Overheating Analysis

(In accordance with CIBSE TM59
and Part O)

Simat Properties Limited

26 Rosslyn Hill
London
NW3 1PA

London Borough of Camden

Version	Revision	Date	Author	Reviewer	Project Manager
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1	B	17.02.2025	Nikolaos Protogeros		Manas Bane
1	C	05.03.2025	Nikolaos Protogeros		Manas Bane

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Executive Summary

This Overheating Report has been undertaken by SRE for 26 Rosslyn Hill, London, NW3 1PA (the Proposed Development) on behalf of for Simat properties Ltd (The Client).

This report assesses thermal comfort measures for the Proposed Development, to demonstrate compliance with 2021 Building Regulations Part O1, ensuring the summertime thermal conditions within the building meet the standards set out in the Chartered Institute of Building Services Engineers (CIBSE) Technical Memoranda (TM59) methodology.

To assess the thermal performance of the Proposed Development, a detailed geometry of the Proposed Development has been created within the dynamic thermal analysis software Integrated Environmental Solutions Virtual Environment (IES-VE) 2024. All results are based on the simulation output and should be considered as an indication of the expected final situation. Accurate building performance will depend on actual conditions on-site.

A range of passive design measures has been incorporated, where feasible, to optimise thermal comfort conditions and minimise the overheating risks. This is done through a combination of building fabric specifications, openable windows, secure night-time ventilation, solar control glazing ($G_{(glazing)}$ - value of 0.40) and active design measures such as Mechanical Ventilation with Heat Recovery (MVHR) with summer bypass is used, to provide extra ventilation predominantly during the night time. Active cooling is also proposed, as passive strategies alone are not able to remove sufficient heat from these spaces.

Various scenarios were tested, considering window operation and openable areas based on an acoustic report, along with different g-values, to support the design in achieving a thermally comfortable environment.

The results of the simulations indicate that under current climate conditions (London Heathrow (LHR), DSY1 2020s high emissions, 50th percentile), all the assessed spaces of the Proposed Development pass the TM59 assessment criteria using a combination of passive strategies and active cooling, indicating a good level of thermal comfort during summer periods.

Two additional simulations were carried out using future weather files (London Heathrow LHR, DSY2 and DSY3 2020s high emissions, 50th percentile) to further test the robustness of the design. The results of the simulation indicate that with active cooling in place, all the assessed spaces pass the assessment.

It should be noted that a pass is not mandatory under the future weather scenario but is reported to acknowledge the issues that may arise in the future and recommend the required measures. In relation to CIBSE TM59 requirements and Building Regulations Part O, Requirement O1, the Proposed Development is in compliance with the mandatory current regulations.

Introduction

1.0 Introduction

This Overheating Analysis has been undertaken by SRE for 26 Rosslyn Hill, London (the Proposed Development) on behalf of Simat properties Ltd (the Client).

Following the guidance of the Chartered Institute of Building Services Engineers (CIBSE) Technical Memoranda (TM59): 2017 methodology, and Building Regulations 2010, Part O: 2021, this study assesses the Proposed Development’s overheating risk. This analysis includes the intensity of heat gains, occupancy patterns, building orientation, dwelling layout, shading strategy and ventilation method in response to the relevant requirements for the Proposed Development.

All results are based on outputs from dynamic thermal simulation software IES-VE 2024, which is fully compliant with CIBSE Applications Manual (AM11) and should be considered as an indication of the expected final situation. Accurate building performance will depend on actual conditions on-site. It is worth noting that with any computational model, assumptions and approximations have to be made. Wherever possible, all assumptions and approximations are detailed in this report.

1.1 The Proposed Development

The application site is located in Hampstead connecting the south end of Hampstead High Street and the north end of Haverstock Hill (A502). The existing building is a three-storey detached property comprising accommodation on the lower ground floor, upper ground floor and first floor.

The existing building at 26 Rosslyn Hill front elevation faces southwest and is adjacent to Hampstead Police Station on its North boundary. On the South side of the site, a brick retaining wall separates No 26 and Nos 22-24 properties.

Figure 1 - Location of the application site (Google Earth)

The Proposed Development plans to retain the front façade and provide 3 no. residential units through full redevelopment meeting the building standards.

Figure 2 - Application site and existing building

Please refer to Appendix A for further architectural details of the Proposed Development.

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Methodology

2.0 Methodology

2.1 CIBSE Guide A: Environmental Design

CIBSE Guide A ‘Environmental Design’ (2015) gives general guidance and recommendations for buildings on suitable winter and summer temperatures for a range of room and building types. According to CIBSE Guide A, secondary spaces which are occupied only briefly (less than 30 minutes), such as toilets, storage rooms, and circulation areas are outside the scope of this analysis.

Table 1 summarises the comfort criteria for relevant room types within the Proposed Development:

		Rest rooms /Lounge	Bedrooms	Offices/ Nurse station	Dining
Winter period (Oct-Apr)	Operative Temperatures (ºC)	19-21	22-24	21-23	21-23
	Activity (met)	1.4	0.9	1.2	1.1
	Clothing (clo)	1	1.4	0.9	1
Summer period (Oct-Apr)	Operative Temperatures (ºC)	21-25	23-25	22-25	24-25
	Activity (met)	1.3	0.9	1.2	1.1
	Clothing (clo)	0.6	1.2	0.7	0.6

Table 1 - CIBSE Guide A, recommended comfort criteria

Predicted Mean Vote (PMV) and Predicted Percentage of Dissatisfied (PPD) are thermal comfort metrics calculated according to the methodology set out in ISO 7730:2005 - Ergonomics of the thermal environment.

The PMV is an index that predicts the mean votes of a large group of people on the seven-point thermal sensation scale based on the heat balance of the human body ranging from -3 (Cold) to +3 (Hot) with zero being neutral/comfortable. Thermal balance is obtained when the internal heat production in the body is equal to the loss of heat to the environment. The PPD is an index that establishes a quantitative prediction of the percentage of thermally dissatisfied people in their thermal environment.

CIBSE Guide A states that for heating, cooling and air-conditioned buildings:

“Operative temperature set-points within the ranges suggested in Table 1.5 are likely to be found satisfactory. The values of the clothing insulation and metabolic rates indicated apply approximately to the centre of the range. Adjustments can be made for the circumstance that the clothing and activity differ from those in Table 1.5. Fluctuations of up to 1 K about the set point would largely pass unnoticed, while fluctuations of 2 K would be noticed and could result in some mild discomfort at the extremes. (An operative temperature 2 K away from the optimum corresponds to about 0.6 units of PMV or PPD about 12%).”

“A mechanically cooled building should aim to provide an indoor environment where the PMV index is near to or equal to zero. It will be considered as overheating if the value of the PMV index is above 0.5 (equivalent to a PPD of 10%).

The predicted indoor temperature or values of PMV should not exceed the tabulated values for more than 3% of occupied hours. For summer conditions simulations should be made using design summer years as recommended in CIBSE TM48 (CIBSE, 2009).”

2.2 CIBSE TM52: The Limits of Thermal Comfort: Avoiding Overheating in European Buildings

CIBSE TM52 is a Technical Memorandum about predicting overheating in buildings. It outlines the approach adopted by CIBSE to ensure that a building is comfortable for its occupants and how the likelihood of discomfort due to overheating can be predicted.

As summarised in Table 2, TM52 outlines three criteria to identify overheating in free-running buildings. A room that fails any two of the three criteria is classed as overheating.

Criterion	Definition
1	**Hours of exceedance (H_e):** The number of hours (H_e) during which the operative temperature is greater than the threshold comfort temperature by 1°C during the period May to September inclusive shall not be more than 3 percent of the occupied hours.
2	**Daily weighted exceedance (W_e):** The weighted exceedance (W_e) shall be less than or equal to 6 in any one day.
3	**Upper limit temperature (T_{upp}):** The indoor operative temperature shall not exceed the threshold comfort temperature by 4°C.

Table 2 – CIBSE TM52 Overheating Criteria

2.3 CIBSE TM59: Design Methodology for the Assessment of Overheating Risk in Homes

The performance standards set in CIBSE TM59: 2017 have been used to assess the overheating risk within the Proposed Development. Compliance is based on passing both of the following two criteria:

1. For living rooms, kitchens and bedrooms: the number of hours during which the operative temperature exceeds the threshold comfort temperature by 1°C during the period May to September inclusive shall not be more than 3% of occupied hours. (CIBSE TM52 Criterion 1: Hours of exceedance).
2. For bedrooms only: the operative temperature in the bedroom from 10 pm to 7 am shall not exceed 26°C for more than 1% of occupied hours. (Note: 1% of occupied hours between 22:00 and 07:00 for bedrooms is 32 hours, so 33 or more hours will be recorded as a fail).

In addition to living rooms, kitchens and bedrooms, the inclusion of corridors in the overheating analysis is mandatory where community heating pipework runs through them. The overheating test for corridors should be based on the number of annual hours for which an operative temperature of 28 °C is exceeded. Whilst there is no mandatory target to meet, if an operative temperature of 28 °C is exceeded for more than 3% of the total annual hours, then this should be identified as a significant risk within the report.

The overheating risk of the spaces is assessed under the CIBSE design summer year (DSY) weather files for London Heathrow. A pass is required using the DSY1 2020s, high emissions, 50th percentile weather file. Other files including the more extreme DSY1 2050s weather file, should be used to further test designs of particular concern, but a pass is not mandatory.

2.4 Approved Document Building Regulations Part O

The approved document Building Regulations Part O has been written with the aim to protect the health and welfare of occupants of the building by reducing the occurrence of high indoor temperatures.

Compliance with requirement O1 can be demonstrated by using one of the following methods:

1. The simplified method for limiting solar gains and providing a means of removing excess heat.
2. The dynamic thermal modelling method.

This report details a dynamic thermal modelling method for demonstrating compliance with requirement O1. It provides a standardised approach to predicting overheating risk for residential buildings using dynamic thermal modelling as an alternative to the simplified method.

CIBSE's TM59 method requires the modeller to make modelling choices. The dynamic thermal modelling method in Part O applies limits to these choices, including:

a. When a room is occupied during the day (8am to 11pm), openings should be modelled to do all of the following:

    i. Start to open when the internal temperature exceeds 22°C
    ii. Be fully open when the internal temperature exceeds 26°C
    iii. Start to close when the internal temperature falls below 26°C
    iv. Be fully closed when the internal temperature falls below 22°C.

b. At night (11pm to 8am), openings should be modelled as fully open if both of the following apply:

    i. The opening is on the first floor or above and not easily accessible
    ii. The internal temperature exceeds 23°C at 11pm.

c. When a ground floor or easily accessible room is unoccupied, both of the following apply:

    i. During the day, windows, patio doors and balcony doors should be modelled as open, if this can be done securely
    ii. At night, windows, patio doors and balcony doors should be modelled as closed.

d. An entrance door should be included, which should be shut all the time.

Based on Building Regulations Part O, mechanical cooling may only be used where insufficient heat is capable of being removed from the indoor environment without it. The building should be constructed to meet requirement O1 using passive means as far as reasonably practicable. It should be demonstrated to the building control body that all practicable passive means of limiting unwanted solar gains and removing excess heat have been used first before adopting mechanical cooling. Any mechanical cooling (air-conditioning) is expected to be used only where requirement O1 cannot be met using openings.

Dynamic Model

3.0 Dynamic model

The dynamic thermal modelling has been carried out using IES-VE 2024. IES-VE is a fully dynamic analysis tool, which is compliant with CIBSE AM11. The three-dimensional (3D) thermal model of the Proposed Development has been created based on the latest architectural drawings provided by Square Feet Architects.

Figure 3 to Figure 5 are images taken from the 3D IES-VE model that show the full geometry of the Proposed Development. As with any modelling exercise, some approximations have to be made, while ensuring that the scale and dimensions of the model are as close as possible to the design drawings and that glazing areas are accurately represented.

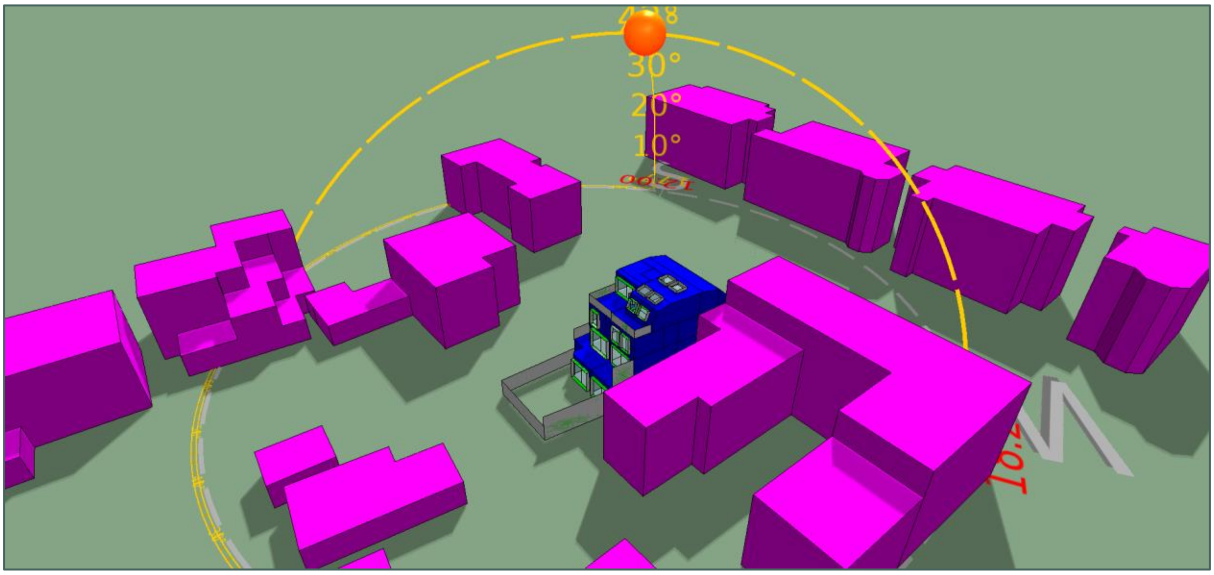


Figure 3 - 3D model of the Proposed Development in the IES-VE 2023 software, northwest view

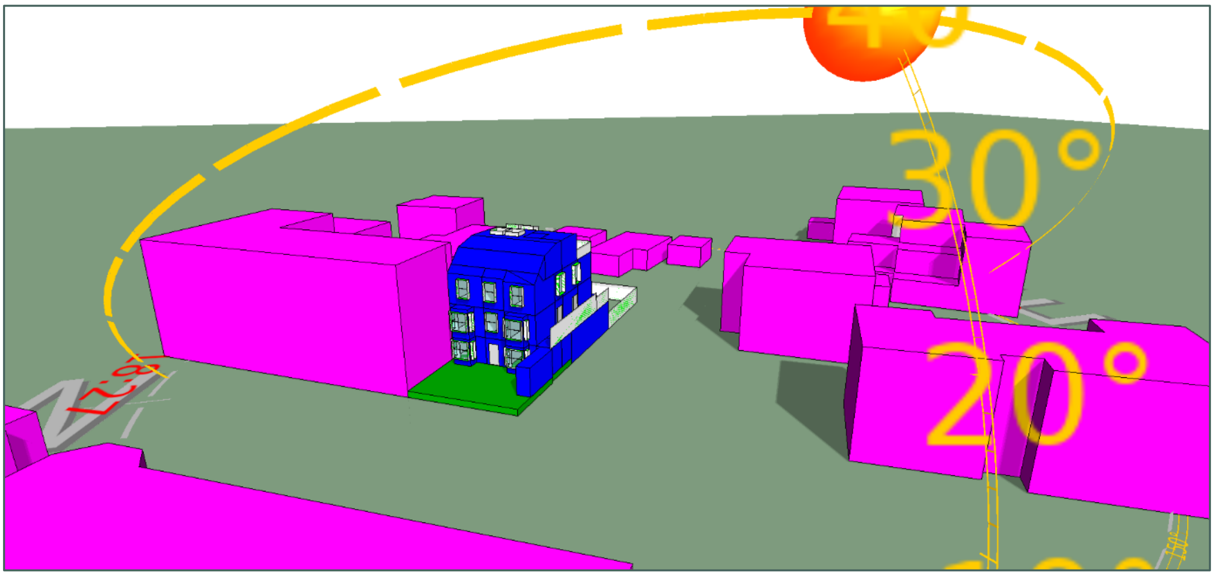


Figure 4 - 3D model of the Proposed Development in the IES-VE 2023 software, south view

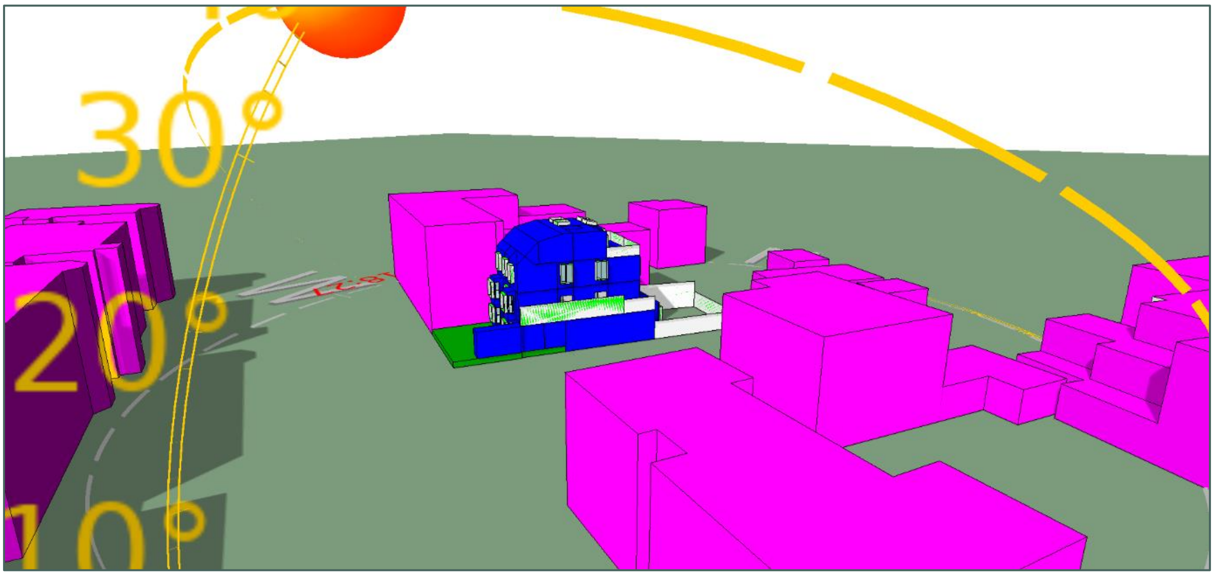


Figure 5 - 3D model of the Proposed Development in the IES-VE 2023 software, southeast view

The Proposed Development has been divided into different zones in relation to use. Appropriate profiles and internal gains have been assigned to all different areas, but only the results of the main occupied spaces have been assessed in this study. Secondary spaces occupied only briefly (less than 30 minutes), such as toilets, stores and hallways are outside the scope of this study.

The assessed occupied spaces and their floor areas are listed in Table 3.

Space Type	Floor area (m^2)
LG - 3 Bed - KLD	61.34
LG - Bedroom 2	19.18
LG - Bedroom 3	15.68
LG - Master Bedroom	28.58
GF - 2 Bed - KLD	40.76
GF - Bedroom 2	15.04
GF - Home Working Area	6.26
GF - Master Bedroom	19.18
FF - Bedroom 2	17.25
FF - Bedroom 3	14.22
FF - Home Working Area	6.26
FF - Master Bedroom	19.89

Table 3 - List of assessed occupied spaces and their floor areas

Figure 6 to Figure 7 indicate the thermal templates applied to each space type.

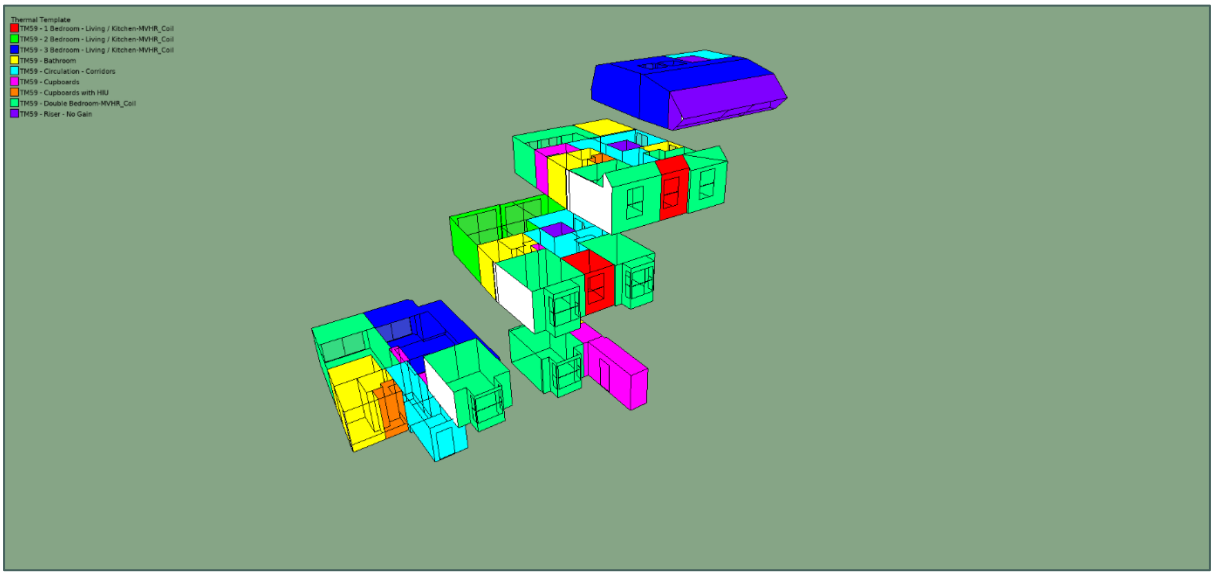


Figure 6 - Thermal zones of assessed spaces

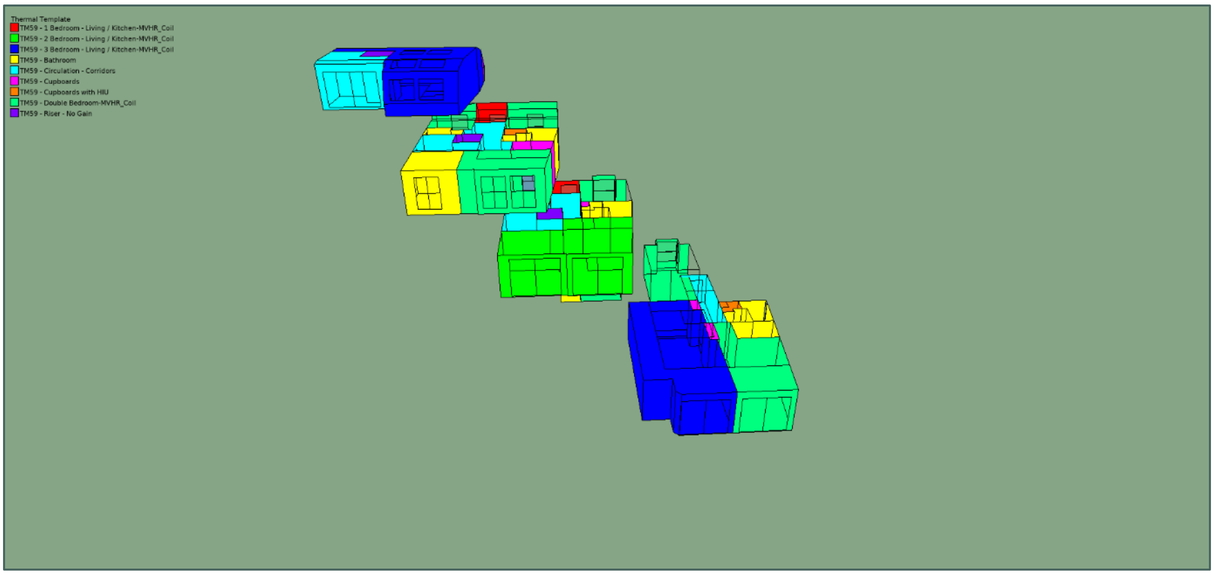


Figure 7 - Thermal zones of assessed spaces

3.1 Building Fabric

High-performance fabric has been specified to reduce heat transfer between the internal conditioned areas and the ambient environment. Table 4 summarises the U-Values for all the fabric elements.

Fabric Element	Proposed U-Value
External Walls (Existing Façade)	0.27
External Walls	0.15
Exposed Floor	0.12
External Roof	0.1
External Flat Roof	0.1
Ground Floor	0.1
External Windows and Glazed Doors (Existing Façade)	1.0 (g=0.40)
External Windows and Glazed Doors	0.80 (g=0.40)
Solid Doors	1.2

Table 4 - Construction details of the Proposed Development

3.2 Occupancy and internal gain profiles

Based on CIBSE Guide A and TM59, a maximum sensible heat gain of 75 W/person and a maximum latent heat gain of 55 W/person are assumed in occupied spaces in the assessment. In addition, heat gains from equipment are also included based on the methodology described in CIBSE TM59, which is summarised in Table 5. A lighting load of $2W/m^2$ is applied to all occupied spaces.

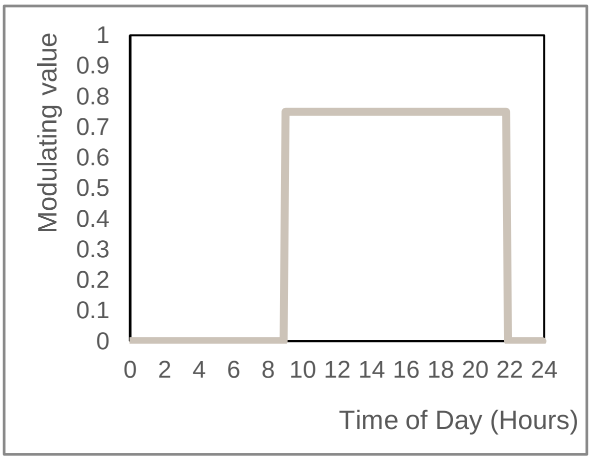
Usage	Equipment Peak Load (W)
Living/Kitchen/Dining	450
Living	150
Bedroom	80

Table 5 - Equipment peak load for different usages

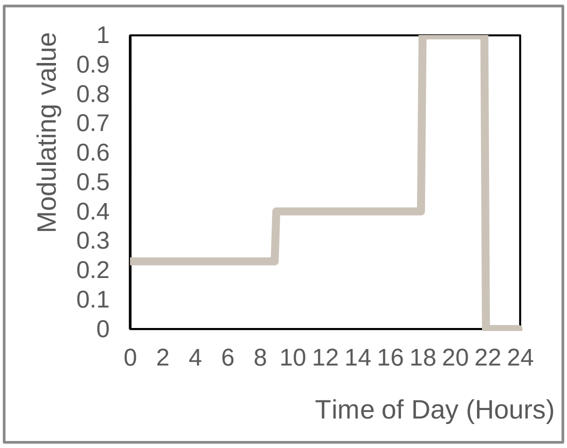
The occupancy and internal gain profiles have been based on the methodology described in CIBSE TM59 standard profiles according to usage can be seen in Table 6.

Occupancy and equipment profiles

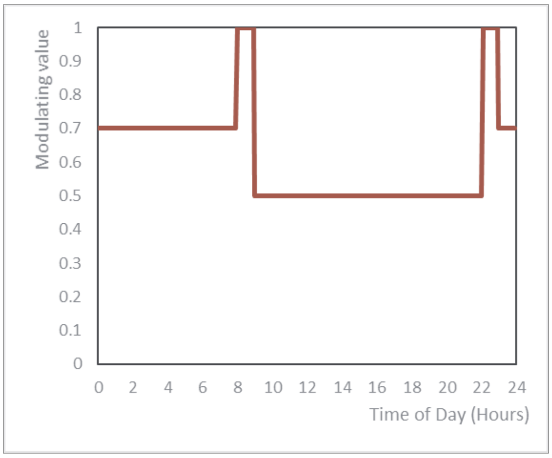
Living Occupancy



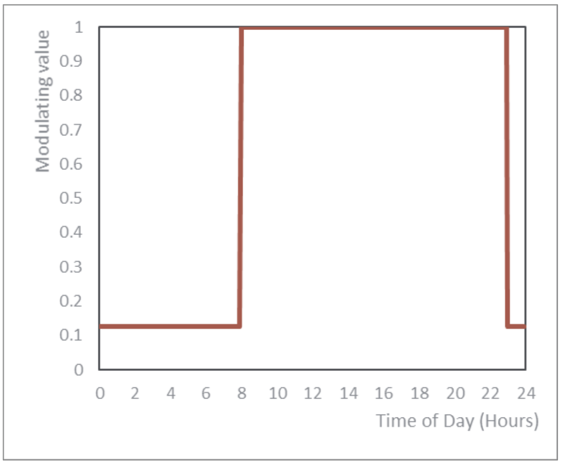
Living Equipment



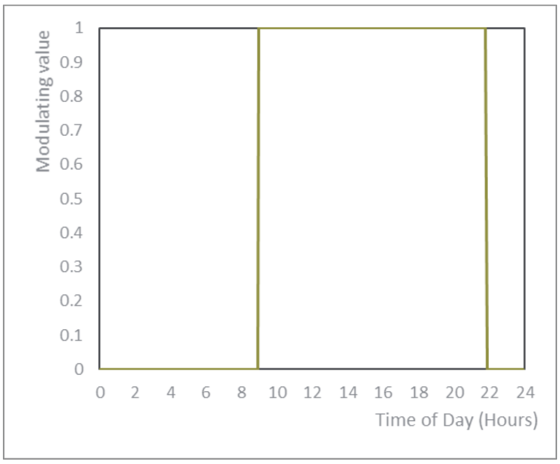
Double Bedroom Occupancy



Double Bedroom Equipment



Living/Kitchen Occupancy



Living/Kitchen Equipment

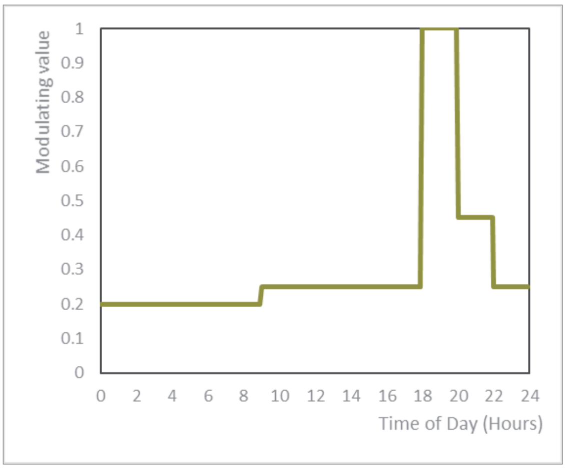


Table 6 - Occupancy and equipment profiles for the occupied spaces

These profiles represent real-life occupancy patterns, ensuring the key aspects of overheating are captured, which include the following characteristics:

- Bedrooms are set with a 24-hour occupancy profile: one person is always considered in each bedroom during the daytime and two people in each double bedroom at night.
- Kitchen and living rooms are unoccupied during the sleeping hours and occupied during the rest of the day.
- No differences between weekdays and weekends are considered and the dwelling is modelled as occupied for 24 hours.

3.3 Air Exchange

There is an MVHR with a summer bypass proposed in each flat with a maximum airflow of 90l/s per MVHR unit. The maximum airflow from the MVHR unit in different room types are listed in Table 7.

Room Type	Maximum Air Flow from the MVHR (l/s)
Bedrooms	30
1 Bed Kitchen/Living/Dining	60
2 Bed Kitchen/Living/Dining	30

Table 7 – Auxiliary Ventilation

An infiltration rate of 0.15 Air Changes per Hour (ACH), is also applied in all areas.

3.4 Window Openings

Based on the information supplied by the Client Agent, the specifications for the opening areas and angle are summarised in Table 8. Figure 8 and Figure 9 shows the opening types applied within the thermal comfort model. External doors are modelled as fixed shut.

Opening category	Openable area (%)	Min. opening angle (o)
Side Hung Window/Door	85	90
Casement Window	95	-
Fixed Window	0	-
Sliding Doors	95	-
Top Hung Rooflights	95	15

Table 8 - Glazing specification - openable areas

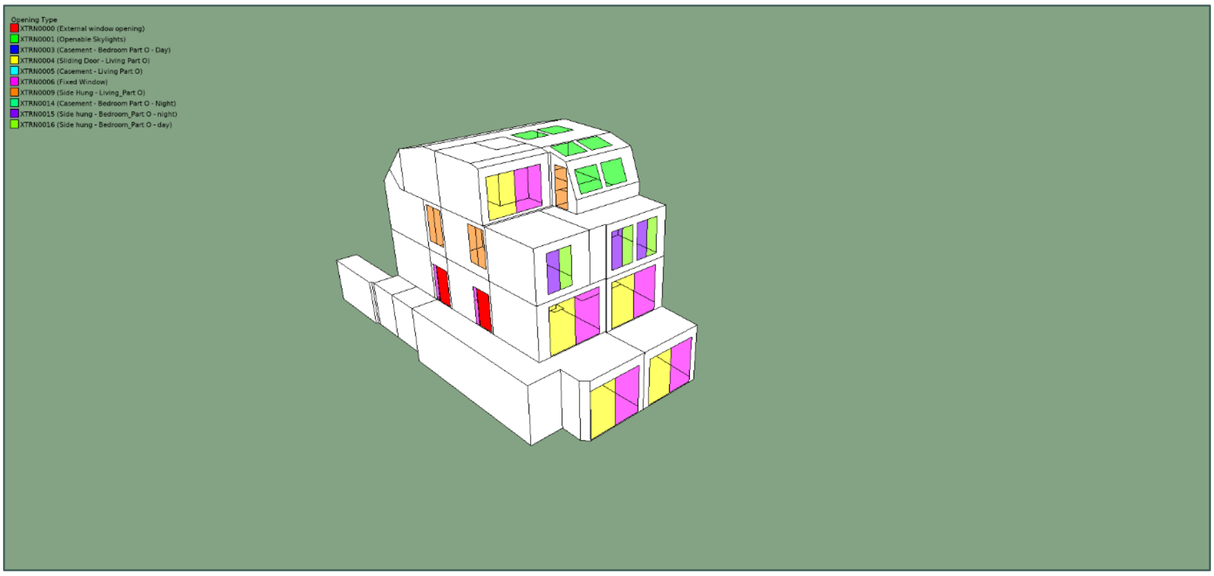


Figure 8 – Opening types

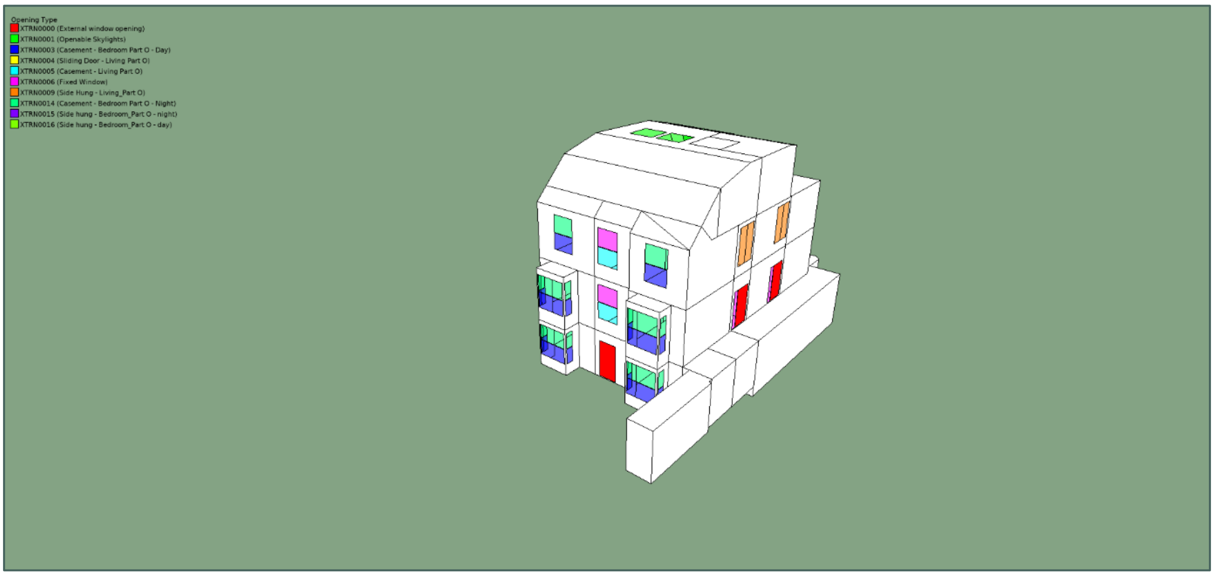


Figure 9 – Opening types

3.5 Shading devices

Although internal blinds can be applied to all windows to reduce solar gains during the daytime, this has not been modelled as per Part O1 guidance.

3.6 Space Heating and Cooling

Space heating and cooling, which operates on a variable refrigerant volume (VRF) principle, has been provided to the main occupied areas.

In order to ensure the operative temperature in the assessed areas is achieving the CIBSE Guide A comfort criteria, a range of set points for heating and cooling will be investigated for each room use. A ±1K variation in the advised operative temperature is allowed since it would attract little notice from building occupants. The operative temperature will be assessed during both summer and winter periods for the occupied spaces.

Table 9 shows the chosen set point temperatures for heating and cooling during the winter (October-April) and summer (May-September) months for the occupied spaces.

Environmental Design (CIBSE Guide A)	Winter period (Oct-Apr)			Summer period (May-Sep)		
	CIBSE Guide A Comfort Recommendation (°C)	Heating Setpoint Temperature (°C)	Cooling Setpoint Temperature (°C)	CIBSE Guide A Comfort Recommendation (°C)	Heating Setpoint Temperature (°C)	Cooling Setpoint Temperature (°C)
Office/Nurse station	21-23	20.5	22.5	22-25	22	24
Nurse station 2&4	21-2	21	22.5	22-25	22	24
Bedroom	22-24	21.5	23.5	23-25	23.5	25
Lounge	19-21	18.5	20	21-25	22	24
Dining	21-23	20.5	22.5	24-25	24	25

Table 9 - Operative temperature CIBSE Guide A recommendations and chosen set point temperatures Winter (Oct-Apr), Summer (May-Sept)

3.7 Weather File

The thermal comfort analysis is conducted under both current and projected future climate conditions in accordance with CIBSE TM59 requirements, based on the below weather files.

Current condition:

- London Heathrow DSY1 2020s high emissions 50th percentile

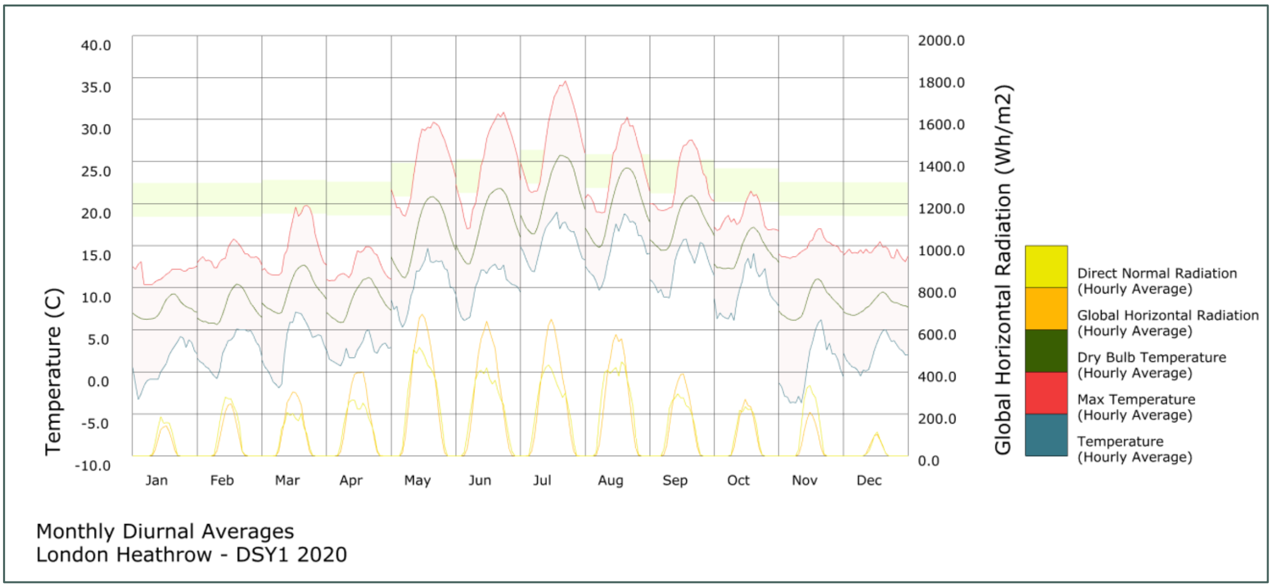


Figure 10 – Monthly diurnal averages, whole year, DSY1 2020, high emissions, 50th percentile weather file.

Future condition:

- London Heathrow DSY2 2020s high emissions 50th percentile

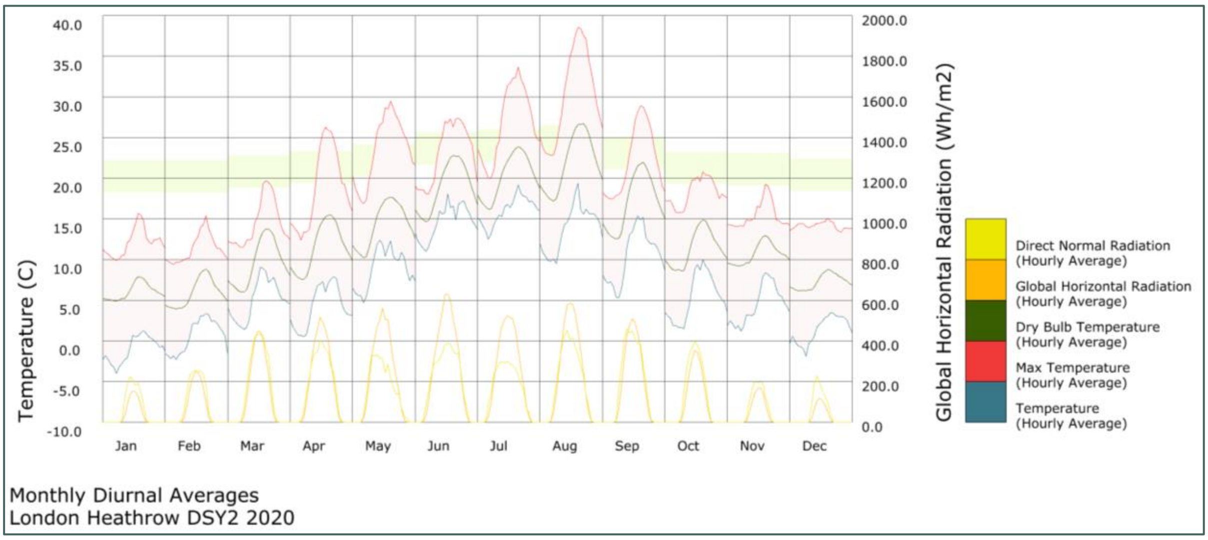


Figure 11 – Monthly diurnal averages, whole year, DSY2 2020, high emissions, 50th percentile weather file

- London Heathrow DSY3 2020s high emissions 50th percentile

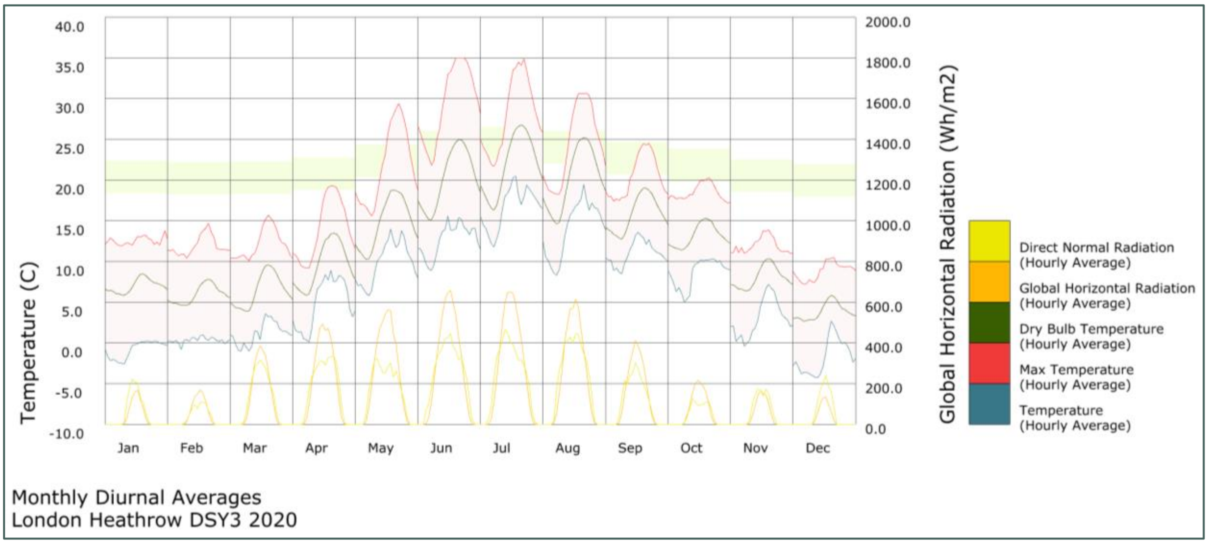


Figure 12 – Monthly diurnal averages, whole year, DSY3 2020, high emissions, 50th percentile weather file

The solar gains are calculated using the IES software based on the weather file, the building's geometry, orientation of facades, surrounding obstacles, transmission coefficients of the glazing and the solar angles.

Results

4.0 Results

According to CIBSE TM59 and Part O, the overheating assessment has been undertaken for the summer period, from 1st May to 30th September. The airspeed is set at 0.1 m/s to generate operative temperature, and the thermal comfort category is assumed to be Category II (new building) in the assessment. Dynamic thermal simulation has been conducted with the settings described in Section 3.0. Results for both the current and future weather conditions are presented in this section.

4.1 Current Weather File – 2020s DSY1

Results for current weather conditions using London Heathrow DSY1 2020s high emissions 50th percentile are presented in Table 10.

Results for the assessed occupied spaces under the current weather file with mixed-mode ventilation (openable windows and MVHR) and active cooling are tabulated in the table below.

Space Type	Criterion 1 (% hours top-max>=1K)	Criterion 2 (Night time hours operative temp. >26°C)	Pass / Fail (without active cooling)	Pass / Fail (with active cooling)
LG - 3 Bed - KLD	0.7	-	Pass	Pass
LG - Bedroom 2	1.4	33	Fail	Pass
LG - Bedroom 3	1.5	30	Pass	Pass
LG - Master Bedroom	0.6	106	Fail	Pass
GF - 2 Bed - KLD	3.4	-	Fail	Pass
GF - Bedroom 2	1.3	31	Pass	Pass
GF - Home Working Area	5.6	-	Fail	Pass
GF - Master Bedroom	1.4	31	Pass	Pass
FF - Bedroom 2	1.4	93	Fail	Pass
FF - Bedroom 3	1.4	86	Fail	Pass
FF - Home Working Area	6.2	-	Fail	Pass
FF - Master Bedroom	2.3	274	Fail	Pass
SF - 3Bed - KLD	4.4	-	Fail	Pass

Table 10 – Simulation results summary for occupied spaces – using the current weather file (DSY1 2020, High 50)

As shown in the table above, the majority of the assessed rooms do not meet TM59 requirements when relying solely on passive measures under the current weather conditions. Consequently, active cooling is necessary. With active cooling in place, all rooms comply with TM59 requirements and meet Part O Requirement O1. As a result, summertime overheating is unlikely to occur, ensuring that building occupants will generally remain comfortable during warmer periods, based on the predicted data from the current weather file.

4.2 Future Weather Files – 2020s DSY2 and DSY3

Results for the assessed occupied spaces under future weather conditions with mixed-mode ventilation (openable windows and MVHR) and active cooling using the London Heathrow DSY2 and DSY3 2020s high emissions 50th percentile are presented in Table 11 and Table 12.

Space Type	Criterion 1 (% hours top-max>=1K)	Criterion 2 (Night time hours operative temp. >26°C)	Pass / Fail (without active cooling)	Pass / Fail (with active cooling)
LG - 3 Bed - KLD	2.1	-	Pass	Pass
LG - Bedroom 2	2.1	55	Fail	Pass
LG - Bedroom 3	2.2	54	Fail	Pass
LG - Master Bedroom	2.5	125	Fail	Pass
GF - 2 Bed - KLD	4.8	-	Fail	Pass
GF - Bedroom 2	2.2	52	Fail	Pass
GF - Home Working Area	6.4	-	Fail	Pass
GF - Master Bedroom	2.1	52	Fail	Pass
FF - Bedroom 2	2.3	105	Fail	Pass
FF - Bedroom 3	2.6	102	Fail	Pass
FF - Home Working Area	6.5	-	Fail	Pass
FF - Master Bedroom	3.8	229	Fail	Pass
SF - 3Bed - KLD	5.0	-	Fail	Pass

Table 11 – Simulation results summary for occupied spaces – using the future weather file (DSY2 2020, High 50)

Space Type	Criterion 1 (% hours top-max>=1K)	Criterion 2 (Night time hours operative temp. >26°C)	Pass / Fail (without active cooling)	Pass / Fail (with active cooling)
LG - 3 Bed - KLD	2.2	-	Pass	Pass
LG - Bedroom 2	3.2	76	Fail	Pass
LG - Bedroom 3	3.5	70	Fail	Pass
LG - Master Bedroom	2.9	186	Fail	Pass
GF - 2 Bed - KLD	7.1	-	Fail	Pass
GF - Bedroom 2	3.3	68	Fail	Pass
GF - Home Working Area	8.9	-	Fail	Pass
GF - Master Bedroom	3.3	70	Fail	Pass
FF - Bedroom 2	3.7	147	Fail	Pass
FF - Bedroom 3	3.8	145	Fail	Pass
FF - Home Working Area	9.5	-	Fail	Pass
FF - Master Bedroom	6.1	300	Fail	Pass

SF - 3Bed - KLD	7.7	-	Fail	Pass

Table 12 – Simulation results summary for occupied spaces – using the future weather file (DSY3 2020, High 50)

As shown in the tables above, the vast majority of the assessed rooms do not meet TM59 requirements when relying solely on passive measures under both future weather conditions. With active cooling in place, all rooms comply with TM59 requirements and meet Part O Requirement O1. As a result, summertime overheating is unlikely to occur, ensuring that building occupants will generally remain comfortable during warmer periods, based on the predicted data from both the future weather files.

It should be noted that a pass under future weather conditions is not compulsory. However, designing for future weather conditions can ensure that the building will be resilient to future climate changes.

Conclusion

5.0 Conclusion

This Overheating Report has been undertaken by SRE for 26 Rosslyn Hill, London, NW3 1PA (the Proposed Development) on behalf of for Simat properties Ltd (The Client).

This report assesses thermal comfort measures for the Proposed Development, to demonstrate compliance with 2021 Building Regulations Part O1, ensuring the summertime thermal conditions within the building meet the standards set out in the Chartered Institute of Building Services Engineers (CIBSE) Technical Memoranda (TM59) methodology.

To assess the thermal performance of the Proposed Development, a detailed geometry of the Proposed Development has been created within the dynamic thermal analysis software Integrated Environmental Solutions Virtual Environment (IES-VE) 2024. All results are based on the simulation output and should be considered as an indication of the expected final situation. Accurate building performance will depend on actual conditions on-site.

A range of passive design measures has been incorporated, where feasible, to optimise thermal comfort conditions and minimise the overheating risks. This is done through a combination of building fabric specifications, openable windows, secure night-time ventilation, solar control glazing ($G_{(glazing)}$ - value of 0.40) and active design measures such as Mechanical Ventilation with Heat Recovery (MVHR) with summer bypass is used, to provide extra ventilation predominantly during the night time. Active cooling is also proposed, as passive strategies alone are not able to remove sufficient heat from these spaces.

Various scenarios were tested, considering window operation and openable areas based on an acoustic report, along with different g-values, to support the design in achieving a thermally comfortable environment.

The results of the simulations indicate that under current climate conditions (London Heathrow (LHR), DSY1 2020s high emissions, 50^{th} percentile), all the assessed spaces of the Proposed Development pass the TM59 assessment criteria using a combination of passive strategies and active cooling, indicating a good level of thermal comfort during summer periods.

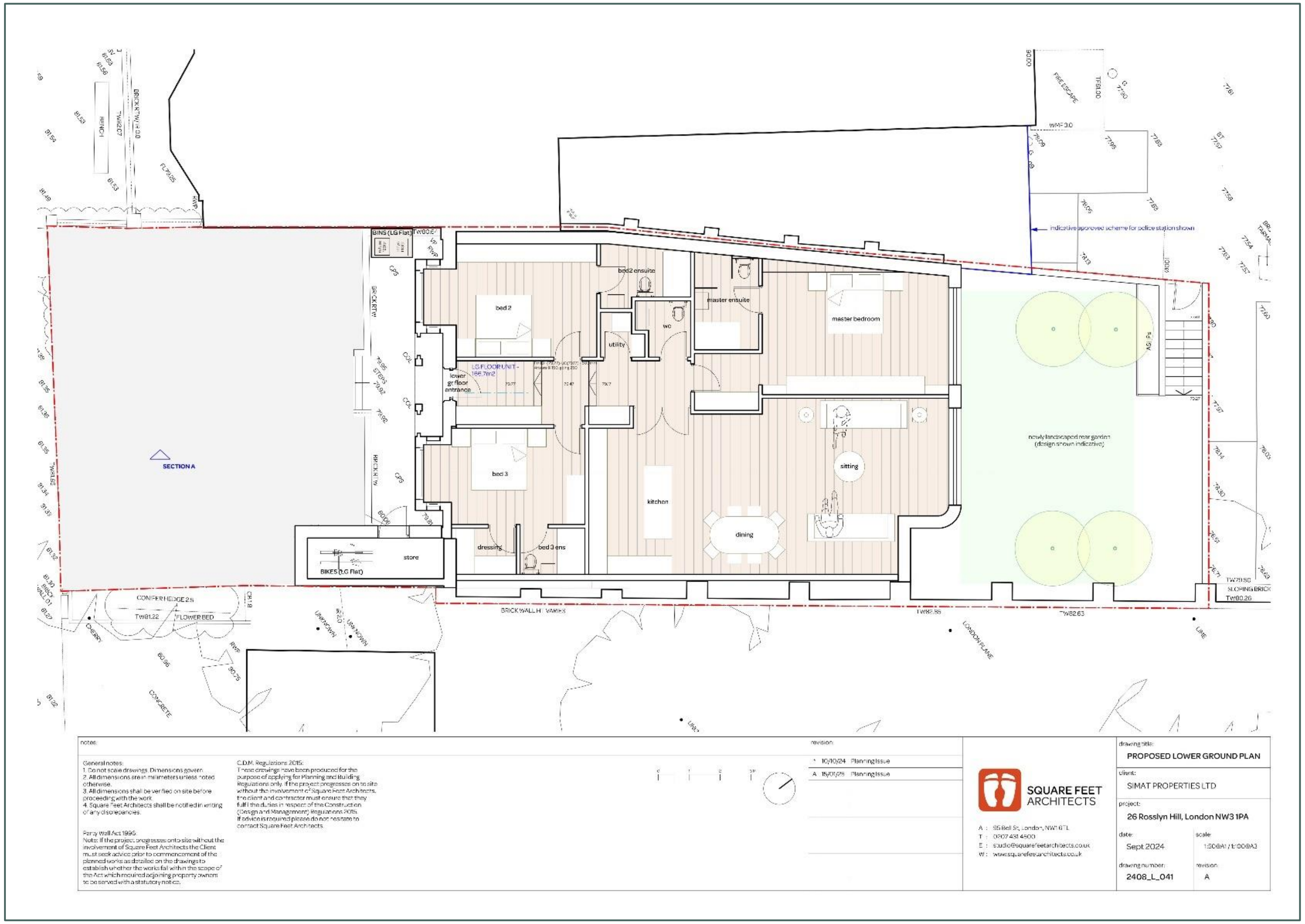
Two additional simulations were carried out using future weather files (London Heathrow LHR, DSY2 and DSY3 2020s high emissions, 50^{th} percentile) to further test the robustness of the design. The results of the simulation indicate that with active cooling in place, all the assessed spaces pass the assessment.

It should be noted that a pass is not mandatory under the future weather scenario but is reported to acknowledge the issues that may arise in the future and recommend the required measures. In relation to CIBSE TM59 requirements and Building Regulations Part O, Requirement O1, the Proposed Development is in compliance with the mandatory current regulations.

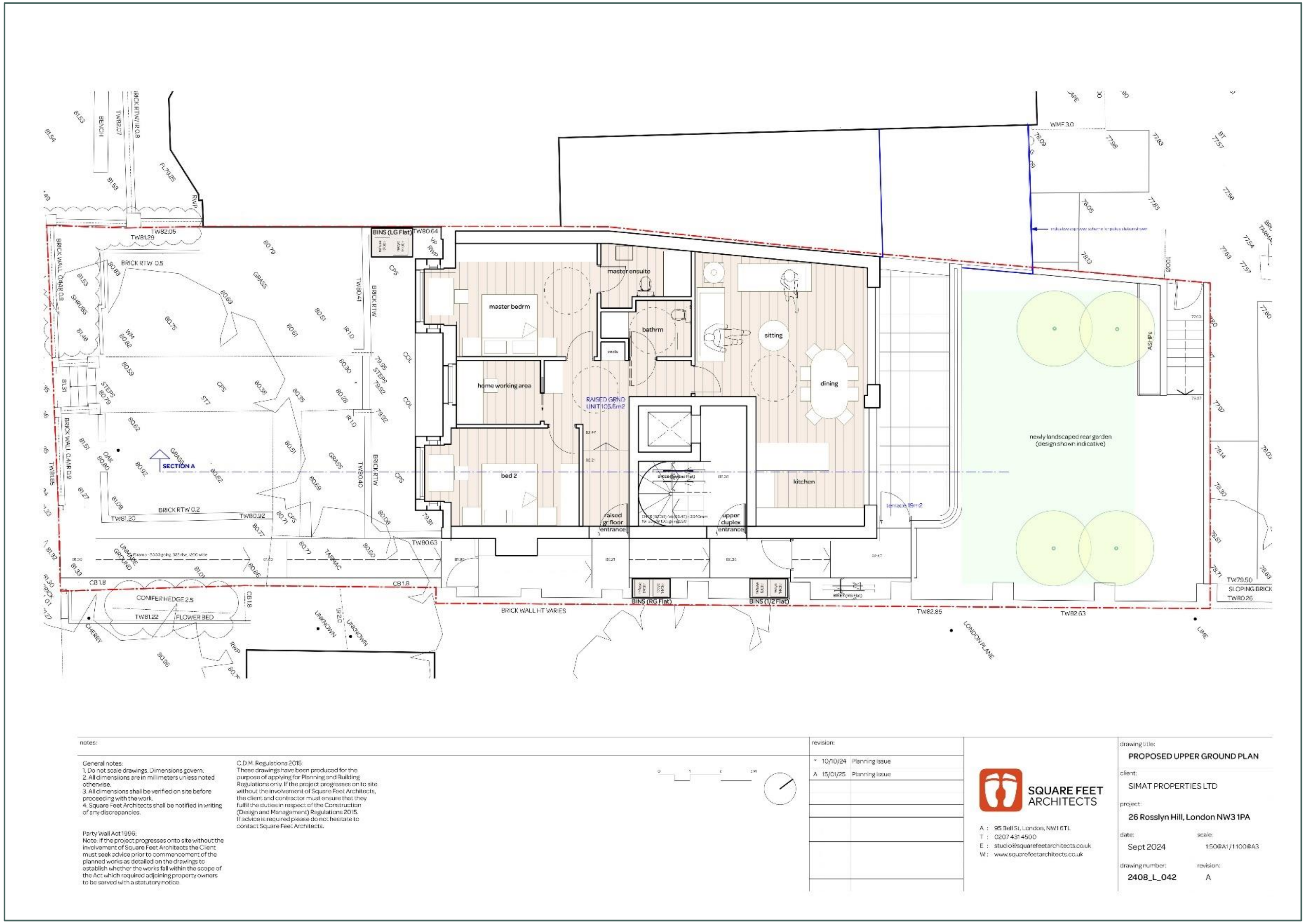
Appendix

Appendix A – Architectural Drawings

Site Plan and Lower Ground Floor Plan

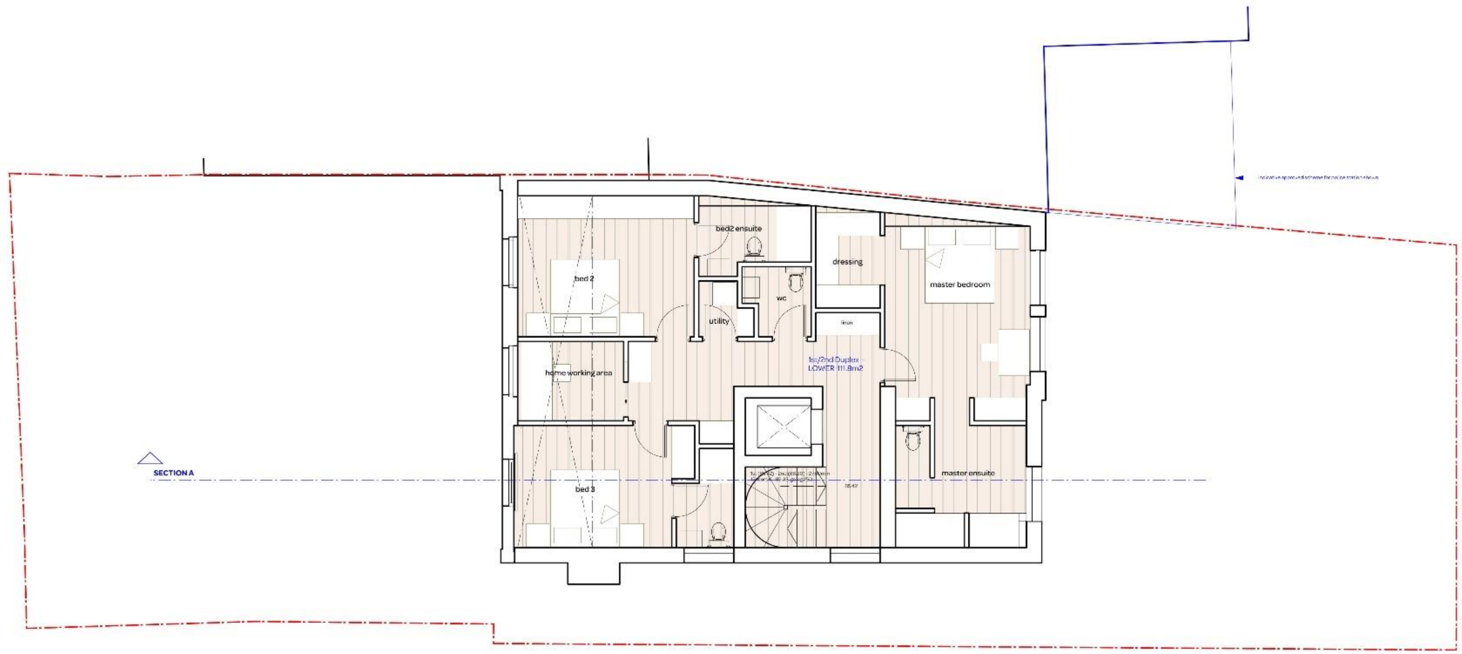


Ground Floor Plan



sre

First Floor Plan



notes:

General notes:
1. Do not scale drawings. Dimensions govern.
2. All dimensiions are in millimeters unless noted otherwise.
3. All dimensions shall be verified on site before proceeding with the work.
4. Square Feet Architects shall be notified in writing of any discrepancies.

Party Wall Act 1996:
Note: If the project progresses onto site without the involvement of Square Feet Architects the Client must seek advice prior to commencement of the planned works as detailed on the drawings to establish whether the works fall within the scope of the Act which required adjoining property owners to be served with a statutory notice.

C.D.M. Regulations 2015:
These drawings have been produced for the purpose of applying for Planning and Building Regulations only. If the project progresses on to site without the involvement of Square Feet Architects, the client and contractor must ensure that they fulfil the duties in respect of the Construction (Design and Management) Regulations 2015.
If advice is required please do not hesitate to contact Square Feet Architects.

revision:

*	10/10/24	Planning Issue
A	15/01/25	Planning Issue

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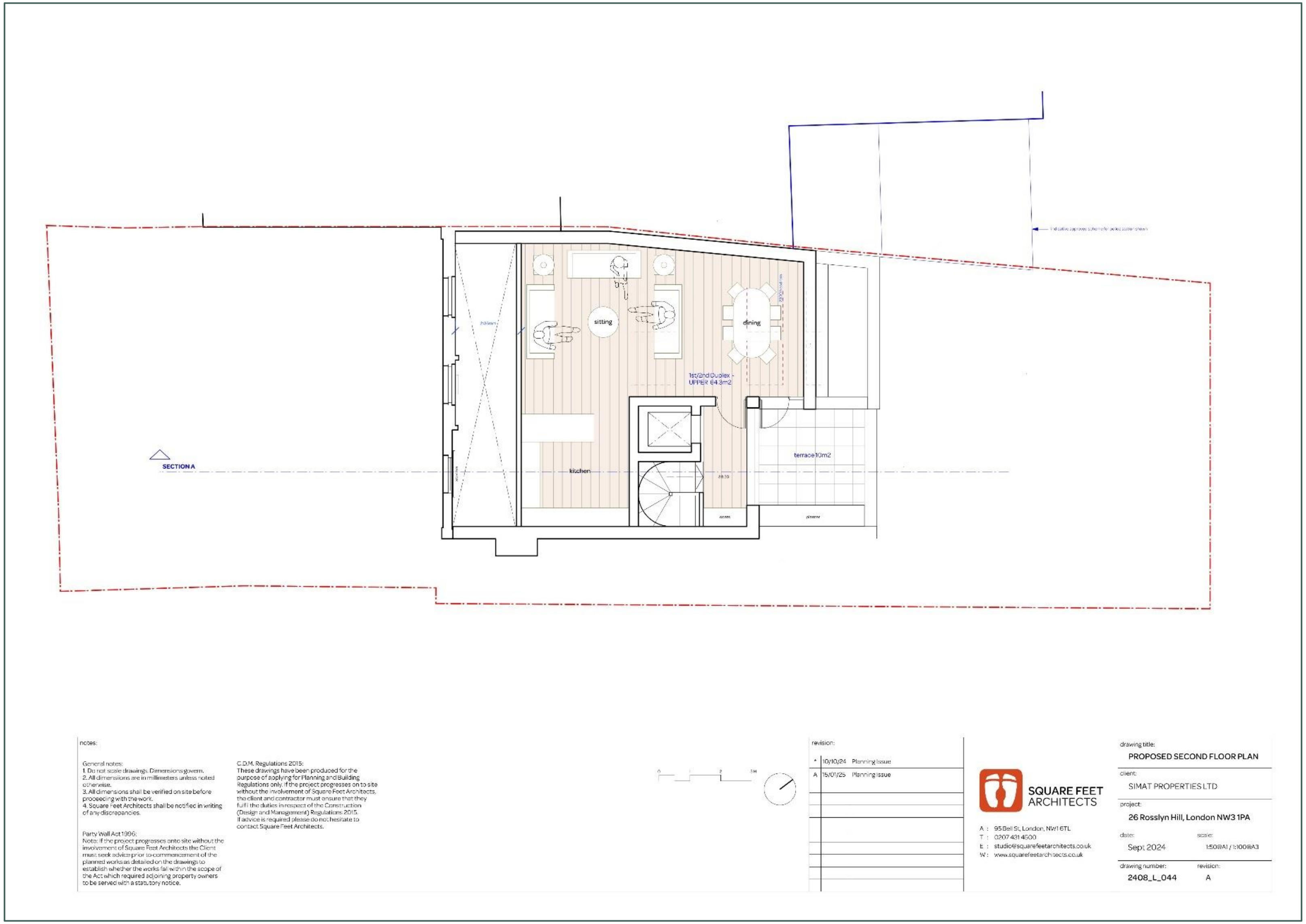
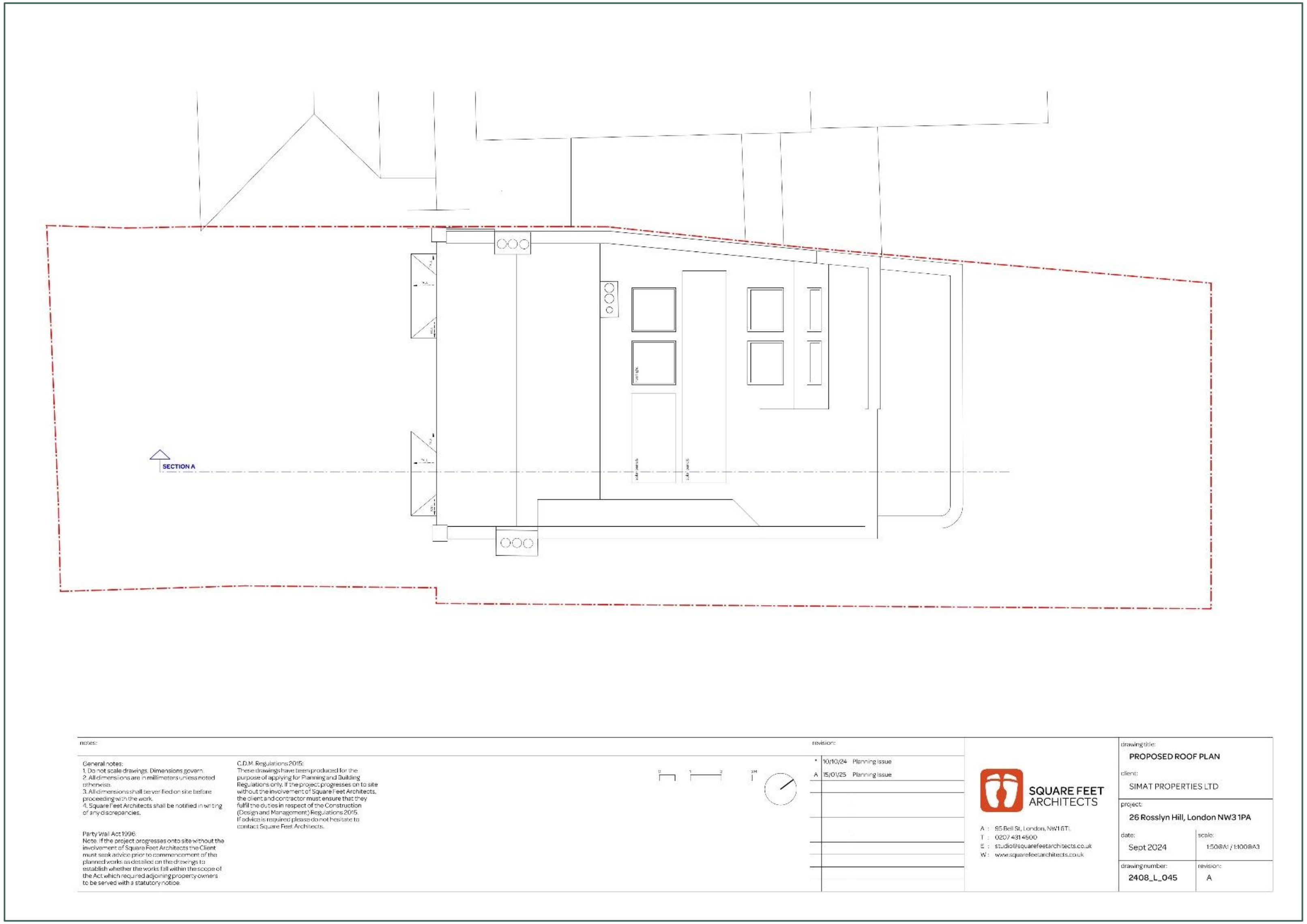
drawing title: PROPOSED FIRST FLOOR PLAN
client: SIMAT PROPERTIES LTD
project: 26 Rosslyn Hill, London NW3 1PA
date: Sept 2024
scale: 1:50@A1 / 1:100@A3
drawing number: 2408_L_043
revision: A

Second Floor Plan



Roof Plan


SECTION A
notes:
General notes:
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revision:
* 10/10/24 Planning Issue
A 15/01/25 Planning Issue
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PROPOSED ROOF PLAN
client:
SIMAT PROPERTIES LTD
project:
26 Rosslyn Hill, London NW3 1PA
date:
Sept 2024
scale:
1:50@A1 / 1:100@A3
drawing number:
2408_L_045
revision:
A

Elevations


POLICE
No.26 Rosslyn Hill
notes:
General notes:
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Party Wall Act 1996:
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C.D.M. Regulations 2015:
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revision:
* 10/10/24 Planning Issue
A 15/01/25 Planning Issue
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drawing title:
PROPOSED WEST ELEVATION
client:
SIMAT PROPERTIES LTD
project:
26 Rosslyn Hill, London NW3 1PA
date:
Sept 2024
scale:
1:50@A1/1100@A3
drawing number:
2408_L_051
revision:
A

notes:

General notes:
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MATERIALS KEY:

A - Brick Type A
B - Brick Type B
C - Render
D - Stone detailing
E - High-performance composit windows
F - Metal railings
G - Timber fencing
H - Tiled Roof

revision:

*	10/10/24	Planning Issue
A	15/01/25	Planning Issue

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drawing title: PROPOSED EAST ELEVATION

client: SIMAT PROPERTIES LTD

project: 26 Rosslyn Hill, London NW3 1PA

date: Sept 2024

scale: 1:50@A1 / 1:100@A3

drawing number: 2408_L_059

revision: A

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