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CHARTERED SURVEYORS

DAYLIGHT & SUNLIGHT

INTERNAL DAYLIGHT, SUNLIGHT AND OVERSHADOWING REPORT

Richmond Upon Thames College

20 July 2021

GIA No: **17617**

PROJECT DATA:

Client	**Clarion Housing Group**
Architect	**BPTW**
Project Title	**Richmond Upon Thames College**
Project Number	**17617**

REPORT DATA:

Report Title	**Internal Daylight, Sunlight and Overshadowing Report**
GIA Department	**Daylight & Sunlight**
Dated	**20 July 2021**

Prepared by	**FC**
Checked by	**SP**
Type	**Planning**

Revisions	No:	Date:	Notes:	Signed:

SOURCES OF INFORMATION:

Information Received	**IR-19-21-17617**
Release Number	**Rel_03_17617_DSD**
Issue Number	**03**
Site Photos	**GIA**
3D models	**VERTEX**
OS Data	**FIND Maps**

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1 EXECUTIVE SUMMARY

1.1 EXECUTIVE SUMMARY

The proposed scheme has been developed alongside GIA in order to optimise the daylight and sunlight amenities for future occupants.

This has been achieved through an iterative process of testing, feedback and design.

Living areas have been furnished, wherever possible, with secondary aspects and windows have been optimised to balance daylight ingress while avoiding overheating and preserving privacy.

Balconies have been offered with every unit and their location carefully considered in order to minimise their impact upon the windows beneath them.

The resulting scheme performs generally well in daylight terms, with 78% of all habitable rooms meeting or exceeding the target levels for Average Daylight Factor (ADF), the most complete among daylight tests.

88% of all rooms with an expectation of sunlight meet or exceed BRE's recommendation for Probable Sunlight Hours (PSH) and finally, the main open space at the heart of the scheme, exceeds targets with 60% of its area seeing 2 hours or more sunlight on the 21st of March.

We can therefore conclude that the scheme makes the most of the daylight and sunlight available to site and delivers a well rounded and carefully considered scheme in relation to daylight and sunlight amenity.

Further detail is provided in the conclusions section of this report.

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 residential scheme prepared by BPTW. GIA was specifically instructed to carry out the following:

- To create a 3D computer model of the proposal based upon drawings prepared by BPTW.
- 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 Probable Sunlight Hours (APSH) to the fenestration facing within 90° of due south.
- Carry out an overshadowing assessment using the methodology set out in the BRE guidance for Sun Hours On Ground (SHOG) for all relevant amenity areas.
- Prepare a report setting out the analysis and our findings.

3 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.

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.

3.1 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.

3.2 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"*.

3.3 OVERSHADOWING

The BRE guidance in respect of overshadowing of amenity spaces is set out in section 3.3 of the handbook. Here it states as follows:

"Sunlight in the spaces between buildings has an important impact on the overall appearance and ambiance of a development. It is valuable for a number of reasons, to:

- *provide attractive sunlit views (all year)*
- *make outdoor activities, like sitting out and children's play more pleasant (mainly warmer months)*
- *encourage plant growth (mainly spring and summer)*
- *dry out the ground, reducing moss and slime (mainly in colder months)*
- *melt frost, ice and snow (in winter)*
- *dry clothes (all year)"*

Again, it must be acknowledged that in urban areas the availability of sunlight on the ground is a factor which is significantly controlled by the existing urban fabric around the site in question and so may have very little to do with the form of the development itself. Likewise there may be many other urban design, planning and site constraints which determine and run contrary to the best form, siting and location of a proposed development in terms of availability of sun on the ground.

The summary of section 3.3 of the guide states as follows:

"3. 3 .17 It is recommended that for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on 21 March. If as a result of new development an existing garden or amenity area does not meet the above, and the area which can receive two hours of sun on 21 March is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable. If a detailed calculation cannot be carried out, it is recommended that the centre of the area should receive at least two hours of sunlight on 21 March."

3.4 FURTHER RELEVANT INFORMATION

Further information can be found in The Daylight in Urban Areas Design Guide (Energy Saving Trust CE257, 2007) which provides the following recommendation with regards to VSC levels in urban areas:

"If 'theta' (Visible sky angle) is greater than 65° (obstruction angle less than 25° or VSC at least 27 percent) conventional window design will usually give reasonable results.

If 'theta' is between 45° and 65° (obstruction angle between 25° and 45°, VSC between 15 and 27 percent), special measures such as larger windows and changes to room layout are usually needed to provide adequate daylight.

If 'theta' is between 25° and 45° (obstruction angle between 45° and 65°, VSC from 5 to 15 percent), it is very difficult to provide adequate daylight unless very large windows are used.

If 'theta' is less than 25° (obstruction angle more than 65°, VSC less than 5 percent) it is often impossible to achieve reasonable daylight, even if the whole window wall is glazed."

4 METHODOLOGY

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

The three dimensional representation of the proposed development has been modelled using the scheme drawings provided to us by BPTW. This has been placed in the context of its surrounding buildings which have been modelled from survey information, photogrammetry, OS and site photographs. 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, internal and external spaces, considering all of the surrounding obstructions and orientation.

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.

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):	0.75
Single glazing: Pilkington Optifloat Clear 4mm Annealed	0.90
Translucent glazing (Low-E): Pilkington Optifloat Opal - 4mm K /16/4mm Opal	0.74

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
Double Translucent Low-E (frames modelled)	0.74	8	1	1	1	0.68
Double Translucent Low-E (frames not modelled)	0.74	8	1	1	0.8	0.54
Double Translucent Low-E (inclined, frames modelled)	0.74	8	2	1	1	0.62
Double Translucent Low-E (inclined, frames not modelled)	0.74	8	2	1	0.8	0.50
Double Translucent Low-E (horizontal, frames modelled)	0.74	8	3	1	1	0.56
Double Translucent Low-E (horizontal, frames not modelled)	0.74	8	3	1	0.8	0.45

5 CONCLUSIONS

5.1 SUMMARY OF CONCLUSIONS

The proposed masterplan at Richmond College has been developed taking daylight and sunlight into account from the start.

Through an iterative process of testing, feedback and design, daylight and sunlight have been optimised throughout the scheme.

Living areas have been furnished wherever possible with secondary aspects and fenestration for instance, and windows have been optimised to balance daylight ingress while avoiding overheating and preserving privacy.

Balconies have been offered with every unit and their location carefully considered in order to minimise their impact upon the windows beneath them.

The resulting scheme performs generally well in daylight terms, very well in sunlight terms and exceeds the recommendations for outdoor amenity in relation to its exposure to sunlight.

We can therefore conclude that the scheme makes the most of the daylight and sunlight available to site and delivers a well rounded and carefully considered scheme in relation to daylight and sunlight amenity.

5.2 CONCLUSIONS ON DAYLIGHT

All habitable rooms within the proposed scheme have been tested for Average Daylgiht Factor (ADF), No-sky line (NSL) and Room Depth Criterion (RDC), in accordance to BRE's recommendations.

The results can be found on pages 16-97 of this report alongside the floor plans and a key illustrating the location of individual tested blocks within the masterplan.

Overall 78% of the proposed habitable rooms will meet or exceed the target levels, which is a good results for a scheme of this size and nature in London.

Moreover, more than 83% of habitable rooms will have a view of the sky at desk height, in accordance to the NSL test, and all rooms meet the RDC criterion where this is applicable.

Combined with a very high compliance level in terms of sunlight and overshadowing tests, the proposed development is of high quality overall.

Where there are rooms falling short of the ADF or NSL guidance, the main reason is the presence of generous balconies which offer future occupants private open space. This is visible, in example, for rooms such as no. 5 and 15 where the presence of a balcony above the main living areas' windows reduces the direct view of the sky, and with it, the quantum of light entering the rooms.

Blocks B5 and B6 for instance, perform generally very well, with the exception of a few rooms, where the presence of balconies and access deck result in lower daylight levels indoors. These particular units (including rooms no. 273 and 284 in example), benefit from dual aspects, however, owing to the presence of exterior private amenity, will receive less daylight than otherwise possible. This is a conscious trade off of amenities which occurs in a small number of units within these two blocks.

All the main rooms within the town houses see levels of internal daylight and sunlight that meet or exceed the recommended levels. This is with the only exception of a few third bedrooms, which however fall only marginally short by 0.1% ADF.

5.3 CONCLUSIONS ON SUNLIGHT

All main living room windows with an expectation of sunlight have been tested for Probable Sunlight Hours (PSH) as described within the BRE Guidance.

The results can be found alongside the daylight ones in the tables provided throughout this report.

Overall circa 88% of all tested windows receive good levels of sunlight, which is a very high score considered the presence of balconies throughout the scheme.

Those windows falling short, do so typically because of the balconies, which intercept the sun rays before they can reach the fenestration beneath them. However, this is a typical trade off of amenities (private open spaces v daylight and sunlight), and future occupants will still be able to enjoy direct access to sunlight through the use of the balconies.

5.4 CONCLUSIONS ON OVERSHADOWING

The main communal open space at the centre of the development has been tested for Sun Hours on Ground (SHOG) in accordance with BRE's Guidance.

Th results are presented on page 98 of this report.

60% of the area receives at least 2 hours in the sun on the 21st of March where 50% is the target level, and will therefore offer future occupants a well sunlit open space.

Moreover, pages 99 and 100 illustrate the number of hours received across the communal area on the 21st of March and June respectively, providing a further layer of information about the area's performance during the summer time.

It can therefore be concluded that the scheme performs well overall considering all areas related to daylight, sunlight and overshadowing amenity.

6 SITE OVERVIEW

Fig. 01: Top view

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 average of hours 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. PSH assessments therefore consider all of the living rooms with a main window facing within 90 degrees of due south.

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 B1 - Ground Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B1 - GROUND FLOOR						
1	L/K/D	1.1	83	N/A	20	9
2	Bedroom	0.9	66	MET		
3	Bedroom	1.3	68	MET		
4	Bedroom	0.4	43	MET		
5	L/K/D	1.1	52	MET		
6	Bedroom	0.6	36	MET		
7	L/K/D	1.6	83	N/A		
8	Bedroom	1.3	55	MET		
9	L/K/D	1.8	97	N/A	70	20
10	Bedroom	2.1	96	MET		
11	L/K/D	1.7	94	N/A	38	20

Table 02: Assessment Data

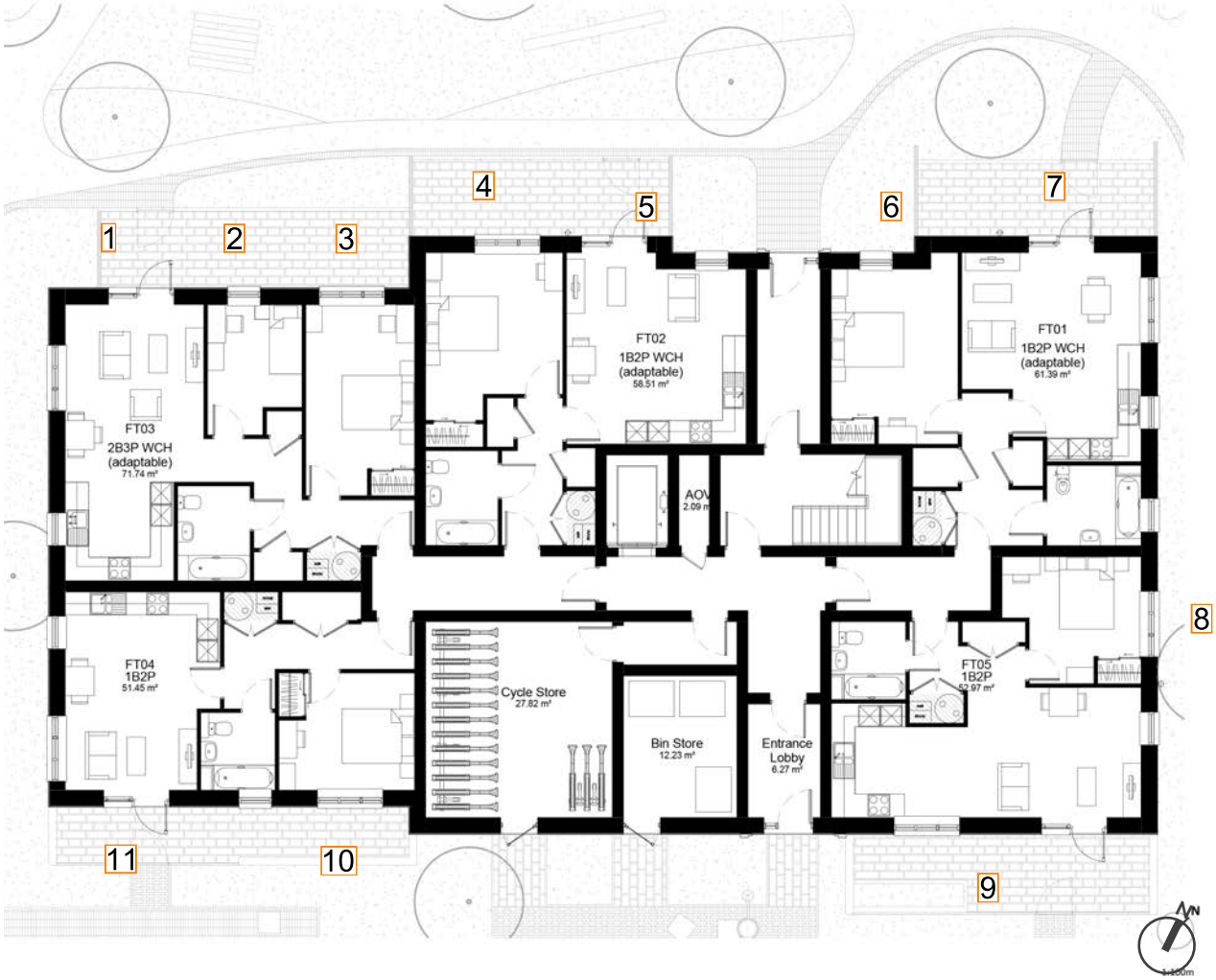
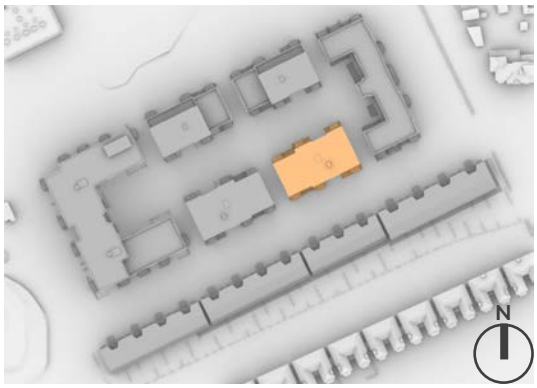


Fig. 03: Floor Plan



Block B1 - First Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B1 - FIRST FLOOR						
12	L/K/D	1.4	84	N/A	19	3
13	Bedroom	1.1	81	MET		
14	Bedroom	2.8	98	MET		
15	L/K/D	0.7	41	MET		
16	Bedroom	1.5	69	MET		
17	Bedroom	2.7	87	MET		
18	Bedroom	2.3	69	MET		
19	L/K/D	2.3	99	N/A		
20	Bedroom	2.3	90	MET		
21	Living Room	3.4	98	N/A	72	26
22	Bedroom	3.3	98	MET		
23	Bedroom	3.8	99	MET		
24	Living Room	1.5	97	MET	33	23
25	Bedroom	3.3	96	MET		
26	L/K/D	2	99	N/A	47	25

Table 03: Assessment Data

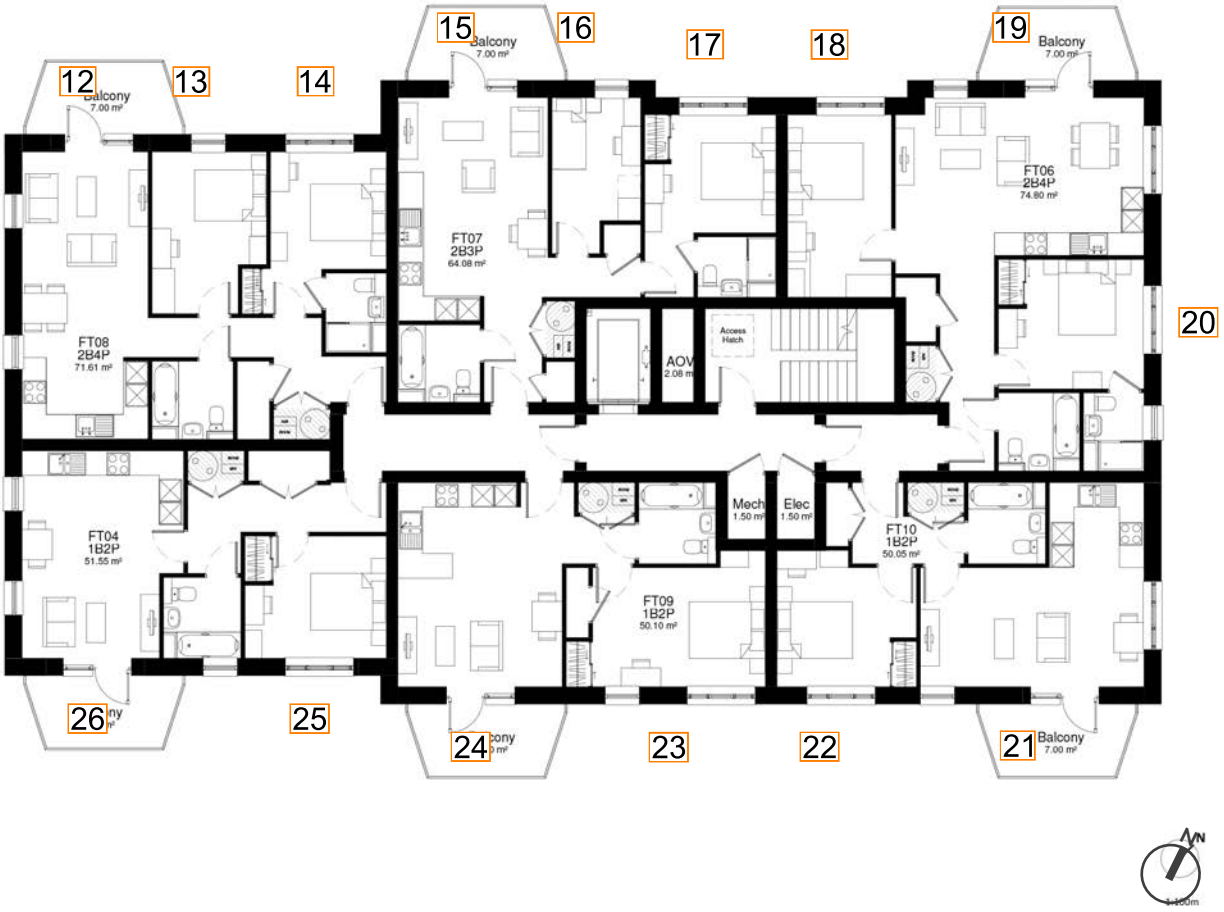
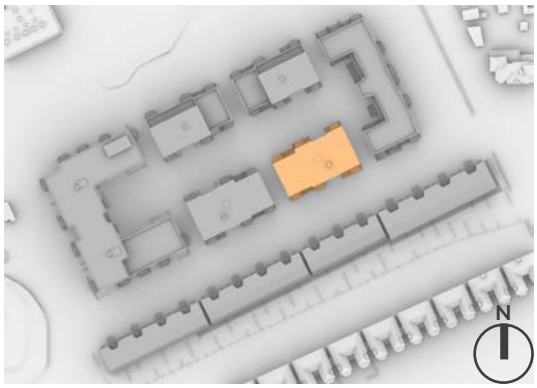


Fig. 04: Floor Plan

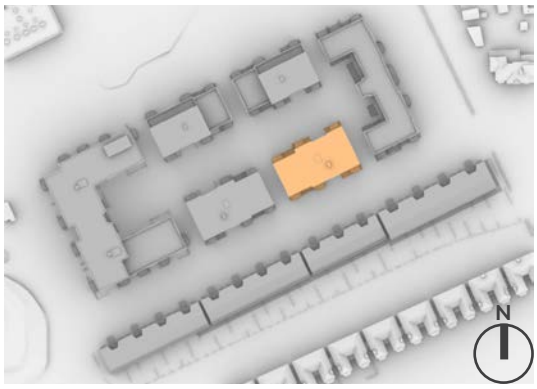


Block B1 - Second Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B1 - SECOND FLOOR						
27	L/K/D	1.8	92	N/A	29	3
28	Bedroom	1.3	94	MET		
29	Bedroom	3.2	99	MET		
30	L/K/D	1	59	MET		
31	Bedroom	1.8	96	MET		
32	Bedroom	3.1	97	MET		
33	Bedroom	2.6	79	MET		
34	L/K/D	2.8	100	N/A		
35	Bedroom	2.9	99	MET		
36	Living Room	4	99	N/A	74	28
37	Bedroom	3.5	98	MET		
38	Bedroom	4.1	99	MET		
39	Living Room	1.8	97	MET	35	25
40	Bedroom	3.5	96	MET		
41	L/K/D	2.4	99	N/A	54	27

Table 04: Assessment Data

Fig. 05: Floor Plan



Block B1 - Third Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B1 - THIRD FLOOR						
42	L/K/D	2.9	100	N/A	43	10
43	Bedroom	1.5	95	MET		
44	Bedroom	3.5	99	MET		
45	L/K/D	2	96	MET		
46	Bedroom	2	96	MET		
47	Bedroom	3.4	97	MET		
48	Bedroom	2.8	99	MET		
49	L/K/D	3.9	100	N/A		
50	Bedroom	3.4	99	MET		
51	Living Room	5.4	100	N/A	79	28
52	Bedroom	3.6	98	MET		
53	Bedroom	4.2	99	MET		
54	Living Room	3.3	97	MET	78	28
55	Bedroom	3.7	96	MET		
56	L/K/D	3.7	99	N/A	92	28

Table 05: Assessment Data

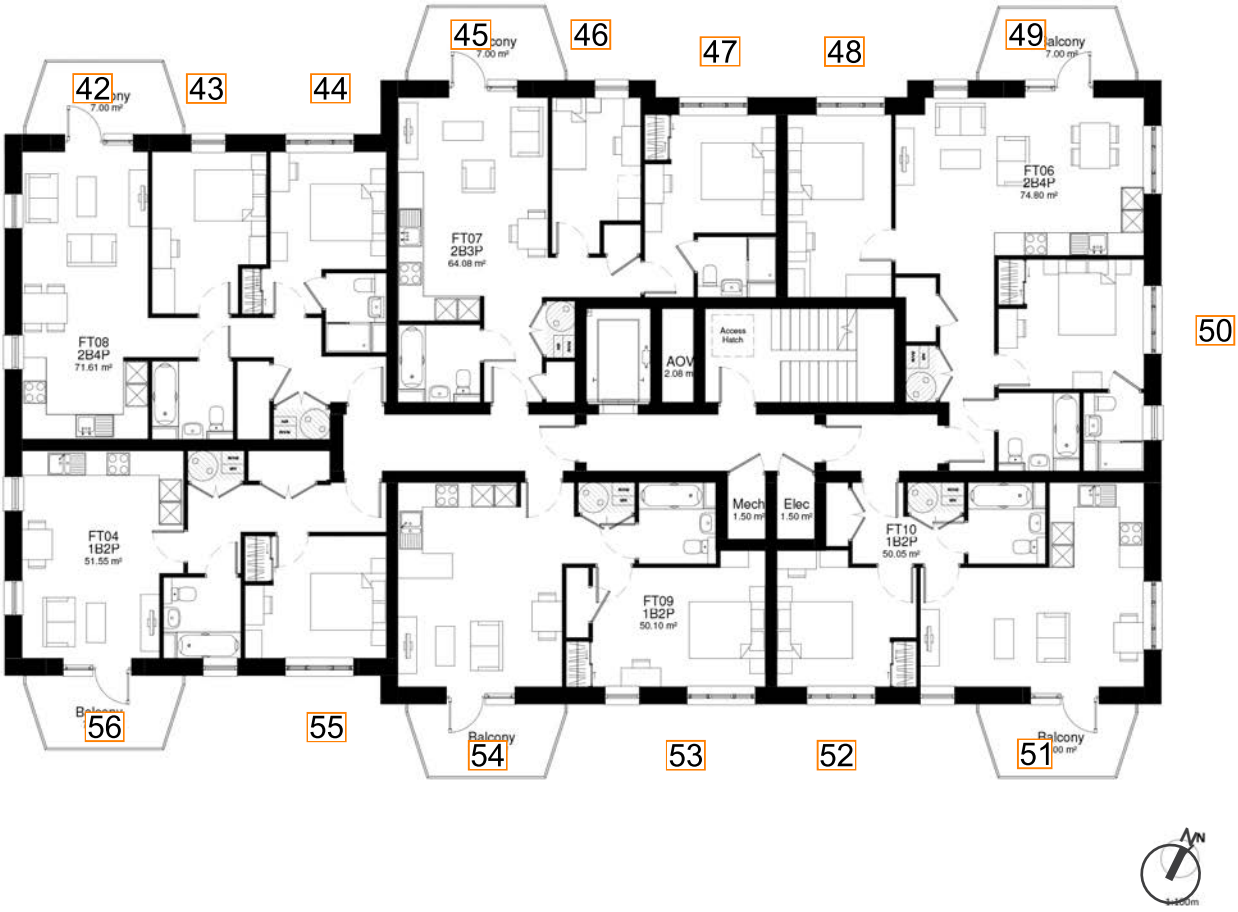
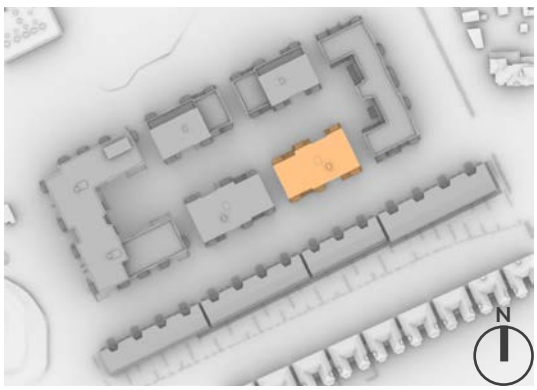


Fig. 06: Floor Plan



Block B2 - Ground Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B2 - GROUND FLOOR						
57	L/K/D	1.3	78	N/A	19	6
58	Bedroom	0.6	36	MET		
59	L/K/D	1.1	34	MET		
60	Bedroom	0.4	30	MET		
61	Bedroom	1.3	68	MET		
62	Bedroom	0.9	68	MET		
63	L/K/D	1.1	83	N/A		
64	L/K/D	1.8	96	N/A	36	12
65	Bedroom	2.1	96	MET		
66	L/K/D	1.7	97	N/A	71	21
67	Bedroom	1	50	MET		

Table 06: Assessment Data

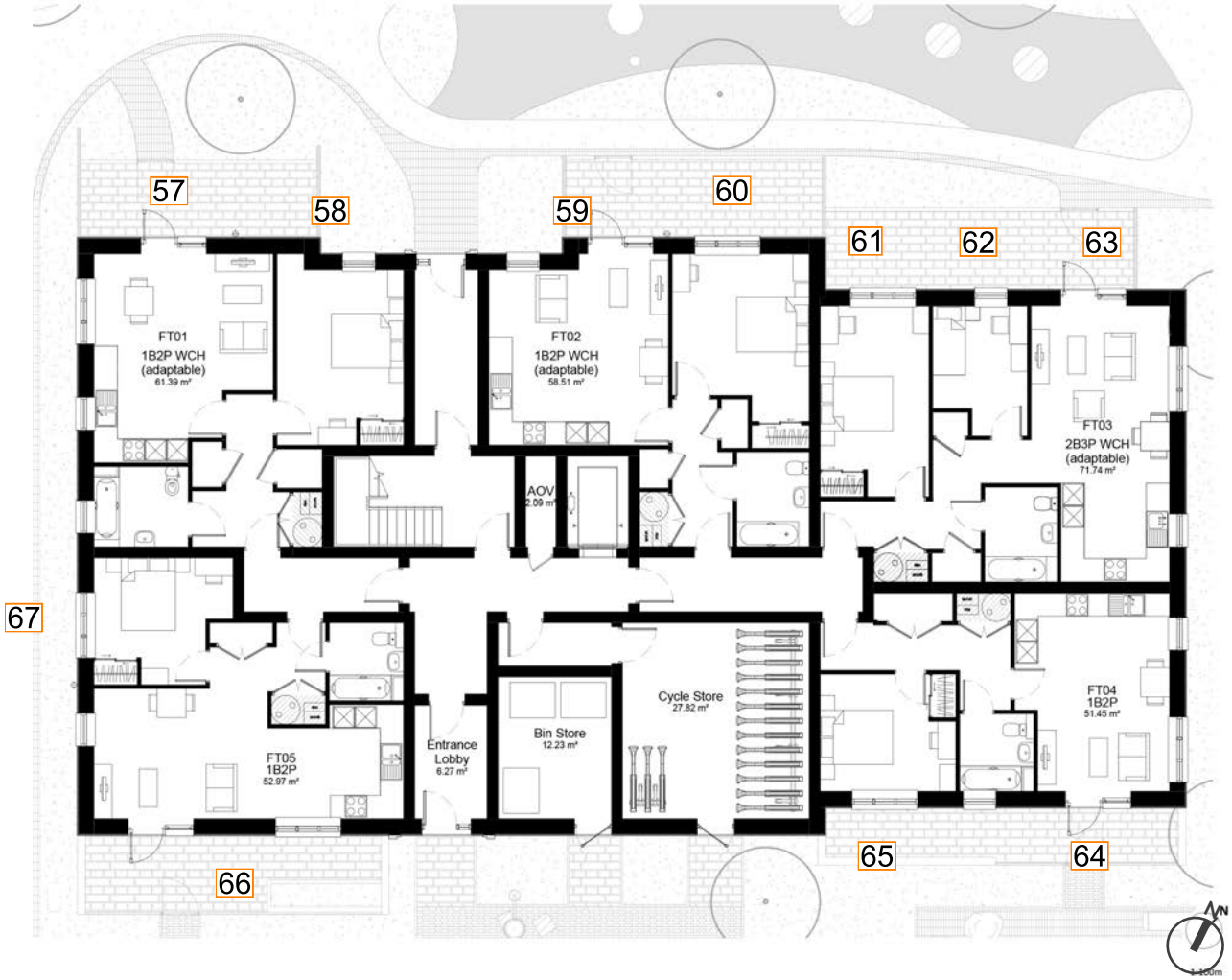
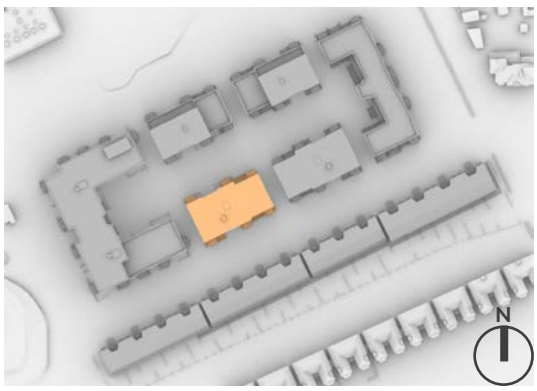


Fig. 07: Floor Plan



Block B2 - First Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B2 - FIRST FLOOR						
68	Bedroom	1.6	60	MET		
69	L/K/D	2	85	N/A	25	5
70	Bedroom	2.2	70	MET		
71	Bedroom	2.6	86	MET		
72	Bedroom	1.5	69	MET		
73	L/K/D	0.7	38	MET		
74	Bedroom	2.9	98	MET		
75	Bedroom	1.1	81	MET		
76	L/K/D	1.4	83	N/A		
77	L/K/D	1.9	99	N/A	41	22
78	Bedroom	3.3	96	MET		
79	Living Room	1.5	97	MET	33	22
80	Bedroom	3.8	99	MET		
81	Bedroom	3.3	98	MET		
82	Living Room	3	97	N/A	76	26

Table 07: Assessment Data

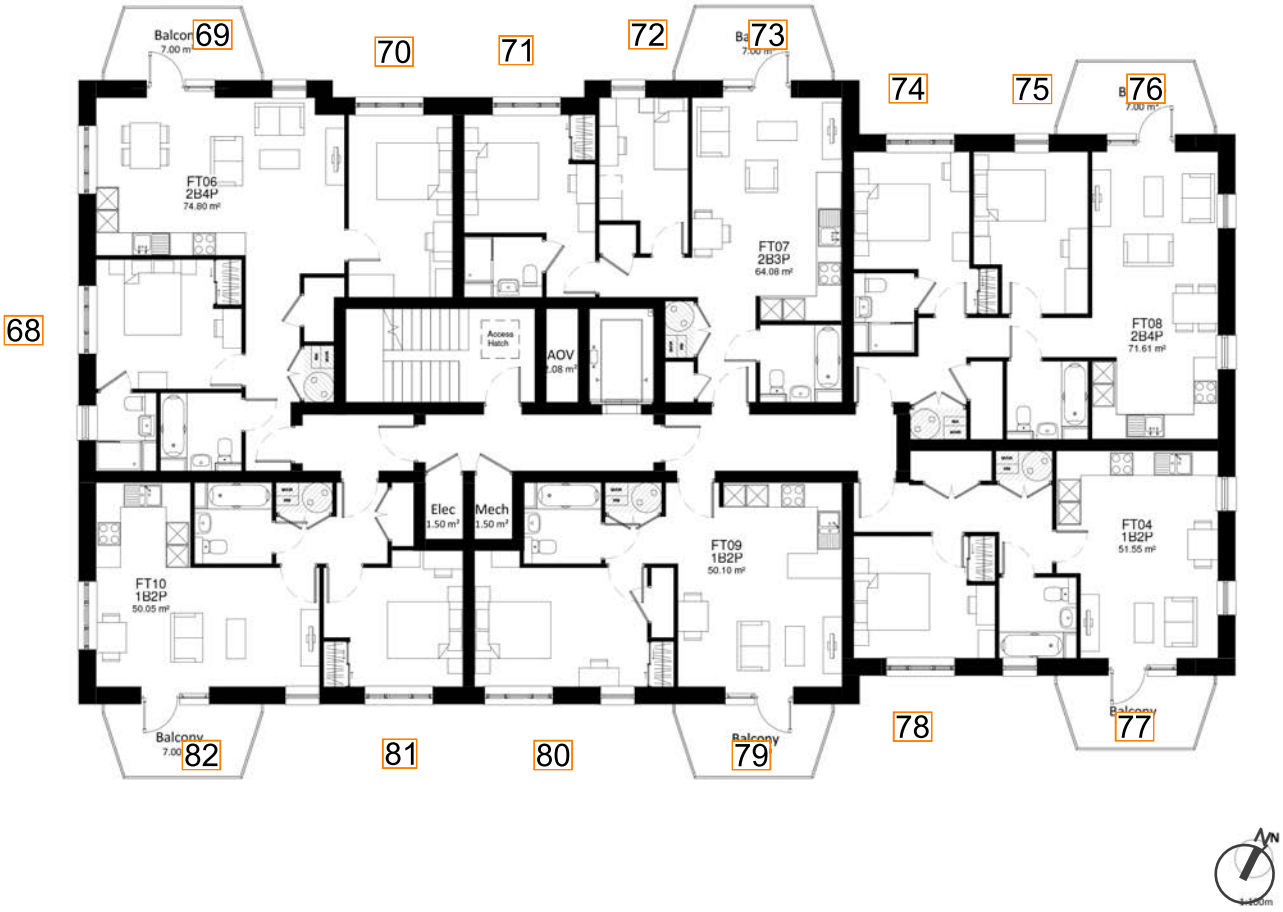


Fig. 08: Floor Plan

Block B2 - Second Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B2 - SECOND FLOOR						
83	Bedroom	2.1	68	MET		
84	L/K/D	2.4	96	N/A	36	7
85	Bedroom	2.5	81	MET		
86	Bedroom	3	97	MET		
87	Bedroom	1.7	96	MET		
88	L/K/D	1	58	MET		
89	Bedroom	3.3	99	MET		
90	Bedroom	1.3	93	MET		
91	L/K/D	1.8	91	N/A		
92	L/K/D	2.4	99	N/A	43	24
93	Bedroom	3.5	96	MET		
94	Living Room	1.8	97	MET	35	24
95	Bedroom	4.1	99	MET		
96	Bedroom	3.5	98	MET		
97	Living Room	3.6	97	N/A	82	28

Table 08: Assessment Data

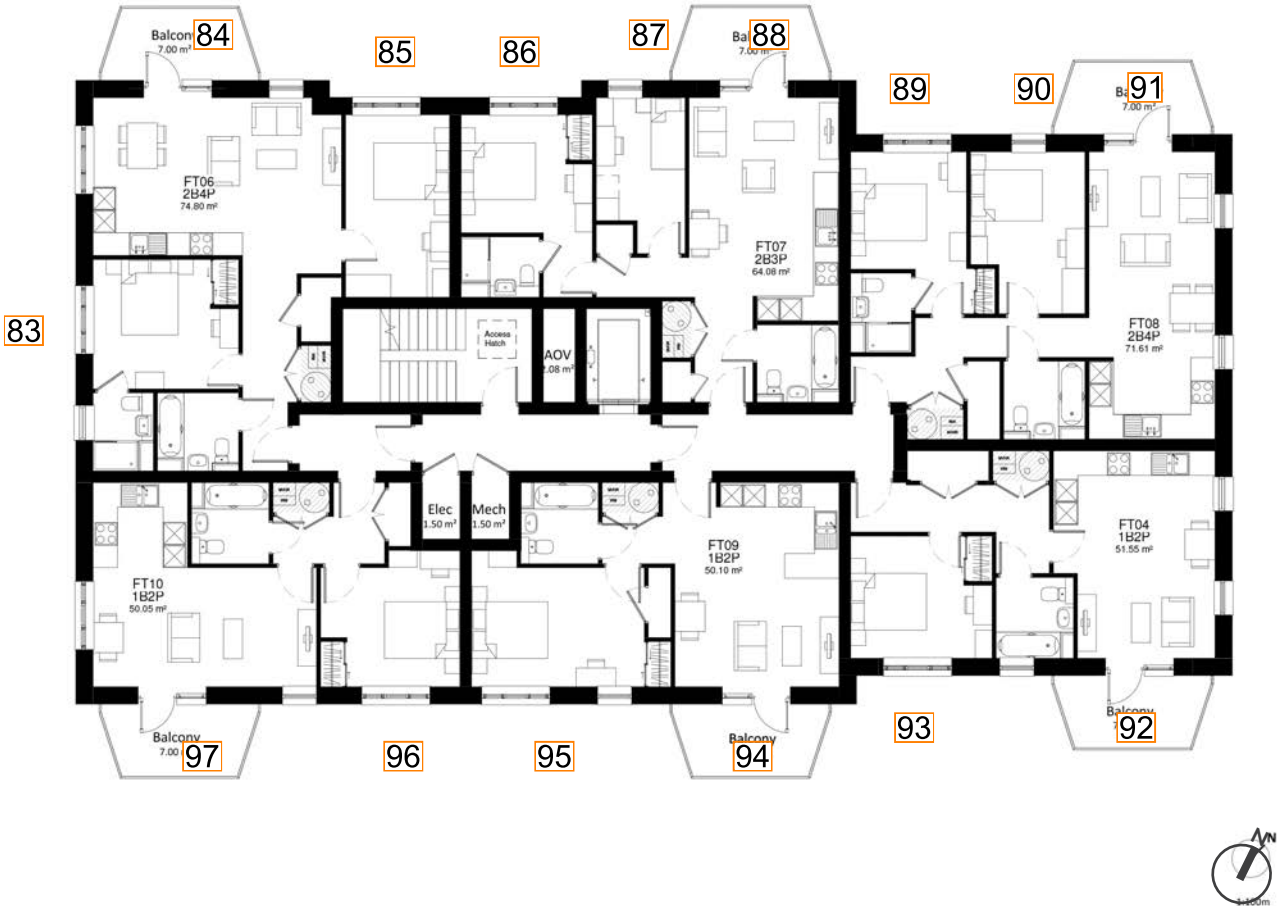
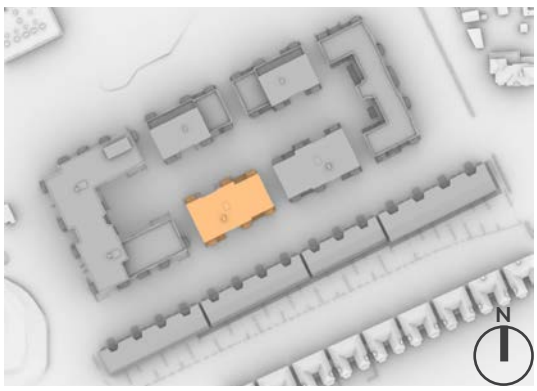


Fig. 09: Floor Plan

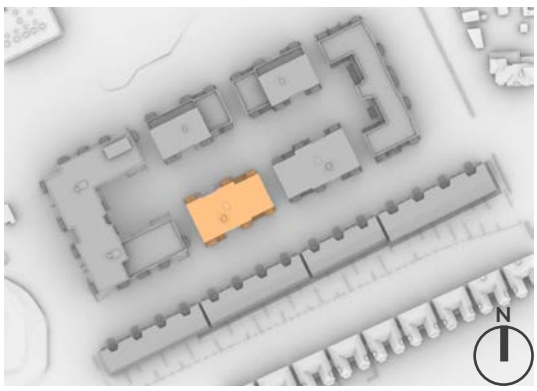


Block B2 - Third Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B2 - THIRD FLOOR						
98	Bedroom	2.8	99	MET		
99	L/K/D	3.6	100	N/A	49	14
100	Bedroom	2.8	99	MET		
101	Bedroom	3.4	97	MET		
102	Bedroom	2	96	MET		
103	L/K/D	2	95	MET		
104	Bedroom	3.6	99	MET		
105	Bedroom	1.5	95	MET		
106	L/K/D	3	100	N/A		
107	L/K/D	3.7	100	N/A	78	28
108	Bedroom	3.7	96	MET		
109	Living Room	3.3	97	MET	78	28
110	Bedroom	4.3	99	MET		
111	Bedroom	3.6	98	MET		
112	Living Room	5.1	99	N/A	91	28

Table 09: Assessment Data

Fig. 10: Floor Plan



Block B3 - Ground Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B3 - GROUND FLOOR						
113	Bedroom	2.5	97	MET		
114	L/K/D	2	100	N/A		
115	L/K/D	1.1	84	N/A	24	5
116	Bedroom	1	70	MET		
117	Bedroom	1.4	68	MET		
118	Bedroom	0.4	36	MET		
119	L/K/D	1.1	42	MET	51	10
120	Bedroom	0.6	39	MET		
121	L/K/D	1.3	79	N/A	38	9

Table 10: Assessment Data

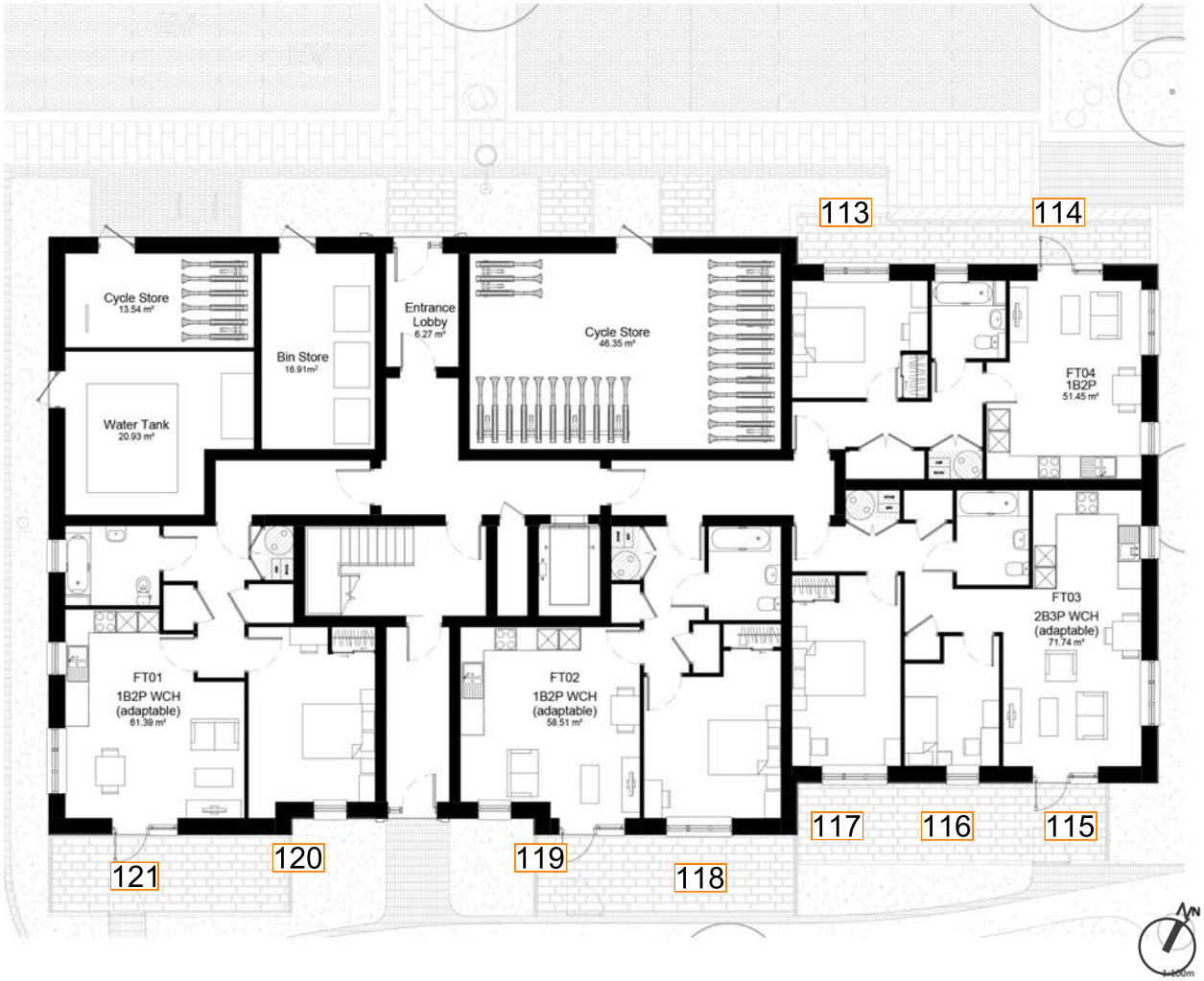
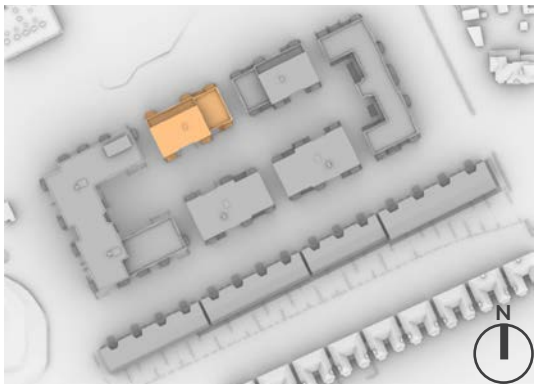


Fig. 11: Floor Plan

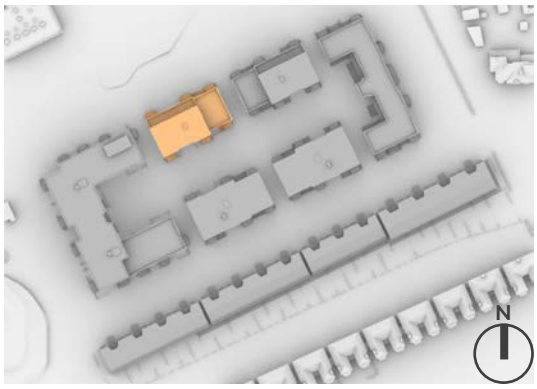


Block B3 - First Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B3 - FIRST FLOOR						
122	Living Room	3.1	98	N/A	22	5
123	Bedroom	3.4	98	MET		
124	Bedroom	4.1	99	MET		
125	Living Room	1.6	97	MET		
126	Bedroom	3.5	97	MET		
127	L/K/D	2	99	N/A		
128	L/K/D	1.4	83	N/A	32	13
129	Bedroom	1.1	89	MET		
130	Bedroom	3	99	MET		
131	L/K/D	0.8	43	MET	22	11
132	Bedroom	1.6	95	MET		
133	Bedroom	3	98	MET		
134	Bedroom	2.3	81	MET		
135	L/K/D	2	92	N/A	71	16
136	Bedroom	1.5	62	MET		

Table 11: Assessment Data

Fig. 12: Floor Plan

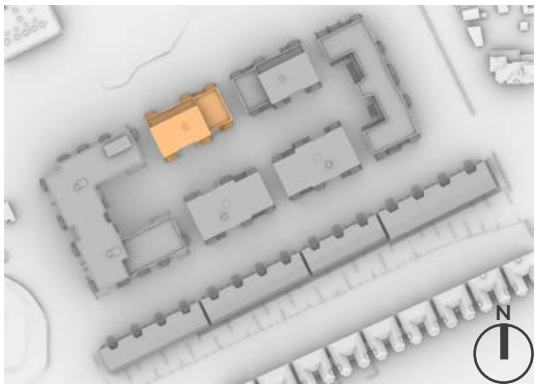


Block B3 - Second Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B3 - SECOND FLOOR						
137	Living Room	3.5	98	N/A	26	5
138	Bedroom	3.5	98	MET		
139	Bedroom	4.1	99	MET		
140	Living Room	1.8	97	MET		
141	Bedroom	3.5	97	MET		
142	L/K/D	2.5	99	N/A		
143	L/K/D	1.8	94	N/A	38	19
144	Bedroom	1.3	96	MET		
145	Bedroom	3.3	99	MET		
146	L/K/D	1	75	MET	28	17
147	Bedroom	1.8	95	MET		
148	Bedroom	3.4	98	MET		
149	Bedroom	2.6	100	MET		
150	L/K/D	2.4	99	N/A	78	23
151	Bedroom	1.8	64	MET		

Table 12: Assessment Data

Fig. 13: Floor Plan

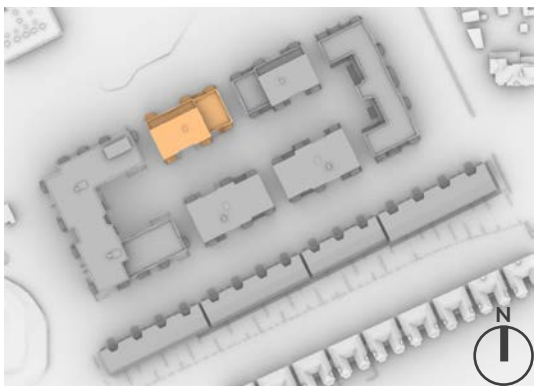


Block B3 - Third Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B3 - THIRD FLOOR						
152	Living Room	4.7	98	N/A	36	7
153	Bedroom	3.5	98	MET		
154	Bedroom	4.2	99	MET		
155	Living Room	3.2	97	MET		
156	Bedroom	3.7	97	MET		
157	L/K/D	3.6	100	N/A		
158	L/K/D	2.9	100	N/A	77	27
159	Bedroom	1.5	96	MET		
160	Bedroom	3.6	99	MET		
161	L/K/D	1.2	99	MET	33	22
162	Bedroom	2	95	MET		
163	Bedroom	3.7	98	MET		
164	Bedroom	2.8	100	MET		
165	L/K/D	2.8	99	N/A	82	26
166	Bedroom	2.3	73	MET		

Table 13: Assessment Data

Fig. 14: Floor Plan

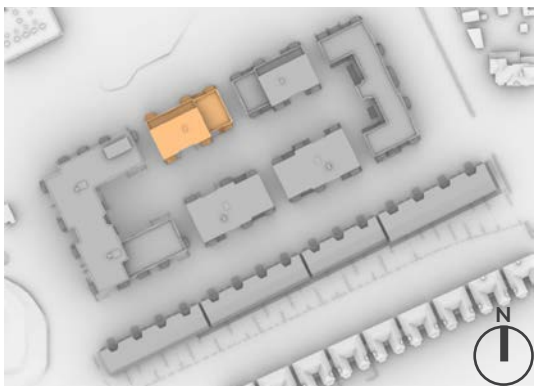


Block B3 - Fourth Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B3 - FOURTH FLOOR						
167	Bedroom	2.6	99	MET		
168	Bedroom	3.3	96	MET		
169	L/K/D	3.4	100	N/A	78	28
170	Bedroom	2.2	96	MET		
171	Bedroom	3.5	99	MET		
172	Bedroom	4.1	98	MET		
173	L/K/D	4	100	N/A	92	28
174	Bedroom	3	98	MET		

Table 14: Assessment Data

Fig. 15: Floor Plan



Block B4 - Ground Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B4 - GROUND FLOOR						
175	L/K/D	2	100	N/A	21	4
176	Bedroom	2.5	97	MET		
177	L/K/D	2.2	98	N/A		
178	Bedroom	1.3	64	MET		
179	L/K/D	1.6	84	N/A	24	7
180	Bedroom	0.6	39	MET		
181	L/K/D	1.1	54	MET	49	8
182	Bedroom	0.4	44	MET		
183	Bedroom	1.4	69	MET		
184	Bedroom	1	70	MET		
185	L/K/D	1.1	85	N/A	27	10

Table 15: Assessment Data

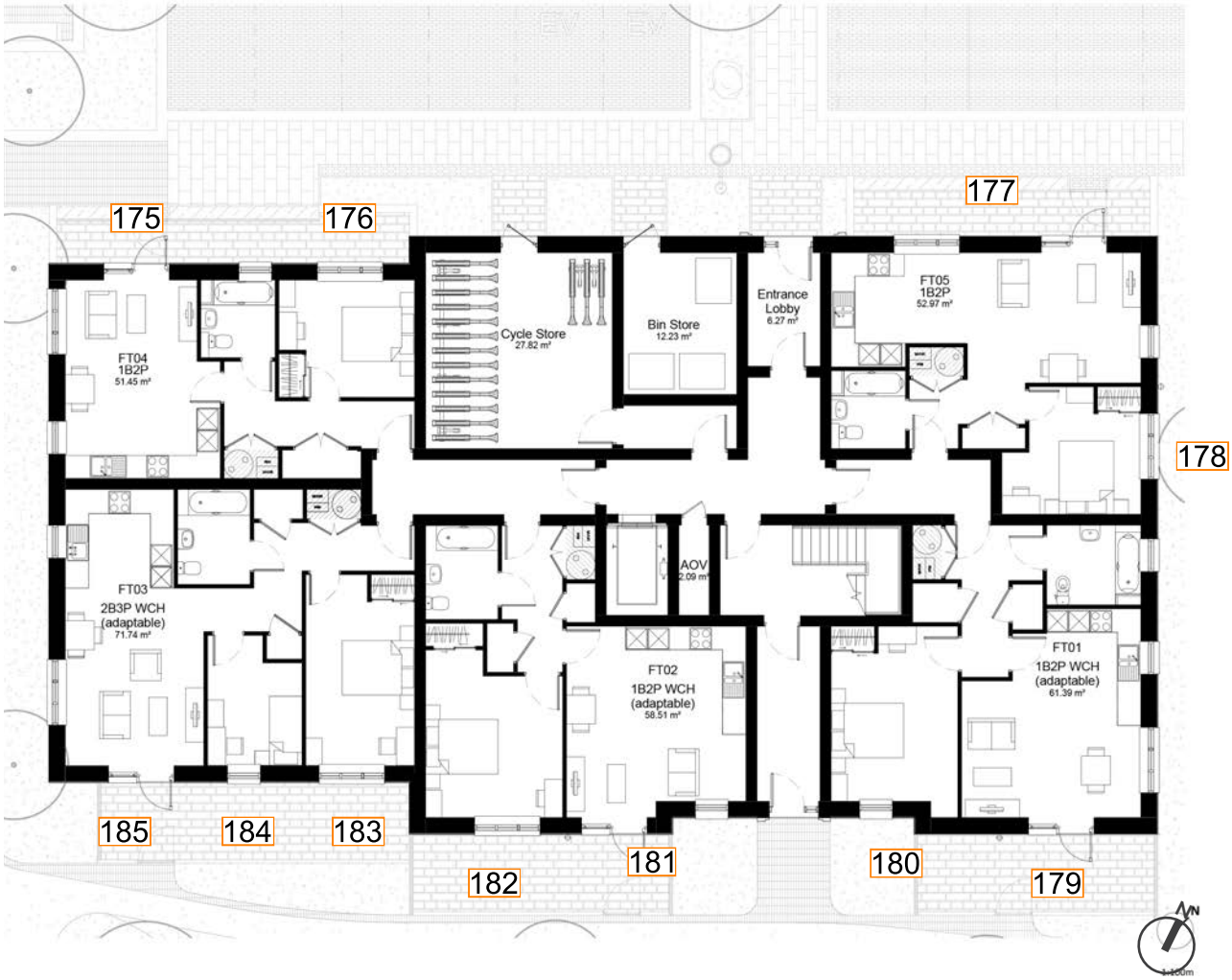


Fig. 16: Floor Plan

Block B4 - First Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B4 - FIRST FLOOR						
186	L/K/D	2	99	N/A	22	3
187	Bedroom	3.5	97	MET		
188	Living Room	1.6	97	MET		
189	Bedroom	4.1	98	MET		
190	Bedroom	3.5	98	MET		
191	Living Room	3.6	98	N/A		
192	Bedroom	2.2	86	MET		
193	L/K/D	2.3	98	N/A	62	18
194	Bedroom	2.4	80	MET		
195	Bedroom	3	96	MET		
196	Bedroom	1.7	95	MET		
197	L/K/D	0.8	43	MET	22	12
198	Bedroom	2.9	99	MET		
199	Bedroom	1.1	88	MET		
200	L/K/D	1.4	82	N/A	39	18

Table 16: Assessment Data

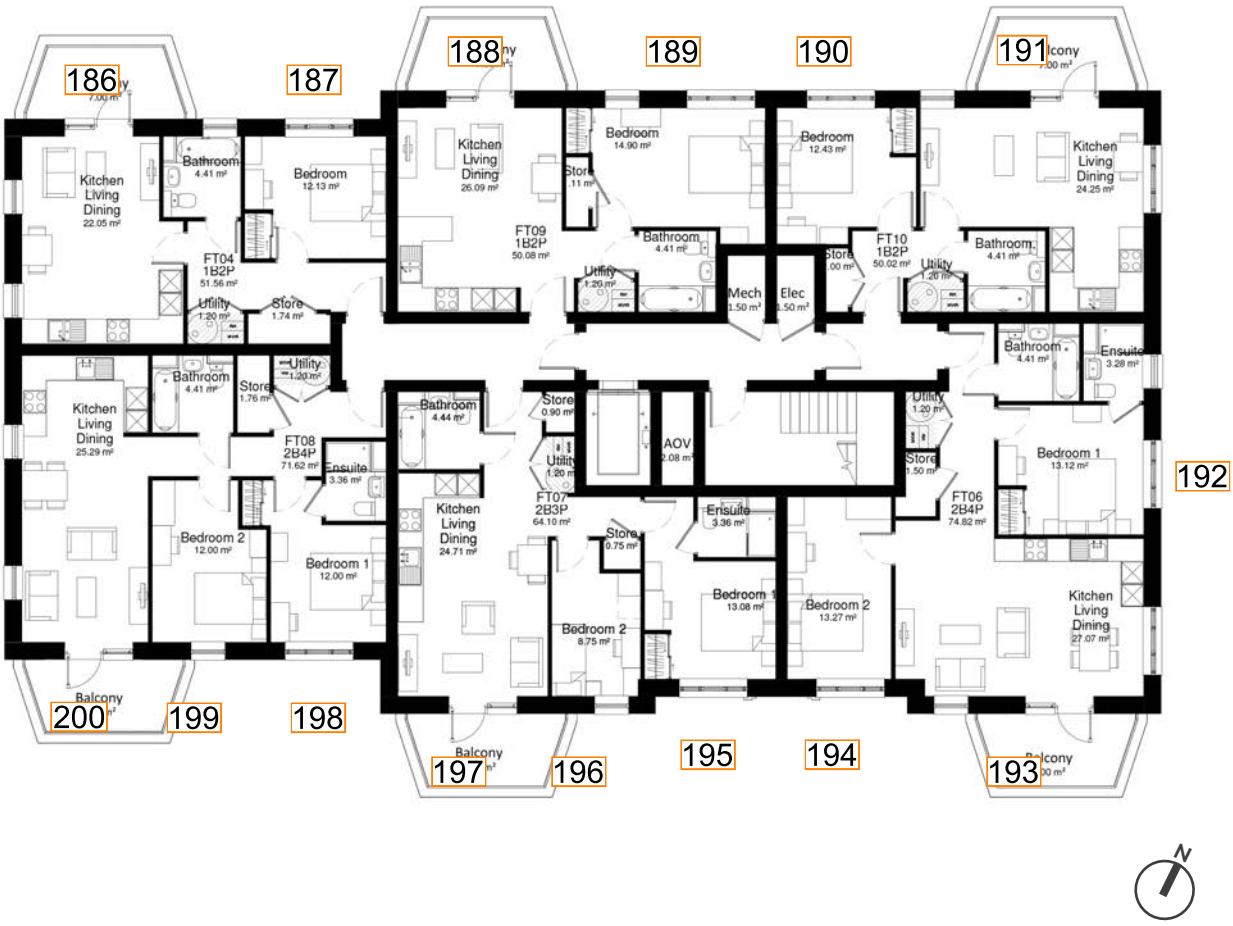


Fig. 17: Floor Plan

Block B4 - Second Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B4 - SECOND FLOOR						
201	L/K/D	2.4	99	N/A	31	3
202	Bedroom	3.6	97	MET		
203	Living Room	1.8	97	MET		
204	Bedroom	4.1	98	MET		
205	Bedroom	3.6	98	MET		
206	Living Room	4.2	99	N/A		
207	Bedroom	2.9	99	MET		
208	L/K/D	2.9	100	N/A	72	26
209	Bedroom	2.6	99	MET		
210	Bedroom	3.3	96	MET		
211	Bedroom	1.9	95	MET		
212	L/K/D	1.1	76	MET	28	18
213	Bedroom	3.3	99	MET		
214	Bedroom	1.3	95	MET		
215	L/K/D	1.8	93	N/A	50	24

Table 17: Assessment Data

Fig. 18: Floor Plan

Block B4 - Third Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B4 - THIRD FLOOR						
216	L/K/D	3.6	99	N/A	42	8
217	Bedroom	3.7	97	MET		
218	Living Room	3.2	97	MET		
219	Bedroom	4.2	98	MET		
220	Bedroom	3.6	98	MET		
221	Living Room	5.4	100	N/A		
222	Bedroom	3.3	99	MET		
223	L/K/D	3.2	100	N/A	75	28
224	Bedroom	2.8	99	MET		
225	Bedroom	3.7	96	MET		
226	Bedroom	2	95	MET		
227	L/K/D	1.2	99	MET	33	23
228	Bedroom	3.6	99	MET		
229	Bedroom	1.5	95	MET		
230	L/K/D	2.9	100	N/A	89	27

Table 18: Assessment Data

Fig. 19: Floor Plan

Block B4 - Fourth Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B4 - FOURTH FLOOR						
231	Bedroom	3.3	96	MET		
232	Bedroom	3.1	99	MET		
233	Bedroom	3.4	97	MET		
234	L/K/D	4.2	100	N/A	79	28
235	Bedroom	4.1	98	MET		
236	Bedroom	3.5	99	MET		
237	Bedroom	2.3	95	MET		
238	L/K/D	3.5	100	N/A	98	29

Table 19: Assessment Data

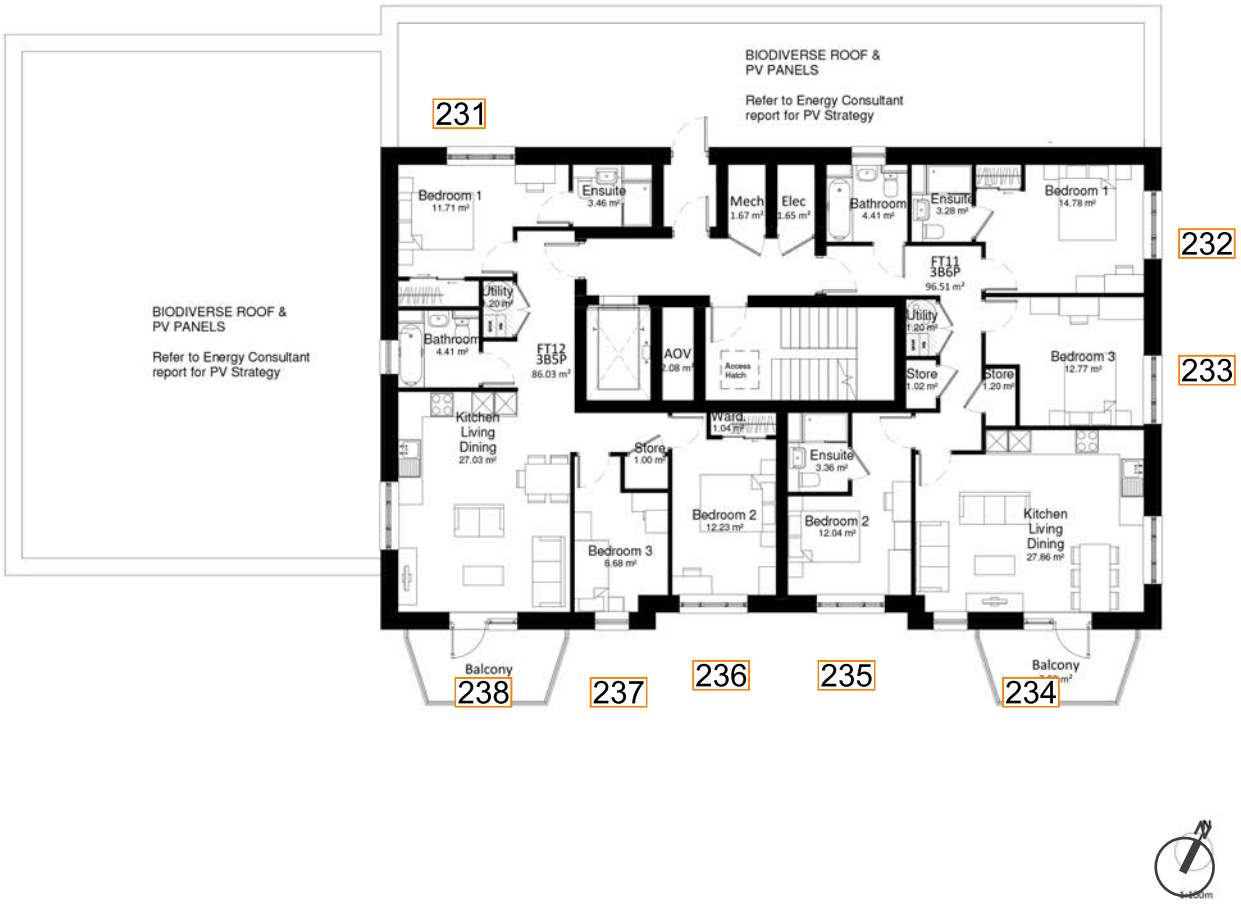


Fig. 20: Floor Plan

Block B5 - Ground Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B5 - GROUND FLOOR						
239	Bedroom	2.8	99	N/A		
240	Bedroom	1.4	77	MET		
241	Bedroom	2.6	98	MET		
242	Bedroom	1.2	99	MET		
243	Bedroom	2.8	99	MET		
244	L/K/D	2	99	N/A		
245	L/K/D	2.1	96	N/A	54	10
246	Bedroom	0.3	39	MET		
247	Bedroom	0.7	42	MET		
248	Living Room	0.7	100	MET	20	2
249	L/K/D	0.6	92	MET		
250	Bedroom	1.4	96	MET		
251	Bedroom	0.6	82	MET		
252	Living Room	0.7	47	MET		
253	Bedroom	0.3	53	MET		
254	Kitchen	1.1	64	MET		
255	Living Room	2.1	89	N/A		
256	Bedroom	0.7	26	MET		
257	Bedroom	1.6	91	N/A		
258	Bedroom	0.6	57	MET		
259	Bedroom	1	80	MET		
260	Bedroom	1.9	85	MET		
261	Bedroom	2.9	100	N/A		
262	Bedroom	2.1	97	MET		
263	L/K/D	1.4	96	MET	47	13
264	L/K/D	1.3	97	MET	55	18
265	Bedroom	1.3	98	MET		
266	Bedroom	1	99	MET		
267	Bedroom	0.6	94	MET		
268	Living Room	2.3	100	MET	48	13
269	L/K/D	1.3	93	MET	54	17

Table 20: Assessment Data

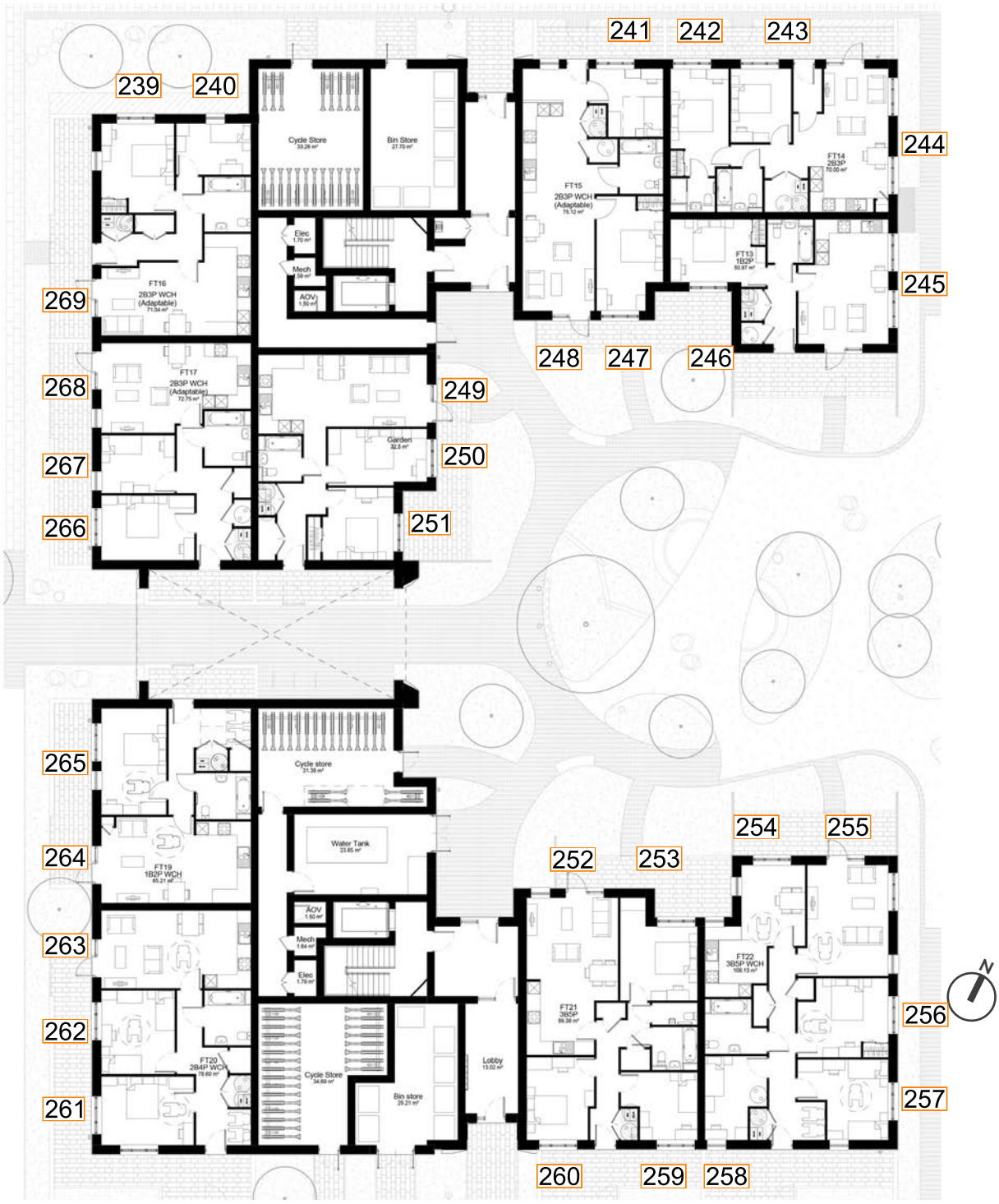


Fig. 21: Floor Plan

Block B5 - First Floor - Part 1/2

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B5 - FIRST FLOOR						
270	L/K/D	3.1	100	N/A	30	17
271	L/K/D	2.2	100	N/A	21	2
272	Bedroom	2.8	98	MET		
273	Living Room	1.4	99	MET		
274	Bedroom	2.6	96	MET		
275	Bedroom	2.6	96	MET		
276	Living Room	1.4	100	MET		
277	L/K/D	2.7	97	N/A		
278	Bedroom	0.6	17	MET		
279	Bedroom	1.1	30	MET		
280	Bedroom	2.3	93	N/A		
281	Kitchen	0.2	64	MET		
282	Bedroom	0.4	60	N/A		
283	Bedroom	0.4	63	N/A		
284	Kitchen	0.2	63	MET		
285	Bedroom	1.7	96	MET		
286	Bedroom	2.5	97	MET		
287	L/K/D	0.9	98	N/A	8	0
288	L/K/D	0.8	93	N/A		
289	Bedroom	1.6	90	MET		
290	Kitchen	0.2	11	MET		
291	Bedroom	0.3	29	N/A		
292	Bedroom	0.4	36	N/A		
293	Kitchen	0.2	14	MET		
294	Bedroom	2.8	93	N/A		
295	Bedroom	1.3	38	MET		
296	Bedroom	1.2	34	MET		
297	L/K/D	2.6	98	N/A	73	25
298	Living Room	1.2	99	MET	37	22
299	Bedroom	2.7	96	MET		
300	Bedroom	2.7	96	MET		
301	Living Room	1.1	99	MET	31	22
302	Bedroom	2.1	97	MET		
303	L/K/D	1.6	98	MET	45	25
304	L/K/D	3.1	100	N/A	84	27
305	Bedroom	2.5	97	MET		
306	Bedroom	2.9	98	MET		
307	Bedroom	2.9	98	MET		
308	Bedroom	2.5	96	MET		
309	L/K/D	1.3	99	N/A	29	16

Table 21: Assessment Data

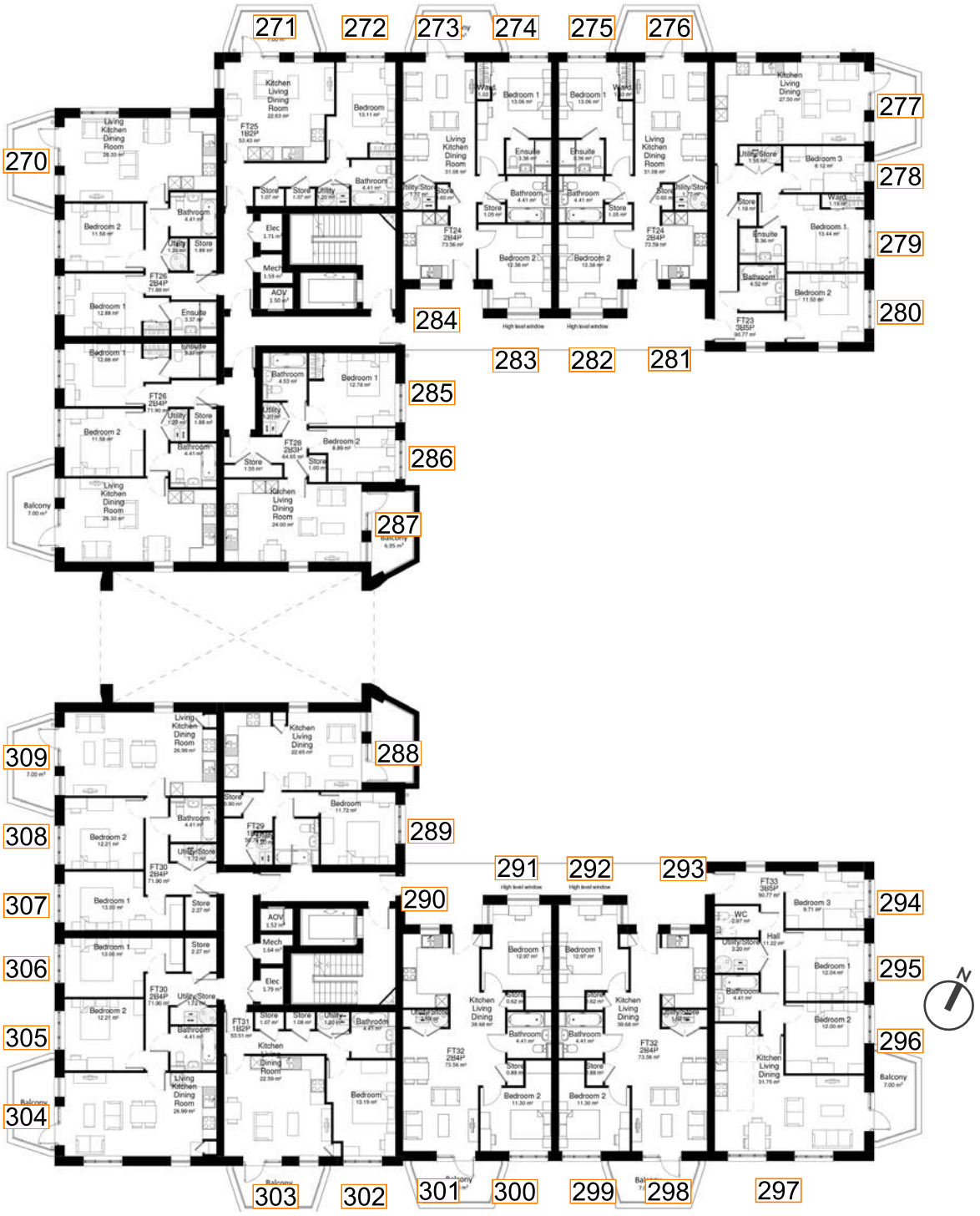


Fig. 22: Floor Plan

Block B5 - First Floor - Part 2/2

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B5 - FIRST FLOOR						
310	L/K/D	1.3	99	N/A	35	18
311	Bedroom	2.5	98	MET		
312	Bedroom	2.8	98	MET		
313	Bedroom	2.8	98	MET		
314	Bedroom	2.6	98	MET		

Table 22: Assessment Data

Fig. 23: Floor Plan

Block B5 - Second Floor - Part 1/2

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B5 - SECOND FLOOR						
315	L/K/D	3.3	100	N/A	31	18
316	L/K/D	2.3	100	N/A	21	2
317	Bedroom	2.4	98	MET		
318	Living Room	1.6	99	MET		
319	Bedroom	2.7	96	MET		
320	Bedroom	2.7	96	MET		
321	Living Room	1.5	100	MET		
322	L/K/D	2.9	97	N/A		
323	Bedroom	0.8	31	MET		
324	Bedroom	1.4	37	MET		
325	Bedroom	2.7	94	N/A		
326	Kitchen	0.3	88	MET		
327	Bedroom	0.5	73	N/A		
328	Bedroom	0.5	73	N/A		
329	Kitchen	0.3	82	MET		
330	Bedroom	1.8	96	MET		
331	L/K/D	1.6	98	MET		
332	L/K/D	1.2	89	MET		
333	L/K/D	1	94	MET		
334	Bedroom	1.8	94	MET		
335	Kitchen	0.3	48	MET		
336	Bedroom	0.4	65	N/A		
337	Bedroom	0.4	69	N/A		
338	Kitchen	0.3	51	MET		
339	Bedroom	3.3	93	N/A		
340	Bedroom	1.8	52	MET		
341	Bedroom	1.7	48	MET		
342	L/K/D	2.9	98	N/A	75	26
343	Living Room	1.4	99	MET	39	24
344	Bedroom	2.9	96	MET		
345	Bedroom	2.9	96	MET		
346	Living Room	1.3	99	MET	33	24
347	Bedroom	2.3	97	MET		
348	L/K/D	1.8	98	MET	47	27
349	L/K/D	3.4	100	N/A	87	30
350	Bedroom	2.6	96	MET		
351	Bedroom	2.9	98	MET		
352	Bedroom	3	98	MET		
353	Bedroom	2.6	96	MET		
354	L/K/D	1.7	99	N/A	30	17

Table 23: Assessment Data

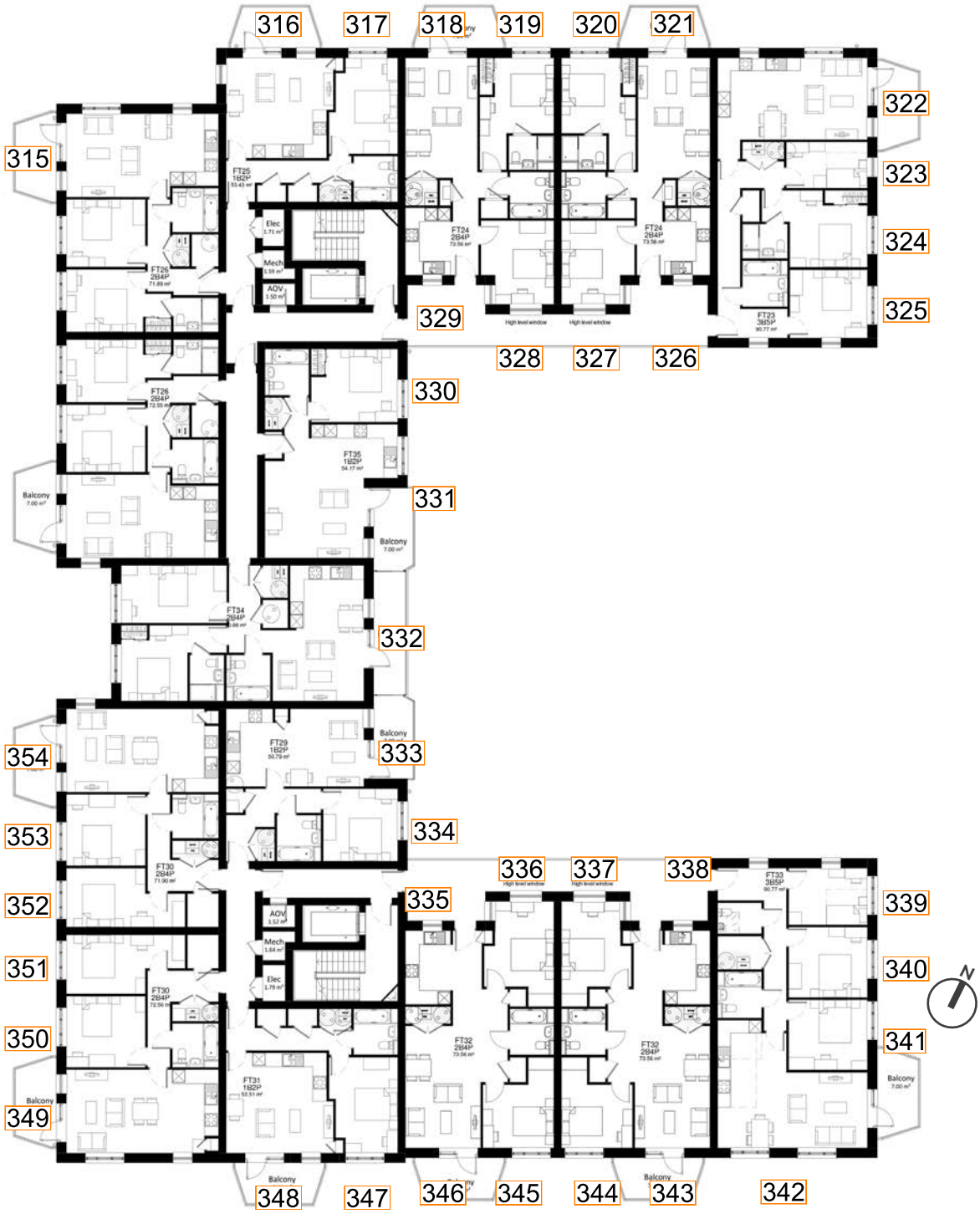


Fig. 24: Floor Plan

Block B5 - Second Floor - Part 2/2

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B5 - SECOND FLOOR						
355	Bedroom	2.5	92	MET		
356	Bedroom	2.1	97	MET		
357	L/K/D	1.8	99	N/A	47	19
358	Bedroom	2.6	98	MET		
359	Bedroom	2.8	98	MET		
360	Bedroom	2.8	98	MET		
361	Bedroom	2.7	98	MET		

Table 24: Assessment Data

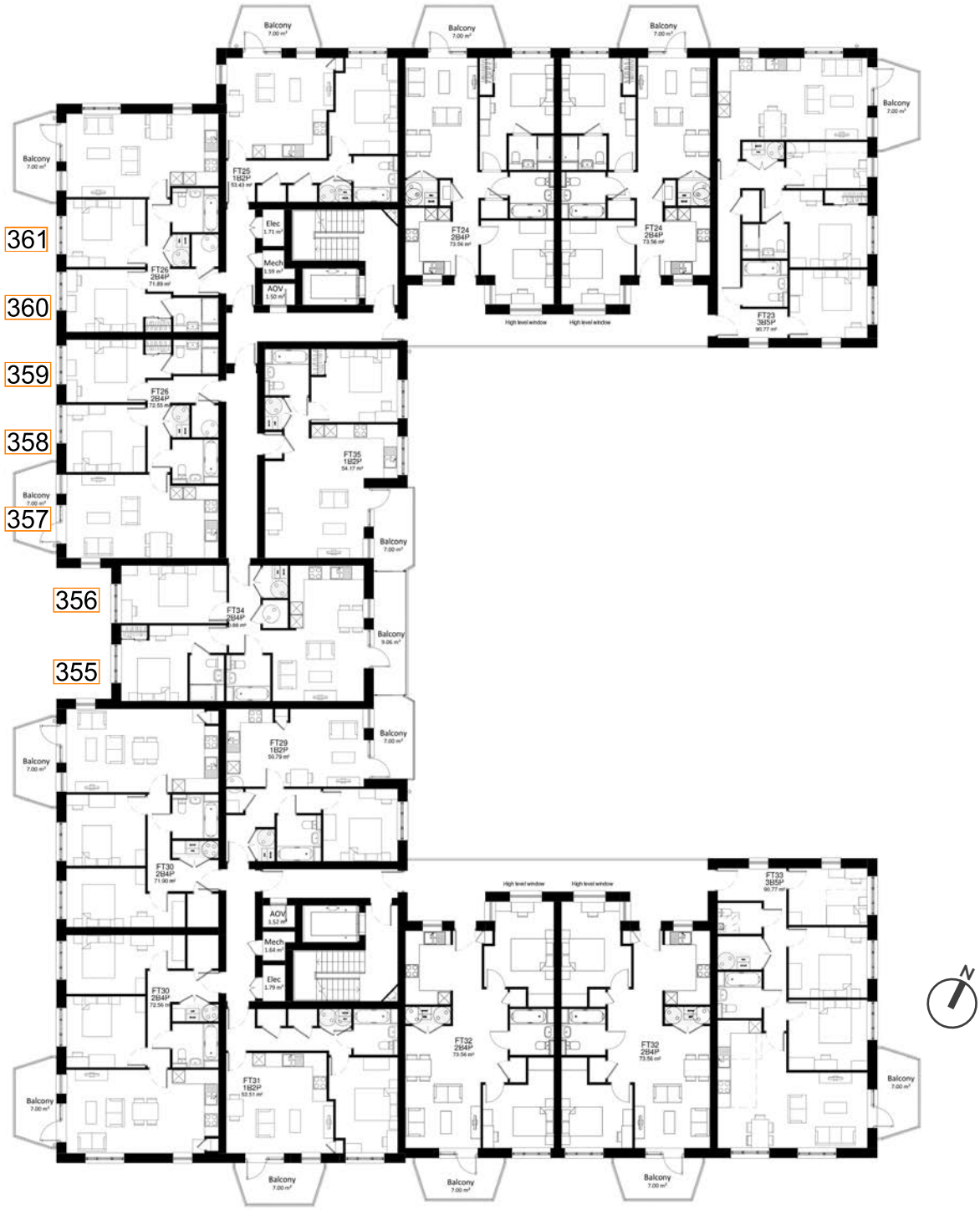
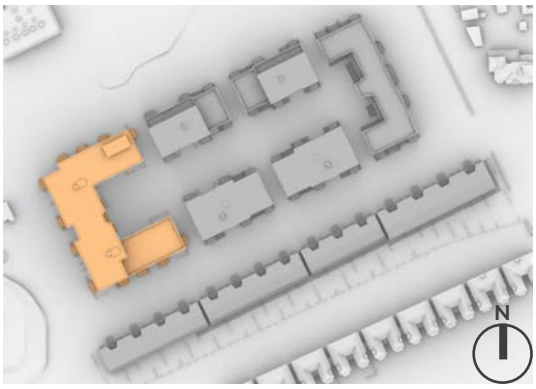


Fig. 25: Floor Plan



Block B5 - Third Floor - Part 1/2

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B5 - THIRD FLOOR						
362	L/K/D	3.3	100	N/A	31	18
363	L/K/D	2.4	100	N/A	21	2
364	Bedroom	2.4	98	MET		
365	Living Room	1.6	99	MET		
366	Bedroom	2.7	96	MET		
367	Bedroom	2.8	96	MET		
368	Living Room	1.5	100	MET		
369	L/K/D	3	97	N/A		
370	Bedroom	1.1	61	MET		
371	Bedroom	1.7	52	MET		
372	Bedroom	3.1	94	N/A		
373	Kitchen	0.4	90	MET		
374	Bedroom	0.6	76	N/A		
375	Bedroom	0.5	74	N/A		
376	Kitchen	0.3	84	MET		
377	Bedroom	2	96	MET		
378	L/K/D	1.8	98	MET		
379	L/K/D	1.4	93	MET		
380	L/K/D	1.1	96	MET		
381	Bedroom	2.1	97	MET		
382	Kitchen	0.3	82	MET		
383	Bedroom	0.5	74	N/A		
384	Bedroom	0.5	75	N/A		
385	Kitchen	0.3	87	MET		
386	Bedroom	4.1	100	N/A		
387	Bedroom	2.4	97	MET		
388	Bedroom	2.3	96	MET		
389	L/K/D	3.7	100	N/A	77	28
390	Living Room	2.3	99	MET	78	28
391	Bedroom	3.1	96	MET		
392	Bedroom	3.1	96	MET		
393	Living Room	2.3	99	MET	78	28
394	Bedroom	2.5	97	MET		
395	L/K/D	3	98	MET	78	28
396	L/K/D	3.4	100	N/A	91	30
397	Bedroom	2.6	97	MET		
398	Bedroom	3	98	MET		
399	Bedroom	3	98	MET		
400	Bedroom	2.6	96	MET		
401	L/K/D	1.8	99	N/A	30	17

Table 25: Assessment Data

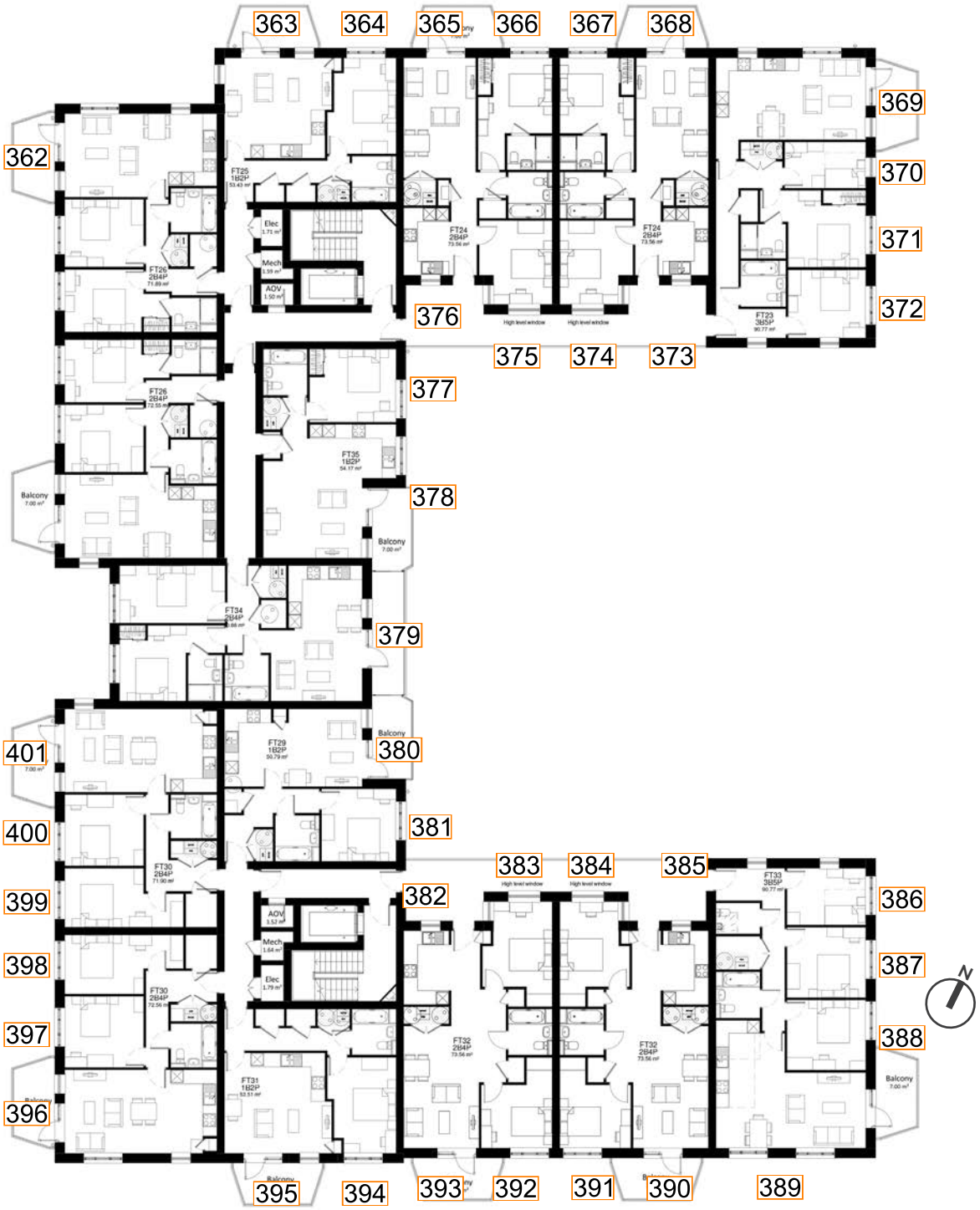


Fig. 26: Floor Plan

Block B5 - Third Floor - Part 2/2

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B5 - THIRD FLOOR						
402	Bedroom	2.5	92	MET		
403	Bedroom	2.1	98	MET		
404	L/K/D	1.8	99	N/A	52	20
405	Bedroom	2.6	98	MET		
406	Bedroom	2.9	98	MET		
407	Bedroom	2.8	98	MET		
408	Bedroom	2.7	98	MET		

Table 26: Assessment Data

Fig. 27: Floor Plan

Block B5 - Fourth Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B5 - FOURTH FLOOR						
409	L/K/D	4.3	100	N/A	57	20
410	L/K/D	3.6	100	N/A	27	2
411	Bedroom	3	98	MET		
412	Living Room	2.6	99	MET		
413	Bedroom	2.9	96	MET		
414	Bedroom	2.9	96	MET		
415	Living Room	2.6	100	MET		
416	L/K/D	4.2	100	N/A		
417	Bedroom	1.6	97	MET		
418	Bedroom	2.4	95	MET		
419	Bedroom	3.8	100	N/A		
420	Kitchen	0.4	91	MET		
421	Bedroom	0.7	77	N/A		
422	Bedroom	0.6	74	N/A		
423	Kitchen	0.4	87	MET		
424	Bedroom	2.3	96	MET		
425	L/K/D	2.1	98	MET		
426	L/K/D	2.5	96	MET		
427	L/K/D	1.4	96	MET		
428	Bedroom	2.7	98	MET		
429	Bedroom	1.5	76	MET		
430	Bedroom	3.8	99	N/A		
431	Bedroom	3.3	98	MET		
432	L/K/D	4.6	100	N/A	99	30
433	Bedroom	2.5	98	MET		
434	Bedroom	3.6	98	MET		
435	Bedroom	2.7	97	MET		
436	L/K/D	2.5	99	N/A	57	20
437	Bedroom	2.6	93	MET		
438	Bedroom	2.2	98	MET		
439	L/K/D	2.9	100	N/A	69	22
440	Bedroom	2.7	98	MET		
441	Bedroom	2.9	99	MET		
442	Bedroom	2.9	98	MET		
443	Bedroom	2.8	98	MET		

Table 27: Assessment Data

Fig. 28: Floor Plan

Block B6 - Ground Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B6 - GROUND FLOOR						
444	L/K/D	1.5	94	MET	46	11
445	L/K/D	1.1	93	MET	40	10
446	Bedroom	1	96	MET		
447	Bedroom	2	95	MET		
448	Living Room	1.8	99	MET		
449	Bedroom	1.2	97	MET		
450	Bedroom	1.2	96	MET		
451	Living Room	1.8	99	MET		
452	Bedroom	2	95	MET		
453	Bedroom	0.8	64	MET		
454	L/K/D	1	70	MET	59	15
455	L/K/D	1.3	84	MET	58	16
456	Living Room	0.4	61	MET	13	0
457	Bedroom	1.5	88	MET		
458	Bedroom	1.5	89	MET		
459	Living Room	0.4	73	MET	28	9

Table 28: Assessment Data

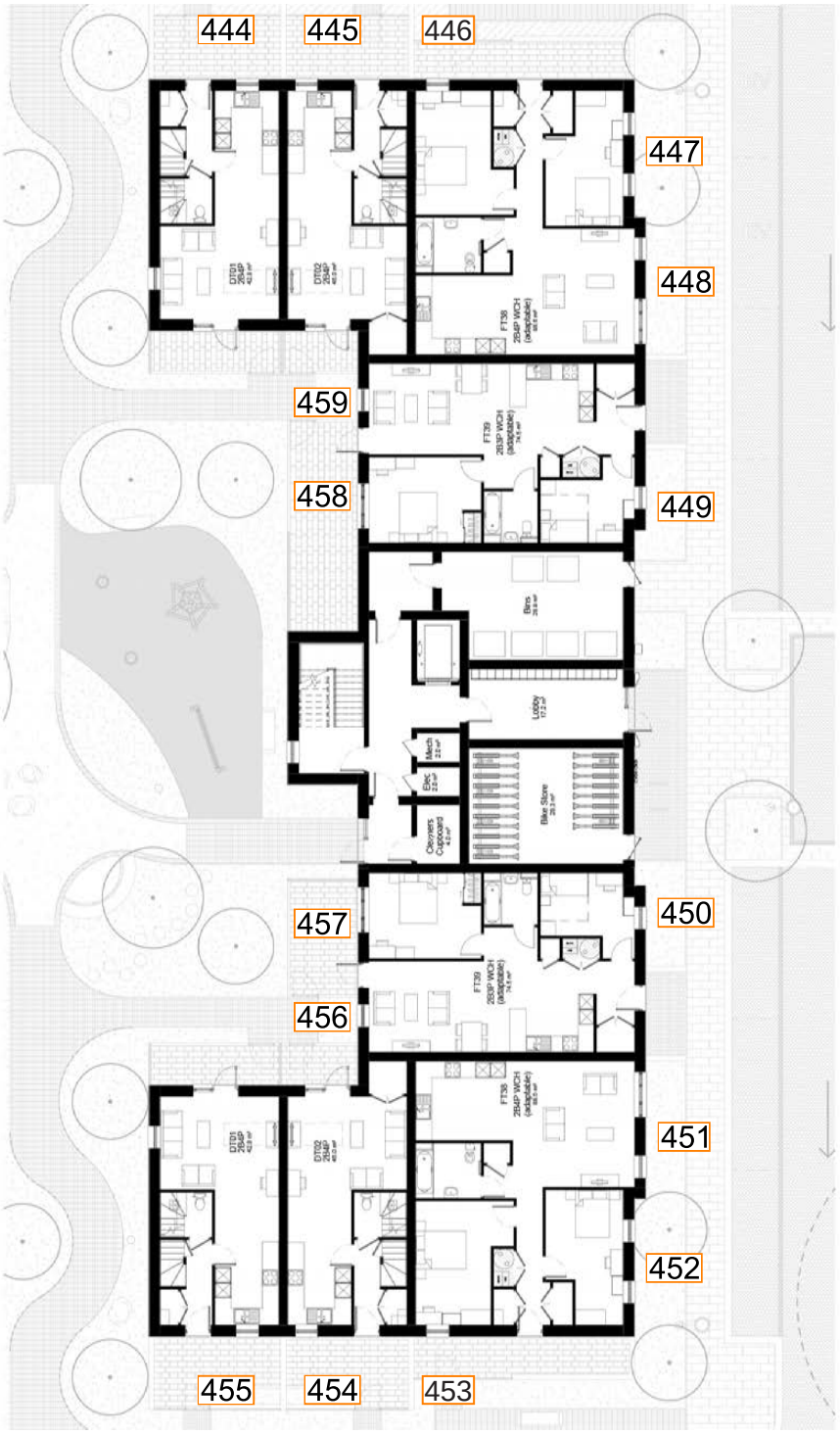
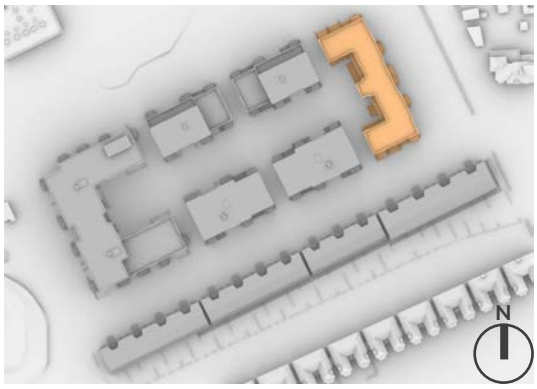


Fig. 29: Floor Plan



Block B6 - First Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B6 - FIRST FLOOR						
460	Bedroom	1.7	98	MET		
461	Bedroom	2.7	99	MET		
462	Bedroom	1.8	98	MET		
463	L/K/D	3.1	100	N/A		
464	Bedroom	1.8	97	MET		
465	Bedroom	3.5	100	MET		
466	L/K/D	1.2	100	MET	22	10
467	Bedroom	1.4	95	MET		
468	Bedroom	1.6	93	MET		
469	Living Room	1.5	98	MET		
470	Living Room	1.5	98	MET		
471	Bedroom	1.6	92	MET		
472	Bedroom	1.4	95	MET		
473	L/K/D	1.2	100	MET	30	5
474	Bedroom	3.5	100	MET		
475	Bedroom	1.8	97	MET		
476	L/K/D	3	100	N/A	74	27
477	Bedroom	1.8	98	MET		
478	Bedroom	2.5	98	MET		
479	Bedroom	1.6	99	MET		
480	Bedroom	3.1	93	N/A		
481	Bedroom	1.9	91	MET		
482	Bedroom	2.1	91	MET		
483	Bedroom	3.2	93	N/A		

Table 29: Assessment Data

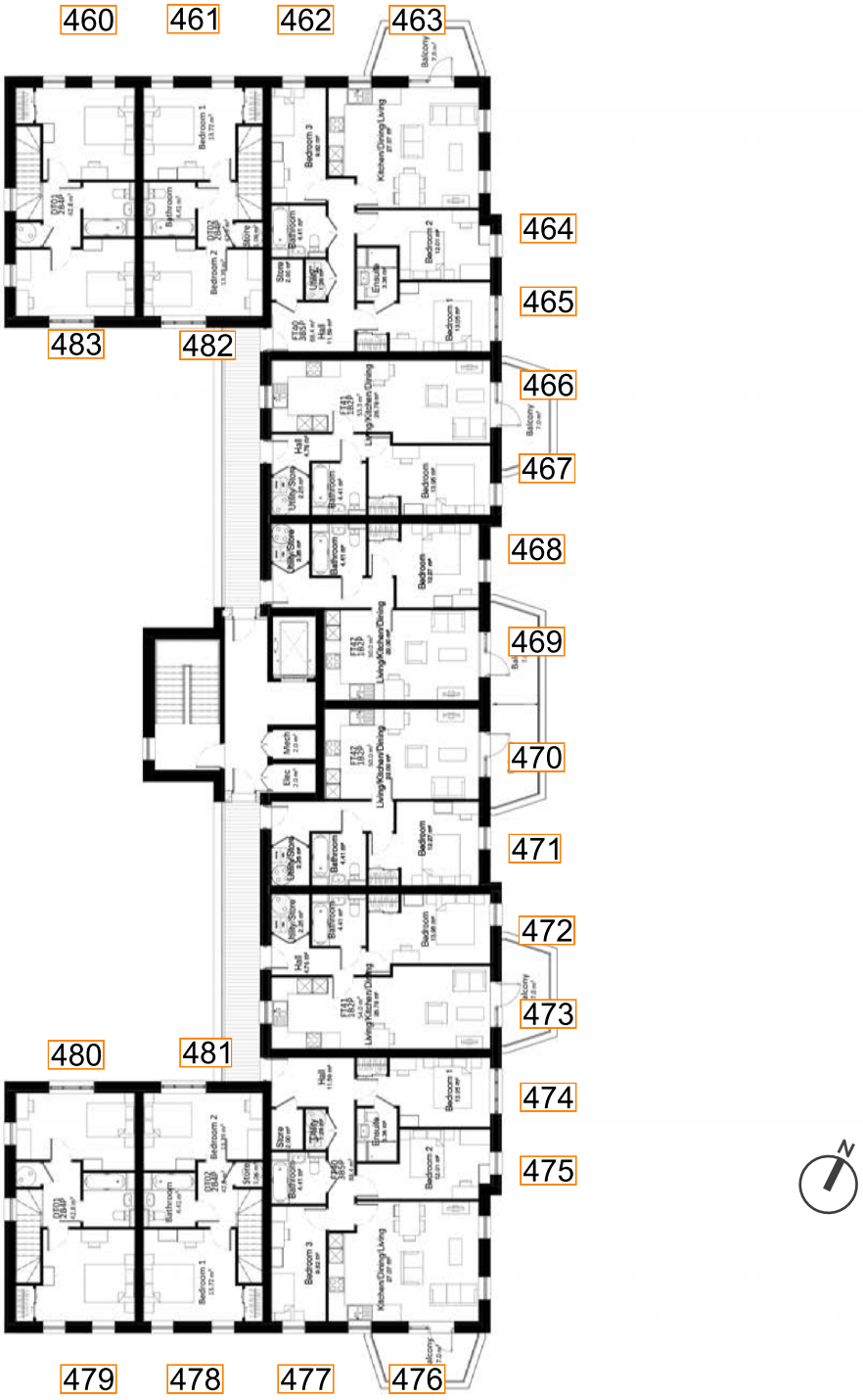
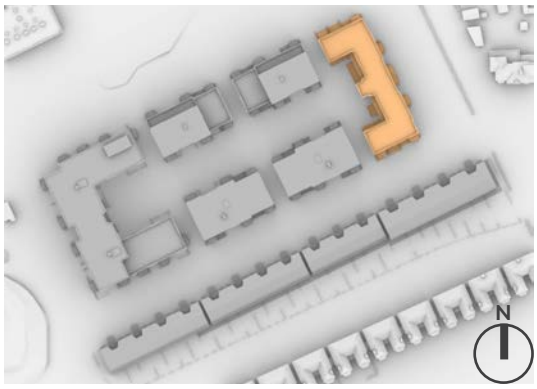


Fig. 30: Floor Plan



Block B6 - Second Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK B6 - SECOND FLOOR						
484	Bedroom	0.7	18	MET		
485	L/K/D	2.6	99	N/A	22	2
486	Bedroom	1.7	97	MET		
487	Bedroom	1.6	97	MET		
488	Bedroom	1.8	99	MET		
489	L/K/D	3.9	100	N/A		
490	Bedroom	1.8	97	MET		
491	Bedroom	3.6	100	MET		
492	L/K/D	2.2	100	MET	69	18
493	Bedroom	1.5	95	MET		
494	Bedroom	1.6	94	MET		
495	Living Room	3	99	MET		
496	Living Room	2.9	99	MET		
497	Bedroom	1.6	92	MET		
498	Bedroom	1.5	95	MET		
499	L/K/D	2.2	100	MET	63	7
500	Bedroom	3.5	100	MET		
501	Bedroom	1.8	97	MET		
502	L/K/D	3.9	100	N/A	79	28
503	Bedroom	1.8	98	MET		
504	Bedroom	1.5	97	MET		
505	Bedroom	1.6	96	MET		
506	L/K/D	2.7	99	N/A	82	28
507	Bedroom	0.8	31	MET		

Table 30: Assessment Data

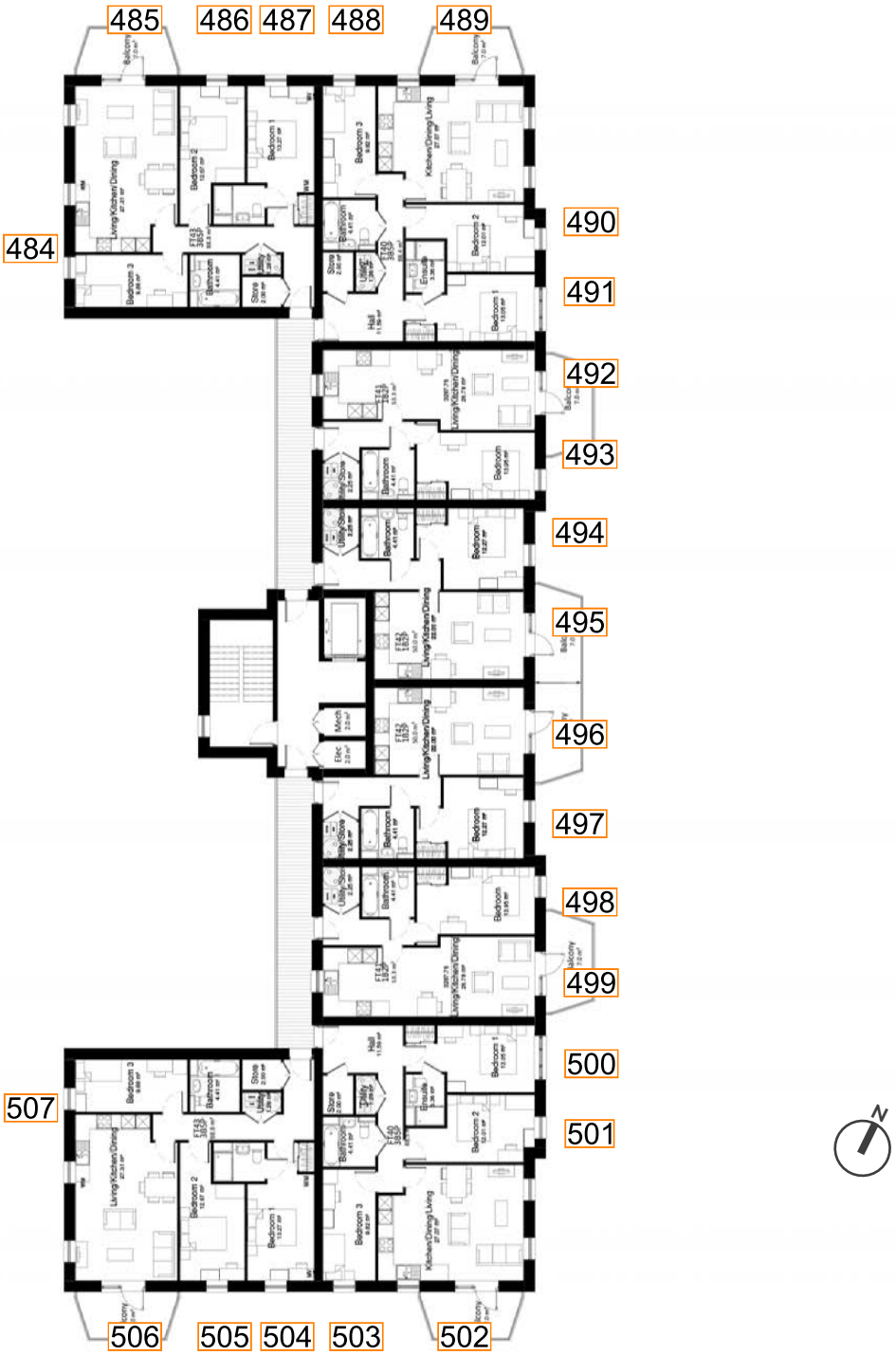
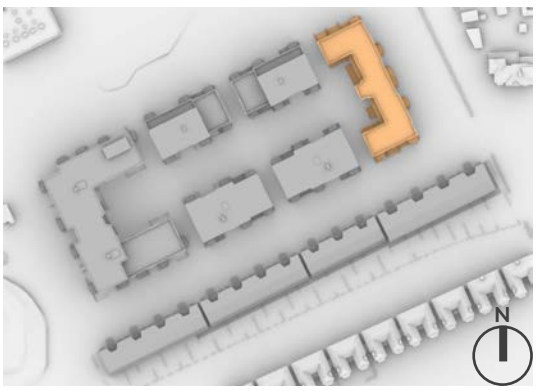


Fig. 31: Floor Plan



Block T1 - Ground Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK T1 - GROUND FLOOR						
508	L/K/D	2.6	100	N/A	91	27
509	L/K/D	2.6	100	N/A	91	27
510	L/K/D	2.5	99	N/A	87	26
511	L/K/D	2.6	100	N/A	89	26
512	L/K/D	2.6	99	N/A	88	27
513	L/K/D	2.7	100	N/A	90	27
514	L/K/D	2.7	100	N/A	88	27
515	L/K/D	2.9	100	N/A	90	26

Table 31: Assessment Data

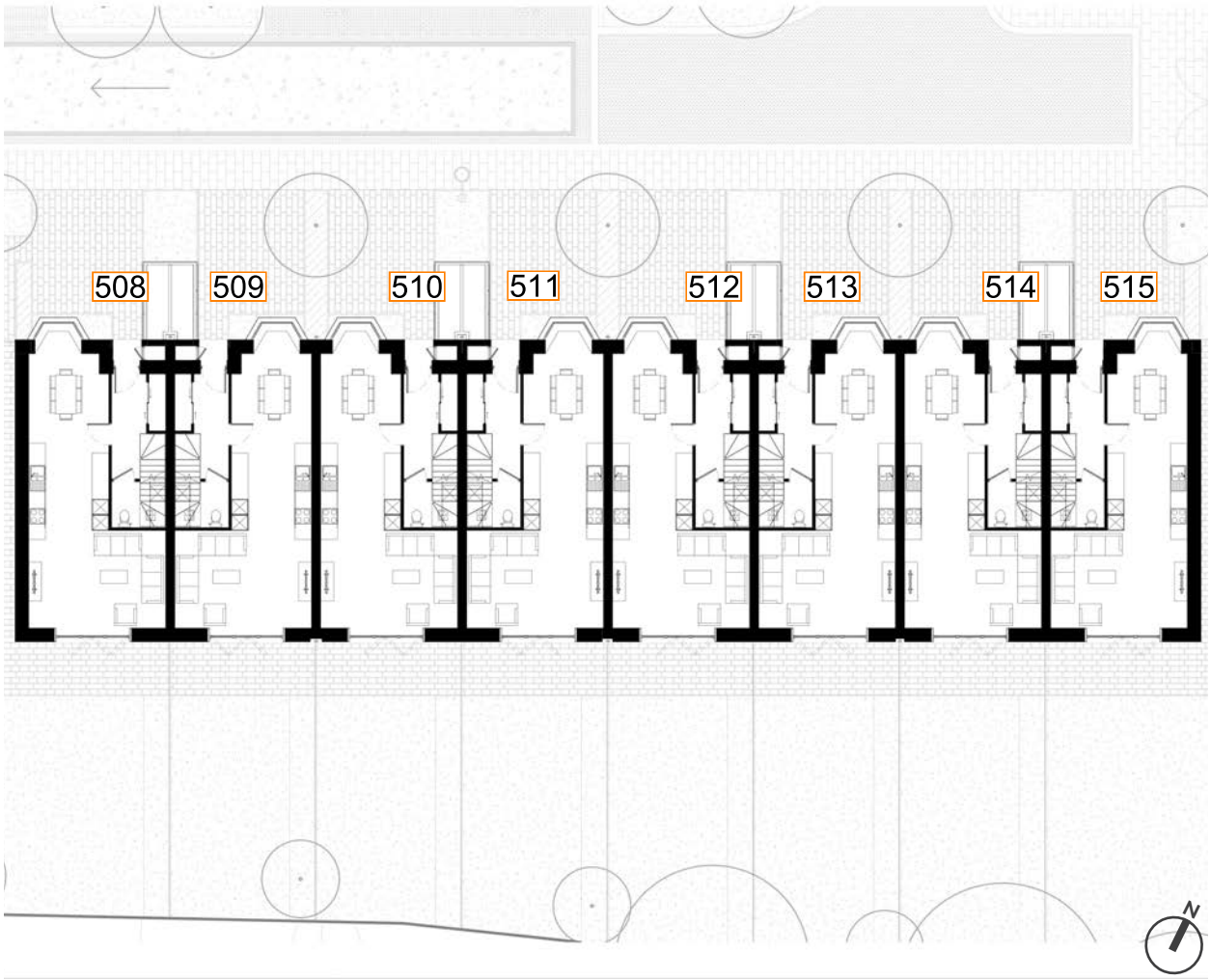
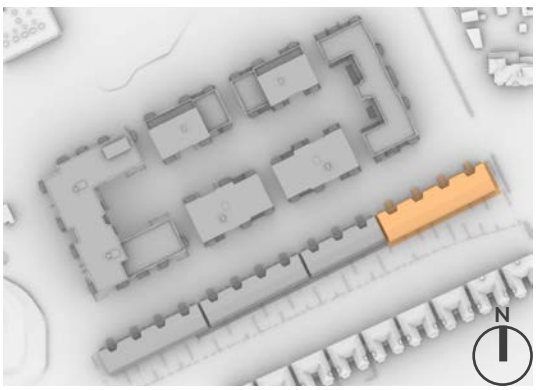


Fig. 32: Floor Plan



Block T1 - First Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK T1 - FIRST FLOOR						
516	Bedroom	1.7	89	MET		
517	Bedroom	1	85	MET		
518	Bedroom	1	91	MET		
519	Bedroom	1.7	99	MET		
520	Bedroom	1.8	99	MET		
521	Bedroom	1	91	MET		
522	Bedroom	1	91	MET		
523	Bedroom	1.8	99	MET		
524	Bedroom	1.8	99	MET		
525	Bedroom	1.1	91	MET		
526	Bedroom	1.1	91	MET		
527	Bedroom	1.9	99	MET		
528	Bedroom	1.9	99	MET		
529	Bedroom	1.1	91	MET		
530	Bedroom	1.1	91	MET		
531	Bedroom	2	98	MET		
532	Bedroom	1.5	94	MET		
533	Bedroom	1.5	94	MET		
534	Bedroom	1.5	94	MET		
535	Bedroom	1.5	94	MET		
536	Bedroom	1.5	94	MET		
537	Bedroom	1.5	94	MET		
538	Bedroom	1.5	94	MET		
539	Bedroom	1.5	94	MET		

Table 32: Assessment Data

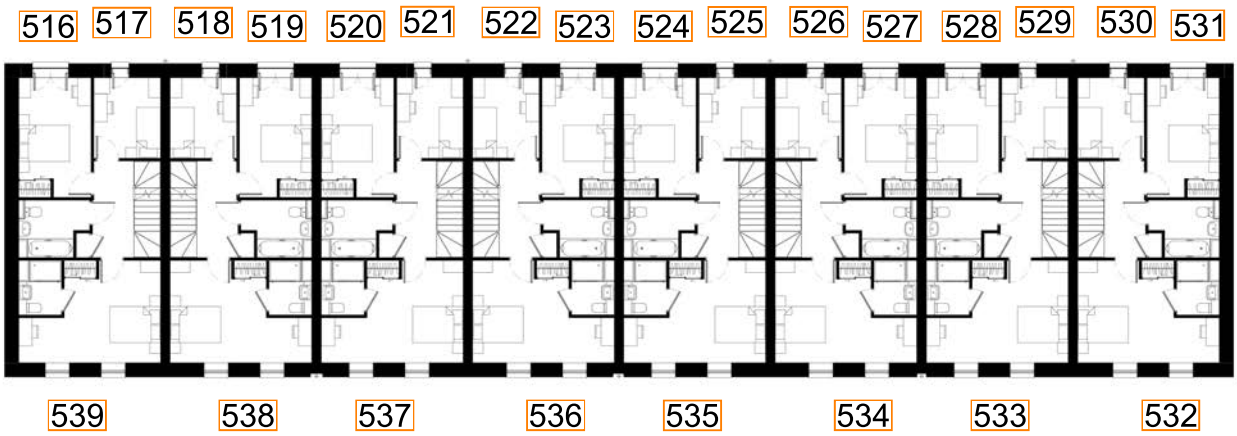
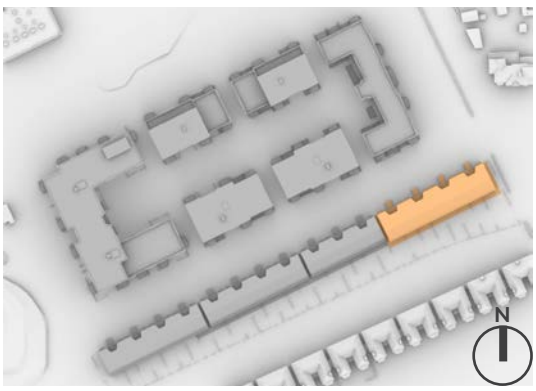


Fig. 33: Floor Plan



Block T1 - Second Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK T1 - SECOND FLOOR						
540	Bedroom	2.7	99	N/A		
541	Study	1.8	84	MET		
542	Study	1.9	77	MET		
543	Bedroom	2.7	100	N/A		
544	Bedroom	2.7	99	N/A		
545	Study	1.8	85	MET		
546	Study	1.9	76	MET		
547	Bedroom	2.7	100	N/A		
548	Bedroom	2.8	99	N/A		
549	Study	1.9	85	MET		
550	Study	1.9	77	MET		
551	Bedroom	2.8	100	N/A		
552	Bedroom	2.8	99	N/A		
553	Study	1.9	85	MET		
554	Study	2	77	MET		
555	Bedroom	2.8	100	N/A		

Table 33: Assessment Data

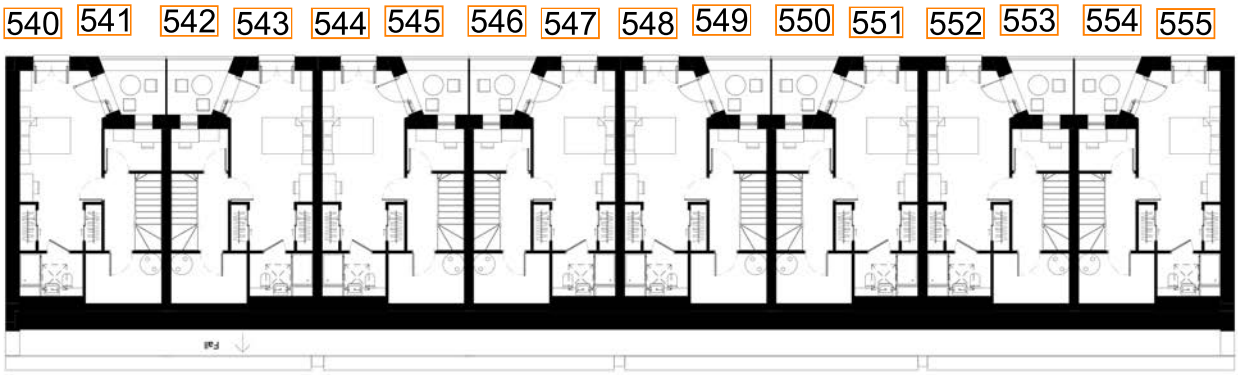
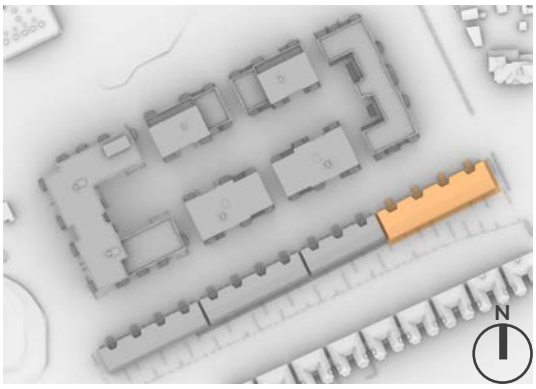


Fig. 34: Floor Plan



Block T2 - Ground Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK T2 - GROUND FLOOR						
556	L/K/D	3	100	N/A	90	27
557	L/K/D	2.9	100	N/A	88	26
558	L/K/D	2.9	99	N/A	87	26
559	L/K/D	2.9	100	N/A	89	26
560	L/K/D	2.9	99	N/A	88	26
561	L/K/D	2.9	99	N/A	88	26

Table 34: Assessment Data

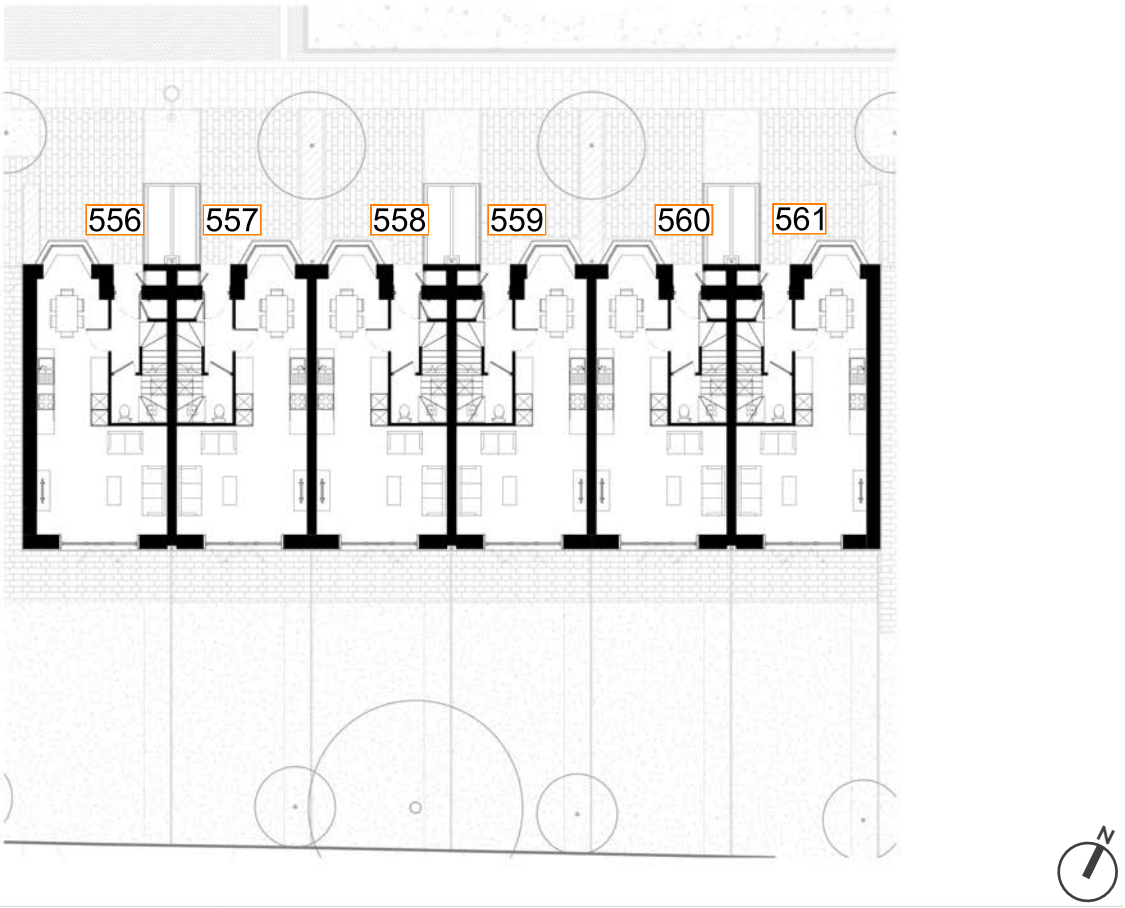


Fig. 35: Floor Plan

Block T2 - First Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK T2 - FIRST FLOOR						
562	Bedroom	0.9	84	MET		
563	Bedroom	0.9	81	MET		
564	Bedroom	0.9	77	MET		
565	Bedroom	0.9	73	MET		
566	Bedroom	0.9	73	MET		
567	Bedroom	0.9	79	MET		
568	Bedroom	1.8	95	MET		
569	Bedroom	1.7	94	MET		
570	Bedroom	1.8	95	MET		
571	Bedroom	1.7	94	MET		
572	Bedroom	1.8	95	MET		
573	Bedroom	1.8	94	MET		

Table 35: Assessment Data

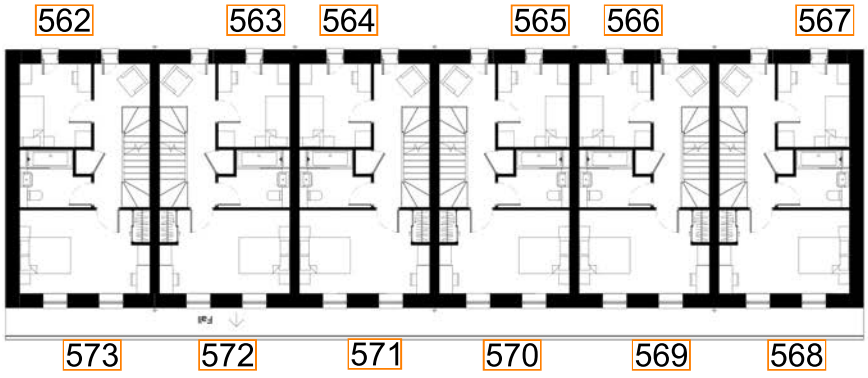


Fig. 36: Floor Plan

Block T2 - Second Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK T2 - SECOND FLOOR						
574	Bedroom	2.5	99	N/A		
575	Bedroom	2.5	99	N/A		
576	Bedroom	2.5	100	N/A		
577	Bedroom	2.5	99	N/A		
578	Bedroom	2.5	99	N/A		
579	Bedroom	2.5	100	N/A		

Table 36: Assessment Data

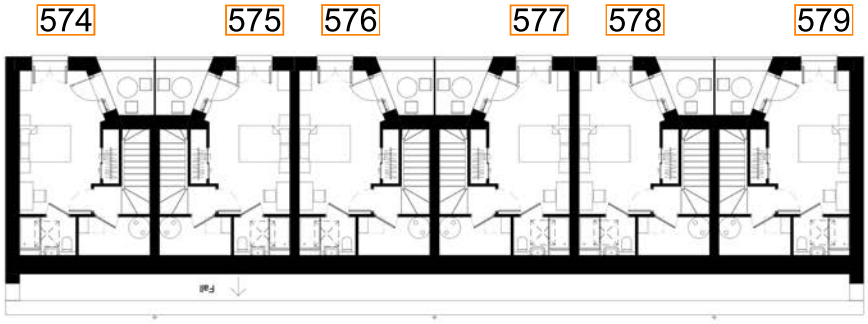


Fig. 37: Floor Plan

Block T3 - Ground Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK T3 - GROUND FLOOR						
580	L/K/D	2.9	100	N/A	89	27
581	L/K/D	2.9	100	N/A	87	26
582	L/K/D	2.9	100	N/A	86	26
583	L/K/D	2.8	100	N/A	88	26
584	L/K/D	2.8	99	N/A	86	26
585	L/K/D	2.8	100	N/A	88	26
586	L/K/D	2.9	99	N/A	86	26
587	L/K/D	2.9	100	N/A	91	27

Table 37: Assessment Data

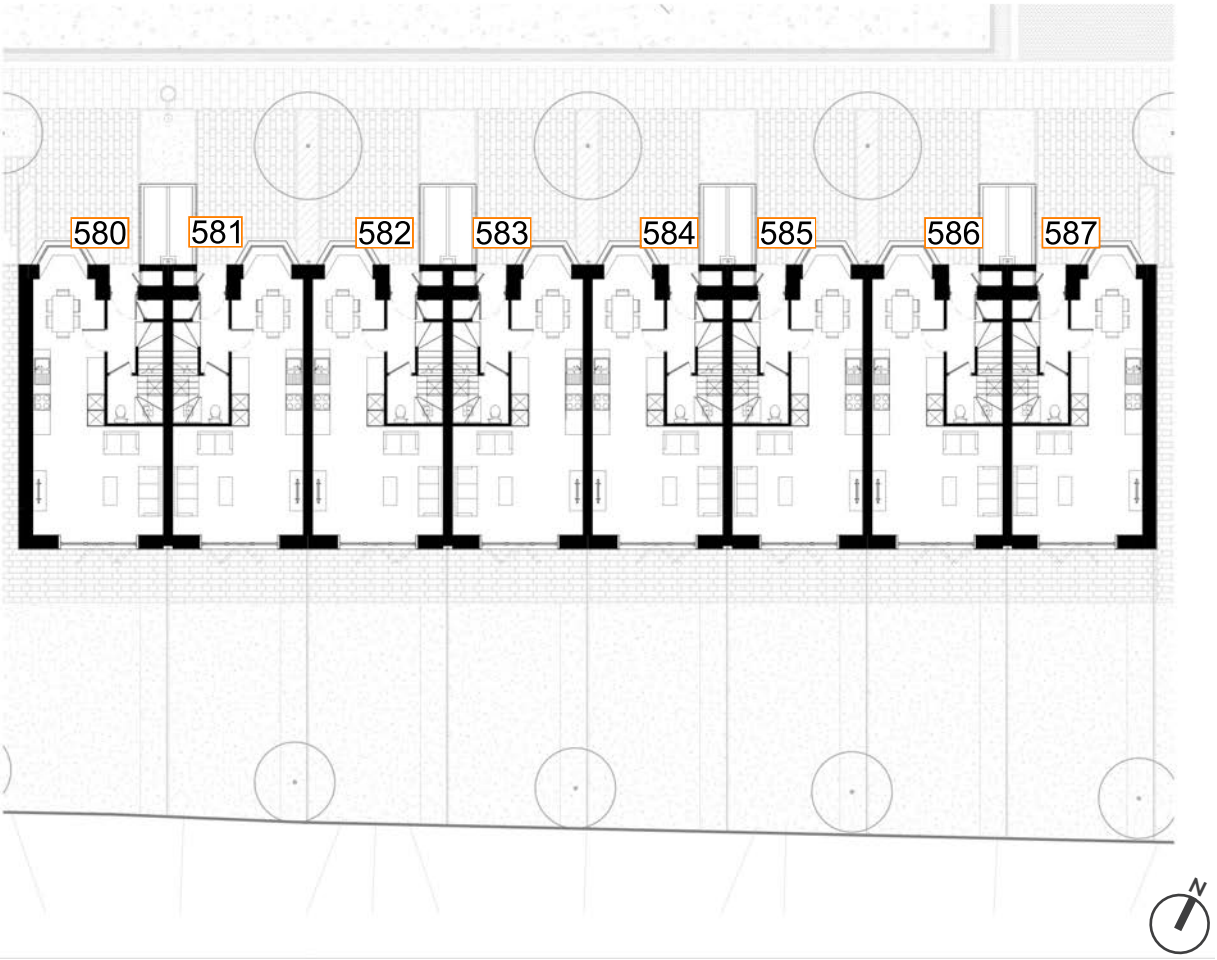


Fig. 38: Floor Plan

Block T3 - First Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK T3 - FIRST FLOOR						
588	Bedroom	0.8	78	MET		
589	Bedroom	0.9	83	MET		
590	Bedroom	0.9	84	MET		
591	Bedroom	0.8	74	MET		
592	Bedroom	0.8	73	MET		
593	Bedroom	0.9	74	MET		
594	Bedroom	0.8	76	MET		
595	Bedroom	0.9	83	MET		
596	Bedroom	1.8	94	MET		
597	Bedroom	1.7	94	MET		
598	Bedroom	1.8	95	MET		
599	Bedroom	1.7	94	MET		
600	Bedroom	1.8	95	MET		
601	Bedroom	1.7	94	MET		
602	Bedroom	1.8	95	MET		
603	Bedroom	1.7	95	MET		

Table 38: Assessment Data

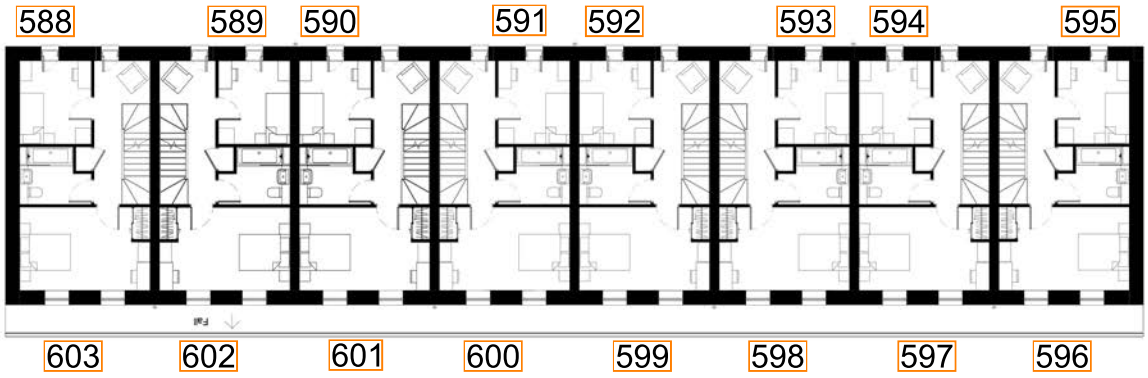


Fig. 39: Floor Plan

Block T3 - Second Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK T3 - SECOND FLOOR						
604	Bedroom	2.5	99	N/A		
605	Bedroom	2.5	99	N/A		
606	Bedroom	2.5	100	N/A		
607	Bedroom	2.5	99	N/A		
608	Bedroom	2.5	99	N/A		
609	Bedroom	2.4	99	N/A		
610	Bedroom	2.5	99	N/A		
611	Bedroom	2.5	100	N/A		

Table 39: Assessment Data

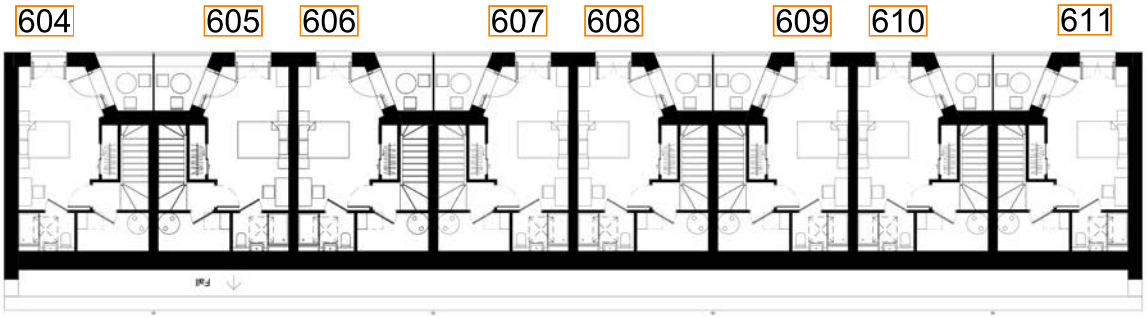


Fig. 40: Floor Plan

Block T4 - Ground Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK T4 - GROUND FLOOR						
612	L/K/D	3.2	100	N/A	95	26
613	L/K/D	3	100	N/A	92	25
614	L/K/D	3	99	N/A	90	25
615	L/K/D	2.9	100	N/A	92	25
616	L/K/D	2.9	99	N/A	90	25
617	L/K/D	2.8	100	N/A	91	25
618	L/K/D	2.9	99	N/A	88	25
619	L/K/D	2.9	99	N/A	91	26

Table 40: Assessment Data

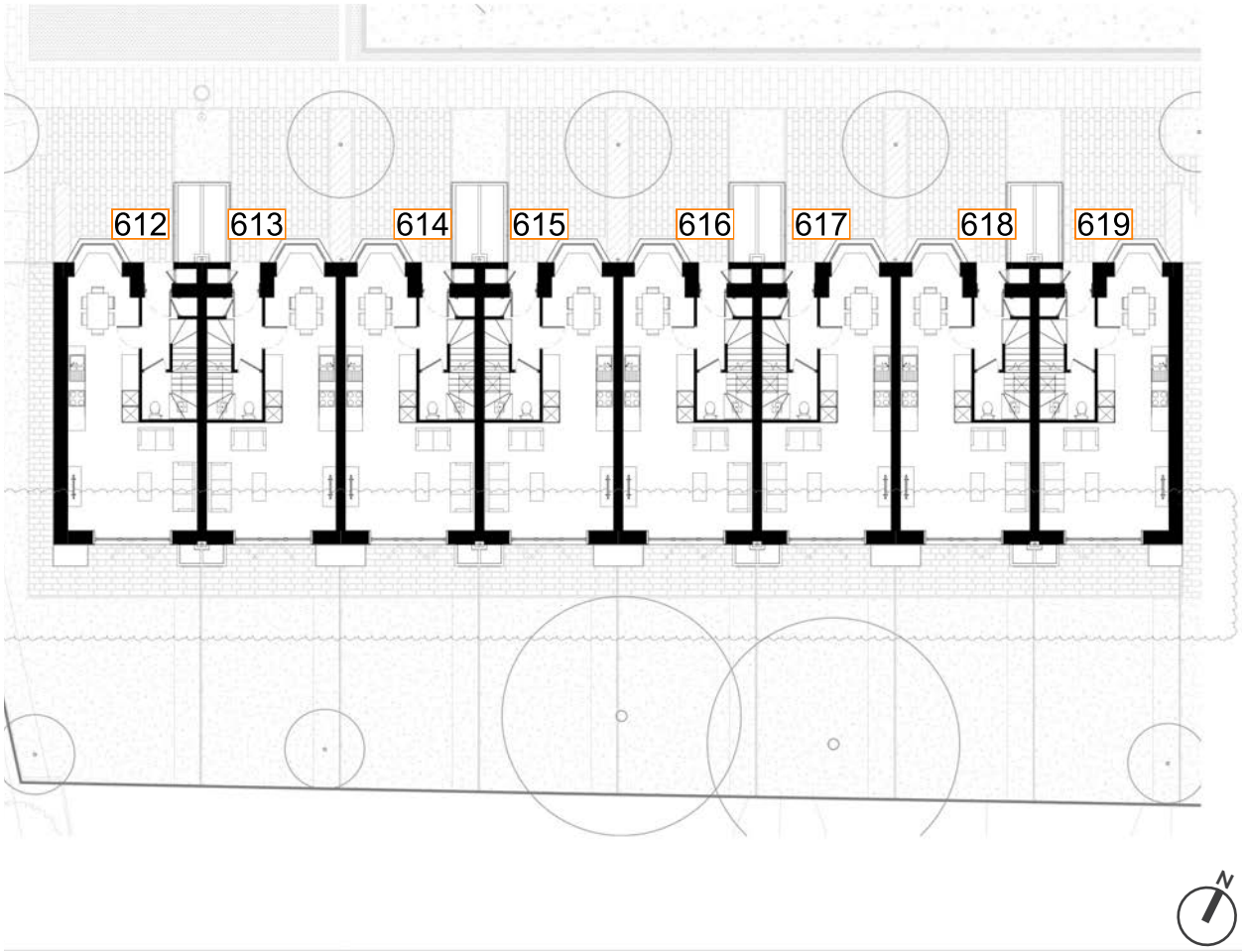
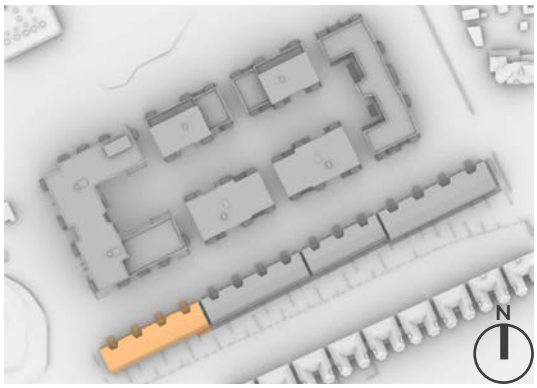


Fig. 41: Floor Plan



Block T4 - First Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK T4 - FIRST FLOOR						
620	Bedroom	1	89	MET		
621	Bedroom	0.9	75	MET		
622	Bedroom	0.9	73	MET		
623	Bedroom	0.8	62	MET		
624	Bedroom	0.8	62	MET		
625	Bedroom	0.8	67	MET		
626	Bedroom	0.8	69	MET		
627	Bedroom	0.8	75	MET		
628	Bedroom	1.8	94	MET		
629	Bedroom	1.7	94	MET		
630	Bedroom	1.8	95	MET		
631	Bedroom	1.8	94	MET		
632	Bedroom	1.8	95	MET		
633	Bedroom	1.8	94	MET		
634	Bedroom	1.9	95	MET		
635	Bedroom	1.8	95	MET		

Table 41: Assessment Data

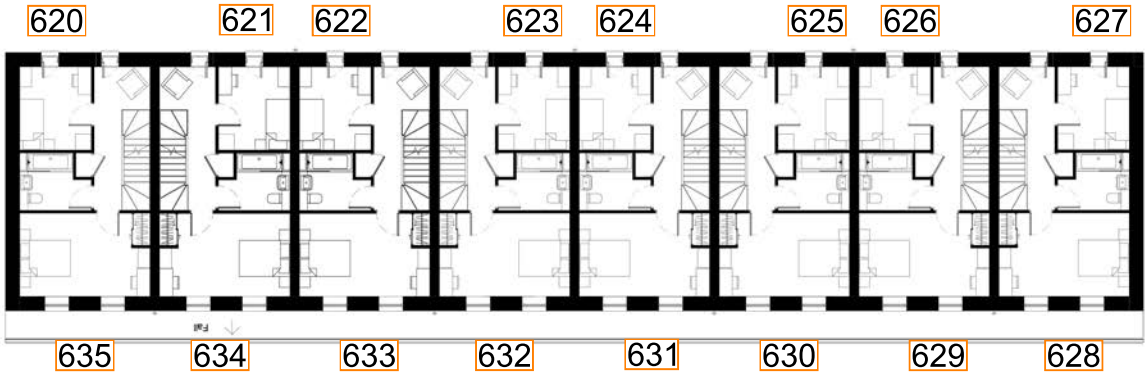


Fig. 42: Floor Plan

Block T4 - Second Floor

		DAYLIGHT QUANTUM	DAYLIGHT DISTRIBUTION		SUNLIGHT QUANTUM (PROBABLE SUNLIGHT HOURS)	
ROOM REF.	ROOM USE	ADF (%)	NSL (%)	RDC	ANNUAL	WINTER
BLOCK T4 - SECOND FLOOR						
636	Bedroom	2.6	100	N/A		
637	Bedroom	2.5	99	N/A		
638	Bedroom	2.5	100	N/A		
639	Bedroom	2.5	92	N/A		
640	Bedroom	2.4	98	N/A		
641	Bedroom	2.4	82	N/A		
642	Bedroom	2.4	99	N/A		
643	Bedroom	2.5	91	N/A		

Table 42: Assessment Data

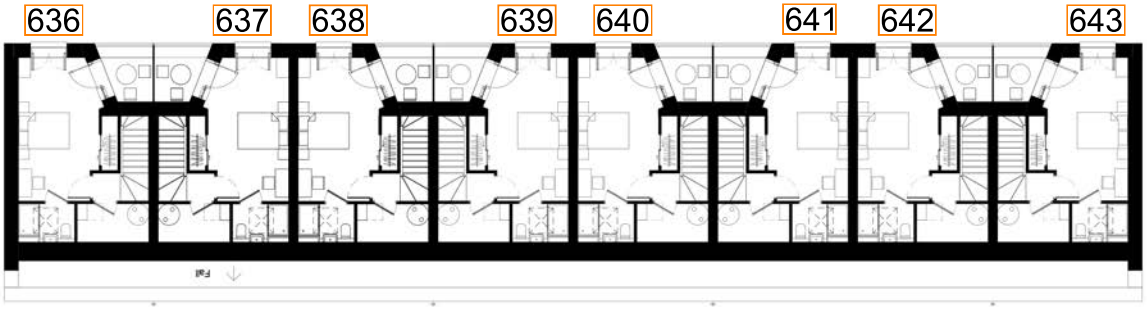
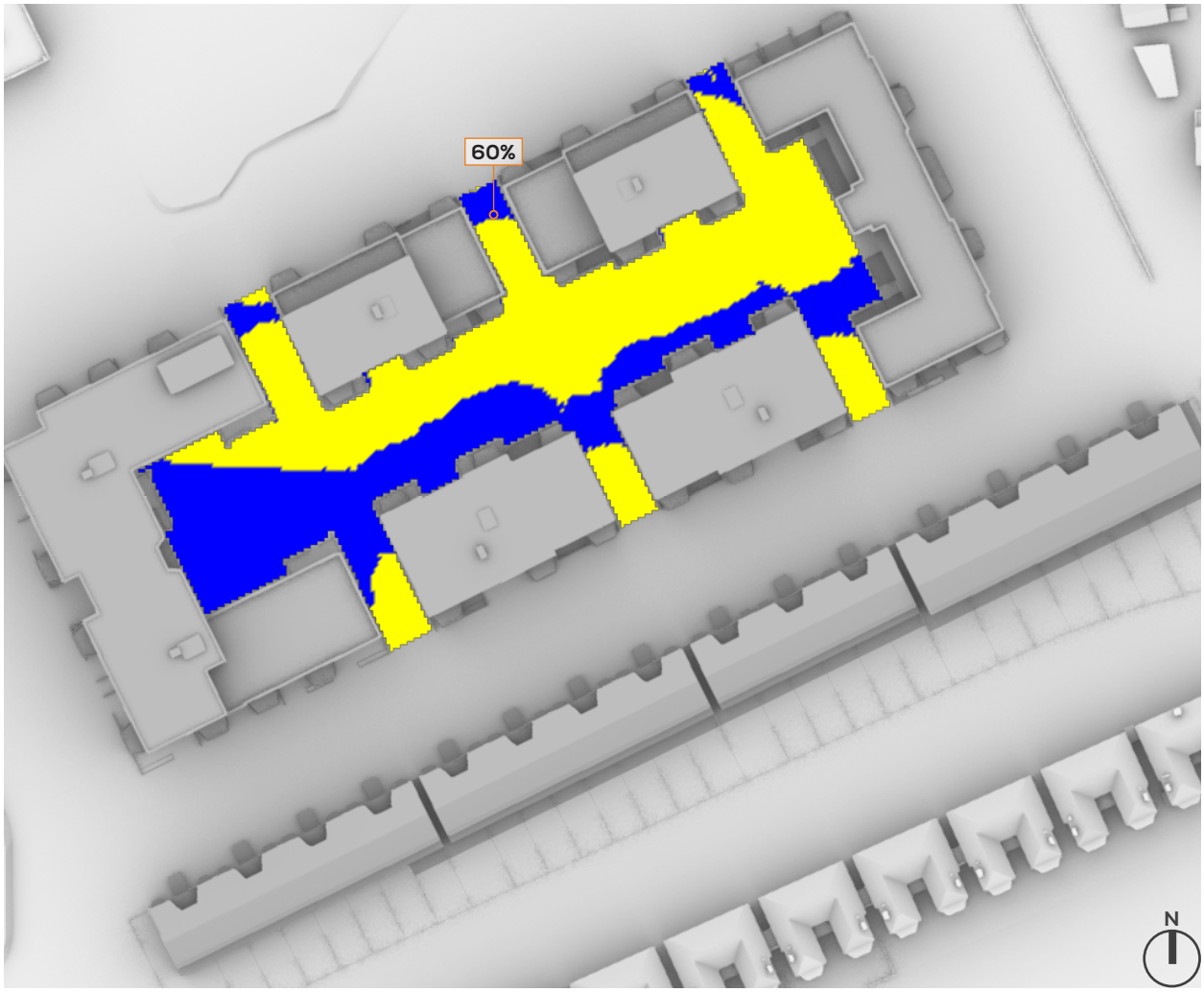


Fig. 43: Floor Plan

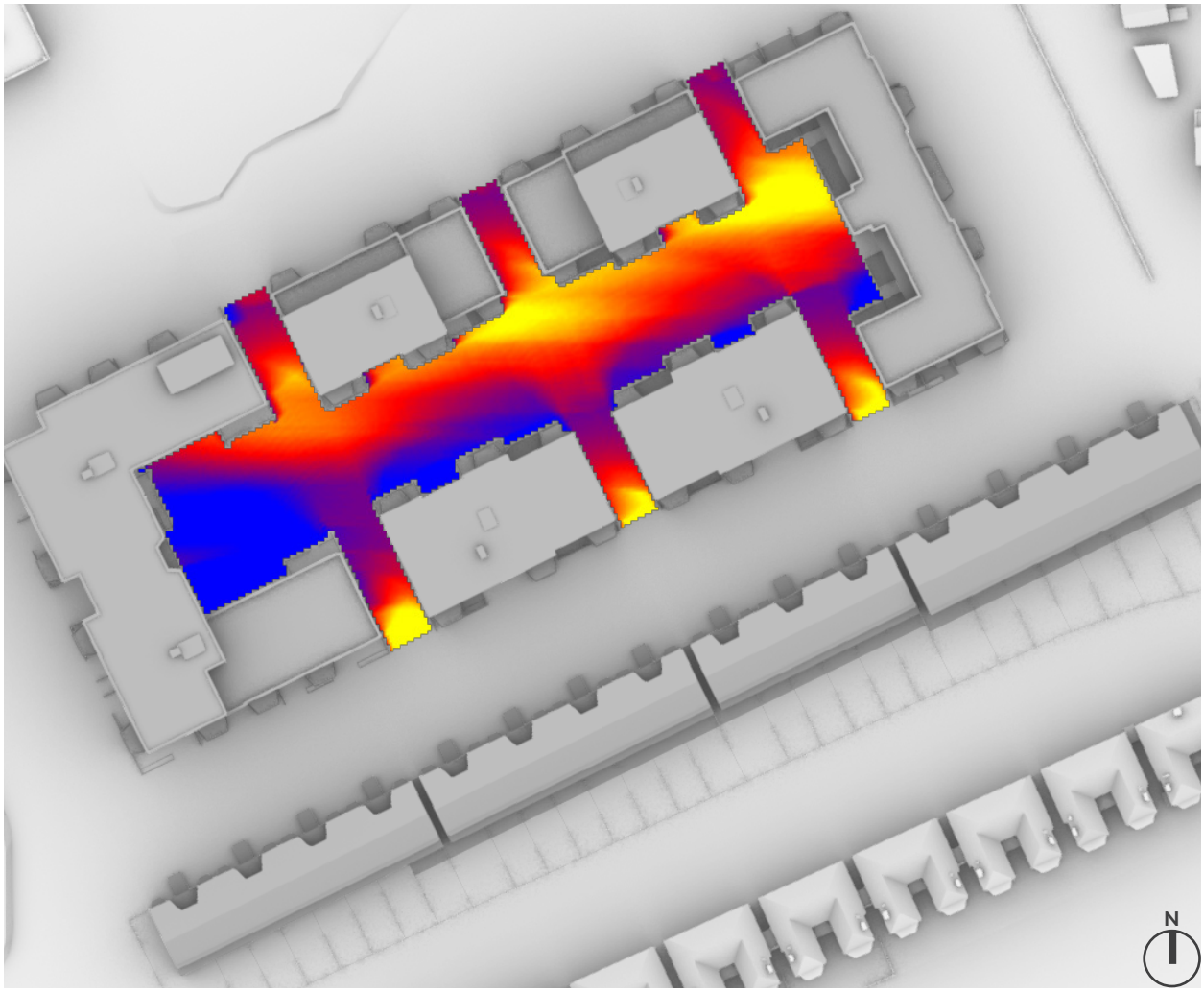
9 OVERSHADOWING ASSESSMENTS

OVERSHADOWING ASSESSMENT - COMMUNAL AMENITIES
SUN HOURS ON GROUND - BRE TEST - 21ST MARCH

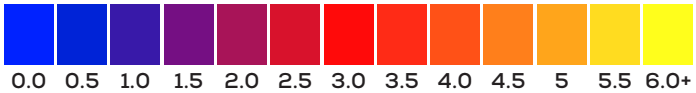


SUN HOURS ON GROUND
BRE TEST - 21ST MARCH

OVERSHADOWING ASSESSMENT - COMMUNAL AMENITIES
SUN EXPOSURE ON GROUND - 21ST MARCH



SUN EXPOSURE
TOTAL HOURS



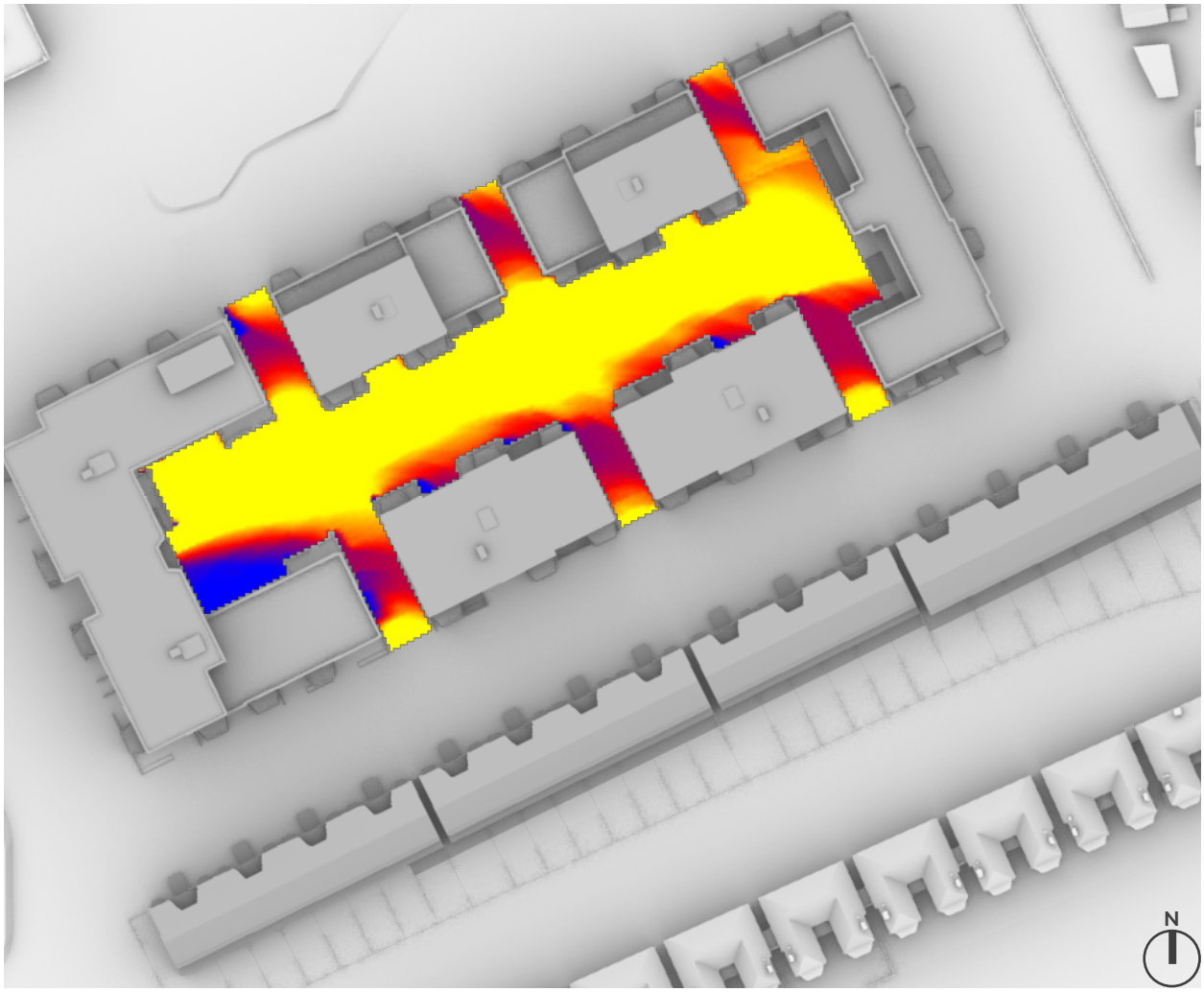
21st MARCH
(SPRING EQUINOX)

LONDON

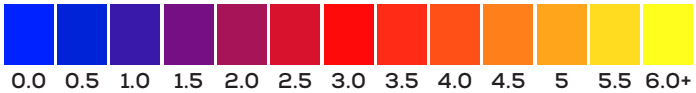
Latitude:	51.4
Longitude:	0.0
Sunrise:	06:02 GMT
Sunset:	18:14 GMT

Total Available Sunlight:
12hrs 12mins

OVERSHADOWING ASSESSMENT - COMMUNAL AMENITIES
SUN EXPOSURE ON GROUND - 21ST JUNE



SUN EXPOSURE
TOTAL HOURS



21st JUNE
(SUMMER SOLSTICE)

LONDON

Latitude:	51.4
Longitude:	0.0
Sunrise:	04:43 BST
Sunset:	21:21 BST

Total Available Sunlight:
16hrs 38mins

gia
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