames not modelled)	0.75	8	2	1	0.8	0.50
Double Low-E (horizontal, frames modelled)	0.75	8	3	1	1	0.57
Double Low-E (horizontal, frames not modelled)	0.75	8	3	1	0.8	0.46
Single (frames modelled)	0.9	8	1	1	1	0.83
Single (frames not modelled)	0.9	8	1	1	0.8	0.66
Single (inclined, frames modelled)	0.9	8	2	1	1	0.76
Single (inclined, frames not modelled)	0.9	8	2	1	0.8	0.60
Single (horizontal, frames modelled)	0.9	8	3	1	1	0.68
Single (horizontal, frames not modelled)	0.9	8	3	1	0.8	0.55

5 DISCUSSION & CONCLUSIONS

5.1 THE SITE

The site is located on the corner of Woolwich High Street and Beresford Street, with the emerging Royal Arsenal Riverside masterplan to the north and east. The completed and consented plots of the Royal Arsenal Riverside masterplan obstruct the northern and eastern elevations of the development to a similar degree to that seen in many London locations undergoing regeneration. The development enjoys minimal obstruction to the south, whilst the recently implemented development of Callis Yard obstructs the western elevations.

The development comprises a tower and 'L' shaped smaller block, with floor-plates that lend themselves well to a residential layout with relatively shallow unit depths compared to those typically seen in new developments. Additionally the existing office building has large areas of glazing, thus providing an excellent opportunity to deliver well daylit habitable rooms behind them. It is considered that the building is therefore well suited to conversion to residential from a daylight perspective.

5.2 CONCLUSIONS ON DAYLIGHT

Average Daylight Factor (ADF), No-Sky Line (NSL) and Room Depth Criteria (RDC) assessments were undertaken to understand the levels of daylight within the proposed habitable rooms. The full results are shown on pages 16-53.

All 492 proposed habitable rooms see good daylight amenity as they meet the levels recommended by BRE. In terms of daylight distribution, 430 (87%) meet the recommendation for NSL and all applicable rooms have been designed in accordance with the RDC. This is an excellent result, particularly given the site's urban location and the emerging context.

Due to all 492 proposed habitable rooms meeting the recommended ADF levels, which is the most detailed and informative metric, we consider that overall, the proposed layouts offer adequately daylit dwellinghouses, and in many cases, the levels of daylight seen are well above the minimum levels recommended by BRE.

5.3 CONCLUSIONS ON SUNLIGHT

Annual Probable Sunlight Hours (APSH) and Winter Probable Sunlight Hours (WPSH) assessments were undertaken to understand the sunlight availability to the proposed habitable rooms, the results are shown on pages 16-53.

The results contained within the following pages provide APSH and WPSH values for all habitable rooms regardless of their use or orientation for completeness. We however note that as BRE states that sunlight is most appreciated in living areas and the greatest expectation of sunlight is within south facing rooms, it is only necessary and realistic to consider the adequacy of sunlight within all living rooms that have a main window within 90 degrees of due south.

It is important to note that sunlight performance is completely dependent on the existing building's massing and its surrounding context. As such, there is little opportunity to improve sunlight conditions beyond placing living spaces within the areas with the most sunlight availability, which has been done within the proposed layouts.

The assessments provided on pages 16-53 show that 109 (96%) of the 113 applicable living rooms meet or exceed both the APSH and WPSH recommendations which is an excellent result for an urban location.

The remaining four living rooms (8, 22, 24 and 29) see lower sunlight availability as a function of the existing buildings massing and the emerging context. Rooms 22 and 24 exceeds the recommendation for APSH with 32% and 33% respectively, however see marginally lower winter sunlight of 4% WPSH where the BRE recommends 5%. We therefore considered these two living rooms to receive good sunlight availability throughout the year.

Whilst Room 29 is also considered to receive good sunlight overall owing to it seeing an APSH of 24% which is just 1% below recommendation, and exceeding the levels recommended in winter.

Room 8 is within an obstructed location on the Ground Floor, as is typically seen within an urban context. The annual sunlight levels are in excess of 20% which is commensurate with the levels seen on lower floor within the surrounding area.

5.4 OVERALL CONCLUSION

As outlined, all proposed habitable rooms meet the most informative daylight metric and are therefore considered adequately daylit. The very few shortfalls that occur in terms of sky visibility have been optimised within the constraints of a permitted development scheme located within a built-up urban context. In terms of sunlight, 96% of the applicable rooms meet or exceed the levels recommended by BRE, three of the remaining four living rooms achieve acceptable sunlight levels throughout the year and then final living room see sunlight availability typical of lower floors of a development within an built-up area.

We therefore conclude that development is well suited to conversion to residential from a daylight perspective as evidence by the proposed layouts proving adequate daylight and sunlight amenity to future residents, and in many cases, well above the minimum levels recommended by BRE.

6 SITE OVERVIEW

Fig. 01: Top view

Riverside House
Neighbouring Consented Schemes

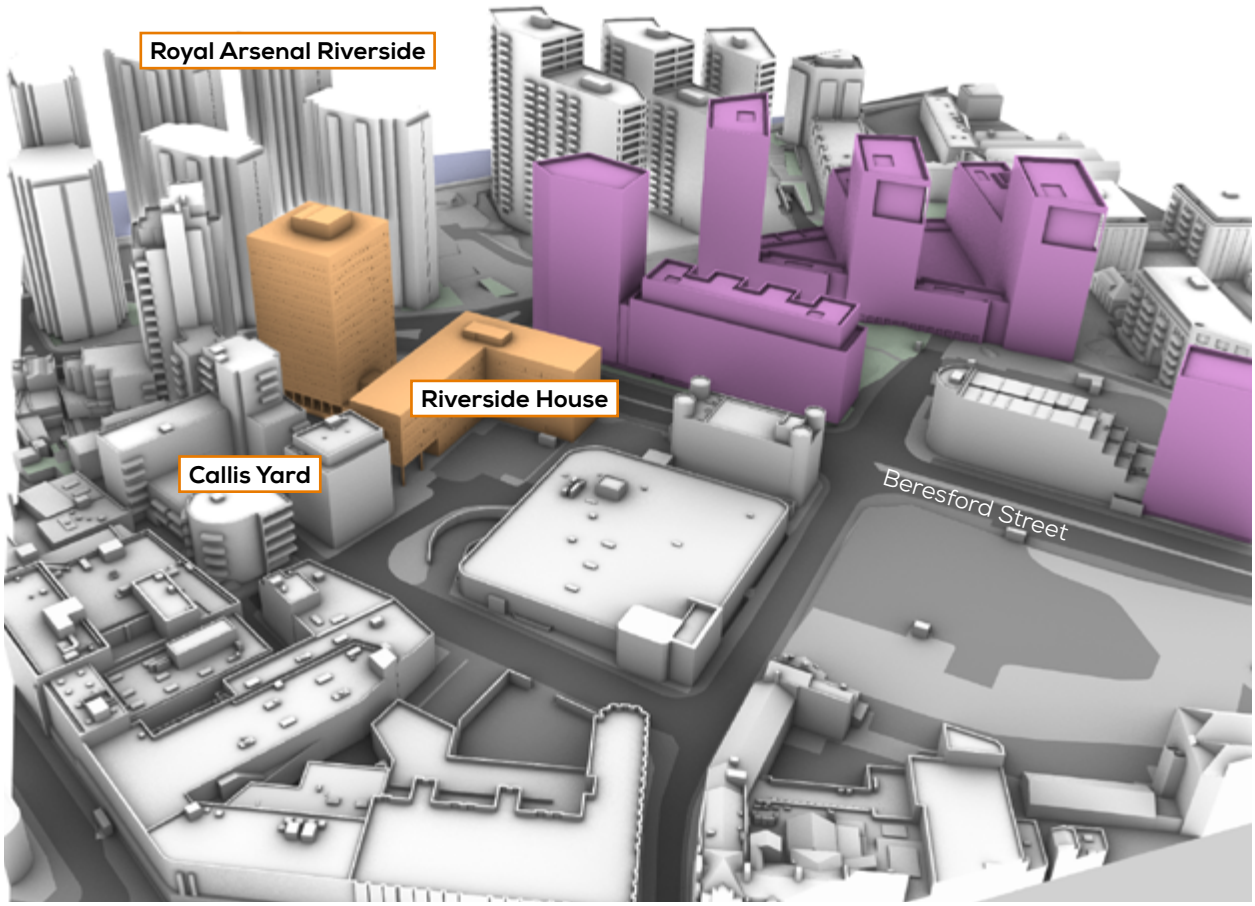

Fig. 02: Perspective view

7 INTERPRETATION OF RESULTS

KEY TO UNDERSTANDING THE TABLES - DAYLIGHT

DAYLIGHT QUANTUM

Average Daylight Factor (ADF)

Refers to the average percentage of daylight flux in a room against an external unobstructed plane.

BRE recommends ADF levels of 2% for rooms with kitchens (including LKDs and studios with kitchens), 1.5% for living rooms and studies, and 1% for bedrooms.

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
Building C - SIXTH FLOOR						
686	L/K/D	2.8	99	N/A		
687	L/K/D	2.5	100	N/A	78	27
688	Bedroom	1.1	90	MET		
689	Bedroom	1.4	87	MET		
690	Bedroom	1.4	89	MET		
691	Bedroom	2	85	N/A		
692	Bedroom	1.6	82	MET		
693	Bedroom	1.4	95	MET		
694	Bedroom	1.6	98	MET		
695	Bedroom	2.2	93	N/A		
696	Living Room	2.6	100	N/A	56	24
697	Bedroom	2.5	100	N/A		
698	Bedroom	2.3	97	MET		
699	L/K/D	1.3	95	MET	57	28
700	Living Room	1.8	96	N/A	64	27
701	Bedroom	1.4	98	MET		
702	Living Room	1.2	96	MET	39	14

DAYLIGHT DISTRIBUTION

No-SkyLine (NSL)

Refers to the percentage of the room with a view of the sky from a working plane at desk hight.

BRE recommends the NSL to be at least 80% for the room to guarantee satisfactory daylight uniformity.

Room Depth Criterion (RDC)

Defines adequate room proportions that enable good distribution of light. It applies to rooms lit by windows in one wall only.

MET : The room meets the Room Depth criterion

NOT MET: The room does not meet BRE's RDC

N/A (Not Applicable): The room is not lit by windows in one wall only, and cannot be assessed by BRE's RDC

KEY TO UNDERSTANDING THE TABLES - SUNLIGHT

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
Building C - SIXTH FLOOR						
686	L/K/D	2.8	99	N/A		
687	L/K/D	2.5	100	N/A	78	27
688	Bedroom	1.1	90	MET		
689	Bedroom	1.4	87	MET		
690	Bedroom	1.4	89	MET		
691	Bedroom	2	85	N/A		
692	Bedroom	1.6	82	MET		
693	Bedroom	1.4	95	MET		
694	Bedroom	1.6	98	MET		
695	Bedroom	2.2	93	N/A		
696	Living Room	2.6	100	N/A	56	24
697	Bedroom	2.5	100	N/A		
698	Bedroom	2.3	97	MET		
699	L/K/D	1.3	95	MET	57	28
700	Living Room	1.8	96	N/A	64	27
701	Bedroom	1.4	98	MET		
702	Living Room	1.2	96	MET	39	14

SUNLIGHT QUANTUM

Probable Sunlight Hours (PSH)

Refers to the percentage of total available hours of sunlight during a year in which a surface receives direct sunlight (%).

BRE states that sunlight is most appreciated in living areas and the greatest expectation of sunlight is within south facing rooms.

Annual Probable Sunlight Hours (APSH)

BRE recommends at least 25% of Annual Probable Sunlight Hours for rooms where sunlight is expected.

Winter Probable Sunlight Hours (WPSH)

BRE recommends at least 5% of Winter Probable Sunlight Hours for rooms where sunlight is expected.

8 INTERNAL DAYLIGHT AND SUNLIGHT ASSESSMENTS

Block A - Level 00

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)		
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER	APPLICABLE FOR PSH ASSESSMENT
BLOCK A - LEVEL 00							
1	L/K/D	4.7	99	N/A	18	2	N
2	Bedroom	2.6	97	MET	11	1	N
3	Bedroom	2.7	98	MET	11	1	N
4	Bedroom	2.4	88	MET	10	1	N
5	Living Room	2.7	98	MET	8	0	N
6	Bedroom	2.8	98	MET	7	0	N
7	Bedroom	2.7	94	MET	5	0	N
8	L/K/D	4	100	N/A	21	1	Y
9	Bedroom	1.4	72	N/A	0	0	N
10	Bedroom	1.3	72	MET	0	0	N
11	Living Room	1.6	94	MET	1	0	N
12	Bedroom	1.7	84	MET	2	0	N
13	Living Room	2.5	97	MET	3	0	N

Table 02: Assessment Data

Fig. 03: Floor Plan

Block A - Level 01

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)		
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER	APPLICABLE FOR PSH ASSESSMENT
BLOCK A - LEVEL 01							
14	L/K/D	4.2	100	N/A	19	1	N
15	Bedroom	2.5	97	MET	11	1	N
16	Bedroom	2.4	95	MET	10	1	N
17	Bedroom	2.6	99	MET	10	1	N
18	Living Room	2.6	99	MET	10	0	N
19	Bedroom	2.6	98	MET	10	0	N
20	Bedroom	2.5	93	MET	8	0	N
21	L/K/D	4.4	100	N/A	35	5	Y
22	Living Room	2.3	55	MET	32	4	Y
23	Bedroom	1.1	38	MET	14	0	N
24	L/K/D	2.3	84	N/A	33	4	Y
25	Bedroom	1.1	52	MET	30	5	N
26	L/K/D	4.1	88	N/A	36	6	Y
27	Bedroom	1.9	70	MET	29	8	N
28	Bedroom	1.7	60	MET	25	7	N
29	Living Room	1.6	57	MET	24	7	Y
30	Bedroom	1.6	52	MET	25	8	N
31	Bedroom	1.3	45	MET	25	8	N
32	Bedroom	1.1	35	MET	23	7	N
33	L/K/D	2.1	96	N/A	25	8	Y
34	Living Room	1.6	90	MET	2	0	N
35	Bedroom	1.4	96	MET	3	0	N
36	Bedroom	1.6	83	MET	4	0	N
37	Living Room	2.3	98	MET	5	0	N

Table 03: Assessment Data

Fig. 04: Floor Plan

Block A - Level 02

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)		
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER	APPLICABLE FOR PSH ASSESSMENT
BLOCK A - LEVEL 02							
38	L/K/D	4.4	100	N/A	20	1	N
39	Bedroom	2.6	99	MET	12	1	N
40	Bedroom	2.6	98	MET	12	1	N
41	Bedroom	2.8	100	MET	12	1	N
42	Living Room	2.7	100	MET	11	0	N
43	Bedroom	2.7	100	MET	11	0	N
44	Bedroom	2.7	96	MET	11	0	N
45	L/K/D	5.1	100	N/A	47	10	Y
46	Living Room	3.2	78	MET	46	10	Y
47	Bedroom	2.8	60	MET	45	9	N
48	Bedroom	2.9	62	MET	46	9	N
49	Living Room	3.5	79	MET	46	9	Y
50	L/K/D	4.9	100	N/A	50	10	Y
51	Bedroom	2.2	83	MET	33	11	N
52	Bedroom	1.9	73	MET	34	11	N
53	Living Room	1.8	68	MET	30	10	Y
54	Bedroom	1.8	59	MET	30	10	N
55	Bedroom	1.6	50	MET	31	10	N
56	Bedroom	1.4	38	MET	28	9	N
57	L/K/D	2.2	94	N/A	29	9	Y
58	Living Room	1.7	97	MET	4	0	N
59	Bedroom	1.5	97	MET	4	0	N
60	Bedroom	1.7	84	MET	5	0	N
61	Living Room	2.4	99	MET	6	0	N

Table 04: Assessment Data

Fig. 05: Floor Plan

Block A - Level 03

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)		
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER	APPLICABLE FOR PSH ASSESSMENT
BLOCK A - LEVEL 03							
62	L/K/D	4.6	100	N/A	22	2	N
63	Bedroom	2.7	99	MET	13	2	N
64	Bedroom	2.7	99	MET	13	2	N
65	Bedroom	2.9	100	MET	12	1	N
66	Living Room	2.8	100	MET	13	1	N
67	Bedroom	2.8	100	MET	13	1	N
68	Bedroom	2.8	99	MET	11	0	N
69	L/K/D	5.9	100	N/A	54	16	Y
70	Living Room	4	100	MET	55	16	Y
71	Bedroom	3.4	95	MET	56	16	N
72	Bedroom	3.4	98	MET	56	16	N
73	Living Room	4.2	100	MET	55	15	Y
74	L/K/D	5.9	100	N/A	62	16	Y
75	Bedroom	2.6	87	MET	40	15	N
76	Bedroom	2.3	78	MET	43	17	N
77	Living Room	2.2	73	MET	39	14	Y
78	Bedroom	2.3	65	MET	40	14	N
79	Bedroom	1.9	55	MET	38	12	N
80	Bedroom	1.7	43	MET	34	9	N
81	L/K/D	2.5	99	N/A	36	9	Y
82	Living Room	1.8	100	MET	6	0	N
83	Bedroom	1.6	97	MET	5	0	N
84	Bedroom	1.8	86	MET	6	0	N
85	Living Room	2.5	100	MET	6	0	N

Table 05: Assessment Data

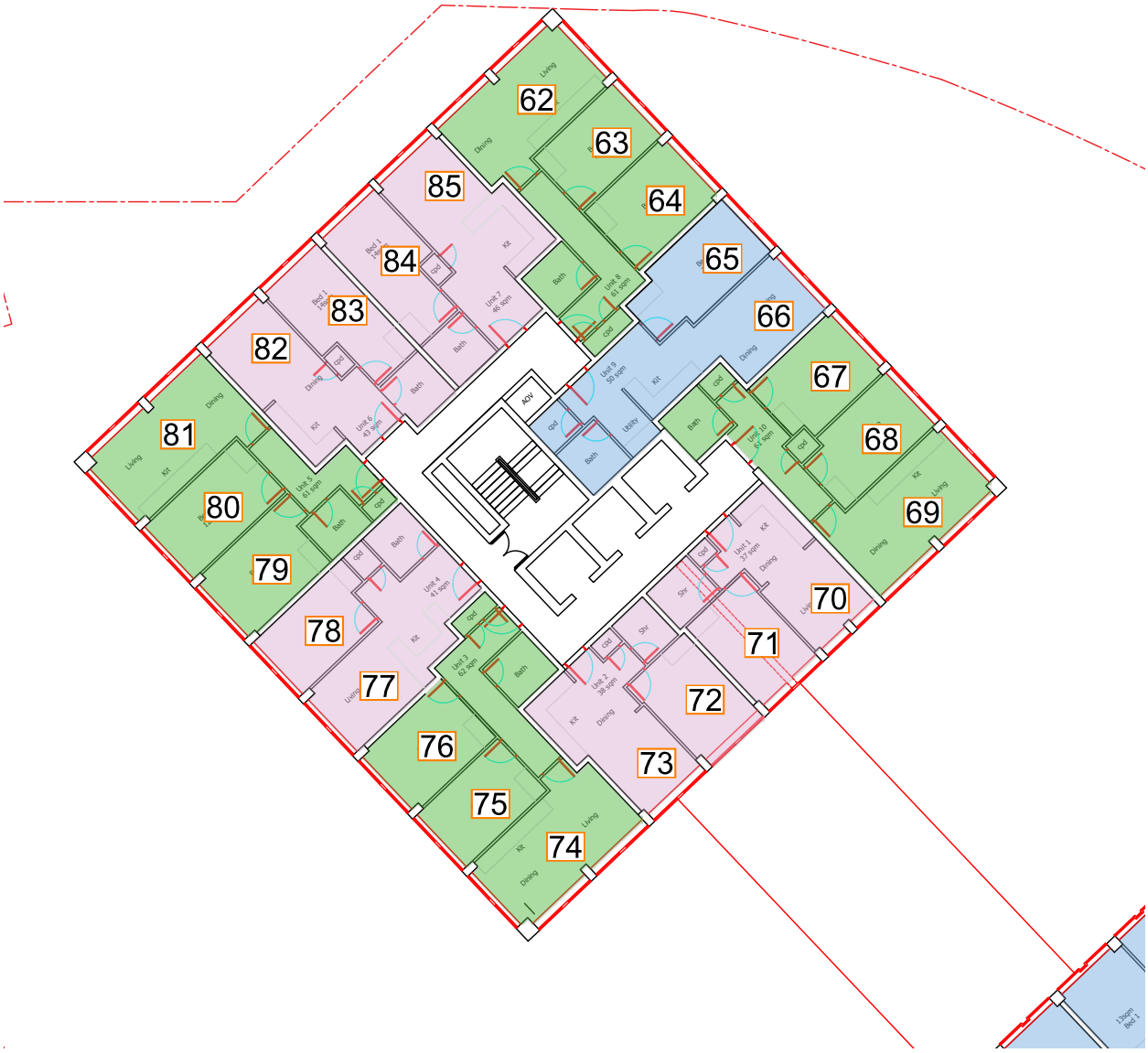

Fig. 06: Floor Plan

Block A - Level 04

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)		
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER	APPLICABLE FOR PSH ASSESSMENT
BLOCK A - LEVEL 04							
86	L/K/D	4.7	100	N/A	25	3	N
87	Bedroom	2.8	99	MET	17	3	N
88	Bedroom	2.8	99	MET	16	3	N
89	Bedroom	3	100	MET	15	2	N
90	Living Room	2.9	100	MET	14	2	N
91	Bedroom	2.9	100	MET	14	2	N
92	Bedroom	2.9	100	MET	13	2	N
93	L/K/D	6.7	100	N/A	62	22	Y
94	Living Room	4.5	100	MET	64	22	Y
95	Bedroom	3.9	100	MET	64	22	N
96	Bedroom	4	100	MET	64	22	N
97	Living Room	4.8	100	MET	64	22	Y
98	L/K/D	6.8	100	N/A	76	23	Y
99	Bedroom	3	91	MET	49	17	N
100	Bedroom	2.7	84	MET	49	17	N
101	Living Room	2.6	82	MET	46	14	Y
102	Bedroom	2.7	75	MET	45	14	N
103	Bedroom	2.4	68	MET	43	12	N
104	Bedroom	2.1	56	MET	41	10	N
105	L/K/D	2.9	100	N/A	42	10	Y
106	Living Room	1.9	100	MET	8	0	N
107	Bedroom	1.6	97	MET	6	0	N
108	Bedroom	1.8	88	MET	6	0	N
109	Living Room	2.6	100	MET	6	0	N

Table 06: Assessment Data

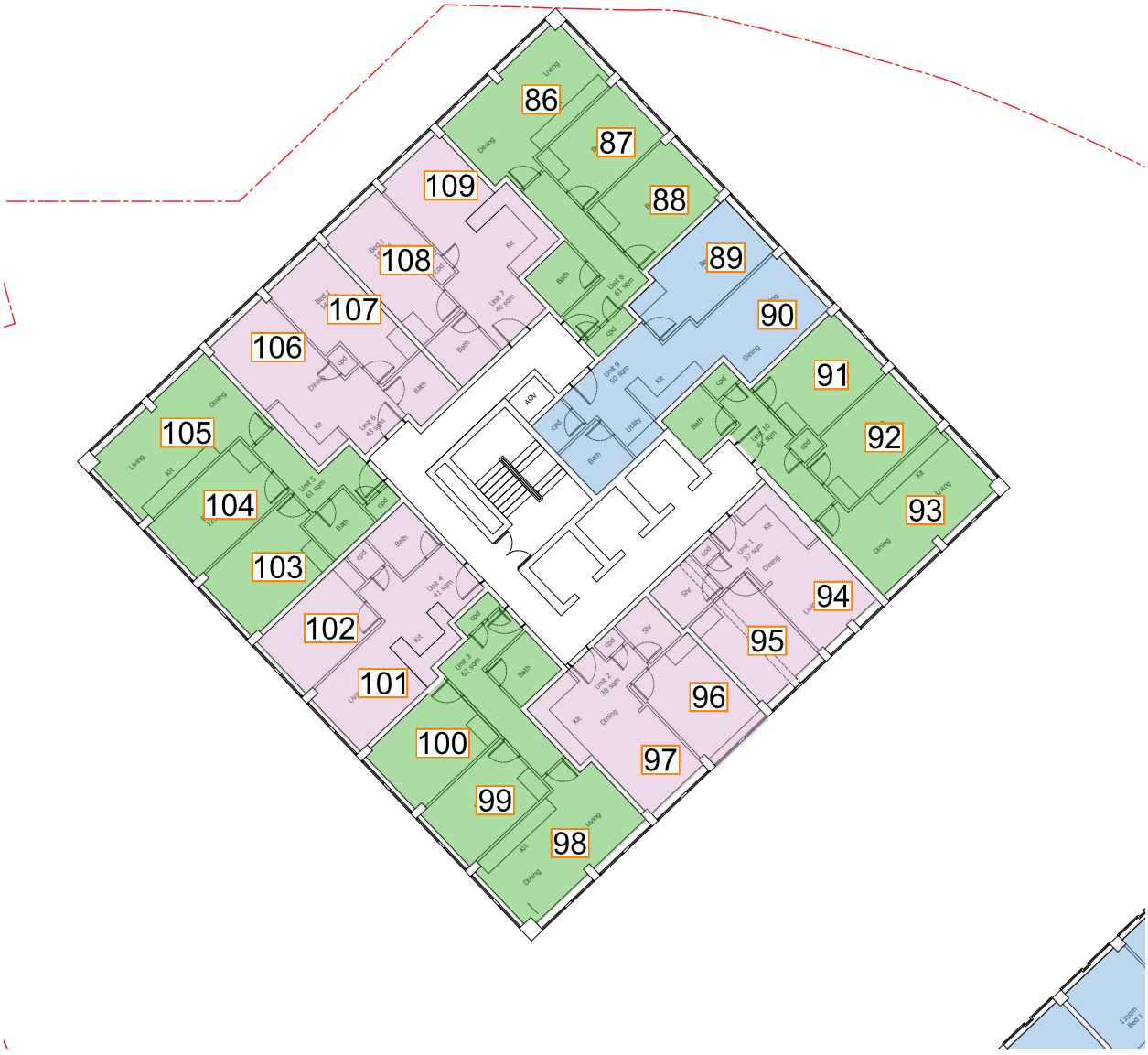

Fig. 07: Floor Plan

Block A - Level 05

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)		
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER	APPLICABLE FOR PSH ASSESSMENT
BLOCK A - LEVEL 05							
110	L/K/D	5	100	N/A	27	3	N
111	Bedroom	3	99	MET	18	3	N
112	Bedroom	2.9	100	MET	18	3	N
113	Bedroom	3.1	100	MET	17	3	N
114	Living Room	3	100	MET	17	3	N
115	Bedroom	3.1	100	MET	17	3	N
116	Bedroom	3	100	MET	15	3	N
117	L/K/D	7.1	100	N/A	66	24	Y
118	Living Room	4.8	100	MET	66	24	Y
119	Bedroom	4.2	100	MET	66	24	N
120	Bedroom	4.3	100	MET	66	24	N
121	Living Room	5	100	MET	66	24	Y
122	L/K/D	7.4	100	N/A	83	25	Y
123	Bedroom	3.4	99	MET	55	17	N
124	Bedroom	3.1	100	MET	56	17	N
125	Living Room	3.1	100	MET	53	15	Y
126	Bedroom	3.3	100	MET	54	15	N
127	Bedroom	2.9	99	MET	51	14	N
128	Bedroom	2.7	92	MET	50	13	N
129	L/K/D	3.4	100	N/A	51	14	Y
130	Living Room	2	100	MET	9	0	N
131	Bedroom	1.8	98	MET	6	0	N
132	Bedroom	2	91	MET	6	0	N
133	Living Room	2.7	100	MET	6	0	N

Table 07: Assessment Data

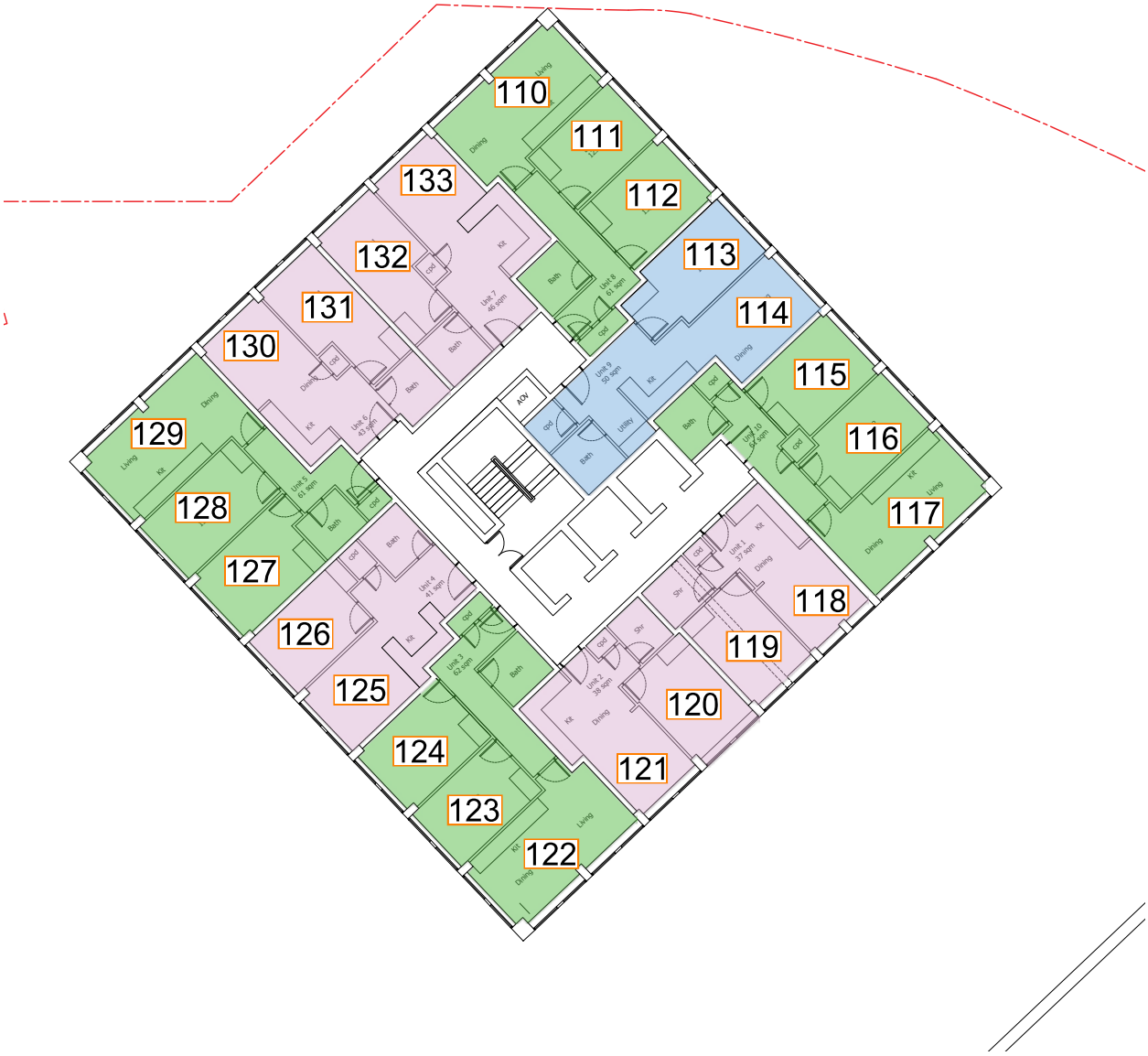

Fig. 08: Floor Plan

Block A - Level 06

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)		
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER	APPLICABLE FOR PSH ASSESSMENT
BLOCK A - LEVEL 06							
134	L/K/D	5.2	100	N/A	27	3	N
135	Bedroom	3	100	MET	19	3	N
136	Bedroom	3	100	MET	19	3	N
137	Bedroom	3.2	100	MET	19	3	N
138	Living Room	3.1	100	MET	19	3	N
139	Bedroom	3.2	100	MET	19	3	N
140	Bedroom	3.1	100	MET	17	3	N
141	L/K/D	7.4	100	N/A	66	24	Y
142	Living Room	4.9	100	MET	66	24	Y
143	Bedroom	4.3	100	MET	67	24	N
144	Bedroom	4.4	100	MET	67	24	N
145	Living Room	5.1	100	MET	67	24	Y
146	L/K/D	7.8	100	N/A	90	26	Y
147	Bedroom	3.8	100	MET	60	18	N
148	Bedroom	3.6	100	MET	62	19	N
149	Living Room	3.5	100	MET	61	18	Y
150	Bedroom	3.8	100	MET	59	18	N
151	Bedroom	3.4	100	MET	58	18	N
152	Bedroom	3.2	100	MET	57	17	N
153	L/K/D	3.9	100	N/A	56	18	Y
154	Living Room	2.2	100	MET	10	1	N
155	Bedroom	1.9	98	MET	6	0	N
156	Bedroom	2.1	95	MET	6	0	N
157	Living Room	2.9	100	MET	6	0	N

Table 08: Assessment Data

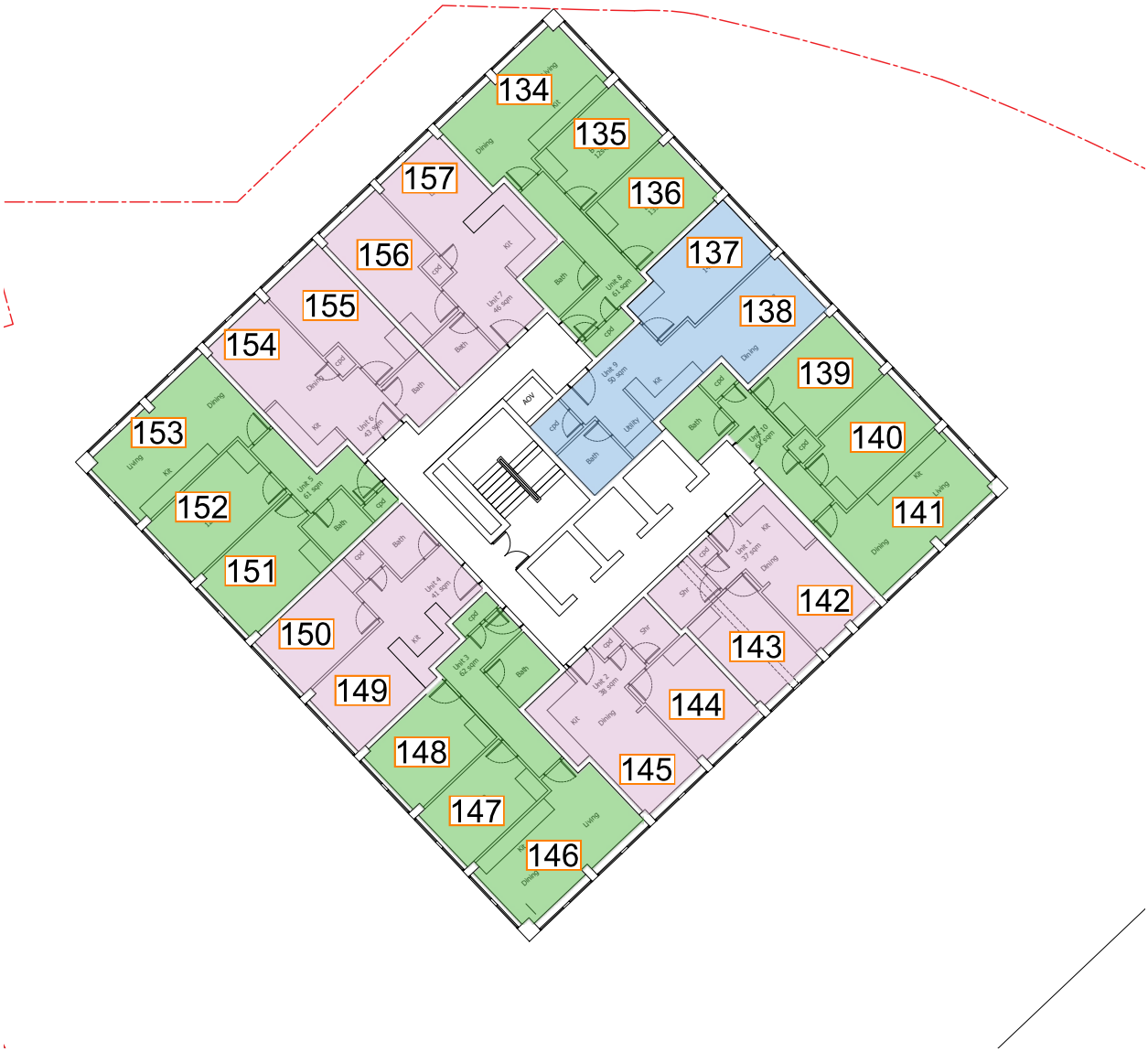

Fig. 09: Floor Plan

Block A - Level 07

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)		
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER	APPLICABLE FOR PSH ASSESSMENT
BLOCK A - LEVEL 07							
158	L/K/D	5.5	100	N/A	29	3	N
159	Bedroom	3.2	100	MET	21	3	N
160	Bedroom	3.1	100	MET	21	3	N
161	Bedroom	3.4	100	MET	20	3	N
162	Living Room	3.2	100	MET	20	3	N
163	Bedroom	3.3	100	MET	20	3	N
164	Bedroom	3.2	100	MET	18	3	N
165	L/K/D	7.5	100	N/A	67	24	Y
166	Living Room	5	100	MET	67	24	Y
167	Bedroom	4.4	100	MET	67	24	N
168	Bedroom	4.4	100	MET	67	24	N
169	Living Room	5.2	100	MET	67	24	Y
170	L/K/D	8.1	100	N/A	92	27	Y
171	Bedroom	4.2	100	MET	63	20	N
172	Bedroom	3.9	100	MET	65	22	N
173	Living Room	3.9	100	MET	64	21	Y
174	Bedroom	4.2	100	MET	64	22	N
175	Bedroom	3.8	100	MET	64	23	N
176	Bedroom	3.6	100	MET	64	23	N
177	L/K/D	4.4	100	N/A	62	24	Y
178	Living Room	2.3	100	MET	11	2	N
179	Bedroom	2	100	MET	6	0	N
180	Bedroom	2.2	99	MET	6	0	N
181	Living Room	3.1	100	MET	6	0	N

Table 09: Assessment Data

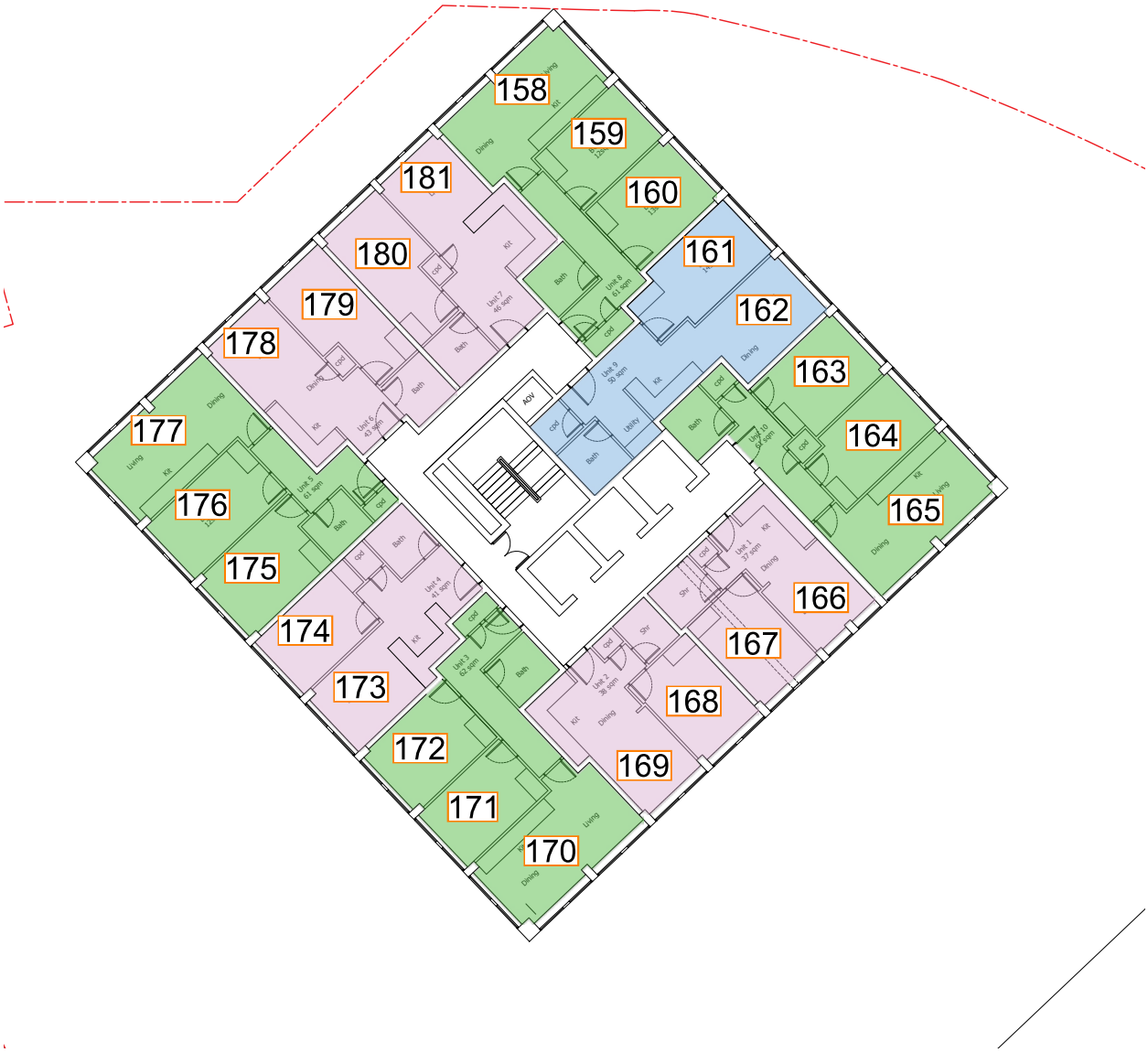

Fig. 10: Floor Plan

Block A - Level 08

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)		
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER	APPLICABLE FOR PSH ASSESSMENT
BLOCK A - LEVEL 08							
182	L/K/D	5.7	100	N/A	30	3	N
183	Bedroom	3.4	100	MET	21	3	N
184	Bedroom	3.2	100	MET	21	3	N
185	Bedroom	3.5	100	MET	21	3	N
186	Living Room	3.3	100	MET	21	3	N
187	Bedroom	3.4	100	MET	20	3	N
188	Bedroom	3.4	100	MET	18	3	N
189	L/K/D	7.7	100	N/A	67	24	Y
190	Living Room	5.1	100	MET	67	24	Y
191	Bedroom	4.5	100	MET	67	24	N
192	Bedroom	4.5	100	MET	67	24	N
193	Living Room	5.3	100	MET	67	24	Y
194	L/K/D	8.3	100	N/A	94	28	Y
195	Bedroom	4.4	100	MET	65	22	N
196	Bedroom	4.2	100	MET	66	23	N
197	Living Room	4.1	100	MET	66	23	Y
198	Bedroom	4.5	100	MET	65	23	N
199	Bedroom	4.1	100	MET	65	24	N
200	Bedroom	3.8	100	MET	65	24	N
201	L/K/D	4.6	100	N/A	62	24	Y
202	Living Room	2.5	100	MET	11	2	N
203	Bedroom	2.2	100	MET	6	0	N
204	Bedroom	2.3	100	MET	6	0	N
205	Living Room	3.2	100	MET	6	0	N

Table 10: Assessment Data

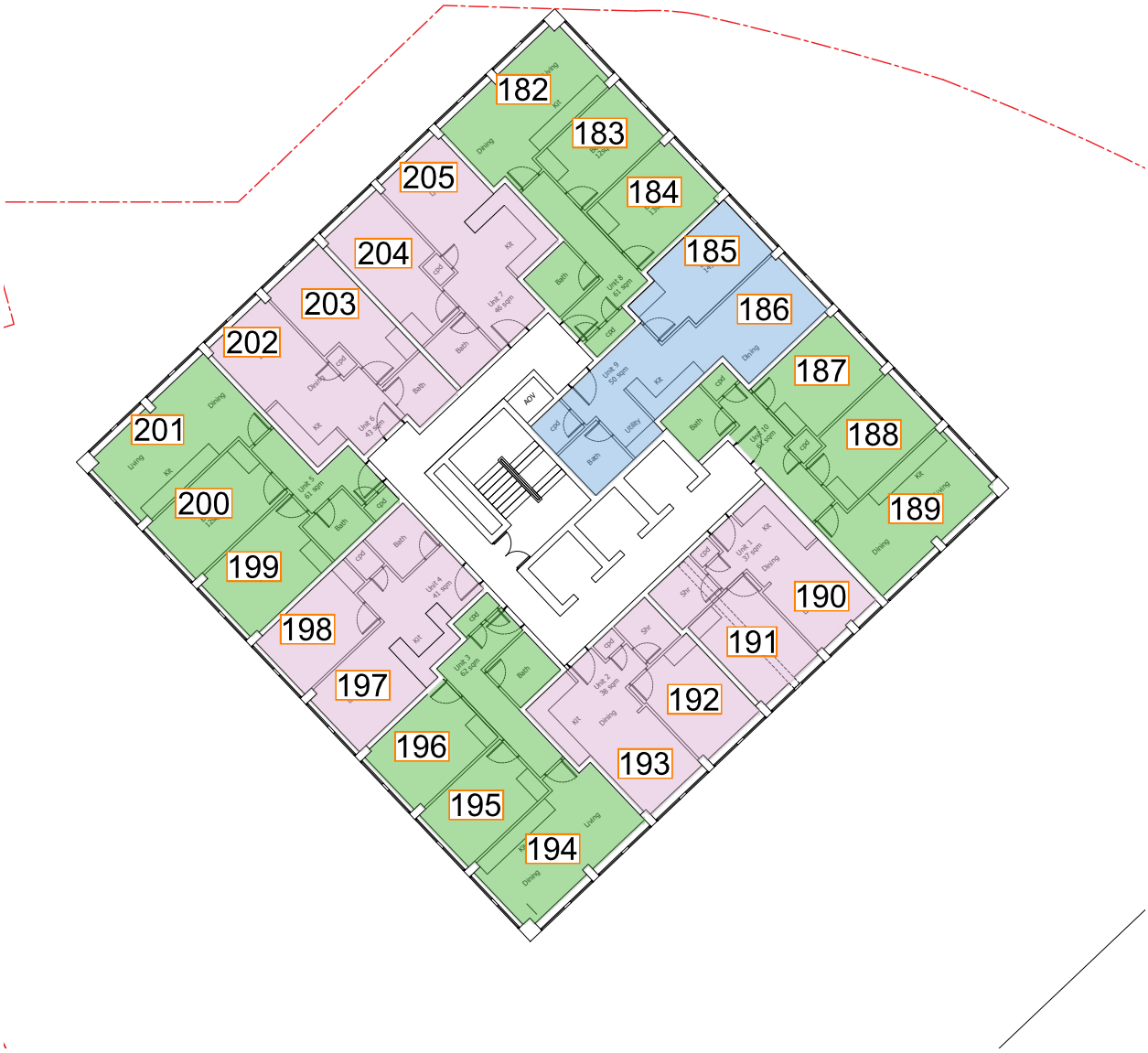

Fig. 11: Floor Plan

Block A - Level 09

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)		
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER	APPLICABLE FOR PSH ASSESSMENT
BLOCK A - LEVEL 09							
206	L/K/D	6.1	100	N/A	33	3	N
207	Bedroom	3.5	100	MET	23	3	N
208	Bedroom	3.4	100	MET	23	3	N
209	Bedroom	3.7	100	MET	23	3	N
210	Living Room	3.5	100	MET	22	3	N
211	Bedroom	3.6	100	MET	21	3	N
212	Bedroom	3.5	100	MET	19	3	N
213	L/K/D	7.9	100	N/A	67	24	Y
214	Living Room	5.1	100	MET	67	24	Y
215	Bedroom	4.5	100	MET	67	24	N
216	Bedroom	4.6	100	MET	68	24	N
217	Living Room	5.3	100	MET	69	24	Y
218	L/K/D	8.4	100	N/A	98	30	Y
219	Bedroom	4.6	100	MET	67	24	N
220	Bedroom	4.3	100	MET	67	24	N
221	Living Room	4.2	100	MET	67	24	Y
222	Bedroom	4.7	100	MET	66	24	N
223	Bedroom	4.2	100	MET	65	24	N
224	Bedroom	4	100	MET	65	24	N
225	L/K/D	4.9	100	N/A	62	24	Y
226	Living Room	2.7	100	MET	11	2	N
227	Bedroom	2.3	100	MET	6	0	N
228	Bedroom	2.5	100	MET	6	0	N
229	Living Room	3.5	100	MET	6	0	N

Table 11: Assessment Data

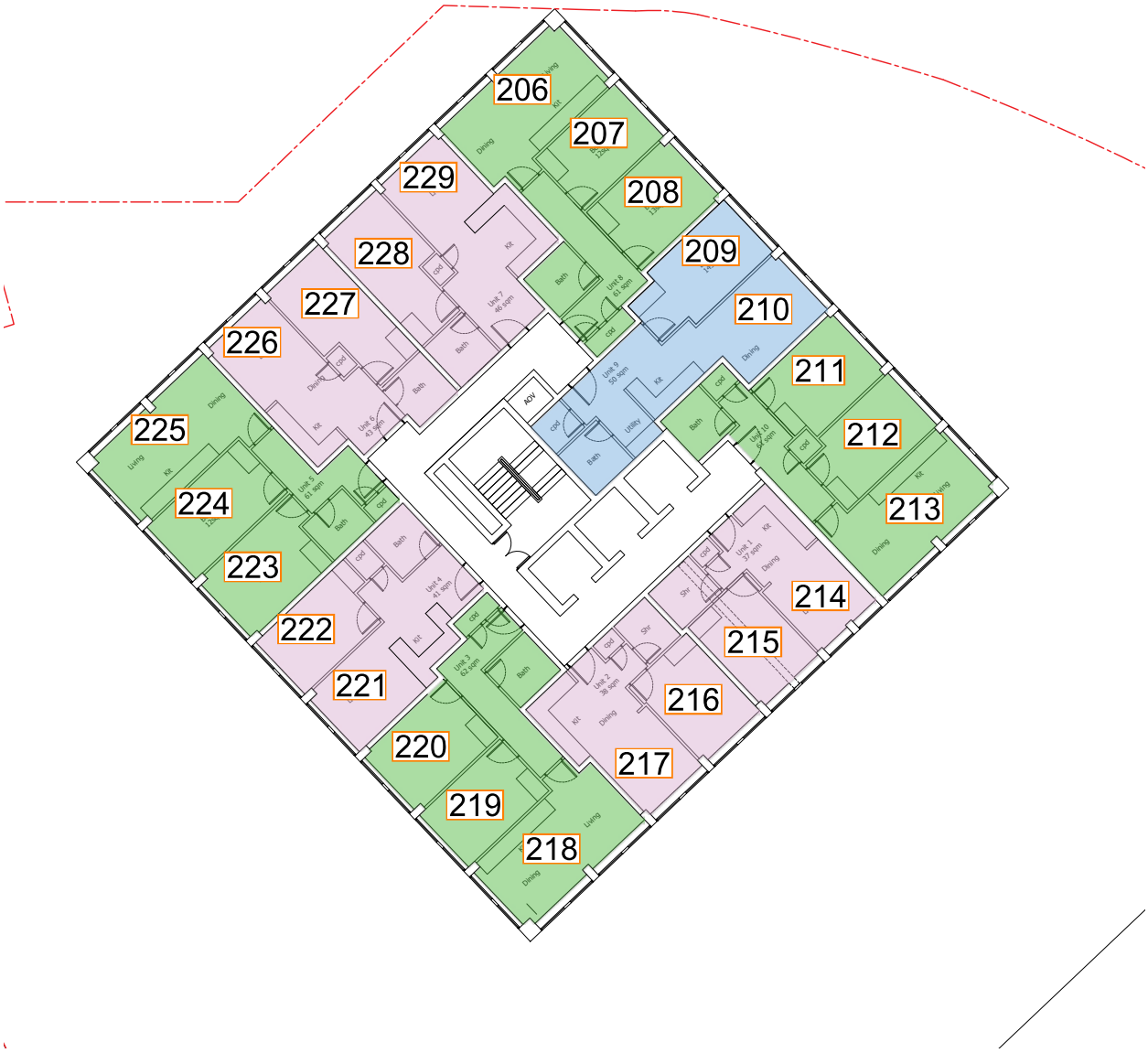

Fig. 12: Floor Plan

Block A - Level 10

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)		
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER	APPLICABLE FOR PSH ASSESSMENT
BLOCK A - LEVEL 10							
230	L/K/D	6.4	100	N/A	33	3	N
231	Bedroom	3.7	100	MET	23	3	N
232	Bedroom	3.5	100	MET	23	3	N
233	Bedroom	3.8	100	MET	23	3	N
234	Living Room	3.6	100	MET	22	3	N
235	Bedroom	3.7	100	MET	21	3	N
236	Bedroom	3.6	100	MET	20	3	N
237	L/K/D	8	100	N/A	68	24	Y
238	Living Room	5.2	100	MET	68	24	Y
239	Bedroom	4.6	100	MET	69	24	N
240	Bedroom	4.6	100	MET	70	24	N
241	Living Room	5.4	100	MET	70	24	Y
242	L/K/D	8.5	100	N/A	98	30	Y
243	Bedroom	4.7	100	MET	67	24	N
244	Bedroom	4.4	100	MET	67	24	N
245	Living Room	4.3	100	MET	67	24	Y
246	Bedroom	4.8	100	MET	66	24	N
247	Bedroom	4.3	100	MET	66	24	N
248	Bedroom	4.1	100	MET	65	24	N
249	L/K/D	5.2	100	N/A	62	24	Y
250	Living Room	3	100	MET	11	2	N
251	Bedroom	2.5	100	MET	6	0	N
252	Bedroom	2.7	100	MET	6	0	N
253	Living Room	3.7	100	MET	7	0	N

Table 12: Assessment Data

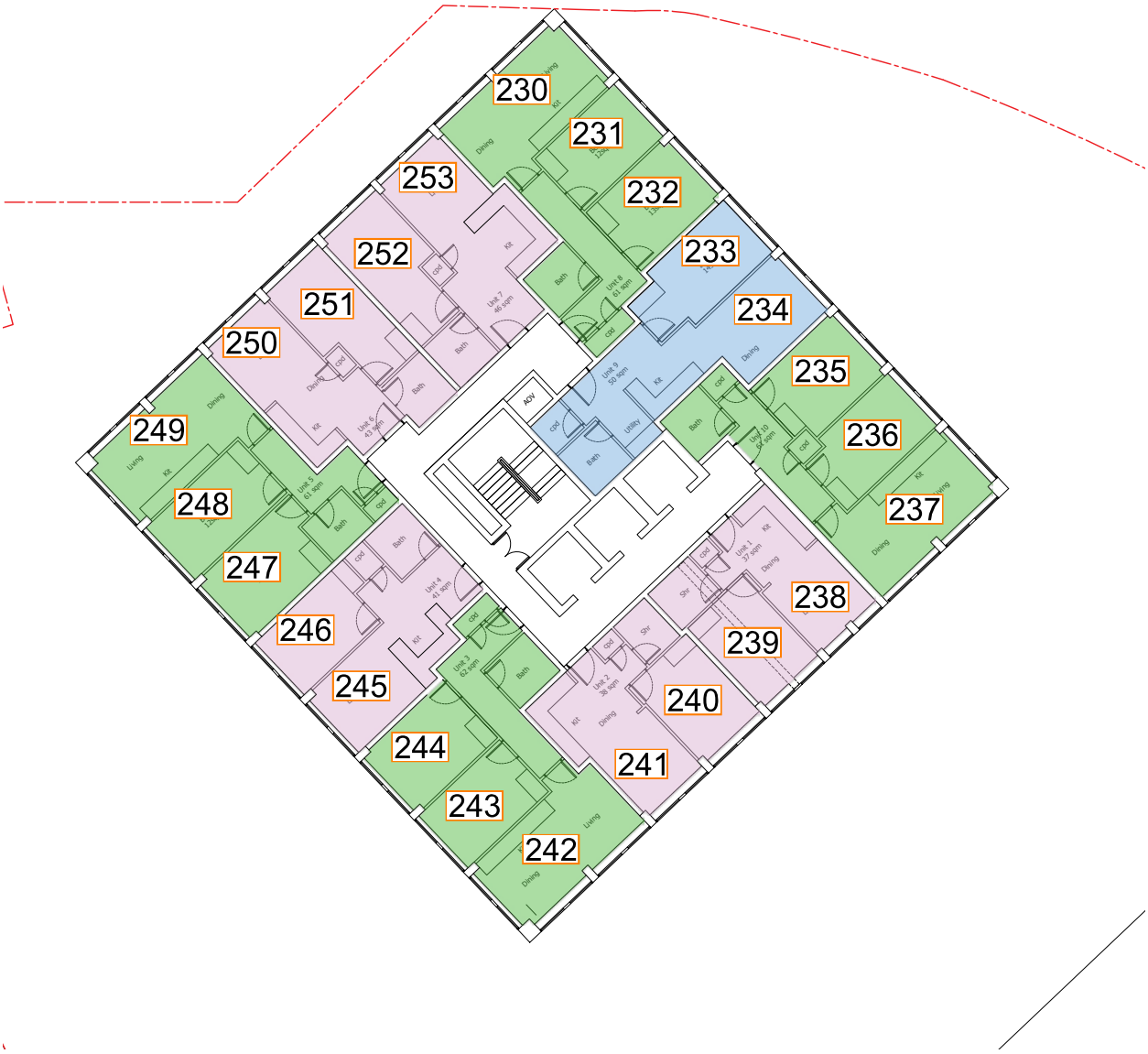

Fig. 13: Floor Plan

Block A - Level 11

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)		
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER	APPLICABLE FOR PSH ASSESSMENT
BLOCK A - LEVEL 11							
254	L/K/D	6.7	100	N/A	34	3	N
255	Bedroom	3.9	100	MET	23	3	N
256	Bedroom	3.7	100	MET	23	3	N
257	Bedroom	3.9	100	MET	23	3	N
258	Living Room	3.8	100	MET	23	3	N
259	Bedroom	3.8	100	MET	22	3	N
260	Bedroom	3.7	100	MET	22	3	N
261	L/K/D	8.1	100	N/A	70	24	Y
262	Living Room	5.2	100	MET	70	24	Y
263	Bedroom	4.6	100	MET	70	24	N
264	Bedroom	4.6	100	MET	70	24	N
265	Living Room	5.4	100	MET	71	24	Y
266	L/K/D	8.6	100	N/A	99	30	Y
267	Bedroom	4.8	100	MET	67	24	N
268	Bedroom	4.5	100	MET	67	24	N
269	Living Room	4.4	100	MET	67	24	Y
270	Bedroom	4.9	100	MET	66	24	N
271	Bedroom	4.4	100	MET	66	24	N
272	Bedroom	4.1	100	MET	65	24	N
273	L/K/D	5.5	100	N/A	62	24	Y
274	Living Room	3.2	100	MET	11	2	N
275	Bedroom	2.7	100	MET	7	0	N
276	Bedroom	2.9	100	MET	7	0	N
277	Living Room	3.9	100	MET	7	0	N

Table 13: Assessment Data

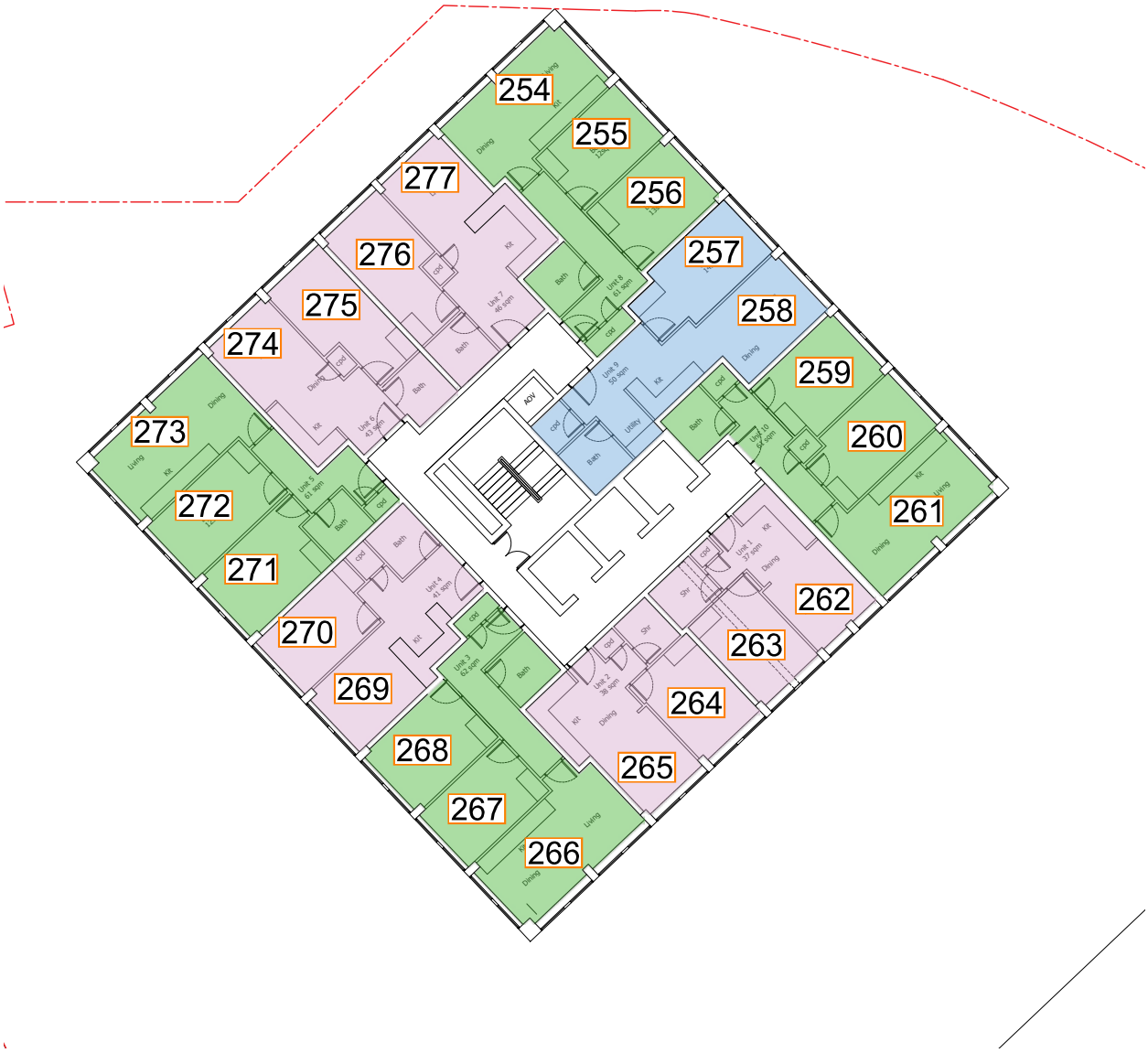

Fig. 14: Floor Plan

Block A - Level 12

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)		
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER	APPLICABLE FOR PSH ASSESSMENT
BLOCK A - LEVEL 12							
278	L/K/D	7.1	100	N/A	37	3	N
279	Bedroom	4	100	MET	24	3	N
280	Bedroom	3.8	100	MET	24	3	N
281	Bedroom	4.1	100	MET	24	3	N
282	Living Room	3.9	100	MET	24	3	N
283	Bedroom	4	100	MET	24	3	N
284	Bedroom	3.9	100	MET	23	3	N
285	L/K/D	8.3	100	N/A	71	24	Y
286	Living Room	5.2	100	MET	71	24	Y
287	Bedroom	4.6	100	MET	71	24	N
288	Bedroom	4.7	100	MET	71	24	N
289	Living Room	5.4	100	MET	71	24	Y
290	L/K/D	8.7	100	N/A	99	30	Y
291	Bedroom	4.8	100	MET	67	24	N
292	Bedroom	4.6	100	MET	67	24	N
293	Living Room	4.4	100	MET	67	24	Y
294	Bedroom	4.9	100	MET	66	24	N
295	Bedroom	4.4	100	MET	66	24	N
296	Bedroom	4.2	100	MET	65	24	N
297	L/K/D	5.8	100	N/A	62	24	Y
298	Living Room	3.5	100	MET	11	2	N
299	Bedroom	2.9	100	MET	8	0	N
300	Bedroom	3.1	100	MET	9	0	N
301	Living Room	4.1	100	MET	8	0	N

Table 14: Assessment Data

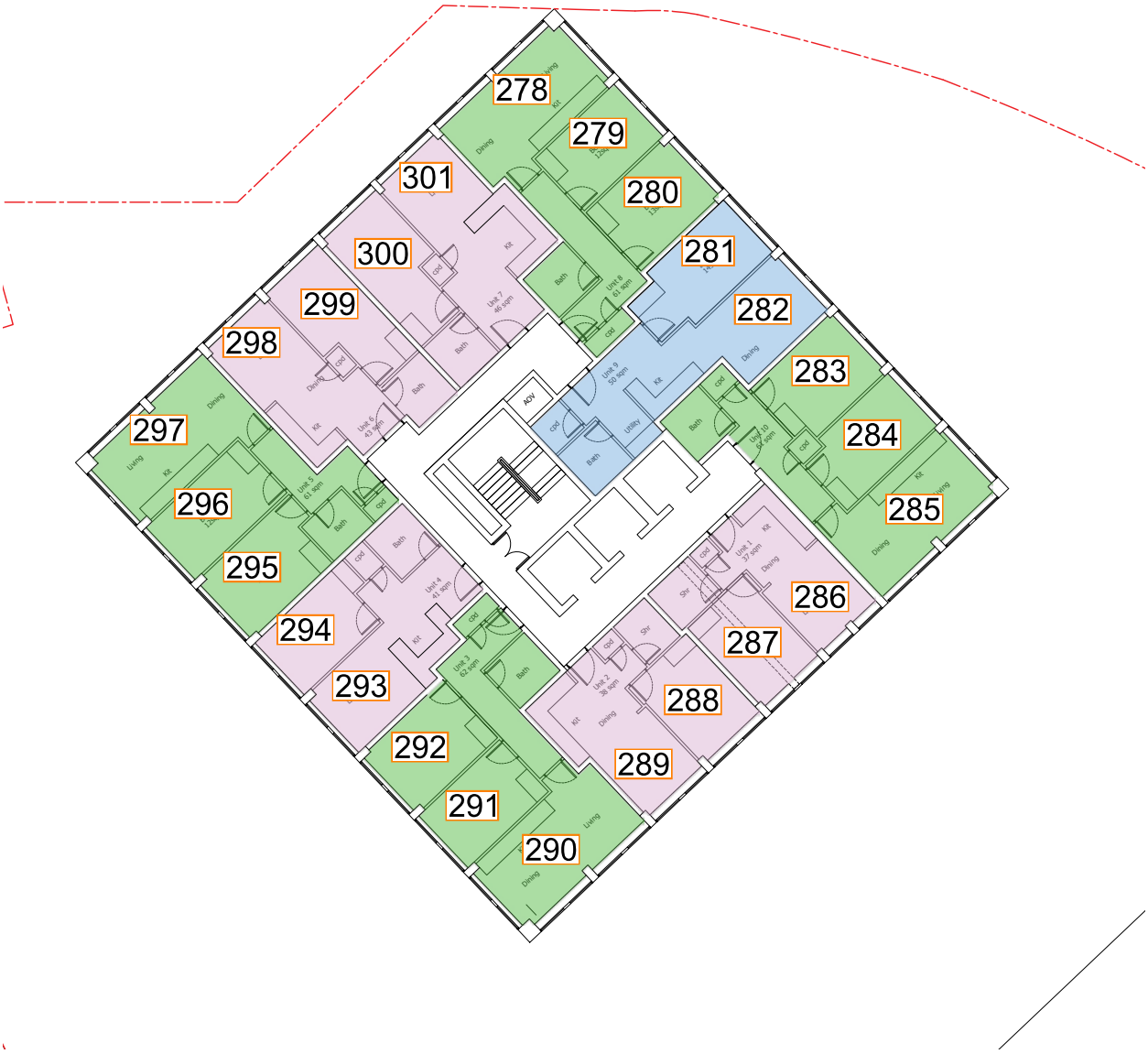

Fig. 15: Floor Plan

Block A - Level 13

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)		
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER	APPLICABLE FOR PSH ASSESSMENT
BLOCK A - LEVEL 13							
302	L/K/D	7.4	100	N/A	41	3	N
303	Bedroom	4.2	100	MET	24	3	N
304	Bedroom	4	100	MET	24	3	N
305	Bedroom	4.2	100	MET	24	3	N
306	Living Room	4	100	MET	24	3	N
307	Bedroom	4.1	100	MET	24	3	N
308	Bedroom	4	100	MET	24	3	N
309	L/K/D	8.4	100	N/A	71	24	Y
310	Living Room	5.3	100	MET	71	24	Y
311	Bedroom	4.6	100	MET	71	24	N
312	Bedroom	4.7	100	MET	71	24	N
313	Living Room	5.5	100	MET	71	24	Y
314	L/K/D	8.7	100	N/A	99	30	Y
315	Bedroom	4.9	100	MET	67	24	N
316	Bedroom	4.7	100	MET	67	24	N
317	Living Room	4.5	100	MET	67	24	Y
318	Bedroom	5	100	MET	66	24	N
319	Bedroom	4.5	100	MET	66	24	N
320	Bedroom	4.3	100	MET	65	24	N
321	L/K/D	6.2	100	N/A	62	24	Y
322	Living Room	3.8	100	MET	11	2	N
323	Bedroom	3.1	100	MET	8	0	N
324	Bedroom	3.3	100	MET	10	0	N
325	Living Room	4.3	100	MET	11	0	N

Table 15: Assessment Data

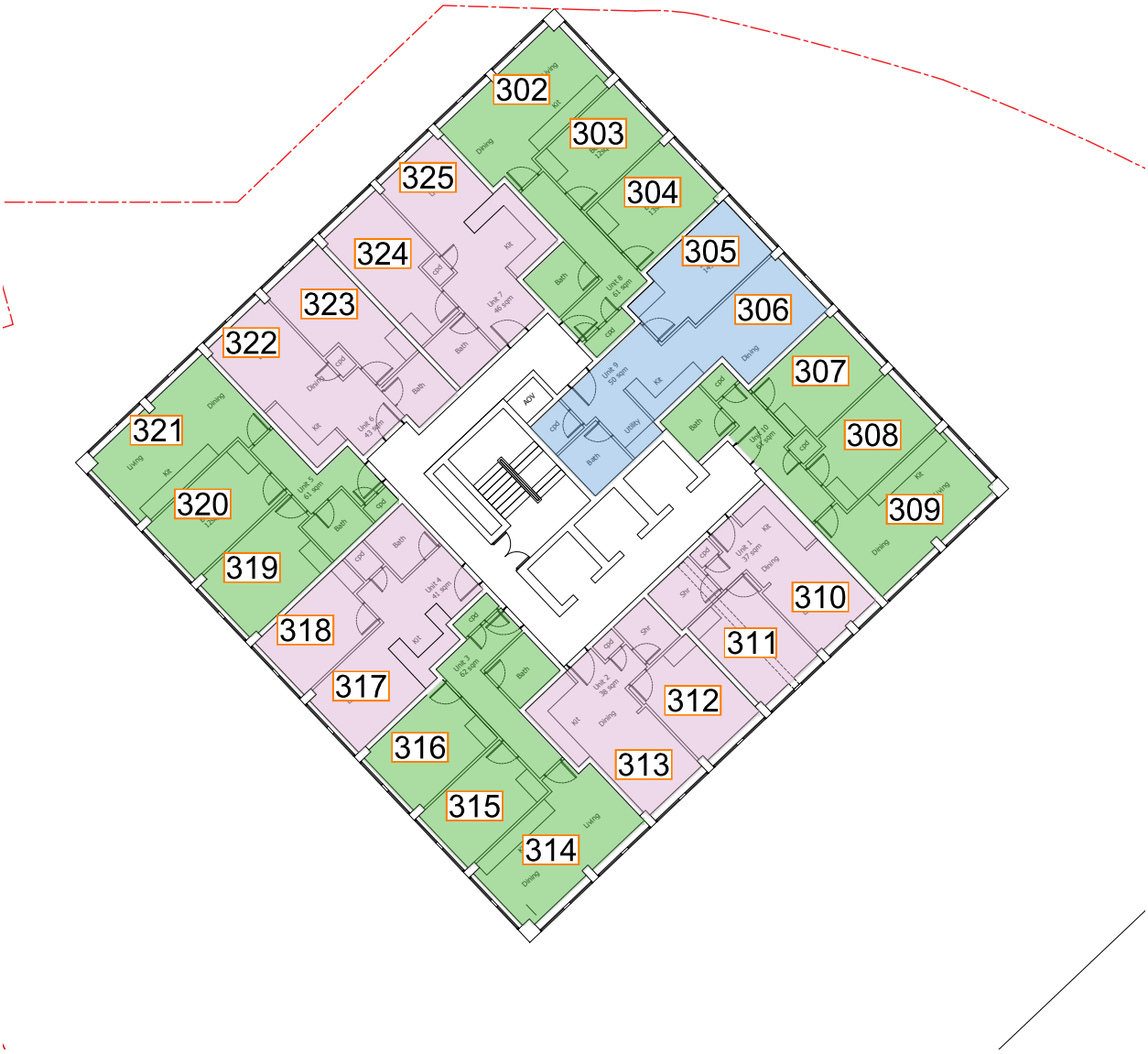

Fig. 16: Floor Plan

Block B - Level 00

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)		
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER	APPLICABLE FOR PSH ASSESSMENT
BLOCK B - LEVEL 00							
326	Bedroom	1.4	69	MET	0	0	N
327	Living Room	1.7	95	MET	7	0	N
328	L/K/D	3.2	99	N/A	17	0	N
329	Bedroom	2	81	MET	10	0	N
330	Bedroom	1.9	67	MET	10	0	N
331	Living Room	2	87	MET	10	0	N
332	Bedroom	1.7	56	MET	10	0	N
333	Bedroom	1.7	57	MET	10	0	N
334	Living Room	1.8	80	MET	10	0	N
335	Bedroom	1.8	55	MET	10	0	N
336	Living Room	1.7	70	MET	10	0	N
337	Bedroom	3.3	100	MET	55	19	N
338	L/K/D	2.8	100	MET	55	21	Y
339	Bedroom	3.2	100	MET	53	21	N
340	Bedroom	4.2	100	MET	53	22	N
341	L/K/D	2.3	100	MET	51	21	Y
342	Living Room	1.9	95	MET	47	21	Y
343	Bedroom	3	100	MET	50	21	N
344	L/K/D	2.4	100	MET	53	21	Y
345	Bedroom	3.3	100	MET	56	21	N
346	Bedroom	3.8	100	MET	57	22	N
347	Living Room	4.2	100	MET	62	22	Y

Table 16: Assessment Data

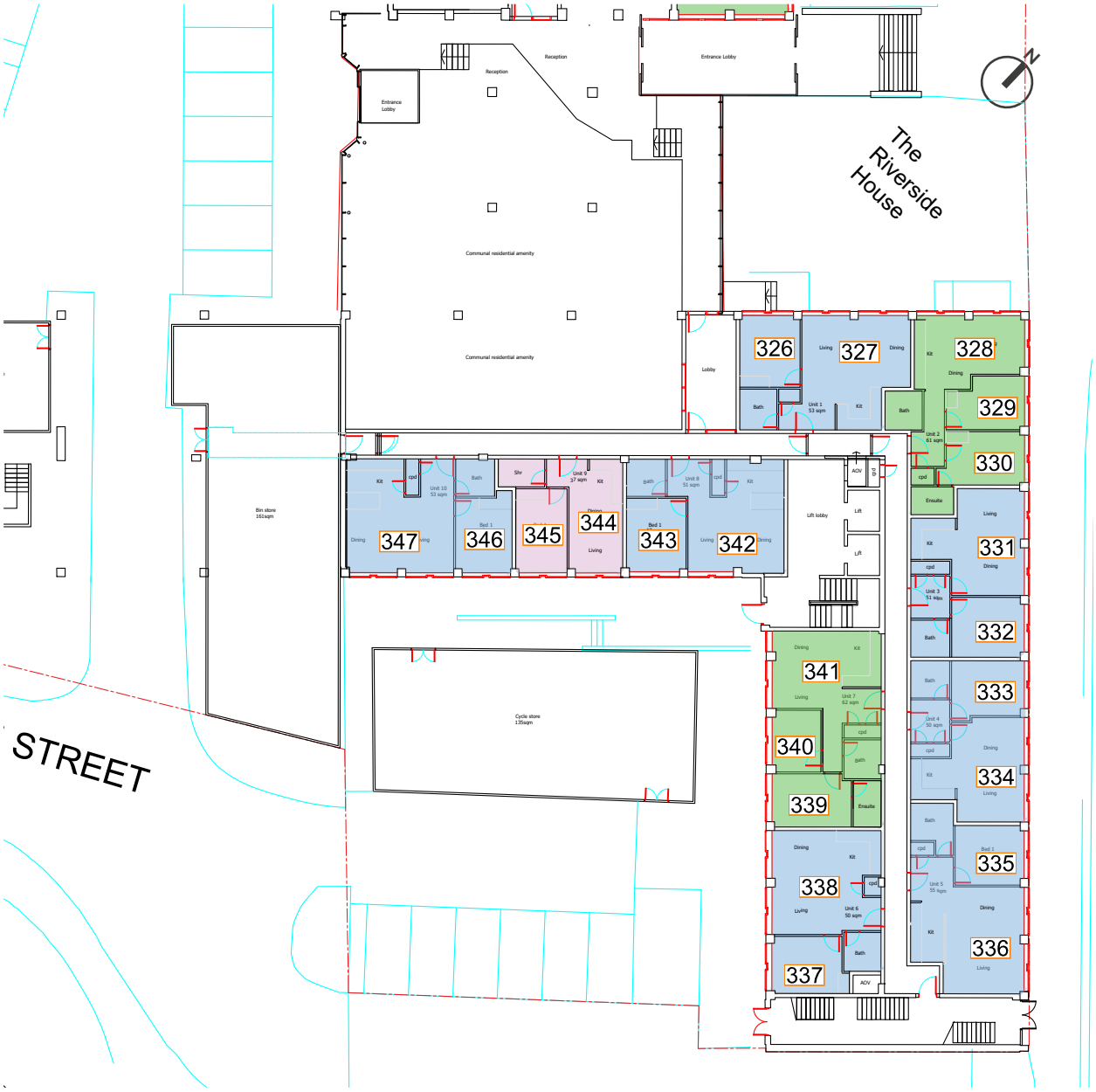

Fig. 17: Floor Plan

Block B - Level 01

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)		
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER	APPLICABLE FOR PSH ASSESSMENT
BLOCK B - LEVEL 01							
348	L/K/D	3.9	100	N/A	18	0	N
349	Bedroom	2.4	89	MET	11	0	N
350	Bedroom	2.1	77	MET	12	0	N
351	Living Room	2.4	93	MET	13	0	N
352	Bedroom	2	69	MET	13	0	N
353	Bedroom	2	70	MET	13	0	N
354	Living Room	2.3	89	MET	13	0	N
355	Bedroom	2.2	73	MET	13	0	N
356	Living Room	2.2	69	MET	13	0	N
357	Bedroom	2.2	69	MET	14	1	N
358	Living Room	2.3	75	MET	13	1	N
359	Bedroom	4.2	100	MET	60	22	N
360	L/K/D	3.6	100	MET	60	22	Y
361	Bedroom	3.8	100	MET	57	22	N
362	Bedroom	4.9	100	MET	55	22	N
363	L/K/D	2.8	100	MET	52	21	Y
364	L/K/D	2	95	MET	49	21	Y
365	Bedroom	3.8	100	MET	52	21	N
366	Bedroom	3.7	100	MET	56	21	N
367	Bedroom	4.2	100	MET	58	22	N
368	Living Room	4.9	100	MET	64	23	Y
369	Bedroom	4.5	100	MET	65	23	N
370	Living Room	5	100	MET	65	23	Y
371	Bedroom	4.1	100	MET	65	22	N
372	L/K/D	4.8	100	N/A	67	23	Y
373	L/K/D	3	100	N/A	26	6	Y
374	Bedroom	1.6	59	MET	10	2	N
375	Bedroom	1.6	61	MET	7	0	N
376	L/K/D	2	78	MET	8	0	N
377	Bedroom	1.7	61	MET	8	0	N
378	Bedroom	1.6	61	MET	8	0	N
379	Bedroom	1	91	MET	0	0	N
380	Bedroom	2	99	MET	0	0	N
381	L/K/D	3.7	100	N/A	29	5	Y
382	Studio	1.5	89	MET	8	0	N
383	Bedroom	2	78	MET	9	0	N
384	Living Room	2.1	99	MET	8	0	N

Table 17: Assessment Data

Fig. 18: Floor Plan

Block B - Level 02

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)		
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER	APPLICABLE FOR PSH ASSESSMENT
BLOCK B - LEVEL 02							
385	L/K/D	4.1	100	N/A	18	0	N
386	Bedroom	2.5	92	MET	12	0	N
387	Bedroom	2.2	83	MET	13	0	N
388	Living Room	2.4	95	MET	14	0	N
389	Bedroom	2.1	76	MET	14	0	N
390	Bedroom	2.1	77	MET	14	0	N
391	Living Room	2.4	95	MET	14	0	N
392	Bedroom	2.4	79	MET	14	0	N
393	Living Room	2.4	76	MET	14	0	N
394	Bedroom	2.4	76	MET	15	1	N
395	Living Room	2.5	84	MET	15	1	N
396	Bedroom	4.3	100	MET	62	23	N
397	L/K/D	3.7	100	MET	60	22	Y
398	Bedroom	4	100	MET	59	22	N
399	Bedroom	5.2	100	MET	57	22	N
400	L/K/D	3	100	MET	53	21	Y
401	L/K/D	2.3	95	MET	50	21	Y
402	Bedroom	4.2	100	MET	56	21	N
403	Bedroom	3.8	100	MET	57	21	N
404	Bedroom	4.4	100	MET	61	22	N
405	Living Room	5	100	MET	66	24	Y
406	Bedroom	4.5	100	MET	65	23	N
407	Living Room	5.1	100	MET	69	24	Y
408	Bedroom	4.2	100	MET	68	23	N
409	L/K/D	5	100	N/A	69	23	Y
410	L/K/D	3.4	100	N/A	36	6	Y
411	Bedroom	1.8	70	MET	11	2	N
412	Bedroom	1.8	73	MET	10	0	N
413	Bedroom	1.8	77	MET	9	0	N
414	L/K/D	2	89	MET	9	0	N
415	Living Room	1.9	90	MET	11	0	N
416	Bedroom	1.6	51	MET	12	0	N
417	Bedroom	1.6	52	MET	11	0	N
418	Living Room	2	90	MET	10	0	N
419	Bedroom	2.1	79	MET	10	0	N
420	Living Room	2.3	99	MET	8	0	N

Table 18: Assessment Data

Fig. 19: Floor Plan

Block B - Level 03

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)		
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER	APPLICABLE FOR PSH ASSESSMENT
BLOCK B - LEVEL 03							
421	L/K/D	4.2	100	N/A	22	1	N
422	Bedroom	2.6	97	MET	15	1	N
423	Bedroom	2.3	88	MET	16	1	N
424	Living Room	2.6	97	MET	17	1	N
425	Bedroom	2.2	81	MET	17	1	N
426	Bedroom	2.2	84	MET	17	1	N
427	Living Room	2.6	98	MET	17	1	N
428	Bedroom	2.6	90	MET	17	1	N
429	Living Room	2.6	84	MET	17	2	N
430	Bedroom	2.6	83	MET	16	2	N
431	Living Room	2.7	91	MET	16	2	N
432	Bedroom	4.4	100	MET	64	23	N
433	L/K/D	3.8	100	MET	63	23	Y
434	Bedroom	4.2	100	MET	61	23	N
435	Bedroom	5.4	100	MET	60	22	N
436	L/K/D	3.2	100	MET	56	21	Y
437	L/K/D	2.4	95	MET	52	21	Y
438	Bedroom	4.5	100	MET	58	22	N
439	Bedroom	4	100	MET	62	22	N
440	Bedroom	4.5	100	MET	66	24	N
441	Living Room	5.1	100	MET	68	24	Y
442	Bedroom	4.6	100	MET	69	24	N
443	Living Room	5.2	100	MET	70	24	Y
444	Bedroom	4.2	100	MET	69	23	N
445	L/K/D	5.5	100	N/A	73	23	Y
446	L/K/D	4.2	100	N/A	46	10	Y
447	Bedroom	2.1	90	MET	13	2	N
448	Bedroom	2	85	MET	12	1	N
449	Bedroom	2.1	86	MET	10	0	N
450	L/K/D	2.2	93	MET	11	1	N
451	Living Room	2.1	93	MET	15	1	N
452	Bedroom	1.8	53	MET	14	0	N
453	Bedroom	1.7	55	MET	12	0	N
454	Living Room	2.1	95	MET	10	0	N
455	Bedroom	2.2	81	MET	10	0	N
456	Living Room	2.4	99	MET	9	0	N

Table 19: Assessment Data

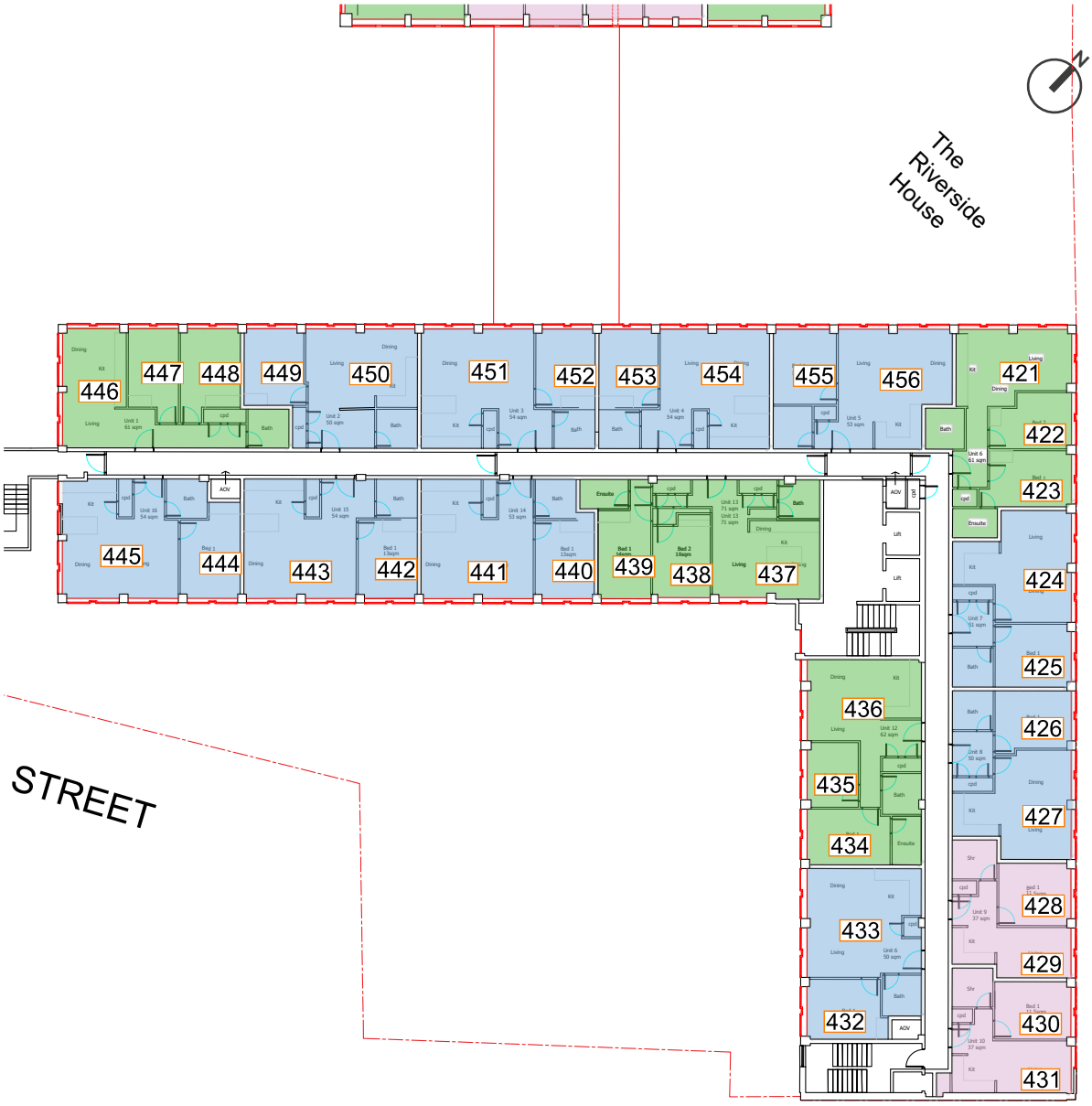

Fig. 20: Floor Plan

Block B - Level 04

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)		
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER	APPLICABLE FOR PSH ASSESSMENT
BLOCK B - LEVEL 04							
457	L/K/D	4.4	100	N/A	22	1	N
458	Bedroom	2.7	99	MET	15	1	N
459	Bedroom	2.4	93	MET	16	1	N
460	Living Room	2.7	100	MET	17	1	N
461	Bedroom	2.3	85	MET	18	1	N
462	Bedroom	2.3	86	MET	18	1	N
463	Living Room	2.8	100	MET	18	1	N
464	Bedroom	2.7	94	MET	17	1	N
465	Living Room	2.8	92	MET	18	2	N
466	Bedroom	2.8	90	MET	18	2	N
467	Living Room	3	97	MET	18	2	N
468	Bedroom	4.5	100	MET	65	23	N
469	L/K/D	3.9	100	MET	65	23	Y
470	Bedroom	4.3	100	MET	65	23	N
471	Bedroom	5.7	100	MET	63	23	N
472	L/K/D	3.4	100	MET	61	23	Y
473	L/K/D	2.6	95	MET	57	21	Y
474	Bedroom	4.8	100	MET	65	23	N
475	Bedroom	4.3	100	MET	68	24	N
476	Bedroom	4.7	100	MET	70	24	N
477	Living Room	5.2	100	MET	70	24	Y
478	Bedroom	4.7	100	MET	70	24	N
479	Living Room	5.2	100	MET	70	24	Y
480	Bedroom	4.3	100	MET	70	24	N
481	L/K/D	6.4	100	N/A	88	23	Y
482	L/K/D	5.3	100	N/A	57	16	Y
483	Bedroom	2.3	94	MET	14	2	N
484	Bedroom	2.2	87	MET	12	1	N
485	Bedroom	2.3	87	MET	12	1	N
486	L/K/D	2	86	MET	15	1	N
487	Living Room	2.3	93	MET	19	2	N
488	Bedroom	1.9	55	MET	15	0	N
489	Bedroom	1.9	56	MET	12	0	N
490	Living Room	2.3	97	MET	11	0	N
491	Bedroom	2.4	83	MET	11	0	N
492	Living Room	2.5	100	MET	9	0	N

Table 20: Assessment Data

Fig. 21: Floor Plan

gia
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