Part L Compliance Report

For the

North King Street Student Accommodation

At

139-149 North King Street, Dublin 7

For

Ringline Investments Limited

Date of Issue: 14/02/2025 Version: 1.0

Document History

Version No.	Description	Prepared By	Reviewed By	Date
0.0	Preliminary Document Issue	KT/DOS	RMcK	12/02/2025
1.0	Issued for Planning	KT/DOS	RMcK	14/02/2025

Contents

1. Executive Summary

With consideration to the EU energy performance of Buildings Directive (EPBD) and the Building Regulations Technical Guidance Document, Part L (NZEB) the building services design strategy for this development utilises sustainable design options and energy efficient systems that are technically, environmentally, and economically feasible for a project of this kind.

The strategy targets a low energy and environmentally friendly building. This report will demonstrate that the design philosophy for the proposed development will employ a holistic approach to the construction of the building.

The design team recognises the need for the building to be designed and operated in a manner that reduces the energy consumption and carbon emissions of the building. This objective will be achieved in an economical manner whilst maintaining an internal environment that is comfortable for occupants and visitors.

For the purposes of TGD Part L Compliance, we are taking this development to fall into the category of "Student Accommodation" or "Hotel". As such, the development falls under Part L for Non-Domestic Buildings and shall follow the NEAP guidance.

To meet the target set out for the proposed development, the energy modelling software used in the analysis is IES Virtual Environment 2023 which utilises the SBEMie 5.6.a.0 calculation engine. The analysis was undertaken to identify the most suitable design in terms of energy efficiency and reduced carbon output within project budgets. The proposed design outlined in this report demonstrates that the development will be compliant with Part L of the Building Regulations (Nearly Zero Energy Buildings) and will target a Building Energy Rating (BER) of A3.

The CO_2 emission rate from the proposed building is less than that of the reference building used in the Part L assessment. The calculated primary energy consumption rate of the proposed building is also less than that of the reference building. The following table demonstrates compliance and indicates the calculation results of the proposed building performance versus the reference building under the part L;

Primary Energy Consumption, CO2 Emissions, and Renewable Energy Ratio

The compliance criteria in the TGD-L have been met.

Calculated CO2 emission rate from Reference building	9.5 kgCO2/m2.annum
Calculated CO2 emission rate from Actual building	7.4 kgCO2/m2.annum
Carbon Performance Coefficient (CPC)	**0.78**
Maximum Permitted Carbon Performance Coefficient (MPCPC)	**1.15**
Calculated primary energy consumption rate from Reference building	57.2 kWh/m2.annum
Calculated primary energy consumption rate from Actual building	57.5 kWh/m2.annum
Energy Performance Coefficient (EPC)	**1**
Maximum Permitted Energy Performance Coefficient (MPEPC)	**1**
Renewable Energy Ratio (RER)	**0.2**
Minimum Renewable Energy Ratio	**0.2**

The calculated result of energy performance coefficient and carbon performance coefficient of proposed building do not exceed the maximum permitted under the Part L. The energy and carbon emission performance of the proposed building are less than 0% and 32% of the reference building under the Part L 2022 respectively.

In order to achieve the overall Nearly Zero Energy Performance criteria, a renewable energy target, 10%-20% of its energy provided must come from onsite or nearby renewables. The renewable primary energy has been assessed showing the calculation with an RER of 0.2 being achieved (20%) under the current proposed design. The energy contribution from the heat pumps and PV panels is considered to be renewable energy, this equates to 11.5 kWh/m²/year of primary energy consumption on site.

The preliminary building energy rating calculation indicates A3 being targeted for the proposed building.

2. Introduction

Axiseng was commissioned by Ringline Investments Limited to undertake a Part L – NZEB / BER analysis on the proposed development at 139-149 North King Street, Dublin 7.

Ringline Investments Limited intend to apply for permission for development at 139-149 North King Street, Dublin 7. The development will consist of the demolition of existing structures on site, with the exception of the façade on North King Street (N) and Bow Street (E), which is a protected structure (RPS Ref. No. 8790 – north and east elevation only), which will be retained, improved and restored as part of the proposed development.

The proposal will provide a purpose-built student accommodation development in a 7-storey building over a partial existing basement with a setback at 5th floor and a further significant setback at the 6th floor level.

The proposal includes 361 no. student bedspaces, a ground level retail unit with frontage to both North King Street and Bow Street, communal facilities including a courtyard, external terrace at roof level at 5th and 6th floor and internal amenity spaces.

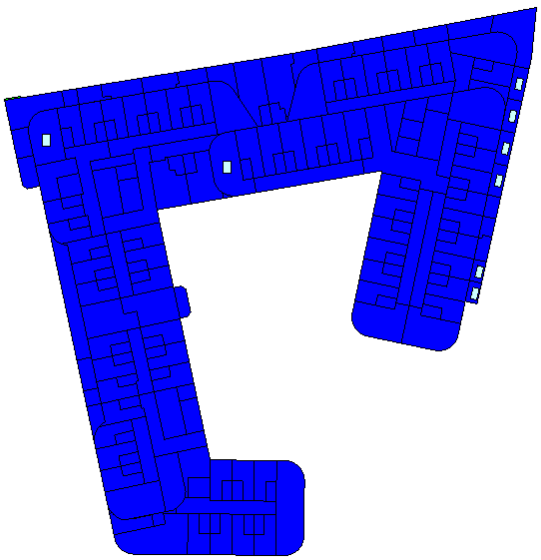
The building includes the following energy conservation measures to achieve the most energy efficient performance possible.

- High-performance construction envelope including low u-values, and g-values
- Low air permeability/ air infiltration rates limited to 3 m^3/ hr/ m^2
- Energy-efficient air source heat pumps providing DHW for the development
- Natural ventilation solutions for the bedrooms throughout
- Mechanical ventilation with high efficiency heat recovery to WCs and communal amenity spaces
- Low specific fan power values on HRUs and exhaust fans
- Photovoltaic panels to the roof area
- Low installed lighting power & intelligent lighting control including photoelectric sensors
- Highly efficient hybrid VRF systems providing heating and cooling to communal amenity spaces at ground floor level

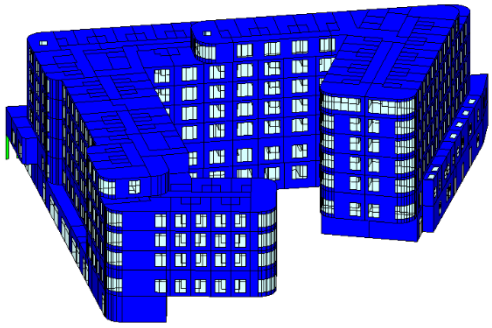
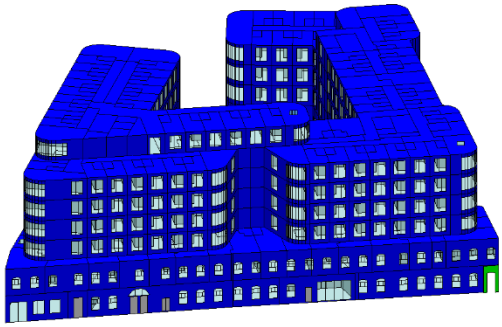
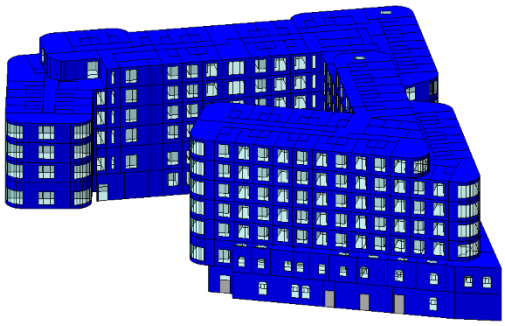
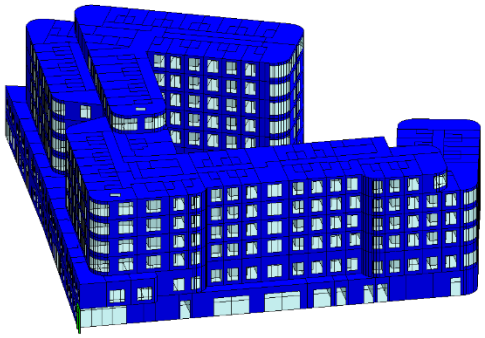
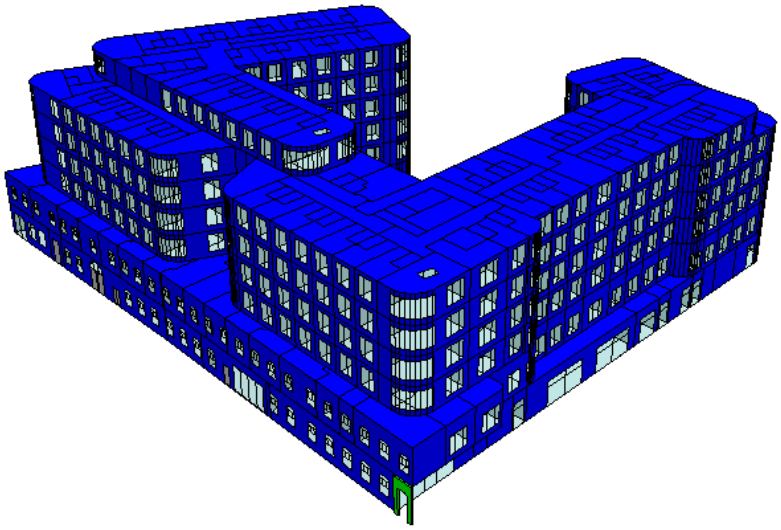
The sustainable design of the proposed development ensures the overall building performs efficiently and meets the NZEB challenges. This report details the proposed design solutions used in the analysis to show compliance with Technical Guidance Document TGD Part L and NZEB regulations.

3. Location

The following table figure gives an indication of the location and orientation of the building model. The orientation information of the building has been taken from architectural information and Google Earth shown below.

Building shown in Google Earth orientated due North.	
3D model – proposed building in orientation position 	

4. Geometry

South	North
	
East	**West**
	
Perspective View	
	

5. Construction

5.1 Building Fabric

The following constructions have been created based on Architectural proposals and the elemental u-values set out in Table 1, of the Building Regulation Part L. The U-values of the unrenovated historic elements are based on worst-case scenarios on iSBEM database. Where internal, perimeter zones are unheated, internal walls/ceilings to heated spaces shall require external u-values as noted in the table below.

Building Element	Targeted U-value (W/m²K)
Exposed Floor	0.20
External Walls – including double skin façade at historic walls	0.18
Historic External Walls (locally where no double skin façade)	1.78
Internal Wall to unheated space	0.21
Roof	0.18
Door	1.3
Historic Door	3.6
Glazing	1.3 (0.35 g-value)*
Louvred Glazing	1.3 (0.20 g-value)*
Skylight	1.3 (0.4 g-value)

*Blinds have been assigned to some spaces to comply with overheating requirements. Refer to section 10 for further details on assigned glazing and refer to Axiseng report *"Overheating Assessment"* for full details on type of blind assumed for thermal modelling.

The details of the assigned constructions are illustrated under *Appendices: Assigned construction details,* in this report.

5.2 Thermal Bridging

The following thermal bridging coefficients have been used in the energy modelling. The Architects shall ensure that the building complies with minimum requirements in line with Part L 2022;

Type of junction	Junctions involving metal cladding	QA accredited	Junctions NOT involving metal cladding	QA accredited
	Psi (W/(m·K))		Psi (W/(m·K))	
Roof-wall	0.280	☐	0.120000	☐
Wall-ground floor	1.000	☐	0.160000	☐
Wall-wall (corner)	0.200	☐	0.090000	☐
Wall-floor (not ground)	0.000	☐	0.070000	☐
Lintel above window/door	1.000	☐	0.300000	☐
Sill below window	0.950	☐	0.040000	☐
Jamb at window/door	0.950	☐	0.050000	☐

5.3 Infiltration

We can expect that an air permeability rate of 3 $m^3/hr/m^2$ should be achieved or exceeded across the building. Air permeability data from air tightness testing is required to confirm the achieved air permeability rate when the building is complete.

6. Lighting & Control

The following proposals for the building on the lighting installed power and controls are included in the thermal model.

Room	Design Illuminance	Installed Power Wattage (W/m^2)	Control Type				
			Occupancy Controls	Parasitic Power (W/m^2)	Photoelectric	Sensor Type	Parasitic Power (W/m^2)
WCs	200	5.5	NONE	-	-	-	-
Bedrooms	200	5.5	NONE - MANUAL DIMMABLE	-	-	-	-
Studios	200	5.5	NONE - MANUAL DIMMABLE	-	-	-	-
Ensuite	200	5.5	NONE	-	-	-	-
Shared Living/Kitchen	200	5.5	AUTO-ON-OFF	0.10	Dimming	Standalone	0.10
Circulation	100	5.5	AUTO-ON-OFF	0.10	-	-	-
Offices	500	5.5	AUTO-ON-OFF	0.10	-	-	-
Gym/ Yoga Studio	300	5.5	AUTO-ON-OFF	0.10	Dimming	Standalone	0.10
Plant Rooms	200	5.5	NONE	-	-	-	-
Reception	300	5.5	AUTO-ON-OFF	0.10	Dimming	Standalone	0.10
Retail	200	5.5	AUTO-ON-OFF	0.10	Dimming	Standalone	0.10
Library	200	5.5	AUTO-ON-OFF	0.10	Dimming	Standalone	0.10
Laundry	200	5.5	AUTO-ON-OFF	0.10	-	-	-
Refuse	200	5.5	NONE	-	-	-	-
Luggage Room	200	5.5	NONE	-	-	-	-
Vertical Bike Storage	200	5.5	NONE	-	-	-	-

As detailed above, some rooms are to be fitted with presence detection automatic sensors to switch off the lighting when the rooms are unoccupied. There are also some spaces to be fitted with daylight sensors to reduce the reliance on artificial lighting when there is sufficient daylight entering the spaces.

7. Building Services Systems

The proposed HVAC systems are selected based upon their performance in providing heating, ventilation, and hot water generation at optimal efficiencies. Where the building allows, natural ventilation has been utilised via openable windows. The heating throughout shall be either electric panel radiators or Hybrid VRF systems.

The domestic hot water shall be generated by dedicated heat pump with centralised storage pumping hot water to each space throughout.

7.1 Heating & Cooling Systems

7.1.1 HVRF System – Ground floor amenity spaces

HVRF System NEAP Model Inputs			
System Type: Split or Multi-Split System	Model Input Data:	Units:	Evidence Required:
Heating Source	Air Source Heat Pump (Electric)	-	-
Fuel Type	Electricity	-	-
SBEMie SCOP	3.9	kW/kW	EN 14825
Cooling Source	Air Source Heat Pump (Electric)	-	-
SBEMie EER/SEER	4.8 / 5.28	kW/kW	EN 14825
Provision for sub metering	Yes	-	-
Provision for “out of Range” / M&T System	No	-	-
Has ductwork been leakage tested?	No, use default		
Does the AHU meet CEN leakage standards?	Yes, CEN Class L2		

7.1.2 Electric Radiators – All other heated spaces

Electric Radiators System NEAP Model Inputs			
System Type: Other local room heater - unfanned	Model Input Data:	Units:	Evidence Required:
Heating Source	Direct or storage electric heater	-	-
Fuel Type	Electricity	-	-
SBEMie SCOP	1.00	kW/kW	-
Provision for sub metering	Yes	-	-
Provision for “out of Range” / M&T System	No	-	-
Has ductwork been leakage tested?	No, use default		
Does the AHU meet CEN leakage standards?	Yes, CEN Class L2		

7.2 Ventilation Systems

Mechanical ventilation is present within the areas indicated in the table below. Most occupied spaces shall avail of natural ventilation, where possible.

Room	HVAC System	Ventilation Type	Heat Recovery Unit	Specific Fan Power (W/L/s)
Bedroom	Electric Radiator	Natural Ventilation	-	-
WC, Ensuite	Electric Radiator	Local Extract	-	0.3
Ground Floor Amenity Spaces	HVRF	Mechanical Ventilation	75% Plate Heat Exchanger	1.3
Shared Kitchen/Living Room/Studio	Electric Radiator	Natural Ventilation	-	-
Reception	HVRF	Mechanical Ventilation	75% Plate Heat Exchanger	1.3
Circulation Spaces	Electric Radiator	-	-	-

7.3 Domestic Hot Water

Domestic hot water will be provided via a dedicated air source heat pump, the system details are below.

Domestic Hot Water System NEAP Model Inputs			
System Type: Air Sourced Heat Pump	Model Input data	Units	Evidence Required
Fuel Type	Electricity	-	-
Water Heating Efficiency	3.29**	kW/kW	EN 16147
Bivalent System?	No		
DHW Storage Volume	3600	Litres	
DHW Storage Losses	0.0047	kWh/l/day	(Default)
Is there a Secondary Circuit?	Yes		
Circulation Losses	15	W/m	
Loop Length*	445	metres	
Pump Power	0.15	kW	
Is there a time switch?	No		

* It is noted that the absence of data, the above inputs for loop lengths and pump power have been assumed in the analysis. Loop Length = 4 x √($total\ floor\ area\ of\ building$)

**The installed heat pump shall require test data to EN16147, otherwise a default SCOP of 1.5 will need to be used in the model.

7.4 Metering & Electric Power Factor

The electric power factor correction for the building is modelled as 0.9 – 0.95.

The following control types have been applied to all systems;

Metering Provisions	Plant Controls	Plant Controls DHW
Is Lighting Metered – Yes Lighting Metering "Out of range" Alarm - No Is HVAC Metered – Yes HVAC Metering "Out of range" Alarm- No	Central Time Control – Yes (No for Electric Radiators) Optimum Start / Stop Control – Yes Local Time Control – Yes Local Temperature Control – Yes Weather Compensation– Yes (No for Electric Radiators)	Central Time Control – Yes Optimum Start / Stop Control – Yes Local Time Control – Yes Local Temperature Control – Yes Weather Compensation– Yes

Central BMS will be designed to check metering to monitor & optimise energy usage. The energy management system is expected to review and adjust the operating efficiencies and strategy for the various building services to minimise overall energy use carbon emissions thus saving the cost.

8. Renewables

Renewable technologies have been employed to offset the requirements of the building regulations TGD Part L. The heating & cooling in the ground floor amenity spaces is to be met by a Hybrid VRF system with a designed sCOP over 390% and SEER over 528%, which is recognised as a form of renewable energy technology. The Domestic Hot Water is met by a heat pump system and therefore, is also identified as renewable energy technology.

A minimum of 23kW peak power of solar PV is to be installed on the roof, approximately 55 panels.

Item	NEAP Model Input
PV type	Monocrystalline Silicon
Peak Power	23 kWp
Orientation	South
Inclination	15°
Overshading	None or very little

These proposed renewable solutions provide a preliminary BER of A3 for the building.

9. Results

The following NZEB/Part L & BER has been calculated with results provided below;

9.1 BRIRL Document

Output from Building Regulation Ireland (BRIRL) Document. U-values in red denote historical figures without a proposed double skin façade, which are under a protected element of the site.

BRIRL Output Document

Compliance Assessment with the Building Regulations (Ireland) TGD-Part L 2017

This report demonstrates compliance with specific aspects of Part L of the Building Regulations. Compliance with all aspects of Part L is a legal requirement. Demonstration of how compliance with every aspect is achieved may be sought from the Building Control Authority.

North King Street

Date: Fri Feb 07 16:38:35 2025

Administrative information

Building Details

Address: North King Street, Address 2, Address 3, Address 4, Co. Dublin, Eircode

NEAP

Calculation engine: SBEMIE

Calculation engine version: v5.6.a.0

Interface to calculation engine: Virtual Environment

Interface to calculation engine version: 7.0.24

BRIRL compliance check version: v5.6.a.0

Client Details

Name: Name

Telephone number: Phone

Address: Street Address, Co. Dublin, Eircode

Energy Assessor Details

Name: Name

Telephone number: Phone

Email: you@yourISP

Address: Street Address, Co. Dublin, Eircode

Primary Energy Consumption, CO2 Emissions, and Renewable Energy Ratio

The compliance criteria in the TGD-L have been met.

Calculated CO2 emission rate from Reference building	9.5 kgCO2/m2.annum
Calculated CO2 emission rate from Actual building	7.4 kgCO2/m2.annum
Carbon Performance Coefficient (CPC)	**0.78**
Maximum Permitted Carbon Performance Coefficient (MPCPC)	**1.15**
Calculated primary energy consumption rate from Reference building	57.2 kWh/m2.annum
Calculated primary energy consumption rate from Actual building	57.5 kWh/m2.annum
Energy Performance Coefficient (EPC)	**1**
Maximum Permitted Energy Performance Coefficient (MPEPC)	**1**
Renewable Energy Ratio (RER)	**0.2**
Minimum Renewable Energy Ratio	**0.2**

Heat Transmission through Building Fabric

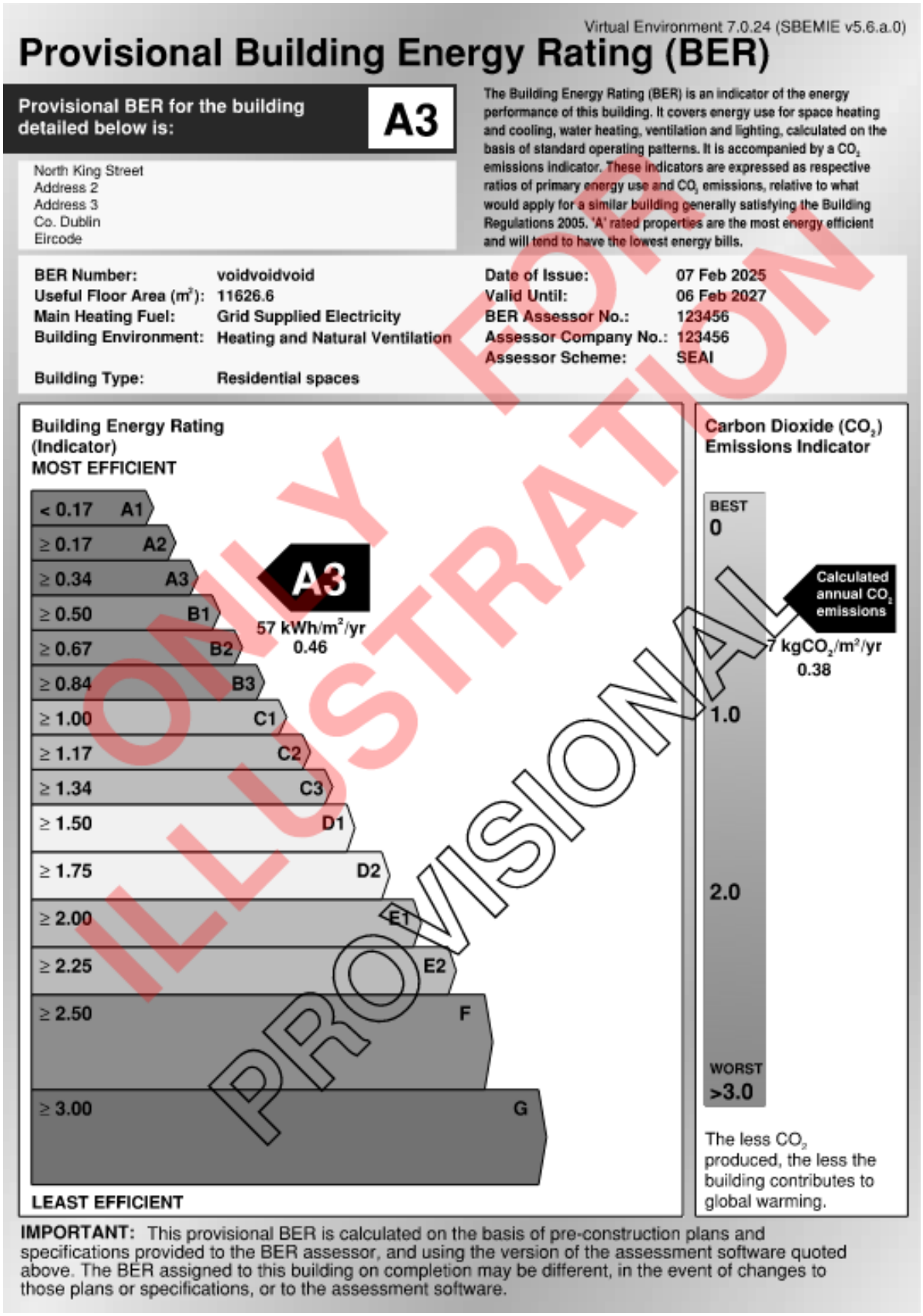
Element	$U_{o\text{-}Limit}$	$U_{o\text{-}Calc}$	$U_{i\text{-}Limit}$	$U_{i\text{-}Calc}$	Surface with maximum U-value*
Walls**	0.21	0.25	0.6	1.78	00000019_W-1
Floors (ground and exposed)	0.21	0.2	0.6	0.2	030000A4_F
Pitched roofs	0.16	-	0.3	-	"No heat loss pitched roofs"
Flat roofs	0.2	0.18	0.3	0.2	00000014_C_A0
Windows, roof windows, and rooflights	1.6	1.3	3	1.3	01000003_W2_O0
Personnel doors	1.6	2.58	3	3.6	00000000_W7_O0
Vehicle access & similar large doors	1.5	-	3	-	"No ext. vehicle access doors"
High usage entrance doors	3	-	3	-	"No ext. high usage entrance doors"

$U_{o\text{-}Limit}$ = Limiting area-weighted average U-values [W/(m2K)] $U_{i\text{-}Limit}$ = Limiting individual element U-values [W/(m2K)]
$U_{o\text{-}Calc}$ = Calculated area-weighted average U-values [W/(m2K)] $U_{i\text{-}Calc}$ = Calculated individual element U-values [W/(m2K)]

* There might be more than one surface with the maximum U-value. ** Automatic U-value check by the tool does not apply to curtain walls whose area-weighted average and individual limiting standards are 1.8 and 3 W/m2K, respectively.

Air Permeability	Upper Limit	This Building's Value
m3/(h.m2) at 50 Pa	5	3

9.2 BER Document



Virtual Environment 7.0.24 (SBEMIE v5.6.a.0)

Provisional Building Energy Rating (BER)

Provisional BER for the building detailed below is: **A3**

North King Street
Address 2
Address 3
Co. Dublin
Eircode

The Building Energy Rating (BER) is an indicator of the energy performance of this building. It covers energy use for space heating and cooling, water heating, ventilation and lighting, calculated on the basis of standard operating patterns. It is accompanied by a CO_2 emissions indicator. These indicators are expressed as respective ratios of primary energy use and CO_2 emissions, relative to what would apply for a similar building generally satisfying the Building Regulations 2005. 'A' rated properties are the most energy efficient and will tend to have the lowest energy bills.

BER Number:	voidvoidvoid	**Date of Issue:**	07 Feb 2025
Useful Floor Area (m^2):	11626.6	**Valid Until:**	06 Feb 2027
Main Heating Fuel:	Grid Supplied Electricity	**BER Assessor No.:**	123456
Building Environment:	Heating and Natural Ventilation	**Assessor Company No.:**	123456
		Assessor Scheme:	SEAI
Building Type:	Residential spaces		

Building Energy Rating (Indicator)
MOST EFFICIENT

< 0.17	A1
≥ 0.17	A2
≥ 0.34	A3
≥ 0.50	B1
≥ 0.67	B2
≥ 0.84	B3
≥ 1.00	C1
≥ 1.17	C2
≥ 1.34	C3
≥ 1.50	D1
≥ 1.75	D2
≥ 2.00	E1
≥ 2.25	E2
≥ 2.50	F
≥ 3.00	G

A3
57 kWh/m^2/yr
0.46

LEAST EFFICIENT

Carbon Dioxide (CO_2) Emissions Indicator

BEST
0
1.0
2.0
WORST
>3.0

Calculated annual CO_2 emissions
7 kgCO_2/m^2/yr
0.38

The less CO_2 produced, the less the building contributes to global warming.

IMPORTANT: This provisional BER is calculated on the basis of pre-construction plans and specifications provided to the BER assessor, and using the version of the assessment software quoted above. The BER assigned to this building on completion may be different, in the event of changes to those plans or specifications, or to the assessment software.

10. Overheating and Glazing Checks

10.1 Limiting the Effects of Solar Gain in Summer

In accordance with TGD Part L section 1.3.5 Limiting the effects of solar gain in summer, the solar gain limit exceedance must be checked, specifically where rooms are to be mechanically ventilated or cooled. According to the BRIRL report there were no issues identified with the current design, even though natural ventilation is the proposed ventilation solution in most spaces. Further detailed analysis can be performed using dynamic thermal simulation software to assess the impact of changes to glazing location, percentages, and specifications.

Refer to Appendix A for glazing types assigned throughout and Appendix B for full results from energy modelling.

10.2 CIBSE TM59 & TM52 Overheating Results

A full analysis of the thermal comfort and overheating in line with CIBSE TM59 & TM52 has been completed for the Co-Living development at Hill Street. Refer to Axiseng *"Overheating Assessment"* report for full details.

11. Conclusion

The passive measures included in the design, such as reducing fabric heat loss through the buildings envelope and improving the air tightness significantly contribute towards reducing the loads on the active systems within the buildings. The active measures have been designed to reduce the primary energy consumption through intelligent control and highly efficient plant and equipment.

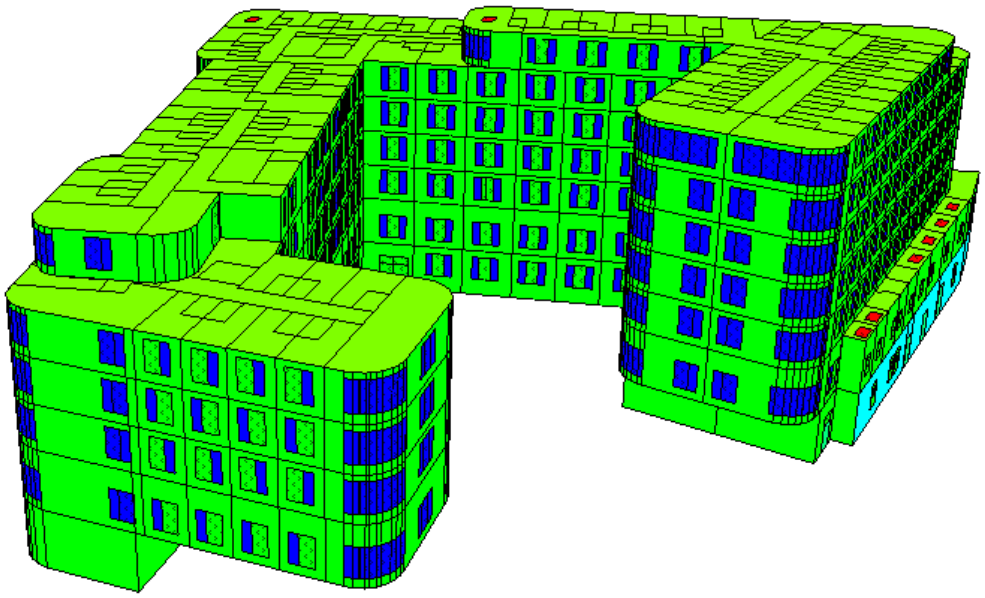
The results in the Part L compliance assessment shows that the proposed office buildings have an Energy Performance Coefficient (EPC) less than Maximum Permitted EPC (MPEPC) of 1.0. The building also has a Carbon Performance Coefficient (CPC) less than the Maximum Permitted CPC (MPCP) of 1.15. The result shows that the proposed development has a Renewable Energy Ratio of 0.20 (20%) exceeding the target under Part L. It is concluded that the proposed buildings achieve the NZEB performance specification for energy and carbon dioxide emissions, therefore is in compliance with the performance criteria under section 1.1.2, Building Regulation 2022 Part L for buildings other than Dwellings.

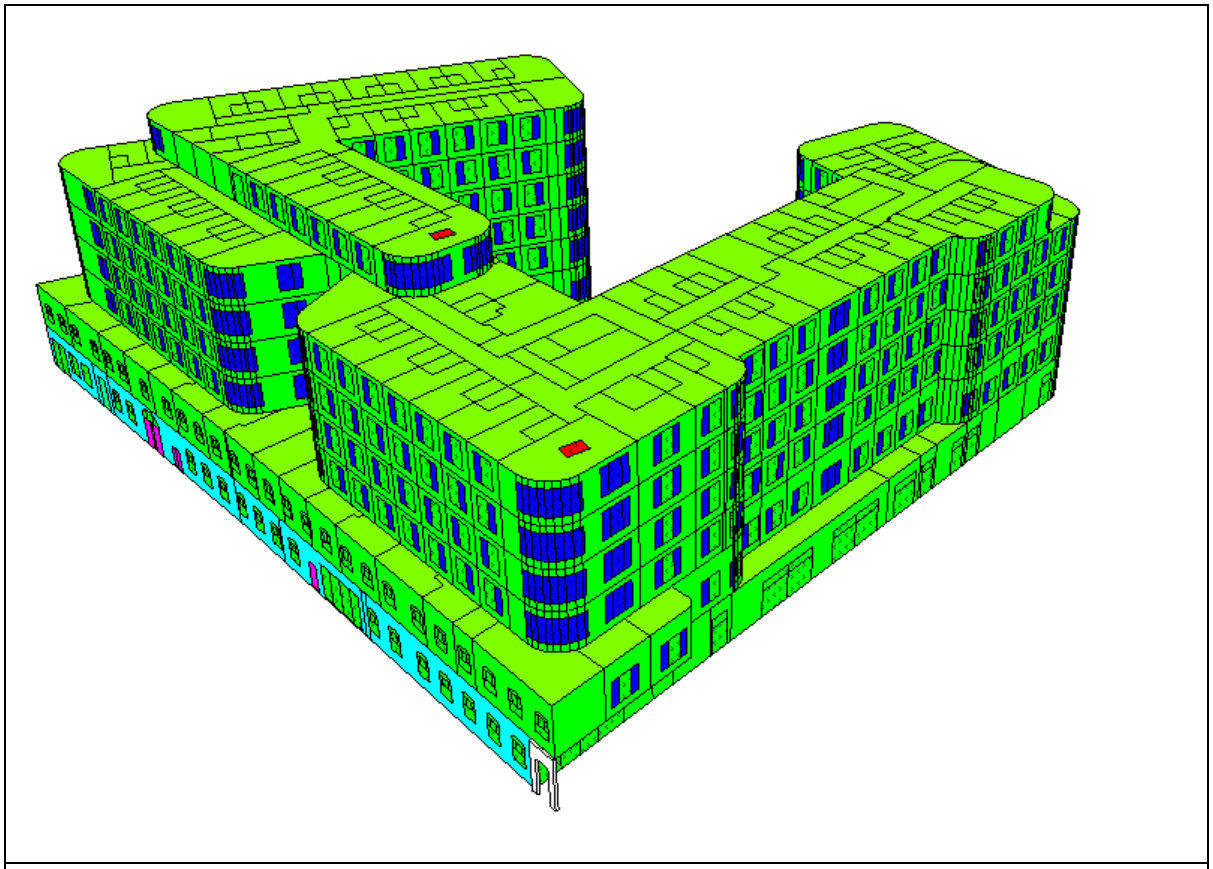
The results outlined in this Part L report demonstrate that the proposed design including the buildings envelope of DAFM Transfer Facility complies with the L5 (a, b, c, e) building regulation requirement outlined in Part L 2022.

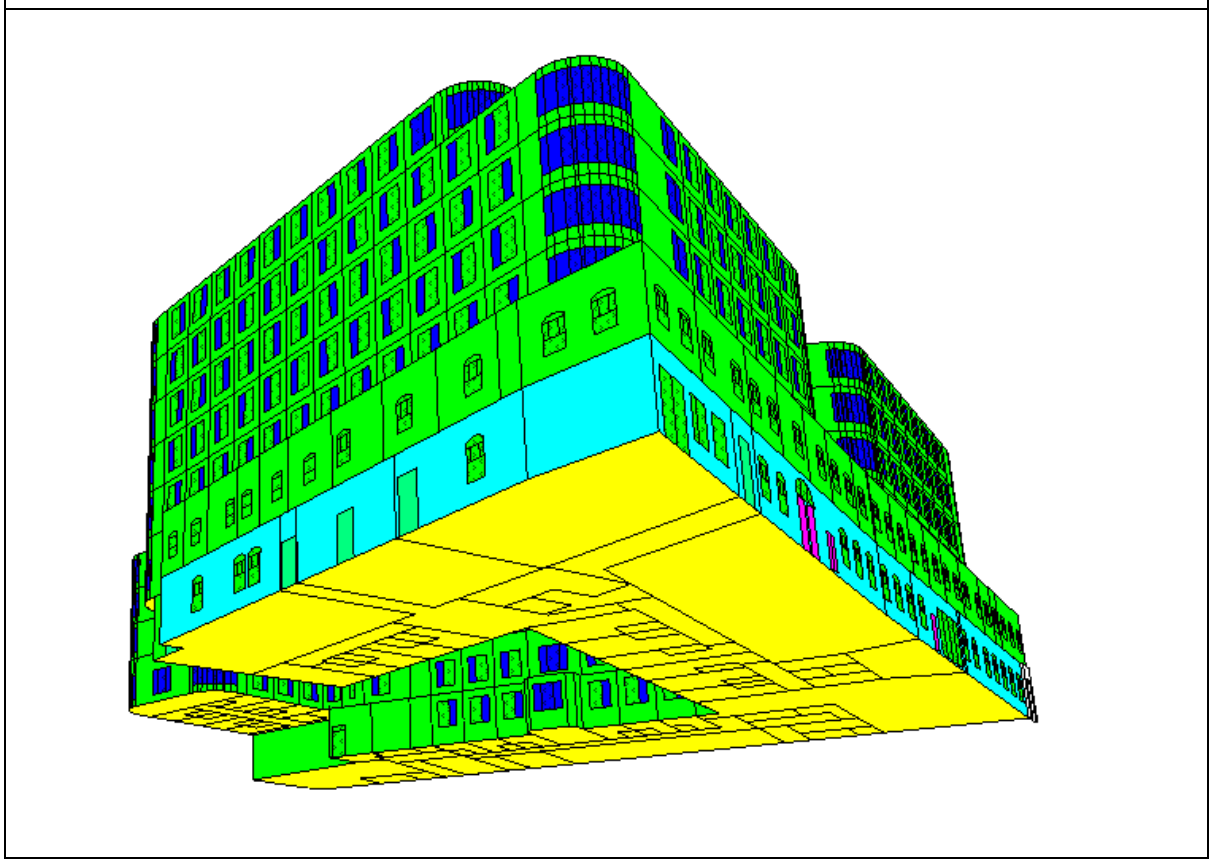
12. Appendices

12.1 Appendix A - Assigned Construction Details

EXTERNAL WALL brick-cavity-ins-concrete-plaster; U = 0.18 (WBAILCL)
External Louvred Window; U = 1.3; g = 0.2 (STD_EX15)
FLOOR concret-membrane-ins-screed-membrane-timber U = 0.2 (TRGT0001)
HISTORIC EXTERNAL WALL; U = 1.78 (WBAILCL3)
Historic External Door; U = 3.6; TGD Part L Table 11 (STD_DOO2)
INSULATED INTENRAL PARTITION plasterboard-glassfibre-timber-glassfibre-plasterboard U = 0.21 (IWP1B2)
INSULATED INTERNAL FLOOR carpet-screed-concrete-cavity-plasterboard; U = 0.2 (STD_CEI5)
INTENRAL PARTITION plasterboard-glassfibre-timber-glassfibre-plasterboard (IWP1B21)
INTERNAL FLOOR carpet-screed-concrete-cavity-plasterboard (STD_CEI4)
New External Door; U = 1.6; TGD Part L Table 1 (STD_DOOR)
ROOF concretetilese-bitumen-ins-ins-membrane-concrete-cavity-plasterboard U = 0.18 (STD_ROO2)
Rooflight; U = 1.6; g = 0.4 (STD_RFLT)
Targeted External Window 1.3; 0.35; 0.71 (STD_EXT5)
Targeted External Window 1.3; 0.35; 0.71 with blinds (STD_EXT1)







12.2 Appendix B – Limiting Solar Gain Results

Solar Gain in Summer

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
02: Circulation	N/A	N/A
02: Kitchen/Living_05	NO (-46.7%)	NO
02: Kitchen/Living_01	NO (-49.8%)	NO
02: Kitchen/Living_04	NO (-61.1%)	NO
02: Kitchen/Living_02	NO (-58.2%)	NO
02: Stairs	N/A	N/A
02: Circulation	N/A	N/A
02: Kitchen/Living_03	NO (-58.1%)	NO
02: Circulation	N/A	N/A
02: Stairs	N/A	N/A
02: Stairs Lobby	N/A	N/A
02: Stairs Lobby	N/A	N/A
02: Circulation	N/A	N/A
02: Circulation	N/A	N/A
02: Kitchen/Living_07	NO (-59.4%)	NO
02: Circulation	N/A	N/A
02: Kitchen/Living_08	NO (-60.9%)	NO
02: Circulation	N/A	N/A
02: Circulation	N/A	N/A
02: Kitchen/Living_10	NO (-50.7%)	NO
02: Circulation	N/A	N/A
02: Stairs	N/A	N/A
02: Stairs Lobby	N/A	N/A
02: Bedroom_04	NO (-49.9%)	NO
02: Bedroom_04_ENSUITE	N/A	N/A
02: Bedroom_05	NO (-52.3%)	NO
02: Bedroom_05_ENSUITE	N/A	N/A
02: Bedroom_06	NO (-50.3%)	NO
02: Bedroom_06_ENSUITE	N/A	N/A
02: Bedroom_07	NO (-52.9%)	NO
02: Bedroom_07_ENSUITE	N/A	N/A
02: Bedroom_03_ENSUITE	N/A	N/A
02: Bedroom_03	NO (-62.5%)	NO
02: Bedroom_02_ENSUITE	N/A	N/A
02: Bedroom_02	NO (-62.4%)	NO
02: Bedroom_01_ENSUITE	N/A	N/A
02: Bedroom_01	NO (-62.2%)	NO
02: Acc Bedroom 01_ENSUITE	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
02: Acc Bedroom 01	NO (-44.3%)	NO
02: Circulation	N/A	N/A
02: Bedroom_08	NO (-50.2%)	NO
02: Bedroom_08_ENSUITE	N/A	N/A
02: Bedroom_09_ENSUITE	N/A	N/A
02: Bedroom_09	NO (-50.1%)	NO
02: Bedroom_10	NO (-50.6%)	NO
02: Bedroom_10_ENSUITE	N/A	N/A
02: Bedroom_11	NO (-50.8%)	NO
02: Bedroom_11_ENSUITE	N/A	N/A
02: Bedroom_12_ENSUITE	N/A	N/A
02: Bedroom_13_ENSUITE	N/A	N/A
02: Bedroom_14_ENSUITE	N/A	N/A
02: Bedroom_14	NO (-51.4%)	NO
02: Bedroom_17	NO (-50.2%)	NO
02: Bedroom_17_ENSUITE	N/A	N/A
02: Bedroom_15_ENSUITE	N/A	N/A
02: Bedroom_15	NO (-49.8%)	NO
02: Bedroom_18	NO (-49.3%)	NO
02: Bedroom_18_ENSUITE	N/A	N/A
02: Bedroom_19_ENSUITE	N/A	N/A
02: Bedroom_19	NO (-51%)	NO
02: Bedroom_16	NO (-51.3%)	NO
02: Bedroom_16_ENSUITE	N/A	N/A
02: Bedroom_23_ENSUITE	N/A	N/A
02: Bedroom_23	NO (-50.5%)	NO
02: Bedroom_24	NO (-47.3%)	NO
02: Bedroom_24_ENSUITE	N/A	N/A
02: Bedroom_20	NO (-49.6%)	NO
02: Bedroom_20_ENSUITE	N/A	N/A
02: Bedroom_21_ENSUITE	N/A	N/A
02: Bedroom_21	NO (-50.5%)	NO
02: Bedroom_22_ENSUITE	N/A	N/A
02: Bedroom_22	NO (-49.4%)	NO
02: Bedroom_26_ENSUITE	N/A	N/A
02: Bedroom_29	NO (-61.7%)	NO
02: Bedroom_29_ENSUITE	N/A	N/A
02: Bedroom_30_ENSUITE	N/A	N/A
02: Bedroom_30	NO (-61.7%)	NO
02: Bedroom_31	NO (-62.3%)	NO
02: Bedroom_31_ENSUITE	N/A	N/A
02: Bedroom_32_ENSUITE	N/A	N/A
02: Bedroom_32	NO (-62.3%)	NO
02: Bedroom_33	NO (-62.2%)	NO
02: Bedroom_33_ENSUITE	N/A	N/A
02: Bedroom_34_ENSUITE	N/A	N/A
02: Bedroom_34	NO (-61.9%)	NO
02: Bedroom_35	NO (-61.4%)	NO
02: Bedroom_35_ENSUITE	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
02: Studio_01_ENSUITE	N/A	N/A
02: Studio_02_ENSUITE	N/A	N/A
02: Studio_02	NO (-58.7%)	NO
02: Studio_03	NO (-58.8%)	NO
02: Studio_03_ENSUITE	N/A	N/A
02: Studio_04_ENSUITE	N/A	N/A
02: Studio_04	NO (-68.6%)	NO
02: Studio_05	NO (-68.1%)	NO
02: Studio_05_ENSUITE	N/A	N/A
02: Studio_06	NO (-62.7%)	NO
02: Studio_06_ENSUITE	N/A	N/A
02: Studio_07_ENSUITE	N/A	N/A
02: Studio_07	NO (-61.9%)	NO
02: Bedroom_36_ENSUITE	N/A	N/A
02: Bedroom_36	NO (-61.6%)	NO
02: Bedroom_37	NO (-62%)	NO
02: Bedroom_37_ENSUITE	N/A	N/A
02: Bedroom_38_ENSUITE	N/A	N/A
02: Bedroom_38	NO (-61.9%)	NO
02: Bedroom_39	NO (-62%)	NO
02: Bedroom_39_ENSUITE	N/A	N/A
02: Bedroom_40_ENSUITE	N/A	N/A
02: Bedroom_40	NO (-62%)	NO
02: Bedroom_41	NO (-61.9%)	NO
02: Bedroom_41_ENSUITE	N/A	N/A
02: Bedroom_42	NO (-49.9%)	NO
02: Bedroom_42_ENSUITE	N/A	N/A
02: Bedroom_43_ENSUITE	N/A	N/A
02: Bedroom_43	NO (-50.1%)	NO
02: Bedroom_44	NO (-51.6%)	NO
02: Bedroom_44_ENSUITE	N/A	N/A
02: Bedroom_45_ENSUITE	N/A	N/A
02: Bedroom_45	NO (-50.8%)	NO
02: Bedroom_46	NO (-50.8%)	NO
02: Bedroom_46_ENSUITE	N/A	N/A
02: Bedroom_47_ENSUITE	N/A	N/A
02: Bedroom_47	NO (-51%)	NO
02: Bedroom_48	NO (-50.1%)	NO
02: Bedroom_48_ENSUITE	N/A	N/A
02: Bedroom_49_ENSUITE	N/A	N/A
02: Bedroom_49	NO (-50.7%)	NO
02: Bedroom_50	NO (-51%)	NO
02: Bedroom_50_ENSUITE	N/A	N/A
02: Bedroom_51_ENSUITE	N/A	N/A
02: Bedroom_51	NO (-50.9%)	NO
02: Bedroom_52	NO (-50.6%)	NO
02: Bedroom_52_ENSUITE	N/A	N/A
02: Bedroom_53_ENSUITE	N/A	N/A
02: Bedroom_54	NO (-49.6%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
02: Bedroom_54_ENSUITE	N/A	N/A
02: Bedroom_55_ENSUITE	N/A	N/A
02: Bedroom_55	NO (-49.6%)	NO
02: Bedroom_56	NO (-50.7%)	NO
02: Bedroom_56_ENSUITE	N/A	N/A
02: Bedroom_57_ENSUITE	N/A	N/A
02: Bedroom_57	NO (-51.2%)	NO
02: Bedroom_58	NO (-49.4%)	NO
02: Bedroom_58_ENSUITE	N/A	N/A
02: Bedroom_59_ENSUITE	N/A	N/A
02: Bedroom_59	NO (-49.6%)	NO
02: Kitchen/Living_06	NO (-63.3%)	NO
02: Circulation	N/A	N/A
02: Circulation	N/A	N/A
02: Circulation	N/A	N/A
02: Studio_01	NO (-60.8%)	NO
02: Bedroom_53	NO (-51.1%)	NO
02: Kitchen/Living_09	NO (-47%)	NO
01: Kitchen/Living_01	NO (-50.1%)	NO
01: Kitchen/Living_04	NO (-61.1%)	NO
01: Circulation	N/A	N/A
01: Kitchen/Living_02	NO (-57.9%)	NO
01: Stairs	N/A	N/A
01: Circulation	N/A	N/A
01: Kitchen/Living_03	NO (-58.1%)	NO
01: Circulation	N/A	N/A
01: Stairs	N/A	N/A
01: Stairs Lobby	N/A	N/A
01: Stairs Lobby	N/A	N/A
01: Circulation	N/A	N/A
01: Kitchen/Living_06	NO (-50.9%)	NO
01: Circulation	N/A	N/A
01: Stairs	N/A	N/A
01: Stairs Lobby	N/A	N/A
01: Bedroom_04	NO (-49.5%)	NO
01: Bedroom_04_ENSUITE	N/A	N/A
01: Bedroom_05	NO (-52.3%)	NO
01: Bedroom_05_ENSUITE	N/A	N/A
01: Bedroom_06	NO (-49.7%)	NO
01: Bedroom_06_ENSUITE	N/A	N/A
01: Bedroom_07	NO (-52.9%)	NO
01: Bedroom_07_ENSUITE	N/A	N/A
01: Bedroom_03_ENSUITE	N/A	N/A
01: Bedroom_03	NO (-62.8%)	NO
01: Bedroom_02_ENSUITE	N/A	N/A
01: Bedroom_02	NO (-61.7%)	NO
01: Bedroom_01_ENSUITE	N/A	N/A
01: Bedroom_01	NO (-62.2%)	NO
01: Acc Bedroom 01_ENSUITE	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
01: Studio_07_ENSUITE	N/A	N/A
01: Studio_07	NO (-61.9%)	NO
01: Bedroom_31_ENSUITE	N/A	N/A
01: Bedroom_32	NO (-49.6%)	NO
01: Bedroom_32_ENSUITE	N/A	N/A
01: Bedroom_33_ENSUITE	N/A	N/A
01: Bedroom_33	NO (-49.6%)	NO
01: Bedroom_34	NO (-50.7%)	NO
01: Bedroom_34_ENSUITE	N/A	N/A
01: Bedroom_35_ENSUITE	N/A	N/A
01: Bedroom_35	NO (-51.2%)	NO
01: Bedroom_36	NO (-49.4%)	NO
01: Bedroom_36_ENSUITE	N/A	N/A
01: Bedroom_37_ENSUITE	N/A	N/A
01: Bedroom_37	NO (-49.6%)	NO
01: Circulation	N/A	N/A
01: Circulation	N/A	N/A
01: Circulation	N/A	N/A
01: Studio_01	NO (-60.8%)	NO
01: Bedroom_31	NO (-50.7%)	NO
01: Kitchen/Living_05	NO (-47%)	NO
06: Circulation	N/A	N/A
06: Circulation	N/A	N/A
06: Bedroom_07_ENSUITE	N/A	N/A
06: Bedroom_07	NO (-50.8%)	NO
06: Bedroom_08	NO (-50.8%)	NO
06: Bedroom_08_ENSUITE	N/A	N/A
06: Bedroom_09_ENSUITE	N/A	N/A
06: Bedroom_09	NO (-51%)	NO
06: Bedroom_10	NO (-50.1%)	NO
06: Bedroom_10_ENSUITE	N/A	N/A
06: Bedroom_11_ENSUITE	N/A	N/A
06: Bedroom_11	NO (-50.7%)	NO
06: Bedroom_12	NO (-51%)	NO
06: Bedroom_12_ENSUITE	N/A	N/A
06: Bedroom_13_ENSUITE	N/A	N/A
06: Bedroom_13	NO (-50.9%)	NO
06: Bedroom_14	NO (-50.6%)	NO
06: Bedroom_14_ENSUITE	N/A	N/A
06: Bedroom_15_ENSUITE	N/A	N/A
06: Bedroom_16	NO (-49.6%)	NO
06: Bedroom_16_ENSUITE	N/A	N/A
06: Bedroom_17_ENSUITE	N/A	N/A
06: Bedroom_17	NO (-49.6%)	NO
06: Bedroom_18	NO (-50.7%)	NO
06: Bedroom_18_ENSUITE	N/A	N/A
06: Bedroom_19_ENSUITE	N/A	N/A
06: Bedroom_19	NO (-51.2%)	NO
06: Bedroom_20	NO (-49.4%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
06: Bedroom_20_ENSUITE	N/A	N/A
06: Bedroom_21_ENSUITE	N/A	N/A
06: Bedroom_21	NO (-49.6%)	NO
06: Bedroom_15	NO (-51.1%)	NO
06: Kitchen/Living_03	NO (-23.8%)	NO
06: Circulation	N/A	N/A
01: Circulation	N/A	N/A
01: Bedroom_26_ENSUITE	N/A	N/A
01: Bedroom_26	NO (-73.9%)	NO
01: Bedroom_27_ENSUITE	N/A	N/A
01: Bedroom_28_ENSUITE	N/A	N/A
01: Bedroom_27	NO (-69.6%)	NO
01: Bedroom_28	NO (-77.5%)	NO
01: Bedroom_29_ENSUITE	N/A	N/A
01: Bedroom_30_ENSUITE	N/A	N/A
01: Bedroom_29	NO (-33.1%)	NO
01: Circulation	N/A	N/A
01: Circulation	N/A	N/A
01: Circulation	N/A	N/A
01: Studio_08_ENSUITE	N/A	N/A
01: Studio_09	NO (-70%)	NO
01: Studio_09_ENSUITE	N/A	N/A
01: Studio_10_ENSUITE	N/A	N/A
01: Studio_10	NO (-52.5%)	NO
01: Studio_11	NO (-79.6%)	NO
01: Studio_11_ENSUITE	N/A	N/A
01: Studio_12_ENSUITE	N/A	N/A
01: Studio_12	NO (-75.4%)	NO
01: Studio_13	NO (-70.5%)	NO
01: Studio_13_ENSUITE	N/A	N/A
01: Studio_14_ENSUITE	N/A	N/A
01: Studio_14	NO (-66.7%)	NO
01: Studio_15	NO (-75.8%)	NO
01: Studio_15_ENSUITE	N/A	N/A
01: Studio_17	NO (-78.7%)	NO
01: Studio_17_ENSUITE	N/A	N/A
01: Studio_18	NO (-61.9%)	NO
01: Studio_18_ENSUITE	N/A	N/A
01: Studio_19	NO (-75.2%)	NO
01: Studio_19_ENSUITE	N/A	N/A
01: Studio_20_ENSUITE	N/A	N/A
01: Studio_20	NO (-67%)	NO
01: Studio_21	NO (-79.4%)	NO
01: Studio_21_ENSUITE	N/A	N/A
01: Studio_22_ENSUITE	N/A	N/A
01: Studio_22	NO (-81.1%)	NO
01: Studio_23	NO (-64.4%)	NO
01: Studio_23_ENSUITE	N/A	N/A
01: Studio_24	NO (-73.5%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
01: Studio_24_ENSUITE	N/A	N/A
01: Studio_25	NO (-49.5%)	NO
01: Studio_25_ENSUITE	N/A	N/A
01: Studio_26_ENSUITE	N/A	N/A
01: Studio_26	NO (-48.4%)	NO
01: Studio_27	NO (-50.3%)	NO
01: Studio_27_ENSUITE	N/A	N/A
01: Studio_28_ENSUITE	N/A	N/A
01: Studio_28	NO (-54.6%)	NO
01: Circulation	N/A	N/A
01: Bedroom_30	NO (-57%)	NO
01: Studio_16	NO (-60%)	NO
01: Studio_16_ENSUITE	N/A	N/A
00: Circulation	N/A	N/A
00: Circulation	N/A	N/A
00: Stairs	N/A	N/A
00: Lobby	N/A	N/A
00: Kitchen/Living_01	NO (-72.8%)	NO
00: Circulation	N/A	N/A
00: Circulation	N/A	N/A
00: Lobby	N/A	N/A
00: Stairs	N/A	N/A
00: Kitchen/Living_02	NO (-83.4%)	NO
00: Circulation	N/A	N/A
00: Circulation	N/A	N/A
00: Stairs	N/A	N/A
00: Lobby	N/A	N/A
00: Circulation	N/A	N/A
00: Circulation	N/A	N/A
00: Circulation	N/A	N/A
00: Bedroom_01_ENSUITE	N/A	N/A
00: Bedroom_01	NO (-49.9%)	NO
00: Bedroom_02	NO (-49.8%)	NO
00: Bedroom_02_ENSUITE	N/A	N/A
00: Bedroom_03_ENSUITE	N/A	N/A
00: Bedroom_03	NO (-53.4%)	NO
00: Bedroom_04	NO (-52.2%)	NO
00: Bedroom_04_ENSUITE	N/A	N/A
00: Bedroom_05_ENSUITE	N/A	N/A
00: Bedroom_05	NO (-50.6%)	NO
00: Bedroom_06_ENSUITE	N/A	N/A
00: Bedroom_06	NO (-50.1%)	NO
00: Studio_01	NO (-58.3%)	NO
00: Studio_01_ENSUITE	N/A	N/A
00: Studio_02_ENSUITE	N/A	N/A
00: Studio_02	NO (-59.1%)	NO
00: Studio_03_ENSUITE	N/A	N/A
00: Studio_04_ENSUITE	N/A	N/A
00: Studio_05_ENSUITE	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
00: Studio_05	NO (-62.1%)	NO
00: Studio_06_ENSUITE	N/A	N/A
00: Studio_06	NO (-62%)	NO
00: Bedroom_07_ENSUITE	N/A	N/A
00: Bedroom_07	NO (-51.2%)	NO
00: Bedroom_08_ENSUITE	N/A	N/A
00: Bedroom_08	NO (-50.9%)	NO
00: Bedroom_09_ENSUITE	N/A	N/A
00: Bedroom_09	NO (-50.6%)	NO
00: Bedroom_10_ENSUITE	N/A	N/A
00: Bedroom_10	NO (-50.6%)	NO
02: Circulation	N/A	N/A
02: Bedroom_13	NO (-59.2%)	NO
02: Circulation	N/A	N/A
02: Bedroom_28	NO (-64%)	NO
02: Bedroom_28_ENSUITE	N/A	N/A
02: Bedroom_27	NO (-51.8%)	NO
02: Bedroom_25_ENSUITE	N/A	N/A
02: Bedroom_25	NO (-56.3%)	NO
02: Bedroom_27_ENSUITE	N/A	N/A
02: Bedroom_26	NO (-62.7%)	NO
03: Circulation	N/A	N/A
03: Kitchen/Living_05	NO (-46.7%)	NO
03: Kitchen/Living_01	NO (-49.8%)	NO
03: Kitchen/Living_04	NO (-61.1%)	NO
03: Kitchen/Living_02	NO (-58.2%)	NO
03: Stairs	N/A	N/A
03: Circulation	N/A	N/A
03: Kitchen/Living_03	NO (-58.1%)	NO
03: Circulation	N/A	N/A
03: Stairs	N/A	N/A
03: Stairs Lobby	N/A	N/A
03: Stairs Lobby	N/A	N/A
03: Circulation	N/A	N/A
03: Circulation	N/A	N/A
03: Kitchen/Living_07	NO (-59.4%)	NO
03: Circulation	N/A	N/A
03: Kitchen/Living_08	NO (-61%)	NO
03: Circulation	N/A	N/A
03: Circulation	N/A	N/A
03: Kitchen/Living_10	NO (-50.9%)	NO
03: Circulation	N/A	N/A
03: Stairs	N/A	N/A
03: Stairs Lobby	N/A	N/A
03: Bedroom_04	NO (-49.5%)	NO
03: Bedroom_04_ENSUITE	N/A	N/A
03: Bedroom_05	NO (-52.3%)	NO
03: Bedroom_05_ENSUITE	N/A	N/A
03: Bedroom_06	NO (-49.7%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
03: Bedroom_06_ENSUITE	N/A	N/A
03: Bedroom_07	NO (-52.9%)	NO
03: Bedroom_07_ENSUITE	N/A	N/A
03: Bedroom_03_ENSUITE	N/A	N/A
03: Bedroom_03	NO (-62.8%)	NO
03: Bedroom_02_ENSUITE	N/A	N/A
03: Bedroom_02	NO (-61.7%)	NO
03: Bedroom_01_ENSUITE	N/A	N/A
03: Bedroom_01	NO (-62.2%)	NO
03: Acc Bedroom 01_ENSUITE	N/A	N/A
03: Acc Bedroom 01	NO (-44.1%)	NO
03: Circulation	N/A	N/A
03: Bedroom_08	NO (-50.5%)	NO
03: Bedroom_08_ENSUITE	N/A	N/A
03: Bedroom_09_ENSUITE	N/A	N/A
03: Bedroom_09	NO (-49.6%)	NO
03: Bedroom_10	NO (-50.3%)	NO
03: Bedroom_10_ENSUITE	N/A	N/A
03: Bedroom_11	NO (-50.6%)	NO
03: Bedroom_11_ENSUITE	N/A	N/A
03: Bedroom_12_ENSUITE	N/A	N/A
03: Bedroom_13_ENSUITE	N/A	N/A
03: Bedroom_14_ENSUITE	N/A	N/A
03: Bedroom_14	NO (-51.4%)	NO
03: Bedroom_17	NO (-50.4%)	NO
03: Bedroom_17_ENSUITE	N/A	N/A
03: Bedroom_15_ENSUITE	N/A	N/A
03: Bedroom_15	NO (-49.8%)	NO
03: Bedroom_18	NO (-49.4%)	NO
03: Bedroom_18_ENSUITE	N/A	N/A
03: Bedroom_19_ENSUITE	N/A	N/A
03: Bedroom_19	NO (-51.2%)	NO
03: Bedroom_16	NO (-51.3%)	NO
03: Bedroom_16_ENSUITE	N/A	N/A
03: Bedroom_23_ENSUITE	N/A	N/A
03: Bedroom_23	NO (-50.5%)	NO
03: Bedroom_24	NO (-47.3%)	NO
03: Bedroom_24_ENSUITE	N/A	N/A
03: Bedroom_20	NO (-49.8%)	NO
03: Bedroom_20_ENSUITE	N/A	N/A
03: Bedroom_21_ENSUITE	N/A	N/A
03: Bedroom_21	NO (-50.6%)	NO
03: Bedroom_22_ENSUITE	N/A	N/A
03: Bedroom_22	NO (-49.6%)	NO
03: Bedroom_26_ENSUITE	N/A	N/A
03: Bedroom_29	NO (-61.7%)	NO
03: Bedroom_29_ENSUITE	N/A	N/A
03: Bedroom_30_ENSUITE	N/A	N/A
03: Bedroom_30	NO (-61.5%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
03: Bedroom_31	NO (-62.7%)	NO
03: Bedroom_31_ENSUITE	N/A	N/A
03: Bedroom_32_ENSUITE	N/A	N/A
03: Bedroom_32	NO (-61.7%)	NO
03: Bedroom_33	NO (-61.8%)	NO
03: Bedroom_33_ENSUITE	N/A	N/A
03: Bedroom_34_ENSUITE	N/A	N/A
03: Bedroom_34	NO (-61.5%)	NO
03: Bedroom_35	NO (-60.9%)	NO
03: Bedroom_35_ENSUITE	N/A	N/A
03: Studio_01_ENSUITE	N/A	N/A
03: Studio_02_ENSUITE	N/A	N/A
03: Studio_02	NO (-58.7%)	NO
03: Studio_03	NO (-58.8%)	NO
03: Studio_03_ENSUITE	N/A	N/A
03: Studio_04_ENSUITE	N/A	N/A
03: Studio_04	NO (-68.6%)	NO
03: Studio_05	NO (-68.1%)	NO
03: Studio_05_ENSUITE	N/A	N/A
03: Studio_06	NO (-62.7%)	NO
03: Studio_06_ENSUITE	N/A	N/A
03: Studio_07_ENSUITE	N/A	N/A
03: Studio_07	NO (-61.9%)	NO
03: Bedroom_36_ENSUITE	N/A	N/A
03: Bedroom_36	NO (-61.6%)	NO
03: Bedroom_37	NO (-61.2%)	NO
03: Bedroom_37_ENSUITE	N/A	N/A
03: Bedroom_38_ENSUITE	N/A	N/A
03: Bedroom_38	NO (-61.5%)	NO
03: Bedroom_39	NO (-61.7%)	NO
03: Bedroom_39_ENSUITE	N/A	N/A
03: Bedroom_40_ENSUITE	N/A	N/A
03: Bedroom_40	NO (-61.9%)	NO
03: Bedroom_41	NO (-61.3%)	NO
03: Bedroom_41_ENSUITE	N/A	N/A
03: Bedroom_42	NO (-49.9%)	NO
03: Bedroom_42_ENSUITE	N/A	N/A
03: Bedroom_43_ENSUITE	N/A	N/A
03: Bedroom_43	NO (-49.8%)	NO
03: Bedroom_44	NO (-51%)	NO
03: Bedroom_44_ENSUITE	N/A	N/A
03: Bedroom_45_ENSUITE	N/A	N/A
03: Bedroom_45	NO (-50.2%)	NO
03: Bedroom_46	NO (-50.4%)	NO
03: Bedroom_46_ENSUITE	N/A	N/A
03: Bedroom_47_ENSUITE	N/A	N/A
03: Bedroom_47	NO (-50.7%)	NO
03: Bedroom_48	NO (-49.3%)	NO
03: Bedroom_48_ENSUITE	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
03: Bedroom_49_ENSUITE	N/A	N/A
03: Bedroom_49	NO (-49.7%)	NO
03: Bedroom_50	NO (-50.6%)	NO
03: Bedroom_50_ENSUITE	N/A	N/A
03: Bedroom_51_ENSUITE	N/A	N/A
03: Bedroom_51	NO (-50.5%)	NO
03: Bedroom_52	NO (-50.2%)	NO
03: Bedroom_52_ENSUITE	N/A	N/A
03: Bedroom_53_ENSUITE	N/A	N/A
03: Bedroom_54	NO (-49.6%)	NO
03: Bedroom_54_ENSUITE	N/A	N/A
03: Bedroom_55_ENSUITE	N/A	N/A
03: Bedroom_55	NO (-49.6%)	NO
03: Bedroom_56	NO (-50.7%)	NO
03: Bedroom_56_ENSUITE	N/A	N/A
03: Bedroom_57_ENSUITE	N/A	N/A
03: Bedroom_57	NO (-51.2%)	NO
03: Bedroom_58	NO (-49.4%)	NO
03: Bedroom_58_ENSUITE	N/A	N/A
03: Bedroom_59_ENSUITE	N/A	N/A
03: Bedroom_59	NO (-49.6%)	NO
03: Kitchen/Living_06	NO (-63.3%)	NO
03: Circulation	N/A	N/A
03: Circulation	N/A	N/A
03: Circulation	N/A	N/A
03: Studio_01	NO (-60.8%)	NO
03: Bedroom_53	NO (-50.7%)	NO
03: Kitchen/Living_09	NO (-47%)	NO
03: Circulation	N/A	N/A
03: Bedroom_13	NO (-59.9%)	NO
03: Circulation	N/A	N/A
03: Bedroom_28	NO (-64%)	NO
03: Bedroom_28_ENSUITE	N/A	N/A
03: Bedroom_27	NO (-51.8%)	NO
03: Bedroom_25_ENSUITE	N/A	N/A
03: Bedroom_25	NO (-56.3%)	NO
03: Bedroom_27_ENSUITE	N/A	N/A
03: Bedroom_26	NO (-63.1%)	NO
05: Circulation	N/A	N/A
05: Kitchen/Living_05	NO (-32.3%)	NO
05: Kitchen/Living_04	NO (-61.1%)	NO
05: Stairs	N/A	N/A
05: Circulation	N/A	N/A
05: Kitchen/Living_03	NO (-58.1%)	NO
05: Circulation	N/A	N/A
05: Stairs	N/A	N/A
05: Stairs Lobby	N/A	N/A
05: Stairs Lobby	N/A	N/A
05: Circulation	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
05: Circulation	N/A	N/A
05: Kitchen/Living_07	NO (-59.4%)	NO
05: Circulation	N/A	N/A
05: Kitchen/Living_08	NO (-61%)	NO
05: Circulation	N/A	N/A
05: Circulation	N/A	N/A
05: Kitchen/Living_10	NO (-50.7%)	NO
05: Circulation	N/A	N/A
05: Stairs	N/A	N/A
05: Stairs Lobby	N/A	N/A
05: Bedroom_10	NO (-50.3%)	NO
05: Bedroom_10_ENSUITE	N/A	N/A
05: Bedroom_11	NO (-50.6%)	NO
05: Bedroom_11_ENSUITE	N/A	N/A
05: Bedroom_12_ENSUITE	N/A	N/A
05: Bedroom_13_ENSUITE	N/A	N/A
05: Bedroom_14_ENSUITE	N/A	N/A
05: Bedroom_14	NO (-51.4%)	NO
05: Bedroom_17	NO (-50.4%)	NO
05: Bedroom_17_ENSUITE	N/A	N/A
05: Bedroom_15_ENSUITE	N/A	N/A
05: Bedroom_15	NO (-49.8%)	NO
05: Bedroom_18	NO (-49.4%)	NO
05: Bedroom_18_ENSUITE	N/A	N/A
05: Bedroom_19_ENSUITE	N/A	N/A
05: Bedroom_19	NO (-51.2%)	NO
05: Bedroom_16	NO (-51.3%)	NO
05: Bedroom_16_ENSUITE	N/A	N/A
05: Bedroom_23_ENSUITE	N/A	N/A
05: Bedroom_23	NO (-50.5%)	NO
05: Bedroom_24	NO (-47.3%)	NO
05: Bedroom_24_ENSUITE	N/A	N/A
05: Bedroom_20	NO (-49.8%)	NO
05: Bedroom_20_ENSUITE	N/A	N/A
05: Bedroom_21_ENSUITE	N/A	N/A
05: Bedroom_21	NO (-50.6%)	NO
05: Bedroom_22_ENSUITE	N/A	N/A
05: Bedroom_22	NO (-49.6%)	NO
05: Bedroom_26_ENSUITE	N/A	N/A
05: Bedroom_29	NO (-61.7%)	NO
05: Bedroom_29_ENSUITE	N/A	N/A
05: Bedroom_30_ENSUITE	N/A	N/A
05: Bedroom_30	NO (-61.5%)	NO
05: Bedroom_31	NO (-62.7%)	NO
05: Bedroom_31_ENSUITE	N/A	N/A
05: Bedroom_32_ENSUITE	N/A	N/A
05: Bedroom_32	NO (-61.7%)	NO
05: Bedroom_33	NO (-61.8%)	NO
05: Bedroom_33_ENSUITE	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
05: Bedroom_34_ENSUITE	N/A	N/A
05: Bedroom_34	NO (-61.5%)	NO
05: Bedroom_35	NO (-60.9%)	NO
05: Bedroom_35_ENSUITE	N/A	N/A
05: Studio_01_ENSUITE	N/A	N/A
05: Studio_02_ENSUITE	N/A	N/A
05: Studio_02	NO (-58.7%)	NO
05: Studio_03	NO (-58.8%)	NO
05: Studio_03_ENSUITE	N/A	N/A
05: Studio_04_ENSUITE	N/A	N/A
05: Studio_04	NO (-68.6%)	NO
05: Studio_05	NO (-68.1%)	NO
05: Studio_05_ENSUITE	N/A	N/A
05: Studio_06	NO (-62.7%)	NO
05: Studio_06_ENSUITE	N/A	N/A
05: Studio_07_ENSUITE	N/A	N/A
05: Studio_07	NO (-61.9%)	NO
05: Bedroom_36_ENSUITE	N/A	N/A
05: Bedroom_36	NO (-61.6%)	NO
05: Bedroom_37	NO (-61.2%)	NO
05: Bedroom_37_ENSUITE	N/A	N/A
05: Bedroom_38_ENSUITE	N/A	N/A
05: Bedroom_38	NO (-61.5%)	NO
05: Bedroom_39	NO (-61.7%)	NO
05: Bedroom_39_ENSUITE	N/A	N/A
05: Bedroom_40_ENSUITE	N/A	N/A
05: Bedroom_40	NO (-61.9%)	NO
05: Bedroom_41	NO (-61.3%)	NO
05: Bedroom_41_ENSUITE	N/A	N/A
05: Bedroom_42	NO (-49.9%)	NO
05: Bedroom_42_ENSUITE	N/A	N/A
05: Bedroom_43_ENSUITE	N/A	N/A
05: Bedroom_43	NO (-49.8%)	NO
05: Bedroom_44	NO (-51%)	NO
05: Bedroom_44_ENSUITE	N/A	N/A
05: Bedroom_45_ENSUITE	N/A	N/A
05: Bedroom_45	NO (-50.2%)	NO
05: Bedroom_46	NO (-50.4%)	NO
05: Bedroom_46_ENSUITE	N/A	N/A
05: Bedroom_47_ENSUITE	N/A	N/A
05: Bedroom_47	NO (-50.7%)	NO
05: Bedroom_48	NO (-49.3%)	NO
05: Bedroom_48_ENSUITE	N/A	N/A
05: Bedroom_49_ENSUITE	N/A	N/A
05: Bedroom_49	NO (-49.7%)	NO
05: Bedroom_50	NO (-50.6%)	NO
05: Bedroom_50_ENSUITE	N/A	N/A
05: Bedroom_51_ENSUITE	N/A	N/A
05: Bedroom_51	NO (-50.5%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
05: Bedroom_52	NO (-50.2%)	NO
05: Bedroom_52_ENSUITE	N/A	N/A
05: Bedroom_53_ENSUITE	N/A	N/A
05: Bedroom_54	NO (-49.6%)	NO
05: Bedroom_54_ENSUITE	N/A	N/A
05: Bedroom_55_ENSUITE	N/A	N/A
05: Bedroom_55	NO (-49.6%)	NO
05: Bedroom_56	NO (-50.7%)	NO
05: Bedroom_56_ENSUITE	N/A	N/A
05: Bedroom_57_ENSUITE	N/A	N/A
05: Bedroom_57	NO (-51.2%)	NO
05: Bedroom_58	NO (-49.4%)	NO
05: Bedroom_58_ENSUITE	N/A	N/A
05: Bedroom_59_ENSUITE	N/A	N/A
05: Bedroom_59	NO (-49.6%)	NO
05: Kitchen/Living_06	NO (-63.3%)	NO
05: Circulation	N/A	N/A
05: Circulation	N/A	N/A
05: Circulation	N/A	N/A
05: Studio_01	NO (-60.8%)	NO
05: Bedroom_53	NO (-50.7%)	NO
05: Kitchen/Living_09	NO (-47%)	NO
05: Bedroom_13	NO (-59.9%)	NO
05: Bedroom_28	NO (-64%)	NO
05: Bedroom_28_ENSUITE	N/A	N/A
05: Bedroom_27	NO (-51.8%)	NO
05: Bedroom_25_ENSUITE	N/A	N/A
05: Bedroom_25	NO (-56.3%)	NO
05: Bedroom_27_ENSUITE	N/A	N/A
05: Bedroom_26	NO (-63.1%)	NO
05: Circulation	N/A	N/A
05: Circulation	N/A	N/A
05: Circulation	N/A	N/A
04: Circulation	N/A	N/A
04: Kitchen/Living_05	NO (-46.7%)	NO
04: Kitchen/Living_01	NO (-49.8%)	NO
04: Kitchen/Living_04	NO (-61.1%)	NO
04: Kitchen/Living_02	NO (-58.2%)	NO
04: Stairs	N/A	N/A
04: Circulation	N/A	N/A
04: Kitchen/Living_03	NO (-58.1%)	NO
04: Circulation	N/A	N/A
04: Stairs	N/A	N/A
04: Stairs Lobby	N/A	N/A
04: Stairs Lobby	N/A	N/A
04: Circulation	N/A	N/A
04: Circulation	N/A	N/A
04: Kitchen/Living_07	NO (-59.4%)	NO
04: Circulation	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
04: Kitchen/Living_08	NO (-60.9%)	NO
04: Circulation	N/A	N/A
04: Circulation	N/A	N/A
04: Kitchen/Living_10	NO (-50.7%)	NO
04: Circulation	N/A	N/A
04: Stairs	N/A	N/A
04: Stairs Lobby	N/A	N/A
04: Bedroom_04	NO (-49.9%)	NO
04: Bedroom_04_ENSUITE	N/A	N/A
04: Bedroom_05	NO (-52.3%)	NO
04: Bedroom_05_ENSUITE	N/A	N/A
04: Bedroom_06	NO (-50.3%)	NO
04: Bedroom_06_ENSUITE	N/A	N/A
04: Bedroom_07	NO (-52.9%)	NO
04: Bedroom_07_ENSUITE	N/A	N/A
04: Bedroom_03_ENSUITE	N/A	N/A
04: Bedroom_03	NO (-62.5%)	NO
04: Bedroom_02_ENSUITE	N/A	N/A
04: Bedroom_02	NO (-62.4%)	NO
04: Bedroom_01_ENSUITE	N/A	N/A
04: Bedroom_01	NO (-62.2%)	NO
04: Acc Bedroom 01_ENSUITE	N/A	N/A
04: Acc Bedroom 01	NO (-44.3%)	NO
04: Circulation	N/A	N/A
04: Bedroom_08	NO (-50.2%)	NO
04: Bedroom_08_ENSUITE	N/A	N/A
04: Bedroom_09_ENSUITE	N/A	N/A
04: Bedroom_09	NO (-50.1%)	NO
04: Bedroom_10	NO (-50.6%)	NO
04: Bedroom_10_ENSUITE	N/A	N/A
04: Bedroom_11	NO (-50.8%)	NO
04: Bedroom_11_ENSUITE	N/A	N/A
04: Bedroom_12_ENSUITE	N/A	N/A
04: Bedroom_13_ENSUITE	N/A	N/A
04: Bedroom_14_ENSUITE	N/A	N/A
04: Bedroom_14	NO (-51.4%)	NO
04: Bedroom_17	NO (-50.2%)	NO
04: Bedroom_17_ENSUITE	N/A	N/A
04: Bedroom_15_ENSUITE	N/A	N/A
04: Bedroom_15	NO (-49.8%)	NO
04: Bedroom_18	NO (-49.3%)	NO
04: Bedroom_18_ENSUITE	N/A	N/A
04: Bedroom_19_ENSUITE	N/A	N/A
04: Bedroom_19	NO (-51%)	NO
04: Bedroom_16	NO (-51.3%)	NO
04: Bedroom_16_ENSUITE	N/A	N/A
04: Bedroom_23_ENSUITE	N/A	N/A
04: Bedroom_23	NO (-50.5%)	NO
04: Bedroom_24	NO (-47.3%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
04: Bedroom_24_ENSUITE	N/A	N/A
04: Bedroom_20	NO (-49.6%)	NO
04: Bedroom_20_ENSUITE	N/A	N/A
04: Bedroom_21_ENSUITE	N/A	N/A
04: Bedroom_21	NO (-50.5%)	NO
04: Bedroom_22_ENSUITE	N/A	N/A
04: Bedroom_22	NO (-49.4%)	NO
04: Bedroom_26_ENSUITE	N/A	N/A
04: Bedroom_29	NO (-61.7%)	NO
04: Bedroom_29_ENSUITE	N/A	N/A
04: Bedroom_30_ENSUITE	N/A	N/A
04: Bedroom_30	NO (-61.7%)	NO
04: Bedroom_31	NO (-62.3%)	NO
04: Bedroom_31_ENSUITE	N/A	N/A
04: Bedroom_32_ENSUITE	N/A	N/A
04: Bedroom_32	NO (-62.3%)	NO
04: Bedroom_33	NO (-62.2%)	NO
04: Bedroom_33_ENSUITE	N/A	N/A
04: Bedroom_34_ENSUITE	N/A	N/A
04: Bedroom_34	NO (-61.9%)	NO
04: Bedroom_35	NO (-61.4%)	NO
04: Bedroom_35_ENSUITE	N/A	N/A
04: Studio_01_ENSUITE	N/A	N/A
04: Studio_02_ENSUITE	N/A	N/A
04: Studio_02	NO (-58.7%)	NO
04: Studio_03	NO (-58.8%)	NO
04: Studio_03_ENSUITE	N/A	N/A
04: Studio_04_ENSUITE	N/A	N/A
04: Studio_04	NO (-68.6%)	NO
04: Studio_05	NO (-68.1%)	NO
04: Studio_05_ENSUITE	N/A	N/A
04: Studio_06	NO (-62.7%)	NO
04: Studio_06_ENSUITE	N/A	N/A
04: Studio_07_ENSUITE	N/A	N/A
04: Studio_07	NO (-61.9%)	NO
04: Bedroom_36_ENSUITE	N/A	N/A
04: Bedroom_36	NO (-61.6%)	NO
04: Bedroom_37	NO (-62%)	NO
04: Bedroom_37_ENSUITE	N/A	N/A
04: Bedroom_38_ENSUITE	N/A	N/A
04: Bedroom_38	NO (-61.9%)	NO
04: Bedroom_39	NO (-62%)	NO
04: Bedroom_39_ENSUITE	N/A	N/A
04: Bedroom_40_ENSUITE	N/A	N/A
04: Bedroom_40	NO (-62%)	NO
04: Bedroom_41	NO (-61.9%)	NO
04: Bedroom_41_ENSUITE	N/A	N/A
04: Bedroom_42	NO (-49.9%)	NO
04: Bedroom_42_ENSUITE	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
04: Bedroom_43_ENSUITE	N/A	N/A
04: Bedroom_43	NO (-50.1%)	NO
04: Bedroom_44	NO (-51.6%)	NO
04: Bedroom_44_ENSUITE	N/A	N/A
04: Bedroom_45_ENSUITE	N/A	N/A
04: Bedroom_45	NO (-50.8%)	NO
04: Bedroom_46	NO (-50.8%)	NO
04: Bedroom_46_ENSUITE	N/A	N/A
04: Bedroom_47_ENSUITE	N/A	N/A
04: Bedroom_47	NO (-51%)	NO
04: Bedroom_48	NO (-50.1%)	NO
04: Bedroom_48_ENSUITE	N/A	N/A
04: Bedroom_49_ENSUITE	N/A	N/A
04: Bedroom_49	NO (-50.7%)	NO
04: Bedroom_50	NO (-51%)	NO
04: Bedroom_50_ENSUITE	N/A	N/A
04: Bedroom_51_ENSUITE	N/A	N/A
04: Bedroom_51	NO (-50.9%)	NO
04: Bedroom_52	NO (-50.6%)	NO
04: Bedroom_52_ENSUITE	N/A	N/A
04: Bedroom_53_ENSUITE	N/A	N/A
04: Bedroom_54	NO (-49.6%)	NO
04: Bedroom_54_ENSUITE	N/A	N/A
04: Bedroom_55_ENSUITE	N/A	N/A
04: Bedroom_55	NO (-49.6%)	NO
04: Bedroom_56	NO (-50.7%)	NO
04: Bedroom_56_ENSUITE	N/A	N/A
04: Bedroom_57_ENSUITE	N/A	N/A
04: Bedroom_57	NO (-51.2%)	NO
04: Bedroom_58	NO (-49.4%)	NO
04: Bedroom_58_ENSUITE	N/A	N/A
04: Bedroom_59_ENSUITE	N/A	N/A
04: Bedroom_59	NO (-49.6%)	NO
04: Kitchen/Living_06	NO (-63.3%)	NO
04: Circulation	N/A	N/A
04: Circulation	N/A	N/A
04: Circulation	N/A	N/A
04: Studio_01	NO (-60.8%)	NO
04: Bedroom_53	NO (-51.1%)	NO
04: Kitchen/Living_09	NO (-47%)	NO
04: Circulation	N/A	N/A
04: Bedroom_13	NO (-59.2%)	NO
04: Circulation	N/A	N/A
04: Bedroom_28	NO (-64%)	NO
04: Bedroom_28_ENSUITE	N/A	N/A
04: Bedroom_27	NO (-51.8%)	NO
04: Bedroom_25_ENSUITE	N/A	N/A
04: Bedroom_25	NO (-56.3%)	NO
04: Bedroom_27_ENSUITE	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
04: Bedroom_26	NO (-62.7%)	NO
05: Kitchen/Living_01	NO (-55.2%)	NO
06: Circulation	N/A	N/A
06: Kitchen/Living_02	NO (-52.3%)	NO
06: Stairs	N/A	N/A
06: Bedroom_01	NO (-61.6%)	NO
06: Bedroom_01_ENSUITE	N/A	N/A
06: Bedroom_06_ENSUITE	N/A	N/A
06: Bedroom_06	NO (-61.3%)	NO
06: Bedroom_05	NO (-61.3%)	NO
06: Bedroom_04_ENSUITE	N/A	N/A
06: Bedroom_04	NO (-62%)	NO
06: Bedroom_03	NO (-61.6%)	NO
06: Bedroom_03_ENSUITE	N/A	N/A
06: Bedroom_02	NO (-61.8%)	NO
06: Bedroom_02_ENSUITE	N/A	N/A
06: Kitchen/Living_04	NO (-27.5%)	NO
06: Bedroom_05_ENSUITE	N/A	N/A
06: Kitchen/Living_01	NO (-29.2%)	NO
06: Circulation	N/A	N/A
06: Circulation	N/A	N/A
04: Bedroom_12	NO (-57.7%)	NO
02: Bedroom_12	NO (-57.7%)	NO
05: Bedroom_12	NO (-58.3%)	NO
03: Bedroom_12	NO (-58.3%)	NO
01: Bedroom_12	NO (-58.3%)	NO
01: Studio_08	NO (-68.4%)	NO
00: Studio_04	NO (-52.9%)	NO
00: Studio_03	NO (-52.9%)	NO
00: WC	N/A	N/A
00: WC	N/A	N/A
00: Circulation	N/A	N/A
00: WC	N/A	N/A
00: Circulation	N/A	N/A
00: Circulation	N/A	N/A
00: Plant	N/A	N/A
00: MV ESB Substation	N/A	N/A
00: MV Switch Room	N/A	N/A
00: Laundry/Amenity	NO (-84.1%)	NO
00: Library	NO (-69.9%)	NO
00: Reception	NO (-34.6%)	NO
00: Management Offices	N/A	N/A
00: Yoga Studio	NO (-3.9%)	NO
00: Gym	NO (-8%)	NO
00: Refuse	N/A	N/A
00: Luggage/Parcel Room	N/A	N/A
00: Vertical Bike Parking	N/A	N/A
00: Security/Comms	N/A	N/A