



> PROGRESSIVE ENGINEERING

PROJECT TITLE:

L20016-HG Tottenham Hale North Island Building 3

CLIENT:

HG Construction

DOCUMENT TITLE:

TM59 Thermal Comfort Report

DOCUMENT NUMBER:

TH-IS-03-001-M-20016-60-904

Rev.	Status	Date	Originator	Checker	Approved By
001	Issue 1	26/01/2021	EMC	EMC	ED
002	Issue 2	26/03/2021	EMC	EMC	ED
003	Issue 3	4/05/2021	EMC	EMC	ED
004	Issue 4	9/06/2021	EMC	EMC	ED

TABLE OF CONTENTS

1	SCENARIO	6
2	COMPLIANCE REQUIREMENT	11
3	THERMAL MODEL	12
3.1	Weather Files	14
3.2	Building Fabric Parameters.....	13
3.3	Room Input Data	14
3.4	Window Openings.	15
4	RESULTS AND CONCLUSIONS	16
4.1	Results for CIBSE TM59 - Living, Kitchens and Bedrooms.....	16
4.2	Results for Corridors	30
5	LIMITATIONS OF THIS REPORT	31

APPENDICES

APPENDIX A THERMAL MODEL IMAGES SHOWING FABRIC TYPE ASSIGNED

APPENDIX B THERMAL MODEL IMAGES SHOWING WINDOW AND DOOR OPENABLE TYPES ASSIGNED

APPENDIX C IMAGES SHOWING INTERNAL LAYOUTS FOR EACH APARTMENT

APPENDIX D THERMAL MODELLING RESULTS FOR MORE EXTREME WEATHER FILES TO ASSESS OVERHEATING RISK UNDER HEATWAVE OR FUTURE CLIMATE CHANGE CONDITIONS

APPENDIX E THERMAL MODELLING RESULTS FOR MORE EXTREME WEATHER FILES TO ASSESS OVERHEATING RISK UNDER HEATWAVE OR FUTURE CLIMATE CHANGE CONDITIONS USING PASSIVE MITIGATION MEASURES APPLIED TO THE THERMAL MODEL

LIST OF FIGURES

Figure 1: Image showing Plan view of thermal model.....	7
Figure 2: Image showing South East elevation view of thermal model.....	7
Figure 3: Image showing South West elevation view of thermal model.....	8
Figure 4: Image showing North West elevation view of thermal model.....	8
Figure 5: Image showing North East elevation view of thermal model.....	9
Figure 6: Graph showing summertime temperature range (May – September) for dry bulb temperature for London Heathrow DSY 1 from the weather file.....	12
Figure 7: Graph showing summertime temperature range (May – September) for wet bulb temperature for London Heathrow DSY 1 from the weather file.....	13

LIST OF TABLES

Table 1: Summary of maximum dry bulb and wet bulb temperature for London Heathrow DSY 1 from the weather file	12
Table 2: Summary of fabric elements used in the thermal model	13
Table 3: Summary of room input data used for thermal modelling calculations.....	13
Table 4: Summary of window/door openable areas and profiles used for thermal modelling calculations.....	15
Table 5: Results showing performance against the TM52 criteria 1 for each living, kitchen and bedroom within the proposed mixed-use development using the London Heathrow CIBSE DSY 1 2020's high emissions 50 th percentile range weather file.....	16
Table 6: Results showing performance against the TM59 criteria for each bedroom within the proposed mixed-use development using the London Heathrow CIBSE DSY 1 2020's high emissions 50 th percentile range weather file.....	24
Table 7: Results showing performance against the TM59 criteria for each corridor within the proposed mixed-use development using the London Heathrow CIBSE DSY 1 2020's high emissions 50 th percentile range weather file.....	30

EXECUTIVE SUMMARY

The proposed new multi-storey mixed-use North Island Building 3 located at Tottenham Hale in the London Borough of Haringey consists of 136 residential units and retail space. Overheating analysis has been carried out on behalf of the Client to show that all of the occupied spaces within the proposed mixed-use development meets the thermal comfort criteria as set out in CIBSE TM59 for the residential element.

The proposed building design incorporates high standards of thermal insulation and fabric efficiency, high performance glazing which serves to reduce the solar gain to the rooms, external solar shading in the form of balconies, natural ventilation and secure ventilation for night time cooling as part of the overheating prevention strategy for summertime. General ventilation to residential spaces will be provided via a MVHR system with additional summertime purge ventilation provided via openable windows and doors.

Based on the modelling conducted, the results show that the thermal comfort criteria as set out by CIBSE TM59 for all of the residential units has been satisfied due to the overheating prevention strategy described above and air conditioning is not required for any of the residential units.

Whilst not mandatory, two further simulations have been performed to assess overheating risk under heatwave or future climate conditions using more extreme weather files DSY 2 and DSY 3. Please see Appendix D for results which have been included here for information purposes only.

Whilst not mandatory, we have run alternative simulations using passive mitigation measures applied to the thermal model for the DSY2 & DSY3 extreme weather files. The mitigation measures include Solar Control Blinds for each flat and longer window opening periods in each flat. The results for DSY2 extreme weather file show that all flats pass the thermal comfort criteria as set out by CIBSE TM59. The results for DSY3 extreme weather file show that all flats pass Criterion 1 of the thermal comfort criteria as set out by CIBSE TM59. For Criteria 2 for bedrooms, the results show that most of the bedrooms are marginally failing, with the highest fail showing 54 hours where internal temperature is above 26 degrees Celsius between the hours of 10pm and 7am. Please note the target criteria for bedrooms is 32 hours or less. Given that the bedrooms are only marginally failing, further passive mitigation measures to be considered in the future is the application of external solar film to the bedroom windows which would further reduce the amount of solar gains entering the bedrooms and could be retrofitted should it be required. Please see Appendix E for results for these alternative simulations which have been included here for information purposes only.

The building thermal model estimates the buildings environmental conditions and the calculation results are based on the modelling inputs and parameters as detailed herein this report in Section 3 and Appendices. Section 3 includes fabric u values, internal heat gains, occupancy patterns, air permeability rate, ventilation strategy and window openings used for the thermal model. It has been assumed that the window restrictors may be temporarily removed at the occupants discretion during periods of hot weather in summertime to allow windows to open wider for additional ventilation. The equivalent free area for each window type without restrictors has been included in this report. HG Construction shall ensure that these equivalent free areas for each window type can be achieved to provide the air flow for thermal comfort. This analysis has been performed using IES software which provides full dynamic thermal analysis and is a CIBSE certified Level 5 approved Dynamic Simulation Modelling Software. This analysis has been carried out in accordance with user instructions set out in IES manuals and CIBSE AM11 Building Energy and Environmental Modelling. The most current CIBSE Design Summer Year (DSY) Weather File for London was chosen for the simulation (London Heathrow CIBSE DSY 1 2020's high emissions 50th percentile range weather file), in accordance with CIBSE guide TM59:2017 "Design methodology for the assessment of overheating risk in homes" guidelines.

The building occupancy profiles & parameters published in CIBSE guide TM59:2017 "Design methodology for the assessment of overheating risk in homes" has been used as guidance. Within the apartments thermal comfort has been assessed against the criteria identified within CIBSE TM59:2017. It should be noted that as occupancy and building use is based on set parameters outlined in TM59 the temperatures estimated may not match the actual building temperatures as the 'real' building may have differing operations and heat gain patterns with external weather conditions not normal to the historical data provided by the standard CIBSE weather files.

SCENARIO

The proposed new multi-storey mixed-use North Island Building 3 located at Tottenham Hale in the London Borough of Haringey consists of 136 residential units and retail space. Overheating analysis has been carried out on behalf of the Client to show that the proposed mixed-use development meets the thermal comfort criteria as set out in CIBSE TM59 for the residential element.

The proposed building design incorporates high standards of thermal insulation and fabric efficiency, high performance glazing which serves to reduce the solar gain to the rooms, external solar shading in the form of balconies, natural ventilation and secure ventilation for night time cooling as part of the overheating prevention strategy for summertime. General ventilation to residential spaces will be provided via a MVHR system with additional summertime purge ventilation provided via openable windows and doors. It has been assumed that the window restrictors may be temporarily removed at the occupants discretion during periods of hot weather in summertime to allow windows to open wider for additional ventilation.

Please note there is space for pipe work or localised building services and that this is designed into the building to allow the retrofitting of centralised or localised cooling and ventilation equipment if needed in the future.

This analysis has been performed using IES software which provides full dynamic thermal analysis and is a CIBSE certified Level 5 approved Dynamic Simulation Modelling Software. This analysis has been carried out in accordance with user instructions set out in IES manuals and CIBSE AM11 Building Energy and Environmental Modelling. This analysis has been undertaken using the thermal simulation program ApacheSIM Dynamic Simulation and Macroflo (IESVE, 2020) to predict the buildings environmental performance.

The most current CIBSE Design Summer Year (DSY) Weather File for London was chosen for the simulation (London Heathrow CIBSE DSY 1 2020's high emissions 50th percentile range weather file), in accordance with CIBSE guide TM59:2017 "Design methodology for the assessment of overheating risk in homes" guidelines.

Whilst not mandatory, two further simulations have been performed to assess overheating risk under heatwave or future climate conditions using more extreme weather files DSY 2 and DSY 3. Please see Appendix D for results which have been included here for information purposes only.

Whilst not mandatory, we have run alternative simulations using passive mitigation measures applied to the thermal model for the DSY2 & DSY3 extreme weather files. The mitigation measures include Solar Control Blinds for each flat and longer window opening periods in each flat. Please see Appendix E for results for these alternative simulations which have been included here for information purposes only.

Please see Figures 1 - 5 below for images from the thermal model which demonstrate that solar shading from balconies (green colour) has been included in the modelling.

Figure 1: Image showing Plan view of thermal model.

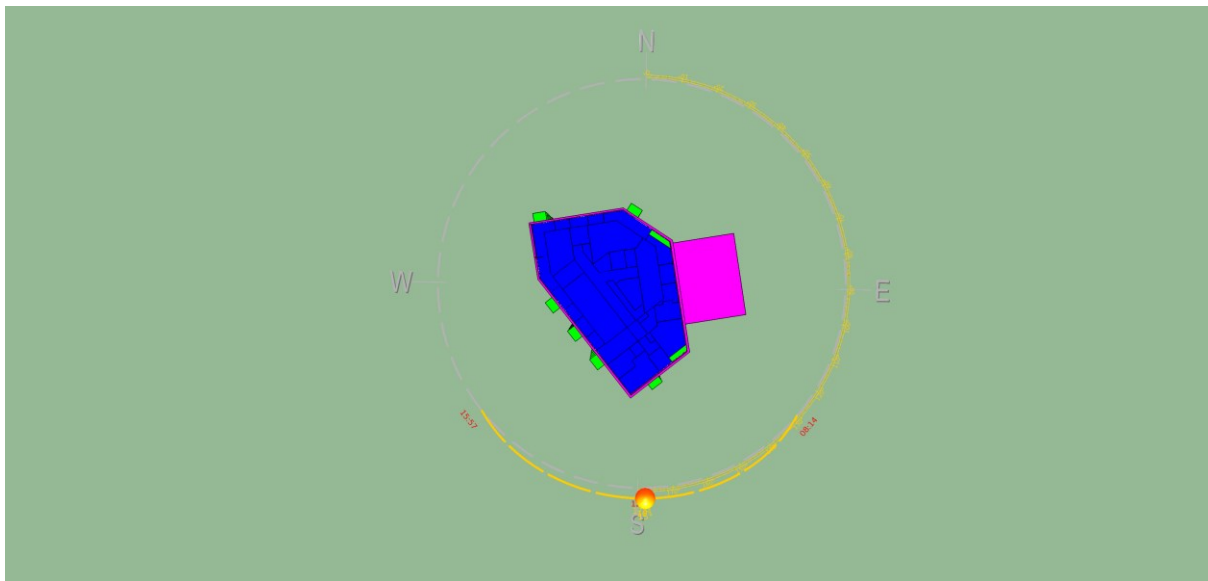


Figure 2: Image showing South East elevation view of thermal model.

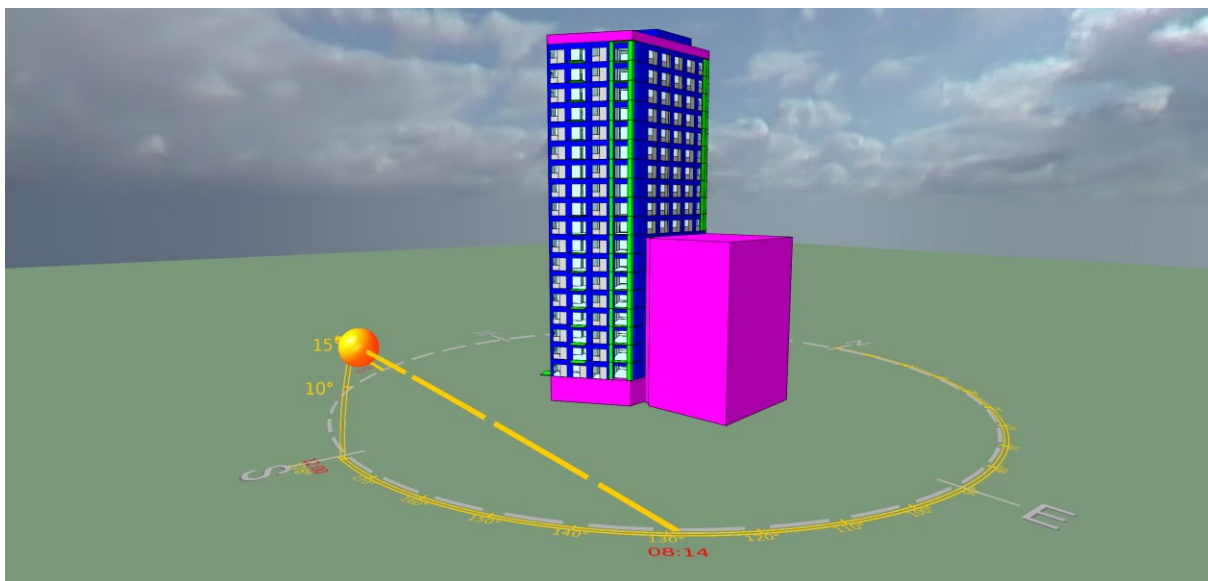


Figure 3: Image showing South West elevation view of thermal model.

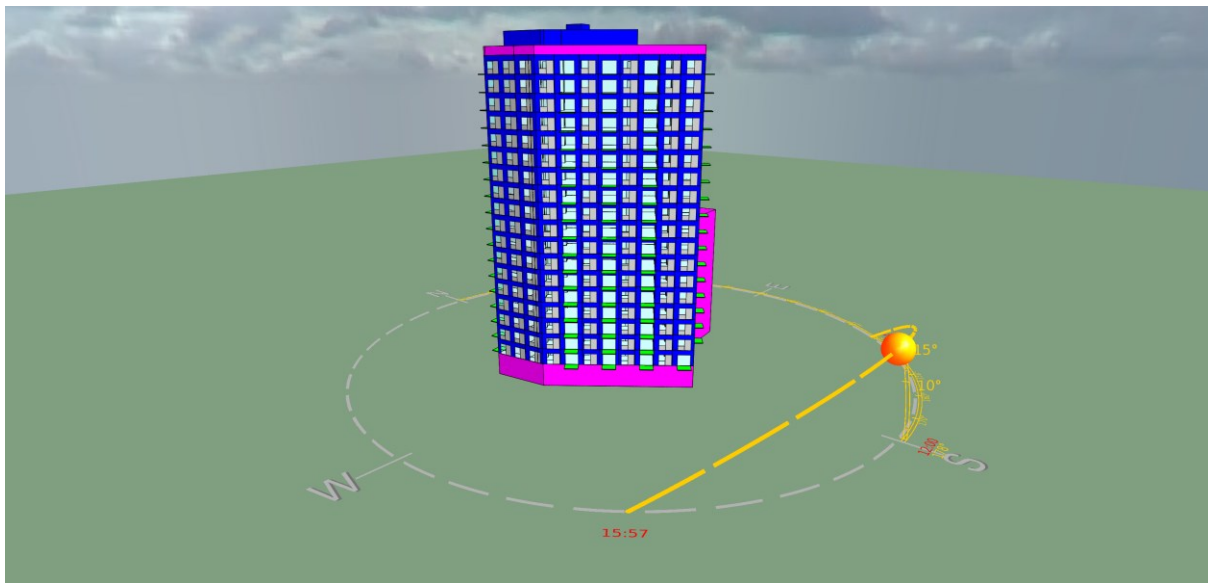


Figure 4: Image showing North West elevation view of thermal model.

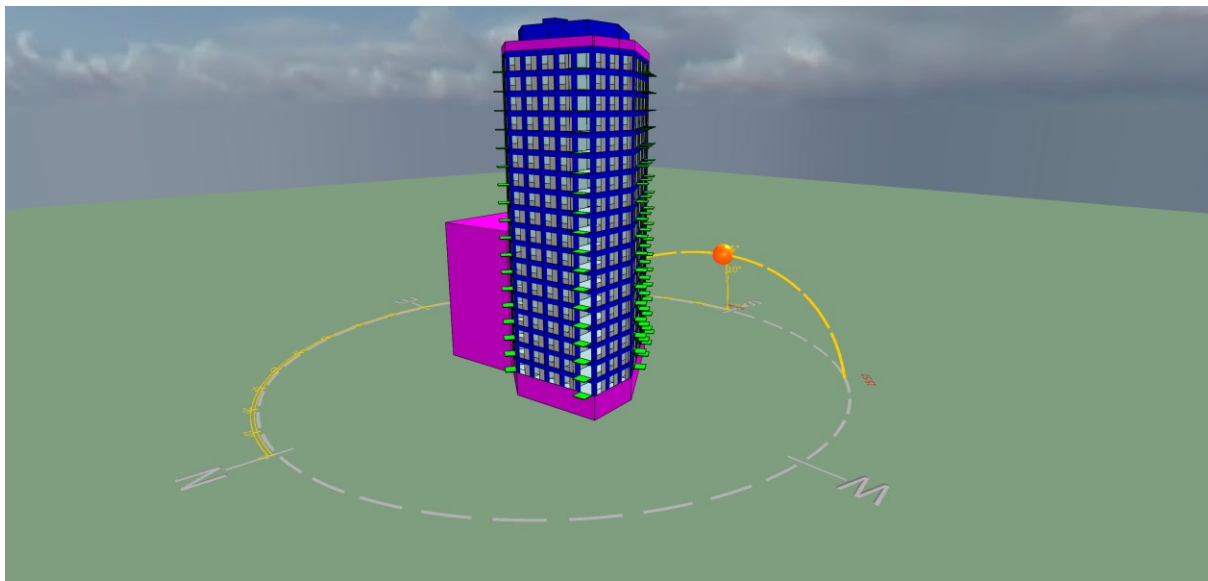
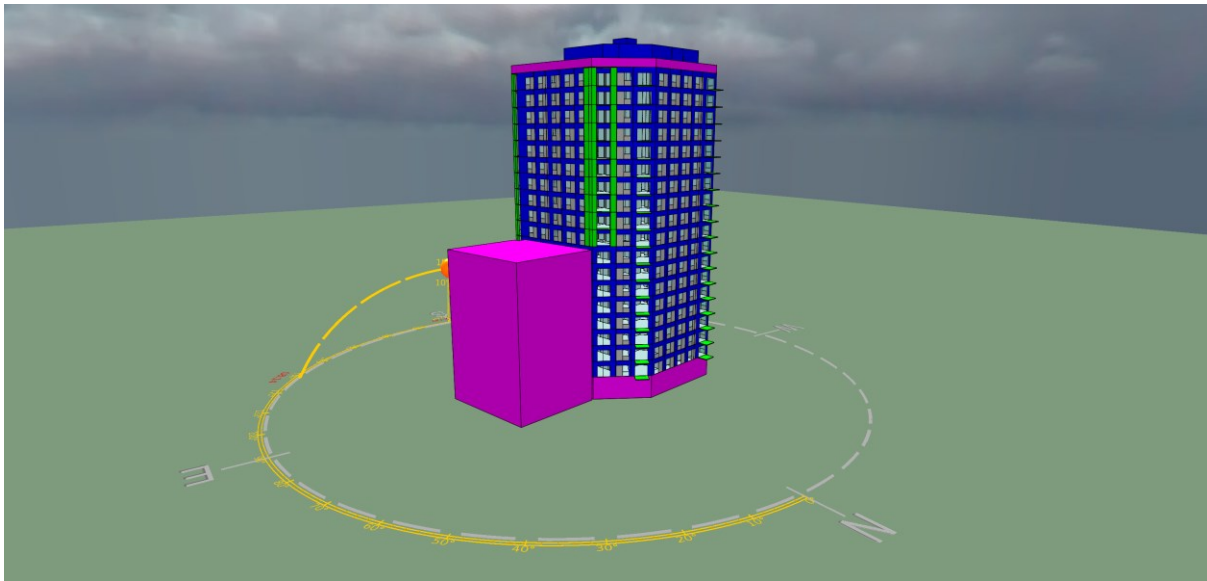


Figure 5: Image showing North East elevation view of thermal model.



COMPLIANCE REQUIREMENT

Within the apartments, thermal comfort has been assessed against the criteria identified within CIBSE TM59:2017 'Design methodology for the assessment of overheating risk in homes'.

Method – CIBSE TM59:2017

Because the apartments within the proposed multi-residential development will be mainly naturally ventilated during summertime via openable windows and doors, Section 4.2 of CIBSE TM59:2017 applies, which requires both of the following two criteria to be met for domestic properties:

Criteria 1 - Hours of Exceedance (He) for Living Rooms, Kitchens and Bedrooms:

The number of hours, during which the temperature difference (between indoor and outdoor) is greater than or equal to one degree (K) during the period May to September inclusive shall not be more than 3% of occupied hours (TM52 Criterion 1: Hours of exceedance).

Criteria 2 – For Bedrooms Only:

To guarantee comfort during the sleeping hours the operative temperature in the bedroom from 10pm to 7am shall not exceed 26°C for more than 1% of annual hours. (Note: 1% of the annual hours between 22:00 and 07:00 for bedrooms equates to 32 hours, so 33 or more hours above 26°C will be recorded as a fail).

Criteria's 2 and 3 of CIBSE TM52:2013 may fail to be met, but both the above criteria must be met for apartment bedrooms and apartment living and kitchen areas to pass the overheating check.

The unoccupied rooms, such as bathrooms, circulation spaces, store rooms, do not have overheating criteria or a suggested maximum temperature as it is envisaged that no one will occupy these rooms for a significant period of time.

Criteria For Communal Corridors:

As corridors can contribute to overheating within occupied rooms, they have been included in the overheating assessment. Whilst there are no mandatory targets for communal corridors, CIBSE suggest each corridor should not have an operative temperature exceeding 28°C for more than 3% of the total annual hours.

THERMAL MODEL

Please note the thermal modelling is based on the design information available on the 20/01/2021. Specifications have been taken from current information provided by the Client. Please see Appendix C for images of internal layouts for each apartment.

The proposed building design incorporates high standards of thermal insulation and fabric efficiency, high performance glazing which serves to reduce the solar gain to the rooms, external solar shading in the form of balconies, natural ventilation and secure ventilation for night time cooling as part of the overheating prevention strategy for summertime. General ventilation to residential spaces will be provided via a MVHR system with additional summertime purge ventilation provided via openable windows and doors.

Please note internal blinds have not been included in the modelling and thus, will not interfere with airflow via openable windows and balcony doors.

3.1 Weather Files

The most current CIBSE Design Summer Year (DSY) Weather File for London was chosen for the simulation (London Heathrow DSY 1 2020's high emissions 50th percentile range weather file), in accordance with CIBSE guide TM59:2017 "Design methodology for the assessment of overheating risk in homes" guidelines.

Figure 6 and 7 below illustrate the summertime temperature range (May – September) for both the dry bulb and wet bulb temperature for London Heathrow DSY 1 from the weather file.

Figure 6: Graph showing summertime temperature range (May – September) for dry bulb temperature for London Heathrow DSY 1 from the weather file.

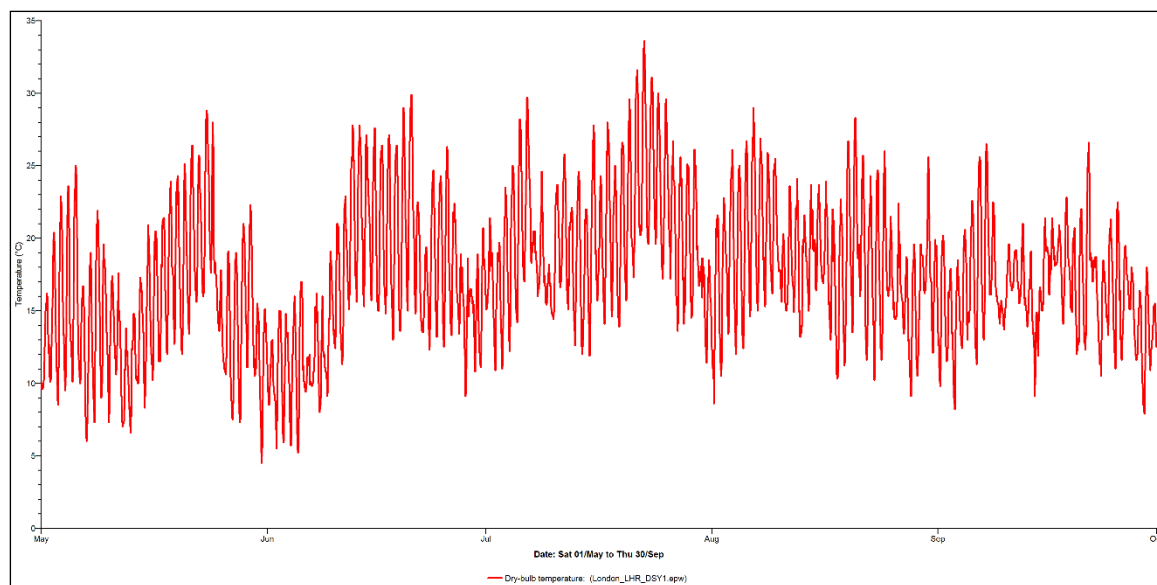


Figure 7: Graph showing summertime temperature range (May – September) for wet bulb temperature for London Heathrow DSY 1 from the weather file.

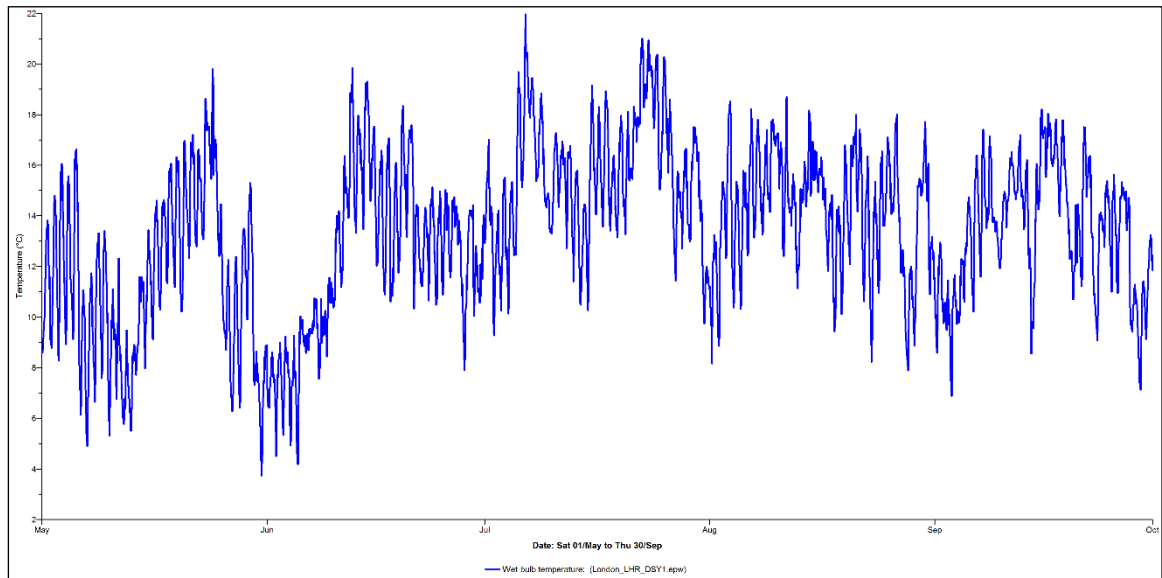


Table 1 below illustrates the maximum dry bulb and wet bulb temperature for London Heathrow DSY 1 from the weather file.

Table 1: Summary of maximum dry bulb and wet bulb temperature for London Heathrow DSY 1 from the weather file.

Weather File	Max. Dry Bulb Temperature	Max. Wet Bulb Temperature
London Heathrow DSY1_2020High50	33.60	21.97

3.2 Building Fabric Parameters

Please see Table 2 for a summary of the building fabric elements used in the thermal model.

Table 2: Summary of fabric elements used in the thermal model.

Fabric Element	U-value (W/m ² .K)	G-value
External Wall – all elements including metal panels	0.24	-
Roof	0.13	-
Ground Floor	0.13	-
Windows	1.20	0.50
Air Permeability rate = 3m³/hr.m² @ 50 Pa (equivalent to 0.15 air changes per hour)		

3.3 Room Input Data

Please see Table 3 for a summary of room input data used for thermal modelling calculations.

The building occupancy profiles & parameters published in CIBSE guide TM59:2017 “Design methodology for the assessment of overheating risk in homes” has been used as guidance.

Table 3: Summary of room input data used for thermal modelling calculations.

Environmental Room Type	Gain Type	Details
1 Bedroom Living/Kitchen	Lighting	2 W/m ² Sensible Heat Gain with a 0.45 Radiant fraction has been applied with the hours of operation assumed to be between 1800-2300, this assumes good day light is available in the summer months where overheating is assessed. (CIBSE TM59, 2017, Table 2)
	Occupancy	1 occupant, each generating 75W sensible, 55W latent heat gain with a constant occupancy profile of 100% between 0900 to 2200 (CIBSE TM59, 2017, Table 2)
	Equipment	Peak Sensible Gain of 450W between 1800 to 2000, 200W Sensible Gain between 2000 to 2200, 110W Sensible Gain between 0900 to 1800 and 2200 to 2400, with a base load of 85W for the rest of the day (CIBSE TM59, 2017, Table 2)
	Ventilation	13l/s Mechanical Ventilation in accordance with Part F Natural Ventilation via Openable Windows during summertime
2 Bedroom Living/Kitchen	Lighting	2 W/m ² Sensible Heat Gain with a 0.45 Radiant fraction has been applied with the hours of operation assumed to be between 1800-2300, this assumes good day light is available in the summer months where overheating is assessed. (CIBSE TM59, 2017, Table 2)
	Occupancy	2 occupants, each generating 75W sensible, 55W latent heat gain with a constant occupancy profile of 100% between 0900 to 2200 (CIBSE TM59, 2017, Table 2)
	Equipment	Peak Sensible Gain of 450W between 1800 to 2000, 200W Sensible Gain between 2000 to 2200, 110W Sensible Gain between 0900 to 1800 and 2200 to 2400, with a base load of 85W for the rest of the day (CIBSE TM59, 2017, Table 2)
	Ventilation	13l/s Mechanical Ventilation in accordance with Part F

		Natural Ventilation via Openable Windows during summertime
Studio Bedroom/ Living/Kitchen	Lighting	2 W/m ² Sensible Heat Gain with a 0.45 Radiant fraction has been applied with the hours of operation assumed to be between 1800-2300, this assumes good day light is available in the summer months where overheating is assessed. (CIBSE TM59, 2017, Table 2)
	Occupancy	2 occupants, each generating 75W sensible, 55W latent heat gain with a constant occupancy profile of 100% between 0800 to 2300 and 70% between 2300 to 0800 (CIBSE TM59, 2017, Table 2).
	Equipment	Peak Sensible Gain of 450W between 1800 to 2000, 200W Sensible Gain between 2000 to 2200, 110W Sensible Gain between 0900 to 1800 and 2200 to 2400, with a base load of 85W for the rest of the day (CIBSE TM59, 2017, Table 2)
	Ventilation	13l/s Mechanical Ventilation in accordance with Part F Natural Ventilation via Openable Windows during summertime
Double Bedroom	Lighting	2 W/m ² Sensible Heat Gain with a 0.45 Radiant fraction has been applied with the hours of operation assumed to be between 1800-2300, this assumes good day light is available in the summer months where overheating is assessed. (CIBSE TM59, 2017, Table 2)
	Occupancy	2 occupants, each generating 75W sensible, 55W latent heat gain with a modulating occupancy profile of 100% between 0800 to 0900 and 2200 to 2300 and 70% between 2300 to 0800 (CIBSE TM59, 2017, Table 2). 1 occupant, each generating 75W sensible, 55W latent heat gain with a modulating occupancy profile of 100% between 0900 and 2200 (CIBSE TM59, 2017, Table 2). An allowance of 30% reduced gains is allowed during sleep.
	Equipment	Peak Sensible Gain of 80W between 0800 to 2300, with a 10W Sensible Gain between 2300 to 0800 (CIBSE TM59, 2017, Table 2)
	Ventilation	8l/s Mechanical Ventilation in accordance with Part F Natural Ventilation via Openable Windows during summertime
Bathroom	Lighting	1.75W/m ² Sensible Heat Gain with a 0.45 Radiant fraction with a modulating lighting profile of 100% between 1800 to 2300
	Occupancy	Transient Space - No Constant Occupation
	Equipment	N/a
	Ventilation	Mechanical Extract Ventilation in accordance with Part F
Flat Hallway	Lighting	2W/m ² Sensible Heat Gain with a 0.45 Radiant fraction has been applied with a modulating lighting profile of 100% between 1800 to 2300

	Occupancy	Transient Space - No Constant Occupation
	Equipment	N/a
	Ventilation	N/a
Communal Stairs	Lighting	Zero as PIR sensors are present
	Occupancy	Transient Space - No Constant Occupation
	Equipment	N/a
	Ventilation	N/a
Communal Corridors	Lighting	Zero as PIR sensors are present
	Occupancy	Transient Space - No Constant Occupation
	Equipment	Pipework Heat loss 5W/m ² Sensible Heat Gain
Utility Cupboard with HIU	Lighting	Zero as PIR sensors are present
	Occupancy	Transient Space - No Constant Occupation
	Equipment	HIU Heat loss 50W Sensible Heat Gain

3.4 Window Openings

It has been assumed that the window restrictors may be temporarily removed at the occupants discretion during periods of hot weather in summertime to allow windows to open wider for additional ventilation.

Please see Table 4 for a summary of window openings (without restrictors) and profiles used for thermal modelling calculations. Please also refer to model images in Appendix B.

Table 4: Summary of window/door openable areas (without restrictors) and profiles used for thermal modelling calculations.

Type	Window/Door Description	Equivalent Orifice Area (m ²)	Opening Profile
1	Tilt Turn Living/Kitchen window	0.53	Fully open when internal air temperature exceeds 22°C
2	Tilt Turn Bedroom window	0.53	Fully open when internal air temperature exceeds 22°C
3	Side Hung Door	4.38	Fully open between 9am – 10pm when internal air temperature exceeds 22°C
4	Sliding Door	2.29	Fully open between 9am – 10pm when internal air temperature exceeds 22°C
5	Internal Doors	1.84	Fully open between 8am – 11pm

RESULTS AND CONCLUSIONS

4.1 Results for CIBSE TM59 for living, kitchen and bedrooms

As detailed within section 2 of this report, for the living, kitchen and bedrooms to achieve compliance with CIBSE TM59:2017, each habitable room must achieve compliance with:

- Criteria 1 of CIBSE TM52:2013 which states the external to internal temperature difference must not exceed 1K for more than 3% of the year between May to September

And in addition, each bedroom must also achieve compliance with:

- CIBSE TM59:2017 which states the bedrooms operative temperature must not exceed 26°C for more than 32 hours per year between the hours of 10pm until 7am daily.

Table 5 below shows the predicted thermal comfort results against the TM52 criteria 1 for each living, kitchen and bedroom for all of the residential units within the proposed mixed use development.

Table 6 below shows the predicted thermal comfort results against the TM59 criteria for all of the bedrooms within the proposed mixed use development.

Table 5: Results showing performance against the TM52 criteria 1 for each living, kitchen and bedroom within the proposed mixed-use development using the London Heathrow CIBSE DSY 1 2020's high emissions 50th percentile range weather file.

Room Name	TM59 Analysis	
	Criteria 1: Hours of exceedance (He)	Pass/Fail
3.01.08 2B4P BED 1	0.1	PASS
3.01.08 2B4P BED 2	0	PASS
3.01.08 2B4P LIV/KITCHEN	0.3	PASS
3.01.01 2B4P LIV/KITCHEN	0	PASS
3.01.01 2B4P BED 1	0	PASS
3.01.01 2B4P BED 2	0	PASS
3.01.02 1B1P LIV/KITCH/BED	0	PASS
3.01.03 1B1P LIV/KITCH/BED	0	PASS
3.01.04 2B4P BED 1	0.2	PASS
3.01.04 2B4P BED 2	0	PASS
3.01.04 2B4P LIV/KITCHEN	0.3	PASS
3.01.05 1B2P BED	0.4	PASS
3.01.05 1B2P LIV/KITCHEN	0.6	PASS
3.01.06 1B2P BED	0.3	PASS
3.01.06 1B2P LIV/KITCHEN	0.6	PASS
3.01.07 2B4P BED 1	0.1	PASS
3.01.07 2B4P BED 2	0.2	PASS
3.01.07 2B4P LIV/KITCHEN	0.4	PASS
3.02.08 2B4P BED 1	0	PASS
3.02.08 2B4P BED 2	0	PASS
3.02.08 2B4P LIV/KITCHEN	0.4	PASS
3.02.01 2B4P LIV/KITCHEN	0	PASS
3.02.01 2B4P BED 1	0	PASS

3.02.01 2B4P BED 2	0	PASS
3.02.02 1B1P LIV/KITCH/BED	0	PASS
3.02.03 1B1P LIV/KITCH/BED	0	PASS
3.02.04 2B4P BED 1	0.1	PASS
3.02.04 2B4P BED 2	0	PASS
3.02.04 2B4P LIV/KITCHEN	0.2	PASS
3.02.05 1B2P BED	0.4	PASS
3.02.05 1B2P LIV/KITCHEN	0.8	PASS
3.02.06 1B2P BED	0.4	PASS
3.02.06 1B2P LIV/KITCHEN	0.7	PASS
3.02.07 2B4P BED 1	0.1	PASS
3.02.07 2B4P BED 2	0.2	PASS
3.02.07 2B4P LIV/KITCHEN	0.8	PASS
3.03.08 2B4P BED 1	0	PASS
3.03.08 2B4P BED 2	0	PASS
3.03.08 2B4P LIV/KITCHEN	0.3	PASS
3.03.01 2B4P LIV/KITCHEN	0	PASS
3.03.01 2B4P BED 1	0	PASS
3.03.01 2B4P BED 2	0	PASS
3.03.02 1B1P LIV/KITCH/BED	0	PASS
3.03.03 1B1P LIV/KITCH/BED	0	PASS
3.03.04 2B4P BED 1	0.1	PASS
3.03.04 2B4P BED 2	0	PASS
3.03.04 2B4P LIV/KITCHEN	0.2	PASS
3.03.05 1B2P BED	0.4	PASS
3.03.05 1B2P LIV/KITCHEN	0.9	PASS
3.03.06 1B2P BED	0.4	PASS
3.03.06 1B2P LIV/KITCHEN	0.8	PASS
3.03.07 2B4P BED 1	0.1	PASS
3.03.07 2B4P BED 2	0.2	PASS
3.03.07 2B4P LIV/KITCHEN	0.7	PASS
3.04.08 2B4P BED 1	0	PASS
3.04.08 2B4P BED 2	0	PASS
3.04.08 2B4P LIV/KITCHEN	0.2	PASS
3.04.01 2B4P LIV/KITCHEN	0	PASS
3.04.01 2B4P BED 1	0	PASS
3.04.01 2B4P BED 2	0	PASS
3.04.02 1B1P LIV/KITCH/BED	0	PASS
3.04.03 1B1P LIV/KITCH/BED	0	PASS
3.04.04 2B4P BED 1	0.1	PASS
3.04.04 2B4P BED 2	0	PASS
3.04.04 2B4P LIV/KITCHEN	0.2	PASS
3.04.05 1B2P BED	0.4	PASS
3.04.05 1B2P LIV/KITCHEN	0.8	PASS
3.04.06 1B2P BED	0.4	PASS

3.04.06 1B2P LIV/KITCHEN	0.8	PASS
3.04.07 2B4P BED 1	0.1	PASS
3.04.07 2B4P BED 2	0.2	PASS
3.04.07 2B4P LIV/KITCHEN	0.7	PASS
3.05.08 2B4P BED 1	0	PASS
3.05.08 2B4P BED 2	0	PASS
3.05.08 2B4P LIV/KITCHEN	0.2	PASS
3.05.01 2B4P LIV/KITCHEN	0	PASS
3.05.01 2B4P BED 1	0	PASS
3.05.01 2B4P BED 2	0	PASS
3.05.02 1B1P LIV/KITCH/BED	0	PASS
3.05.03 1B1P LIV/KITCH/BED	0	PASS
3.05.04 2B4P BED 1	0.1	PASS
3.05.04 2B4P BED 2	0	PASS
3.05.04 2B4P LIV/KITCHEN	0.2	PASS
3.05.05 1B2P BED	0.4	PASS
3.05.05 1B2P LIV/KITCHEN	0.8	PASS
3.05.06 1B2P BED	0.4	PASS
3.05.06 1B2P LIV/KITCHEN	0.8	PASS
3.05.07 2B4P BED 1	0.1	PASS
3.05.07 2B4P BED 2	0.2	PASS
3.05.07 2B4P LIV/KITCHEN	0.7	PASS
3.06.08 2B4P BED 1	0	PASS
3.06.08 2B4P BED 2	0	PASS
3.06.08 2B4P LIV/KITCHEN	0.2	PASS
3.06.01 2B4P LIV/KITCHEN	0	PASS
3.06.01 2B4P BED 1	0	PASS
3.06.01 2B4P BED 2	0	PASS
3.06.02 1B1P LIV/KITCH/BED	0	PASS
3.06.03 1B1P LIV/KITCH/BED	0	PASS
3.06.04 2B4P BED 1	0.1	PASS
3.06.04 2B4P BED 2	0	PASS
3.06.04 2B4P LIV/KITCHEN	0.2	PASS
3.06.05 1B2P BED	0.4	PASS
3.06.05 1B2P LIV/KITCHEN	0.8	PASS
3.06.06 1B2P BED	0.4	PASS
3.06.06 1B2P LIV/KITCHEN	0.8	PASS
3.06.07 2B4P BED 1	0.1	PASS
3.06.07 2B4P BED 2	0.2	PASS
3.06.07 2B4P LIV/KITCHEN	0.7	PASS
3.07.08 2B4P BED 1	0	PASS
3.07.08 2B4P BED 2	0	PASS
3.07.08 2B4P LIV/KITCHEN	0.2	PASS
3.07.01 2B4P LIV/KITCHEN	0	PASS
3.07.01 2B4P BED 1	0	PASS

3.07.01 2B4P BED 2	0	PASS
3.07.02 1B1P LIV/KITCH/BED	0	PASS
3.07.03 1B1P LIV/KITCH/BED	0	PASS
3.07.04 2B4P BED 1	0.1	PASS
3.07.04 2B4P BED 2	0	PASS
3.07.04 2B4P LIV/KITCHEN	0.2	PASS
3.07.05 1B2P BED	0.4	PASS
3.07.05 1B2P LIV/KITCHEN	0.8	PASS
3.07.06 1B2P BED	0.4	PASS
3.07.06 1B2P LIV/KITCHEN	0.8	PASS
3.07.07 2B4P BED 1	0.1	PASS
3.07.07 2B4P BED 2	0.2	PASS
3.07.07 2B4P LIV/KITCHEN	0.7	PASS
3.08.08 2B4P BED 1	0	PASS
3.08.08 2B4P BED 2	0	PASS
3.08.08 2B4P LIV/KITCHEN	0.2	PASS
3.08.01 2B4P LIV/KITCHEN	0	PASS
3.08.01 2B4P BED 1	0	PASS
3.08.01 2B4P BED 2	0	PASS
3.08.02 1B1P LIV/KITCH/BED	0	PASS
3.08.03 1B1P LIV/KITCH/BED	0	PASS
3.08.04 2B4P BED 1	0.1	PASS
3.08.04 2B4P BED 2	0	PASS
3.08.04 2B4P LIV/KITCHEN	0.2	PASS
3.08.05 1B2P BED	0.4	PASS
3.08.05 1B2P LIV/KITCHEN	0.8	PASS
3.08.06 1B2P BED	0.4	PASS
3.08.06 1B2P LIV/KITCHEN	0.8	PASS
3.08.07 2B4P BED 1	0.1	PASS
3.08.07 2B4P BED 2	0.2	PASS
3.08.07 2B4P LIV/KITCHEN	0.7	PASS
3.09.08 2B4P BED 1	0	PASS
3.09.08 2B4P BED 2	0	PASS
3.09.08 2B4P LIV/KITCHEN	0.2	PASS
3.09.01 2B4P LIV/KITCHEN	0	PASS
3.09.01 2B4P BED 1	0	PASS
3.09.01 2B4P BED 2	0	PASS
3.09.04 2B4P BED 1	0.1	PASS
3.09.04 2B4P BED 2	0	PASS
3.09.04 2B4P LIV/KITCHEN	0.2	PASS
3.09.05 1B2P BED	0.4	PASS
3.09.05 1B2P LIV/KITCHEN	0.8	PASS
3.09.06 1B2P BED	0.4	PASS
3.09.06 1B2P LIV/KITCHEN	0.8	PASS
3.09.07 2B4P BED 1	0.1	PASS

3.09.07 2B4P BED 2	0.2	PASS
3.09.07 2B4P LIV/KITCHEN	0.7	PASS
3.09.02 1B2P BED	0	PASS
3.09.02 1B2P LIV/KITCHEN	0	PASS
3.09.03 2B4P LIV/KITCHEN	0	PASS
3.09.03 2B4P BED 1	0	PASS
3.09.03 2B4P BED 2	0	PASS
3.10.08 2B4P BED 1	0	PASS
3.10.08 2B4P BED 2	0	PASS
3.10.08 2B4P LIV/KITCHEN	0.2	PASS
3.10.01 2B4P LIV/KITCHEN	0	PASS
3.10.01 2B4P BED 1	0	PASS
3.10.01 2B4P BED 2	0	PASS
3.10.04 2B4P BED 1	0.1	PASS
3.10.04 2B4P BED 2	0	PASS
3.10.04 2B4P LIV/KITCHEN	0.2	PASS
3.10.05 1B2P BED	0.4	PASS
3.10.05 1B2P LIV/KITCHEN	0.8	PASS
3.10.06 1B2P BED	0.4	PASS
3.10.06 1B2P LIV/KITCHEN	0.8	PASS
3.10.07 2B4P BED 1	0.1	PASS
3.10.07 2B4P BED 2	0.2	PASS
3.10.07 2B4P LIV/KITCHEN	0.7	PASS
3.10.02 1B2P BED	0	PASS
3.10.02 1B2P LIV/KITCHEN	0	PASS
3.10.03 2B4P LIV/KITCHEN	0	PASS
3.10.03 2B4P BED 1	0	PASS
3.10.03 2B4P BED 2	0	PASS
3.11.08 2B4P BED 1	0	PASS
3.11.08 2B4P BED 2	0	PASS
3.11.08 2B4P LIV/KITCHEN	0.2	PASS
3.11.01 2B4P LIV/KITCHEN	0	PASS
3.11.01 2B4P BED 1	0	PASS
3.11.01 2B4P BED 2	0	PASS
3.11.04 2B4P BED 1	0.1	PASS
3.11.04 2B4P BED 2	0	PASS
3.11.04 2B4P LIV/KITCHEN	0.2	PASS
3.11.05 1B2P BED	0.4	PASS
3.11.05 1B2P LIV/KITCHEN	0.8	PASS
3.11.06 1B2P BED	0.4	PASS
3.11.06 1B2P LIV/KITCHEN	0.8	PASS
3.11.07 2B4P BED 1	0.1	PASS
3.11.07 2B4P BED 2	0.2	PASS
3.11.07 2B4P LIV/KITCHEN	0.7	PASS
3.11.02 1B2P BED	0	PASS

3.11.02 1B2P LIV/KITCHEN	0	PASS
3.11.03 2B4P LIV/KITCHEN	0	PASS
3.11.03 2B4P BED 1	0	PASS
3.11.03 2B4P BED 2	0	PASS
3.12.08 2B4P BED 1	0	PASS
3.12.08 2B4P BED 2	0	PASS
3.12.08 2B4P LIV/KITCHEN	0.2	PASS
3.12.01 2B4P LIV/KITCHEN	0	PASS
3.12.01 2B4P BED 1	0	PASS
3.12.01 2B4P BED 2	0	PASS
3.12.04 2B4P BED 1	0.1	PASS
3.12.04 2B4P BED 2	0	PASS
3.12.04 2B4P LIV/KITCHEN	0.2	PASS
3.12.05 1B2P BED	0.4	PASS
3.12.05 1B2P LIV/KITCHEN	0.8	PASS
3.12.06 1B2P BED	0.4	PASS
3.12.06 1B2P LIV/KITCHEN	0.8	PASS
3.12.07 2B4P BED 1	0.1	PASS
3.12.07 2B4P BED 2	0.2	PASS
3.12.07 2B4P LIV/KITCHEN	0.7	PASS
3.12.02 1B2P BED	0	PASS
3.12.02 1B2P LIV/KITCHEN	0	PASS
3.12.03 2B4P LIV/KITCHEN	0	PASS
3.12.03 2B4P BED 1	0	PASS
3.12.03 2B4P BED 2	0	PASS
3.13.08 2B4P BED 1	0	PASS
3.13.08 2B4P BED 2	0	PASS
3.13.08 2B4P LIV/KITCHEN	0.2	PASS
3.13.01 2B4P LIV/KITCHEN	0	PASS
3.13.01 2B4P BED 1	0	PASS
3.13.01 2B4P BED 2	0	PASS
3.13.04 2B4P BED 1	0.1	PASS
3.13.04 2B4P BED 2	0	PASS
3.13.04 2B4P LIV/KITCHEN	0.2	PASS
3.13.05 1B2P BED	0.4	PASS
3.13.05 1B2P LIV/KITCHEN	0.8	PASS
3.13.06 1B2P BED	0.4	PASS
3.13.06 1B2P LIV/KITCHEN	0.8	PASS
3.13.07 2B4P BED 1	0.1	PASS
3.13.07 2B4P BED 2	0.2	PASS
3.13.07 2B4P LIV/KITCHEN	0.7	PASS
3.13.02 1B2P BED	0	PASS
3.13.02 1B2P LIV/KITCHEN	0	PASS
3.13.03 2B4P LIV/KITCHEN	0	PASS
3.13.03 2B4P BED 1	0	PASS

3.13.03 2B4P BED 2	0	PASS
3.14.08 2B4P BED 1	0	PASS
3.14.08 2B4P BED 2	0	PASS
3.14.08 2B4P LIV/KITCHEN	0.2	PASS
3.14.01 2B4P LIV/KITCHEN	0	PASS
3.14.01 2B4P BED 1	0	PASS
3.14.01 2B4P BED 2	0	PASS
3.14.04 2B4P BED 1	0.1	PASS
3.14.04 2B4P BED 2	0	PASS
3.14.04 2B4P LIV/KITCHEN	0.2	PASS
3.14.05 1B2P BED	0.4	PASS
3.14.05 1B2P LIV/KITCHEN	0.8	PASS
3.14.06 1B2P BED	0.4	PASS
3.14.06 1B2P LIV/KITCHEN	0.8	PASS
3.14.07 2B4P BED 1	0.1	PASS
3.14.07 2B4P BED 2	0.2	PASS
3.14.07 2B4P LIV/KITCHEN	0.7	PASS
3.14.02 1B2P BED	0	PASS
3.14.02 1B2P LIV/KITCHEN	0	PASS
3.14.03 2B4P LIV/KITCHEN	0	PASS
3.14.03 2B4P BED 1	0	PASS
3.14.03 2B4P BED 2	0	PASS
3.15.08 2B4P BED 1	0	PASS
3.15.08 2B4P BED 2	0	PASS
3.15.08 2B4P LIV/KITCHEN	0.2	PASS
3.15.01 2B4P LIV/KITCHEN	0	PASS
3.15.01 2B4P BED 1	0	PASS
3.15.01 2B4P BED 2	0	PASS
3.15.04 2B4P BED 1	0.1	PASS
3.15.04 2B4P BED 2	0	PASS
3.15.04 2B4P LIV/KITCHEN	0.2	PASS
3.15.05 1B2P BED	0.4	PASS
3.15.05 1B2P LIV/KITCHEN	0.8	PASS
3.15.06 1B2P BED	0.4	PASS
3.15.06 1B2P LIV/KITCHEN	0.8	PASS
3.15.07 2B4P BED 1	0.1	PASS
3.15.07 2B4P BED 2	0.2	PASS
3.15.07 2B4P LIV/KITCHEN	0.7	PASS
3.15.02 1B2P BED	0	PASS
3.15.02 1B2P LIV/KITCHEN	0	PASS
3.15.03 2B4P LIV/KITCHEN	0	PASS
3.15.03 2B4P BED 1	0	PASS
3.15.03 2B4P BED 2	0	PASS
3.16.08 2B4P BED 1	0	PASS
3.16.08 2B4P BED 2	0	PASS

3.16.08 2B4P LIV/KITCHEN	0.2	PASS
3.16.01 2B4P LIV/KITCHEN	0	PASS
3.16.01 2B4P BED 1	0	PASS
3.16.01 2B4P BED 2	0	PASS
3.16.04 2B4P BED 1	0.1	PASS
3.16.04 2B4P BED 2	0	PASS
3.16.04 2B4P LIV/KITCHEN	0.2	PASS
3.16.05 1B2P BED	0.4	PASS
3.16.05 1B2P LIV/KITCHEN	0.8	PASS
3.16.06 1B2P BED	0.4	PASS
3.16.06 1B2P LIV/KITCHEN	0.8	PASS
3.16.07 2B4P BED 1	0.1	PASS
3.16.07 2B4P BED 2	0.2	PASS
3.16.07 2B4P LIV/KITCHEN	0.7	PASS
3.16.02 1B2P BED	0	PASS
3.16.02 1B2P LIV/KITCHEN	0	PASS
3.16.03 2B4P LIV/KITCHEN	0	PASS
3.16.03 2B4P BED 1	0	PASS
3.16.03 2B4P BED 2	0	PASS
3.17.08 2B4P BED 1	0	PASS
3.17.08 2B4P BED 2	0	PASS
3.17.08 2B4P LIV/KITCHEN	0.2	PASS
3.17.01 2B4P LIV/KITCHEN	0	PASS
3.17.01 2B4P BED 1	0	PASS
3.17.01 2B4P BED 2	0	PASS
3.17.04 2B4P BED 1	0.1	PASS
3.17.04 2B4P BED 2	0	PASS
3.17.04 2B4P LIV/KITCHEN	0.2	PASS
3.17.05 1B2P BED	0.4	PASS
3.17.05 1B2P LIV/KITCHEN	0.9	PASS
3.17.06 1B2P BED	0.4	PASS
3.17.06 1B2P LIV/KITCHEN	0.8	PASS
3.17.07 2B4P BED 1	0.1	PASS
3.17.07 2B4P BED 2	0.2	PASS
3.17.07 2B4P LIV/KITCHEN	0.7	PASS
3.17.02 1B2P BED	0	PASS
3.17.02 1B2P LIV/KITCHEN	0	PASS
3.17.03 2B4P LIV/KITCHEN	0	PASS
3.17.03 2B4P BED 1	0	PASS
3.17.03 2B4P BED 2	0	PASS
3.18.08 2B4P BED 1	0	PASS
3.18.08 2B4P BED 2	0	PASS
3.18.08 2B4P LIV/KITCHEN	0.4	PASS
3.18.01 2B4P LIV/KITCHEN	0	PASS
3.18.01 2B4P BED 1	0	PASS

3.18.01 2B4P BED 2	0	PASS
3.18.04 2B4P BED 1	0.1	PASS
3.18.04 2B4P BED 2	0	PASS
3.18.04 2B4P LIV/KITCHEN	0.2	PASS
3.18.05 1B2P BED	0.6	PASS
3.18.05 1B2P LIV/KITCHEN	1.3	PASS
3.18.06 1B2P BED	0.5	PASS
3.18.06 1B2P LIV/KITCHEN	1.2	PASS
3.18.07 2B4P BED 1	0.1	PASS
3.18.07 2B4P BED 2	0.2	PASS
3.18.07 2B4P LIV/KITCHEN	0.9	PASS
3.18.02 1B2P BED	0	PASS
3.18.02 1B2P LIV/KITCHEN	0	PASS
3.18.03 2B4P LIV/KITCHEN	0	PASS
3.18.03 2B4P BED 1	0	PASS
3.18.03 2B4P BED 2	0	PASS

Table 6: Results showing performance against the TM59 criteria for each bedroom within the proposed mixed-use development using the London Heathrow CIBSE DSY 1 2020's high emissions 50th percentile range weather file.

Room Name	TM59 Analysis	
	Criteria 2: Operative Temperature Hours >26°C between 10pm to 7am daily must not exceed 32 hours	Pass/Fail
3.01.08 2B4P BED 1	18	PASS
3.01.08 2B4P BED 2	19	PASS
3.01.01 2B4P BED 1	16	PASS
3.01.01 2B4P BED 2	12	PASS
3.01.02 1B1P LIV/KITCH/BED	11	PASS
3.01.03 1B1P LIV/KITCH/BED	19	PASS
3.01.04 2B4P BED 1	18	PASS
3.01.04 2B4P BED 2	15	PASS
3.01.05 1B2P BED	24	PASS
3.01.06 1B2P BED	23	PASS
3.01.07 2B4P BED 1	19	PASS
3.01.07 2B4P BED 2	23	PASS
3.02.08 2B4P BED 1	17	PASS
3.02.08 2B4P BED 2	17	PASS
3.02.01 2B4P BED 1	15	PASS
3.02.01 2B4P BED 2	12	PASS
3.02.02 1B1P LIV/KITCH/BED	10	PASS
3.02.03 1B1P LIV/KITCH/BED	19	PASS
3.02.04 2B4P BED 1	17	PASS
3.02.04 2B4P BED 2	19	PASS

3.02.05 1B2P BED	25	PASS
3.02.06 1B2P BED	25	PASS
3.02.07 2B4P BED 1	19	PASS
3.02.07 2B4P BED 2	23	PASS
3.03.08 2B4P BED 1	14	PASS
3.03.08 2B4P BED 2	15	PASS
3.03.01 2B4P BED 1	13	PASS
3.03.01 2B4P BED 2	12	PASS
3.03.02 1B1P LIV/KITCH/BED	9	PASS
3.03.03 1B1P LIV/KITCH/BED	18	PASS
3.03.04 2B4P BED 1	13	PASS
3.03.04 2B4P BED 2	14	PASS
3.03.05 1B2P BED	23	PASS
3.03.06 1B2P BED	23	PASS
3.03.07 2B4P BED 1	17	PASS
3.03.07 2B4P BED 2	23	PASS
3.04.08 2B4P BED 1	14	PASS
3.04.08 2B4P BED 2	15	PASS
3.04.01 2B4P BED 1	13	PASS
3.04.01 2B4P BED 2	12	PASS
3.04.02 1B1P LIV/KITCH/BED	9	PASS
3.04.03 1B1P LIV/KITCH/BED	17	PASS
3.04.04 2B4P BED 1	13	PASS
3.04.04 2B4P BED 2	14	PASS
3.04.05 1B2P BED	23	PASS
3.04.06 1B2P BED	23	PASS
3.04.07 2B4P BED 1	16	PASS
3.04.07 2B4P BED 2	23	PASS
3.05.08 2B4P BED 1	14	PASS
3.05.08 2B4P BED 2	15	PASS
3.05.01 2B4P BED 1	13	PASS
3.05.01 2B4P BED 2	12	PASS
3.05.02 1B1P LIV/KITCH/BED	9	PASS
3.05.03 1B1P LIV/KITCH/BED	17	PASS
3.05.04 2B4P BED 1	13	PASS
3.05.04 2B4P BED 2	14	PASS
3.05.05 1B2P BED	23	PASS
3.05.06 1B2P BED	23	PASS
3.05.07 2B4P BED 1	16	PASS
3.05.07 2B4P BED 2	23	PASS
3.06.08 2B4P BED 1	14	PASS
3.06.08 2B4P BED 2	15	PASS
3.06.01 2B4P BED 1	13	PASS
3.06.01 2B4P BED 2	12	PASS
3.06.02 1B1P LIV/KITCH/BED	9	PASS

3.06.03 1B1P LIV/KITCH/BED	17	PASS
3.06.04 2B4P BED 1	13	PASS
3.06.04 2B4P BED 2	14	PASS
3.06.05 1B2P BED	22	PASS
3.06.06 1B2P BED	23	PASS
3.06.07 2B4P BED 1	16	PASS
3.06.07 2B4P BED 2	23	PASS
3.07.08 2B4P BED 1	14	PASS
3.07.08 2B4P BED 2	15	PASS
3.07.01 2B4P BED 1	13	PASS
3.07.01 2B4P BED 2	12	PASS
3.07.02 1B1P LIV/KITCH/BED	9	PASS
3.07.03 1B1P LIV/KITCH/BED	17	PASS
3.07.04 2B4P BED 1	13	PASS
3.07.04 2B4P BED 2	14	PASS
3.07.05 1B2P BED	21	PASS
3.07.06 1B2P BED	21	PASS
3.07.07 2B4P BED 1	16	PASS
3.07.07 2B4P BED 2	21	PASS
3.08.08 2B4P BED 1	14	PASS
3.08.08 2B4P BED 2	15	PASS
3.08.01 2B4P BED 1	13	PASS
3.08.01 2B4P BED 2	12	PASS
3.08.02 1B1P LIV/KITCH/BED	10	PASS
3.08.03 1B1P LIV/KITCH/BED	17	PASS
3.08.04 2B4P BED 1	13	PASS
3.08.04 2B4P BED 2	14	PASS
3.08.05 1B2P BED	20	PASS
3.08.06 1B2P BED	21	PASS
3.08.07 2B4P BED 1	16	PASS
3.08.07 2B4P BED 2	21	PASS
3.09.08 2B4P BED 1	14	PASS
3.09.08 2B4P BED 2	15	PASS
3.09.01 2B4P BED 1	13	PASS
3.09.01 2B4P BED 2	13	PASS
3.09.04 2B4P BED 1	12	PASS
3.09.04 2B4P BED 2	14	PASS
3.09.05 1B2P BED	21	PASS
3.09.06 1B2P BED	21	PASS
3.09.07 2B4P BED 1	16	PASS
3.09.07 2B4P BED 2	21	PASS
3.09.02 1B2P BED	13	PASS
3.09.03 2B4P BED 1	13	PASS
3.09.03 2B4P BED 2	13	PASS
3.10.08 2B4P BED 1	14	PASS

3.10.08 2B4P BED 2	15	PASS
3.10.01 2B4P BED 1	13	PASS
3.10.01 2B4P BED 2	13	PASS
3.10.04 2B4P BED 1	12	PASS
3.10.04 2B4P BED 2	14	PASS
3.10.05 1B2P BED	20	PASS
3.10.06 1B2P BED	21	PASS
3.10.07 2B4P BED 1	16	PASS
3.10.07 2B4P BED 2	21	PASS
3.10.02 1B2P BED	14	PASS
3.10.03 2B4P BED 1	16	PASS
3.10.03 2B4P BED 2	15	PASS
3.11.08 2B4P BED 1	14	PASS
3.11.08 2B4P BED 2	15	PASS
3.11.01 2B4P BED 1	13	PASS
3.11.01 2B4P BED 2	13	PASS
3.11.04 2B4P BED 1	12	PASS
3.11.04 2B4P BED 2	14	PASS
3.11.05 1B2P BED	19	PASS
3.11.06 1B2P BED	19	PASS
3.11.07 2B4P BED 1	15	PASS
3.11.07 2B4P BED 2	19	PASS
3.11.02 1B2P BED	13	PASS
3.11.03 2B4P BED 1	15	PASS
3.11.03 2B4P BED 2	14	PASS
3.12.08 2B4P BED 1	14	PASS
3.12.08 2B4P BED 2	15	PASS
3.12.01 2B4P BED 1	13	PASS
3.12.01 2B4P BED 2	13	PASS
3.12.04 2B4P BED 1	12	PASS
3.12.04 2B4P BED 2	14	PASS
3.12.05 1B2P BED	19	PASS
3.12.06 1B2P BED	19	PASS
3.12.07 2B4P BED 1	15	PASS
3.12.07 2B4P BED 2	19	PASS
3.12.02 1B2P BED	13	PASS
3.12.03 2B4P BED 1	15	PASS
3.12.03 2B4P BED 2	14	PASS
3.13.08 2B4P BED 1	14	PASS
3.13.08 2B4P BED 2	15	PASS
3.13.01 2B4P BED 1	13	PASS
3.13.01 2B4P BED 2	13	PASS
3.13.04 2B4P BED 1	12	PASS
3.13.04 2B4P BED 2	14	PASS
3.13.05 1B2P BED	19	PASS

3.13.06 1B2P BED	19	PASS
3.13.07 2B4P BED 1	15	PASS
3.13.07 2B4P BED 2	19	PASS
3.13.02 1B2P BED	13	PASS
3.13.03 2B4P BED 1	15	PASS
3.13.03 2B4P BED 2	14	PASS
3.14.08 2B4P BED 1	14	PASS
3.14.08 2B4P BED 2	15	PASS
3.14.01 2B4P BED 1	13	PASS
3.14.01 2B4P BED 2	13	PASS
3.14.04 2B4P BED 1	12	PASS
3.14.04 2B4P BED 2	14	PASS
3.14.05 1B2P BED	19	PASS
3.14.06 1B2P BED	19	PASS
3.14.07 2B4P BED 1	15	PASS
3.14.07 2B4P BED 2	19	PASS
3.14.02 1B2P BED	13	PASS
3.14.03 2B4P BED 1	15	PASS
3.14.03 2B4P BED 2	14	PASS
3.15.08 2B4P BED 1	14	PASS
3.15.08 2B4P BED 2	15	PASS
3.15.01 2B4P BED 1	13	PASS
3.15.01 2B4P BED 2	13	PASS
3.15.04 2B4P BED 1	12	PASS
3.15.04 2B4P BED 2	14	PASS
3.15.05 1B2P BED	18	PASS
3.15.06 1B2P BED	18	PASS
3.15.07 2B4P BED 1	15	PASS
3.15.07 2B4P BED 2	18	PASS
3.15.02 1B2P BED	13	PASS
3.15.03 2B4P BED 1	15	PASS
3.15.03 2B4P BED 2	14	PASS
3.16.08 2B4P BED 1	14	PASS
3.16.08 2B4P BED 2	15	PASS
3.16.01 2B4P BED 1	13	PASS
3.16.01 2B4P BED 2	13	PASS
3.16.04 2B4P BED 1	12	PASS
3.16.04 2B4P BED 2	14	PASS
3.16.05 1B2P BED	18	PASS
3.16.06 1B2P BED	18	PASS
3.16.07 2B4P BED 1	15	PASS
3.16.07 2B4P BED 2	18	PASS
3.16.02 1B2P BED	13	PASS
3.16.03 2B4P BED 1	14	PASS
3.16.03 2B4P BED 2	14	PASS

3.17.08 2B4P BED 1	14	PASS
3.17.08 2B4P BED 2	15	PASS
3.17.01 2B4P BED 1	12	PASS
3.17.01 2B4P BED 2	13	PASS
3.17.04 2B4P BED 1	12	PASS
3.17.04 2B4P BED 2	14	PASS
3.17.05 1B2P BED	19	PASS
3.17.06 1B2P BED	18	PASS
3.17.07 2B4P BED 1	15	PASS
3.17.07 2B4P BED 2	19	PASS
3.17.02 1B2P BED	13	PASS
3.17.03 2B4P BED 1	14	PASS
3.17.03 2B4P BED 2	14	PASS
3.18.08 2B4P BED 1	14	PASS
3.18.08 2B4P BED 2	13	PASS
3.18.01 2B4P BED 1	12	PASS
3.18.01 2B4P BED 2	12	PASS
3.18.04 2B4P BED 1	12	PASS
3.18.04 2B4P BED 2	14	PASS
3.18.05 1B2P BED	18	PASS
3.18.06 1B2P BED	17	PASS
3.18.07 2B4P BED 1	15	PASS
3.18.07 2B4P BED 2	17	PASS
3.18.02 1B2P BED	13	PASS
3.18.03 2B4P BED 1	14	PASS
3.18.03 2B4P BED 2	14	PASS

4.2 Results for Corridors

As corridors can contribute to overheating within occupied rooms, they have been included in the overheating assessment. Whilst there are no mandatory targets for communal corridors, CIBSE suggest each corridor should not have an operative temperature exceeding 28°C for more than 3% of the total annual hours. Table 7 shows the predicted thermal comfort results against the TM59 criteria for each corridor within the proposed mixed-use development.

Table 7: Results showing performance against the TM59 criteria for each communal corridor within the proposed mixed-use development using the London Heathrow CIBSE DSY 1 2020's high emissions 50th percentile range weather file.

Room Name	TM59 Analysis	
	Percentage of Hours Annually Where Operative Temperature > 28°C	Pass/Fail
3.01 COMMUNAL CORRIDOR	0	PASS
3.02 COMMUNAL CORRIDOR	0	PASS
3.03 COMMUNAL CORRIDOR	0	PASS
3.04 COMMUNAL CORRIDOR	0	PASS
3.05 COMMUNAL CORRIDOR	0	PASS
3.06 COMMUNAL CORRIDOR	0	PASS
3.07 COMMUNAL CORRIDOR	0	PASS
3.08 COMMUNAL CORRIDOR	0	PASS
3.09 COMMUNAL CORRIDOR	0	PASS
3.10 COMMUNAL CORRIDOR	0	PASS
3.11 COMMUNAL CORRIDOR	0	PASS
3.12 COMMUNAL CORRIDOR	0	PASS
3.13 COMMUNAL CORRIDOR	0	PASS
3.14 COMMUNAL CORRIDOR	0	PASS
3.15 COMMUNAL CORRIDOR	0	PASS
3.16 COMMUNAL CORRIDOR	0	PASS
3.17 COMMUNAL CORRIDOR	0	PASS
3.18 COMMUNAL CORRIDOR	0	PASS
3.19 CORRIDOR	0	PASS

Conclusions

Based on the modelling conducted, the results in Tables 5, 6 and 7 show that the thermal comfort criteria as set out by CIBSE TM59 for the residential units has been satisfied due to the overheating prevention strategy and air conditioning is not required for any of the residential units.

Table 5 shows that all living, kitchen and bedrooms meet the requirement for Criteria 1 of CIBSE TM52:2013 which states the external to internal temperature difference must not exceed 1K for more than 3% of the year between May to September.

Table 6 shows that all bedrooms meet the requirement for CIBSE TM59:2017 which states the bedrooms operative temperature must not exceed 26°C for more than 32 hours per year between the hours of 10pm until 7am daily.

Table 7 shows that all communal corridors meet the requirement for CIBSE which states each corridor should not have an operative temperature exceeding 28°C for more than 3% of the total annual hours.

LIMITATIONS OF THIS REPORT

This analysis has been performed using IES software which provides full dynamic thermal analysis and is a CIBSE certified Level 5 approved Dynamic Simulation Modelling Software. This analysis has been carried out in accordance with user instructions set out in IES manuals and CIBSE AM11 Building Energy and Environmental Modelling.

This analysis has been undertaken using the thermal simulation program ApacheSIM Dynamic Simulation and Macroflo (IESVE, 2020) to predict the buildings environmental performance.

The most current CIBSE Design Summer (DSY) Weather File for London was chosen for the simulation (London Heathrow CIBSE DSY 1 2020's high emissions 50th percentile range weather file), in accordance with CIBSE guide TM59:2017 "Design methodology for the assessment of overheating risk in homes" guidelines.

Whilst not mandatory, two further simulations have been performed to assess overheating risk under heatwave or future climate conditions using more extreme weather files DSY 2 and DSY 3. Please see Appendix D for results which have been included here for information purposes only.

Whilst not mandatory, we have run alternative simulations using passive mitigation measures applied to the thermal model for the DSY2 & DSY3 extreme weather files. The mitigation measures include Solar Control Blinds for each flat and longer window opening periods in each flat. Please see Appendix E for results for these alternative simulations which have been included here for information purposes only.

The parameters used in this calculation are provided within this report in Section 3 and Appendices and are deemed to be approved by the Client unless advised to the contrary. It has been assumed that the window restrictors may be temporarily removed during periods of hot weather in summertime to allow windows to open wider for additional ventilation. The equivalent free area for each window type without restrictors has been included in this report. HG Construction shall ensure that these equivalent free areas for each window type are achieved to provide the air flow for thermal comfort.

The building occupancy profiles & parameters published in CIBSE guide TM59:2017 "Design methodology for the assessment of overheating risk in homes" has been used as guidance. Within the apartments thermal comfort has been assessed against the criteria identified within CIBSE TM59:2017. It should be noted that as occupancy and building use is based on set parameters outlined in TM59 the temperatures estimated may not match the actual building temperatures as the 'real' building may have differing operations and heat gain patterns with external weather conditions not normal to the historical data provided by the standard CIBSE weather files.

SUMMARY

The proposed new multi-storey mixed-use North Island Building 3 located at Tottenham Hale in the London Borough of Haringey consists of 136 residential units and retail space. Overheating analysis has been carried out on behalf of the Client to show that the proposed mixed-use development meets the thermal comfort criteria as set out in CIBSE TM59 for the residential element.

The proposed building design incorporates high standards of thermal insulation and fabric efficiency, high performance glazing which serves to reduce the solar gain to the rooms, external solar shading in the form of balconies, natural ventilation and secure ventilation for night time cooling as part of the overheating prevention strategy for summertime. General ventilation to residential spaces will be provided via a MVHR system with additional summertime purge ventilation provided via openable windows and doors. It has been assumed that the window restrictors may be temporarily removed at the occupants discretion during periods of hot weather in summertime to allow windows to open wider for additional ventilation.

Based on the modelling conducted, the results show that the thermal comfort criteria as set out by CIBSE TM59 for all of the residential units has been satisfied due to the overheating prevention strategy described above and air conditioning is not required for any of the residential units.

Whilst not mandatory, two further simulations have been performed to assess overheating risk under heatwave or future climate conditions using more extreme weather files DSY 2 and DSY 3. Please see Appendix D for results which have been included here for information purposes only.

Whilst not mandatory, we have run alternative simulations using passive mitigation measures applied to the thermal model for the DSY2 & DSY3 extreme weather files. The mitigation measures include Solar Control Blinds for each flat and longer window opening periods in each flat. The results for DSY2 extreme weather file show that all flats pass the thermal comfort criteria as set out by CIBSE TM59. The results for DSY3 extreme weather file show that all flats pass Criterion 1 of the thermal comfort criteria as set out by CIBSE TM59. For Criteria 2 for bedrooms, the results show that most of the bedrooms are marginally failing, with the highest fail showing 54 hours where internal temperature is above 26 degrees Celsius between the hours of 10pm and 7am. Please note the target criteria for bedrooms is 32 hours or less. Given that the bedrooms are only marginally failing, further passive mitigation measures to be considered in the future is the application of external solar film to the bedroom windows which would further reduce the amount of solar gains entering the bedrooms and could be retrofitted should it be required. Please see Appendix E for results for these alternative simulations which have been included here for information purposes only.

REFERENCES

CIBSE, (1998), *Building Energy and Environmental Modelling Applications Manual AM11*. Birmingham, CIBSE.

CIBSE, (2015), *CIBSE Guide A: Environmental Criteria for Design*. Birmingham, CIBSE.

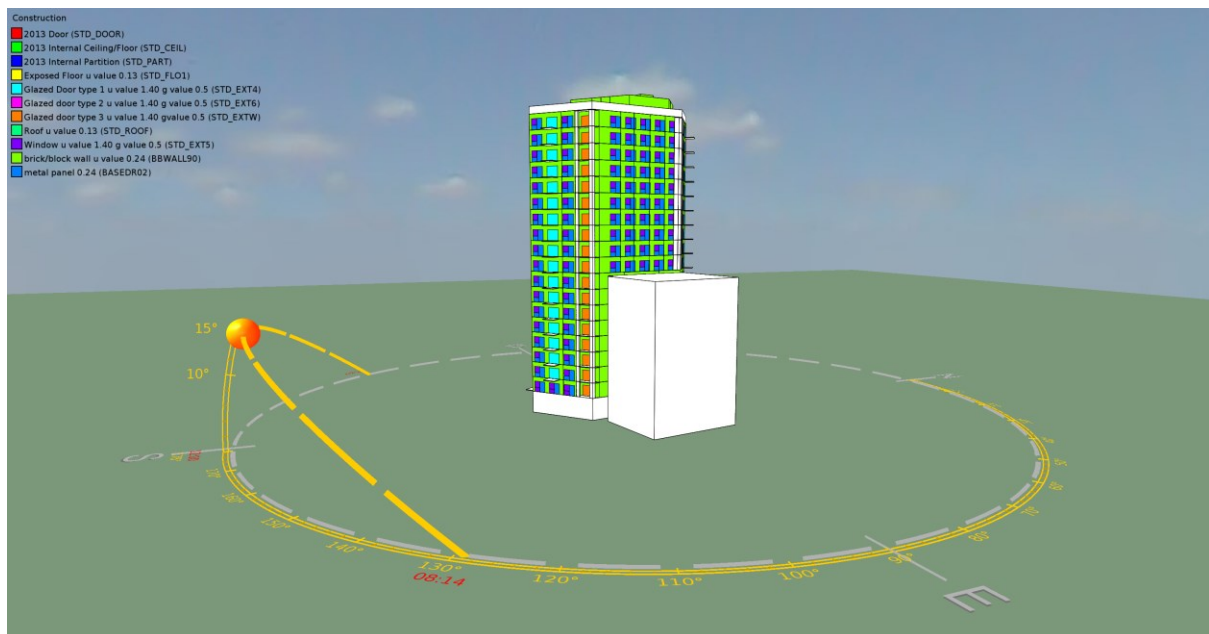
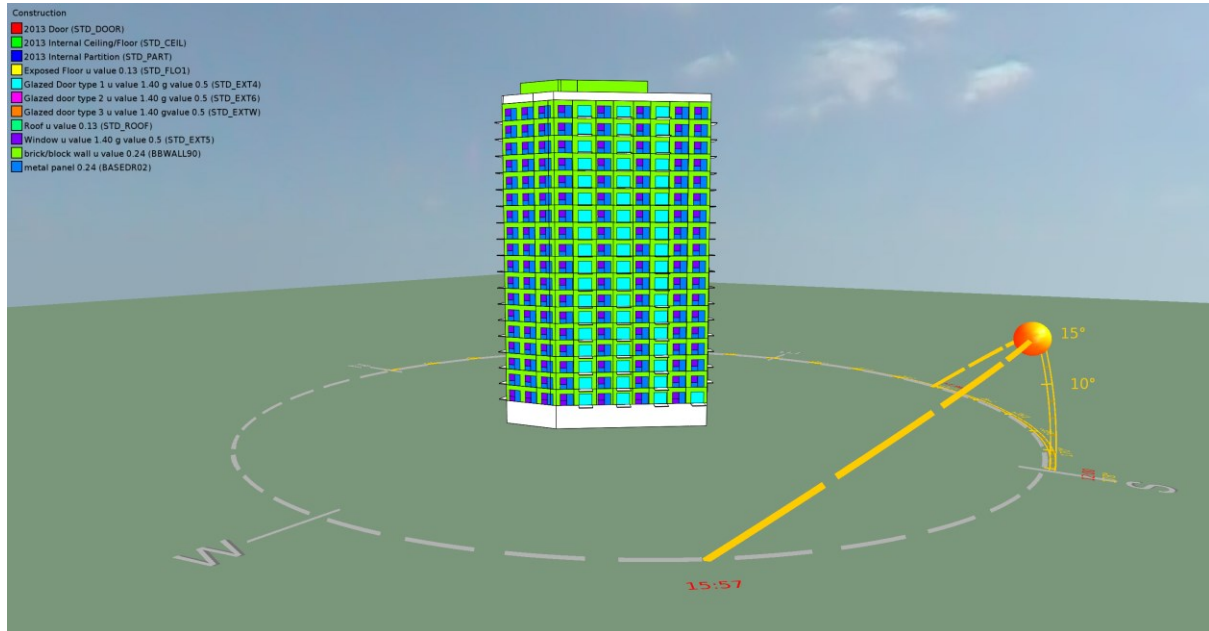
CIBSE, (2017), *Design methodology for the assessment of overheating risk in homes CIBSE TM59*. Birmingham, CIBSE.

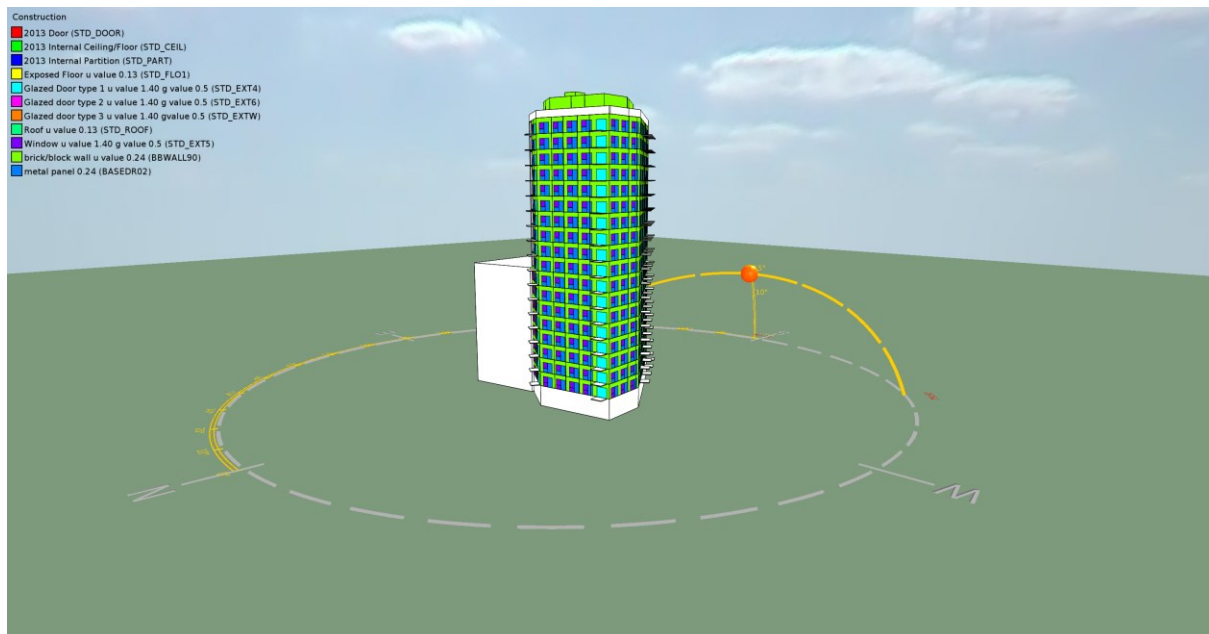
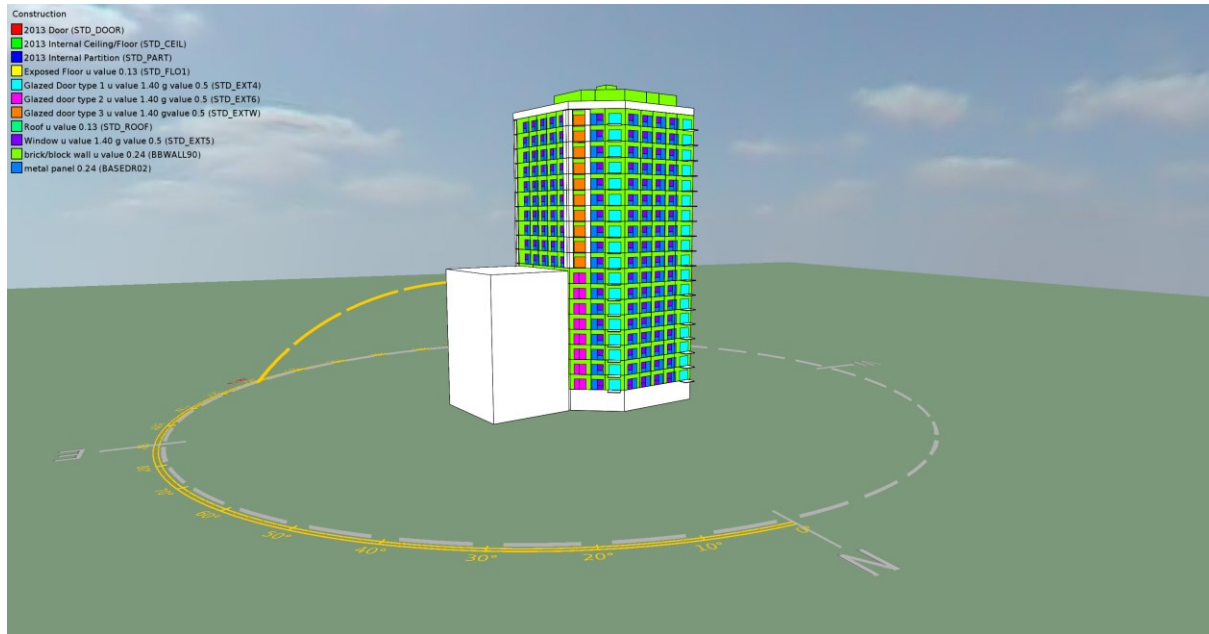
CIBSE, (2013), *The limits of thermal comfort: avoiding overheating in European buildings CIBSE TM52*. Birmingham, CIBSE.

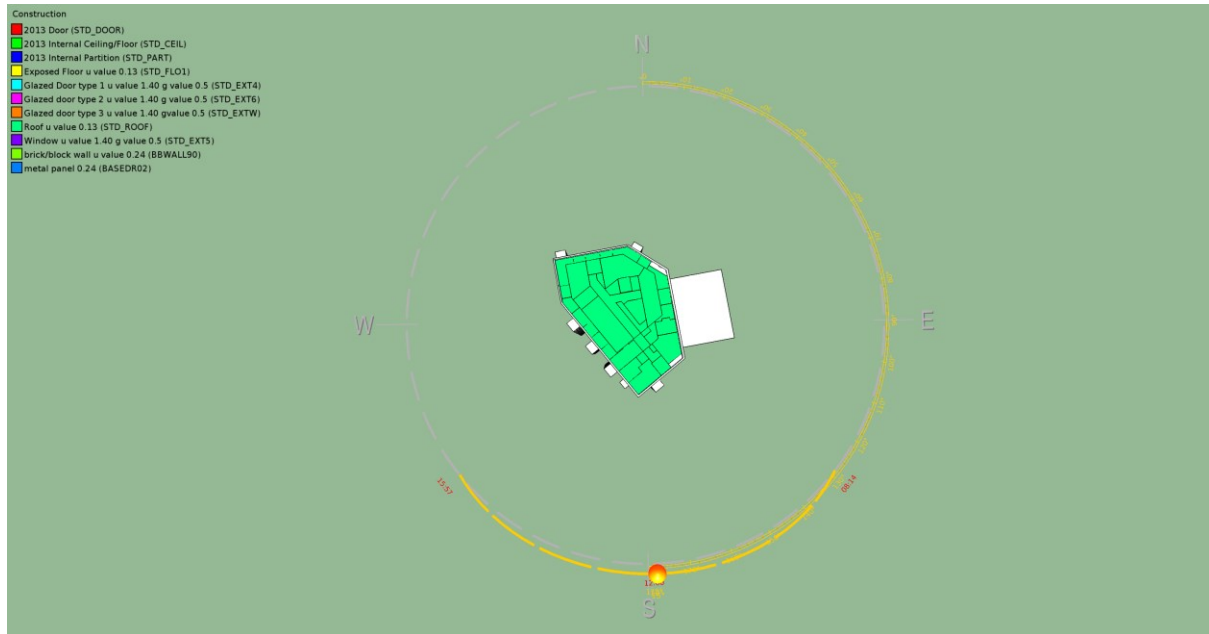
APPENDIX A

THERMAL MODEL IMAGES SHOWING THE FABRIC TYPE ASSIGNED

Images showing Fabric type assigned within thermal model.



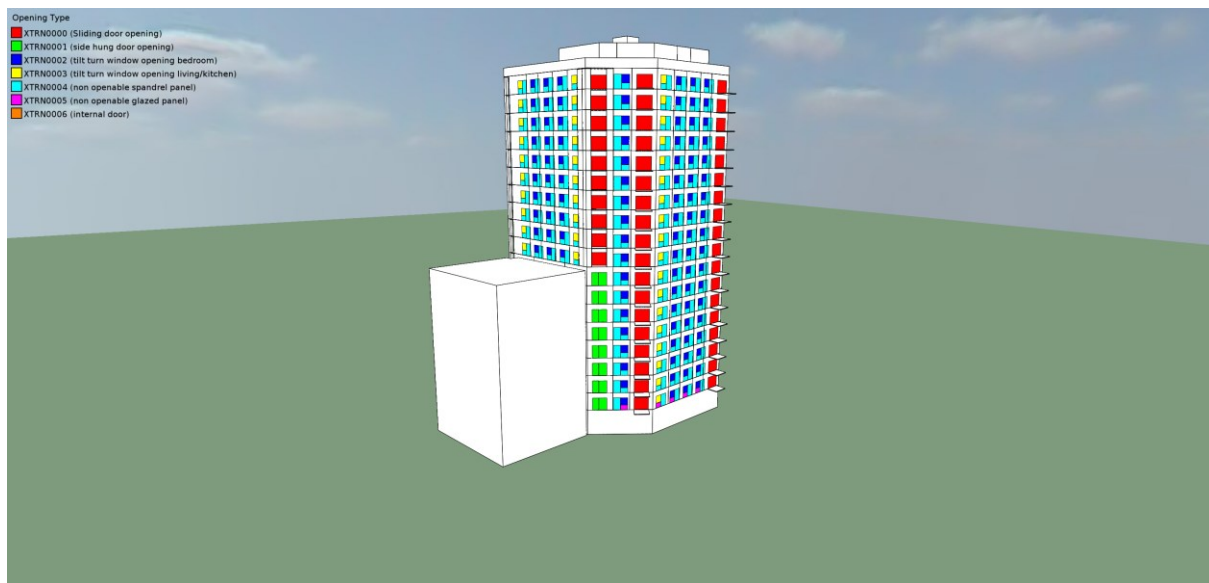


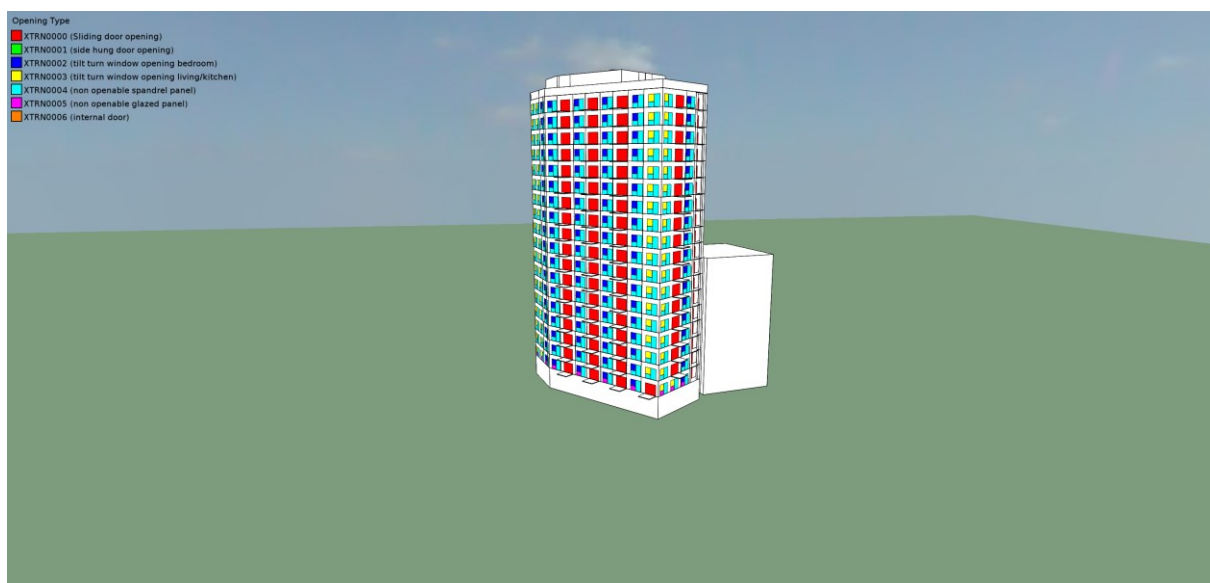
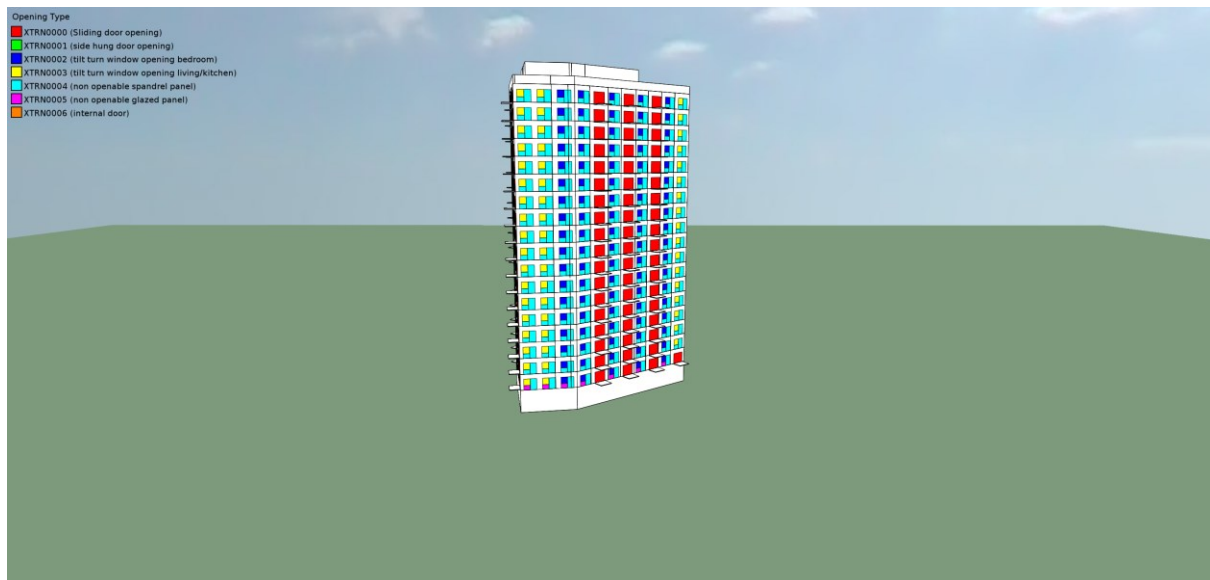
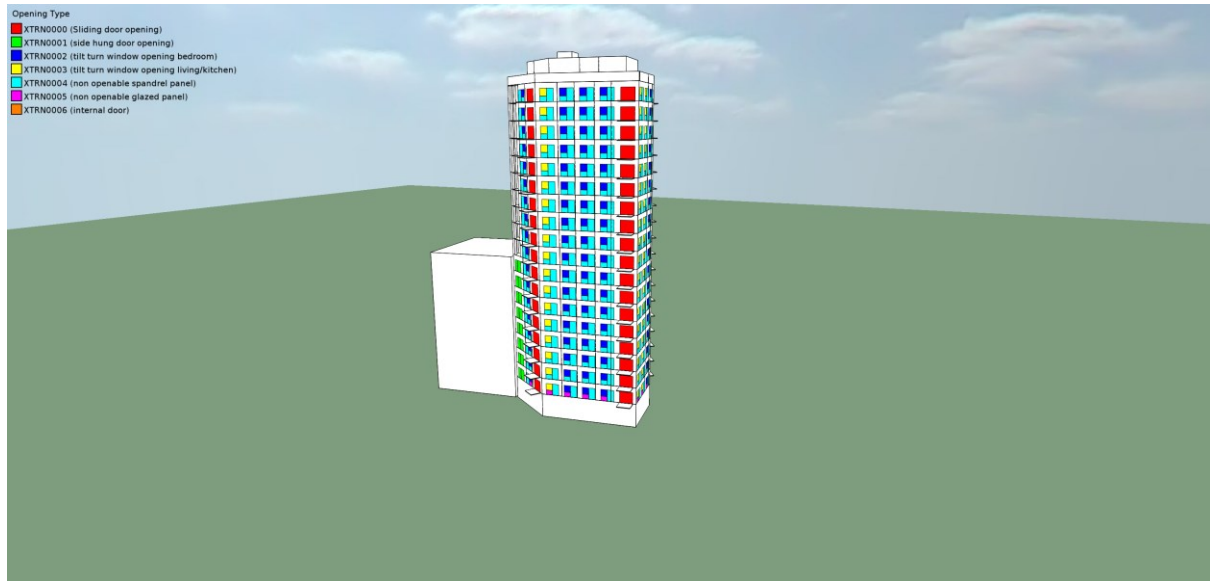


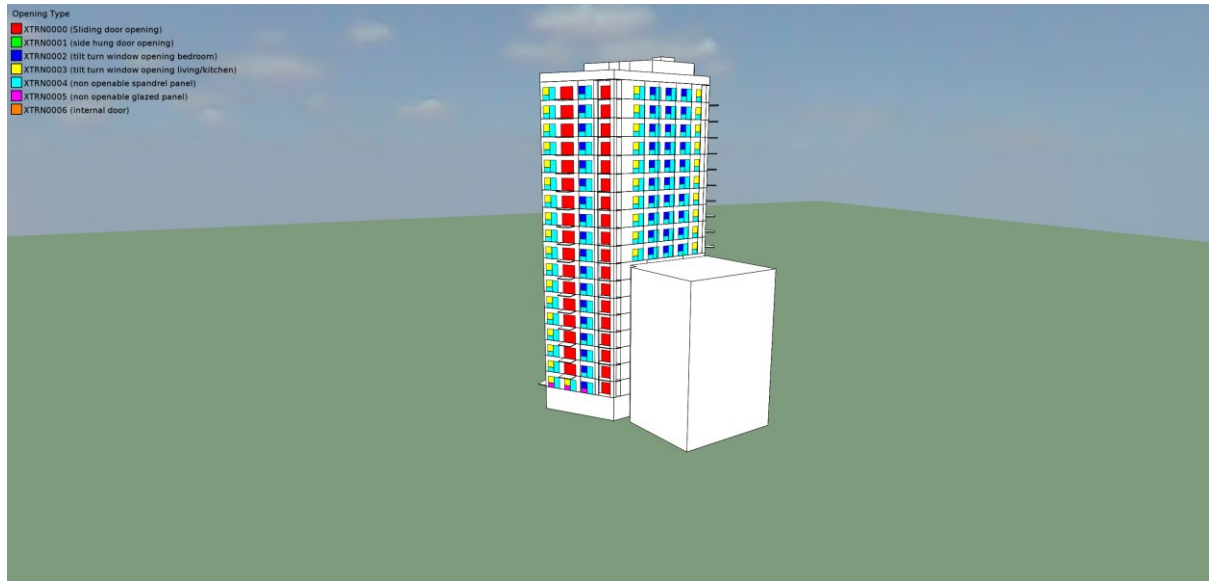
APPENDIX B

THERMAL MODEL IMAGES SHOWING WINDOW AND DOOR OPENABLE TYPES ASSIGNED AND EXPOSURE TYPE ASSIGNED

Images showing Window and Door openable type assigned within thermal model.

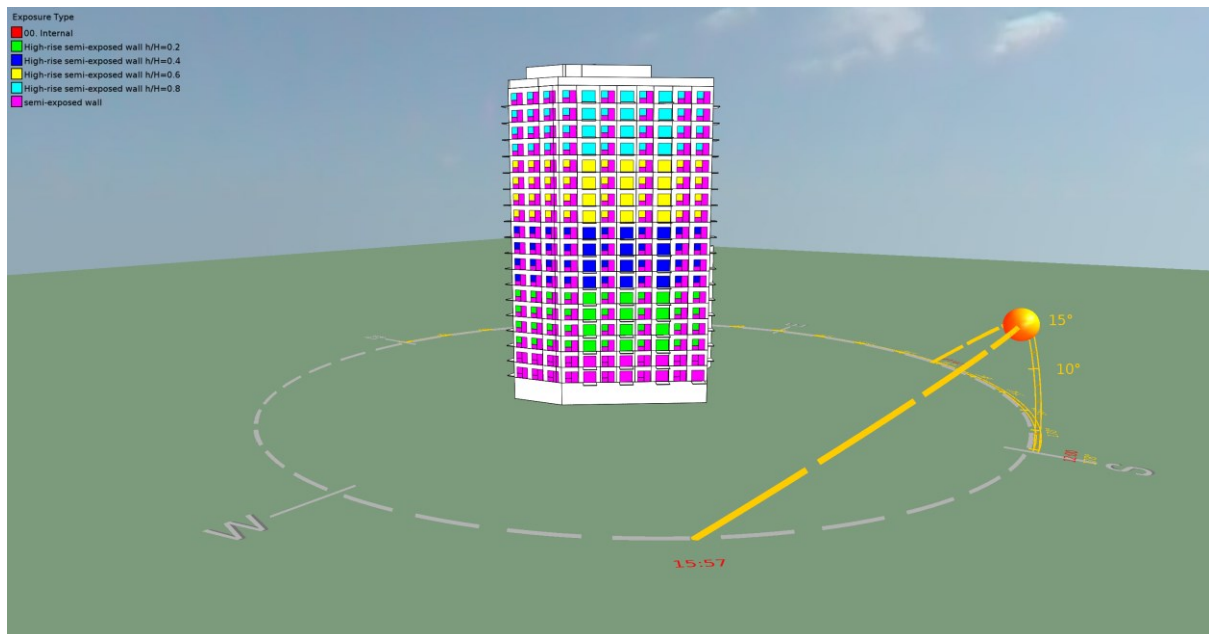


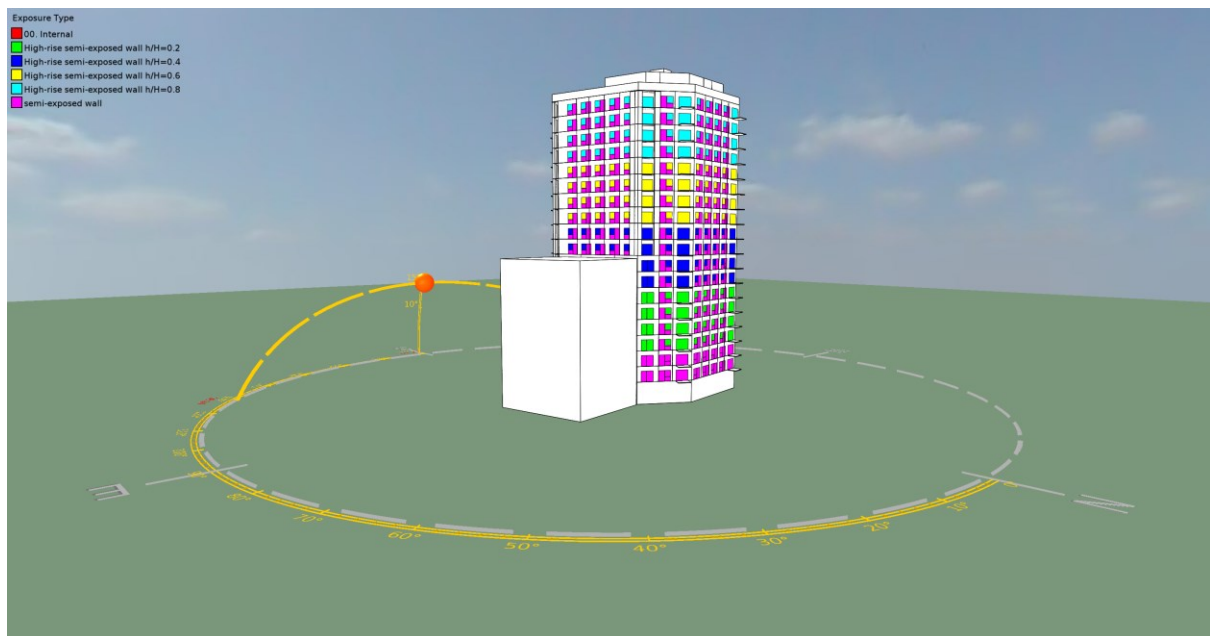
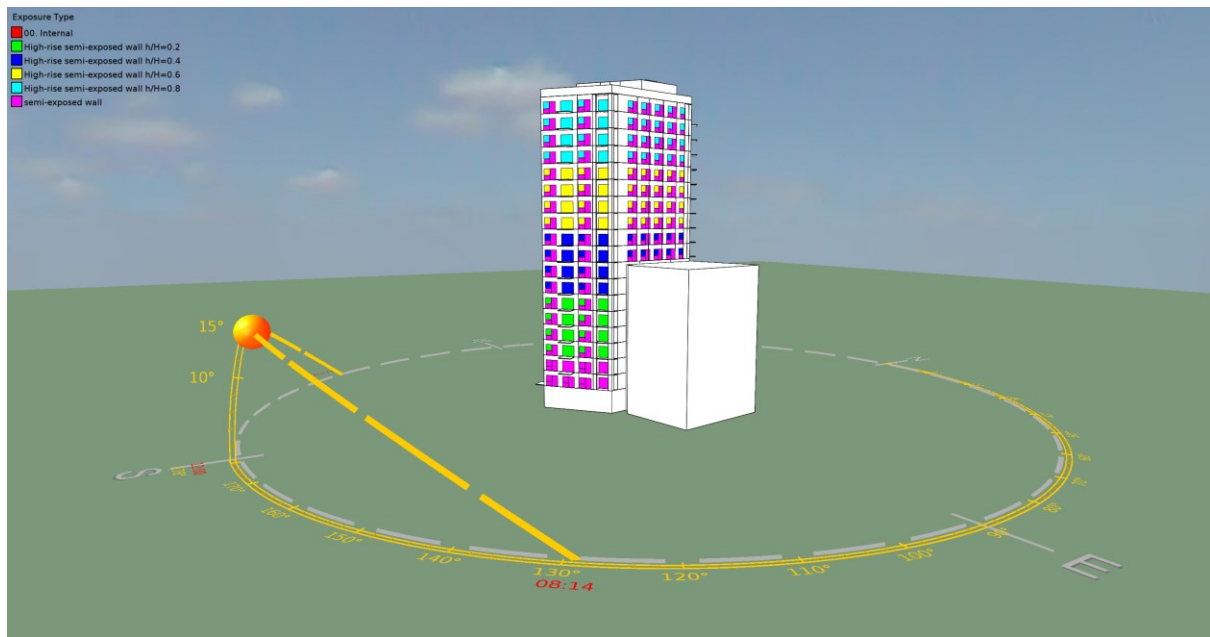




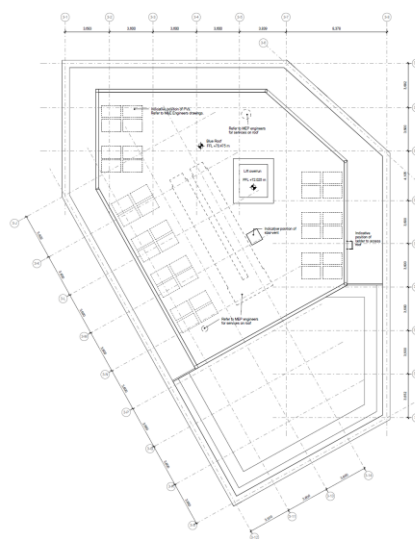
EXPOSURE TYPE ASSIGNED WITHIN MACROFLO

IES RECOMMENDS WINDOWS HIGHER THAN 12.5M HAVE 'HIGH RISE' EXPOSURE TYPE ASSIGNED TO ACCOUNT FOR THE DIFFERENCE IN WIND PRESSURES AT HIGHER ALTITUDES









g B3 Plan_Planlevel - 1 : 100

REF	DATE	DESCRIPTION
-	07/01/16	STAGE 3 DESIGN PROCEED
A	03/02/16	ISSUED FOR INFORMATION
B	24/03/16	STAGE 3 ISSUE
C	06/07/16	STAGE 3 UPDATE
D	03/08/16	ISSUED FOR INFORMATION
E	07/08/16	EMPL/STRTS REQ/REQUIREMENTS
F	09/08/16	EMPL/STRTS REQ/REQUIREMENTS
G	07/08/16	EMPL/STRTS REQ/REQUIREMENTS
H	09/08/16	EMPL/STRTS REQ/REQUIREMENTS

02 B3 Plan_Roof level - 1 : 100

[illegible]

ALLFORD HALL MONAGHAN MORRIS ARCHITECTS 100, ADELPHI, 1/2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 8				
---	--	--	--	--

APPENDIX D

THERMAL MODELLING RESULTS FOR MORE EXTREME WEATHER FILES TO ASSESS OVERHEATING RISK UNDER HEATWAVE OR FUTURE CLIMATE CHANGE CONDITIONS

Whilst not mandatory, two further simulations have been performed to assess overheating risk under heatwave or future climate conditions using more extreme weather files. The tables of raw results have been included here for information purposes only. Rooms that are failing the criteria are highlighted in red. All of the residential units were assessed.

Please note that the results show that even under extreme future climate hot weather conditions DSY2 and DSY3, Criterion 1 is achieved for all of the residential units. The results for the bedroom criteria for DSY2 show that most of the bedrooms are passing with a small number marginally failing, but we would expect this to be resolved by opening the windows for longer periods of time during hot weather conditions.

The results for the bedroom criteria for DSY3 show that all of the bedrooms are failing, but we would expect mitigation measures such as the use of solar control blinds, opening the windows for longer periods of time during hot weather conditions or the application of external solar film to bedroom windows to limit the level of overheating under extreme weather conditions.

THERMAL MODELLING RAW RESULTS FOR CIBSE LONDON HEATHROW DSY2 2020'S HIGH EMISSIONS 50TH PERCENTILE RANGE WEATHER FILE

RESULTS FOR CRITERION 1 – ALL ROOMS PASSING

Room Name	Criteria 1 (%Hrs Top-Tmax>=1K) (Target ≤ 3%)
3.01.08 2B4P BED 1	0.5
3.01.08 2B4P BED 2	0.3
3.01.08 2B4P LIV/KITCHEN	1.1
3.01.01 2B4P LIV/KITCHEN	0.3
3.01.01 2B4P BED 1	0.2
3.01.01 2B4P BED 2	0.1
3.01.02 1B1P LIV/KITCH/BED	0
3.01.03 1B1P LIV/KITCH/BED	0
3.01.04 2B4P BED 1	0.7
3.01.04 2B4P BED 2	0.7
3.01.04 2B4P LIV/KITCHEN	1.4
3.01.05 1B2P BED	1
3.01.05 1B2P LIV/KITCHEN	1.5
3.01.06 1B2P BED	0.9
3.01.06 1B2P LIV/KITCHEN	1.5
3.01.07 2B4P BED 1	0.7
3.01.07 2B4P BED 2	0.7
3.01.07 2B4P LIV/KITCHEN	1.4
3.02.08 2B4P BED 1	0.3
3.02.08 2B4P BED 2	0.1
3.02.08 2B4P LIV/KITCHEN	0.9
3.02.01 2B4P LIV/KITCHEN	0.1

3.02.01 2B4P BED 1	0.1
3.02.01 2B4P BED 2	0.1
3.02.02 1B1P LIV/KITCH/BED	0
3.02.03 1B1P LIV/KITCH/BED	0.1
3.02.04 2B4P BED 1	0.7
3.02.04 2B4P BED 2	0.7
3.02.04 2B4P LIV/KITCHEN	1.4
3.02.05 1B2P BED	1
3.02.05 1B2P LIV/KITCHEN	1.8
3.02.06 1B2P BED	1
3.02.06 1B2P LIV/KITCHEN	1.8
3.02.07 2B4P BED 1	0.6
3.02.07 2B4P BED 2	0.8
3.02.07 2B4P LIV/KITCHEN	1.6
3.03.08 2B4P BED 1	0.2
3.03.08 2B4P BED 2	0.1
3.03.08 2B4P LIV/KITCHEN	0.8
3.03.01 2B4P LIV/KITCHEN	0.1
3.03.01 2B4P BED 1	0.1
3.03.01 2B4P BED 2	0
3.03.02 1B1P LIV/KITCH/BED	0
3.03.03 1B1P LIV/KITCH/BED	0.1
3.03.04 2B4P BED 1	0.7
3.03.04 2B4P BED 2	0.6
3.03.04 2B4P LIV/KITCHEN	1.4
3.03.05 1B2P BED	1
3.03.05 1B2P LIV/KITCHEN	1.9
3.03.06 1B2P BED	1
3.03.06 1B2P LIV/KITCHEN	1.8
3.03.07 2B4P BED 1	0.6
3.03.07 2B4P BED 2	0.8
3.03.07 2B4P LIV/KITCHEN	1.5
3.04.08 2B4P BED 1	0.2
3.04.08 2B4P BED 2	0.1
3.04.08 2B4P LIV/KITCHEN	0.8
3.04.01 2B4P LIV/KITCHEN	0.1
3.04.01 2B4P BED 1	0.1
3.04.01 2B4P BED 2	0
3.04.02 1B1P LIV/KITCH/BED	0
3.04.03 1B1P LIV/KITCH/BED	0.1
3.04.04 2B4P BED 1	0.7
3.04.04 2B4P BED 2	0.6
3.04.04 2B4P LIV/KITCHEN	1.3
3.04.05 1B2P BED	0.9
3.04.05 1B2P LIV/KITCHEN	1.8
3.04.06 1B2P BED	0.9

3.04.06 1B2P LIV/KITCHEN	1.8
3.04.07 2B4P BED 1	0.6
3.04.07 2B4P BED 2	0.8
3.04.07 2B4P LIV/KITCHEN	1.5
3.05.08 2B4P BED 1	0.2
3.05.08 2B4P BED 2	0.1
3.05.08 2B4P LIV/KITCHEN	0.8
3.05.01 2B4P LIV/KITCHEN	0.1
3.05.01 2B4P BED 1	0.1
3.05.01 2B4P BED 2	0
3.05.02 1B1P LIV/KITCH/BED	0
3.05.03 1B1P LIV/KITCH/BED	0.1
3.05.04 2B4P BED 1	0.7
3.05.04 2B4P BED 2	0.6
3.05.04 2B4P LIV/KITCHEN	1.3
3.05.05 1B2P BED	0.9
3.05.05 1B2P LIV/KITCHEN	1.8
3.05.06 1B2P BED	0.9
3.05.06 1B2P LIV/KITCHEN	1.7
3.05.07 2B4P BED 1	0.6
3.05.07 2B4P BED 2	0.8
3.05.07 2B4P LIV/KITCHEN	1.5
3.06.08 2B4P BED 1	0.2
3.06.08 2B4P BED 2	0.1
3.06.08 2B4P LIV/KITCHEN	0.7
3.06.01 2B4P LIV/KITCHEN	0.1
3.06.01 2B4P BED 1	0.1
3.06.01 2B4P BED 2	0
3.06.02 1B1P LIV/KITCH/BED	0
3.06.03 1B1P LIV/KITCH/BED	0.1
3.06.04 2B4P BED 1	0.7
3.06.04 2B4P BED 2	0.6
3.06.04 2B4P LIV/KITCHEN	1.3
3.06.05 1B2P BED	0.9
3.06.05 1B2P LIV/KITCHEN	1.8
3.06.06 1B2P BED	0.9
3.06.06 1B2P LIV/KITCHEN	1.7
3.06.07 2B4P BED 1	0.6
3.06.07 2B4P BED 2	0.8
3.06.07 2B4P LIV/KITCHEN	1.5
3.07.08 2B4P BED 1	0.2
3.07.08 2B4P BED 2	0.1
3.07.08 2B4P LIV/KITCHEN	0.7
3.07.01 2B4P LIV/KITCHEN	0.1
3.07.01 2B4P BED 1	0.1
3.07.01 2B4P BED 2	0

3.07.02 1B1P LIV/KITCH/BED	0
3.07.03 1B1P LIV/KITCH/BED	0.1
3.07.04 2B4P BED 1	0.7
3.07.04 2B4P BED 2	0.6
3.07.04 2B4P LIV/KITCHEN	1.2
3.07.05 1B2P BED	0.9
3.07.05 1B2P LIV/KITCHEN	1.7
3.07.06 1B2P BED	0.9
3.07.06 1B2P LIV/KITCHEN	1.7
3.07.07 2B4P BED 1	0.6
3.07.07 2B4P BED 2	0.8
3.07.07 2B4P LIV/KITCHEN	1.5
3.08.08 2B4P BED 1	0.2
3.08.08 2B4P BED 2	0.1
3.08.08 2B4P LIV/KITCHEN	0.7
3.08.01 2B4P LIV/KITCHEN	0.1
3.08.01 2B4P BED 1	0.1
3.08.01 2B4P BED 2	0
3.08.02 1B1P LIV/KITCH/BED	0
3.08.03 1B1P LIV/KITCH/BED	0.1
3.08.04 2B4P BED 1	0.7
3.08.04 2B4P BED 2	0.6
3.08.04 2B4P LIV/KITCHEN	1.2
3.08.05 1B2P BED	0.9
3.08.05 1B2P LIV/KITCHEN	1.7
3.08.06 1B2P BED	0.9
3.08.06 1B2P LIV/KITCHEN	1.7
3.08.07 2B4P BED 1	0.6
3.08.07 2B4P BED 2	0.8
3.08.07 2B4P LIV/KITCHEN	1.5
3.09.08 2B4P BED 1	0.2
3.09.08 2B4P BED 2	0.1
3.09.08 2B4P LIV/KITCHEN	0.7
3.09.01 2B4P LIV/KITCHEN	0.1
3.09.01 2B4P BED 1	0.1
3.09.01 2B4P BED 2	0
3.09.04 2B4P BED 1	0.7
3.09.04 2B4P BED 2	0.6
3.09.04 2B4P LIV/KITCHEN	1.2
3.09.05 1B2P BED	0.9
3.09.05 1B2P LIV/KITCHEN	1.7
3.09.06 1B2P BED	0.9
3.09.06 1B2P LIV/KITCHEN	1.7
3.09.07 2B4P BED 1	0.6
3.09.07 2B4P BED 2	0.8
3.09.07 2B4P LIV/KITCHEN	1.5

3.09.02 1B2P BED	0.1
3.09.02 1B2P LIV/KITCHEN	0.1
3.09.03 2B4P LIV/KITCHEN	0.1
3.09.03 2B4P BED 1	0.1
3.09.03 2B4P BED 2	0.1
3.10.08 2B4P BED 1	0.2
3.10.08 2B4P BED 2	0.1
3.10.08 2B4P LIV/KITCHEN	0.7
3.10.01 2B4P LIV/KITCHEN	0.1
3.10.01 2B4P BED 1	0.1
3.10.01 2B4P BED 2	0
3.10.04 2B4P BED 1	0.7
3.10.04 2B4P BED 2	0.5
3.10.04 2B4P LIV/KITCHEN	1.2
3.10.05 1B2P BED	0.9
3.10.05 1B2P LIV/KITCHEN	1.7
3.10.06 1B2P BED	0.9
3.10.06 1B2P LIV/KITCHEN	1.7
3.10.07 2B4P BED 1	0.6
3.10.07 2B4P BED 2	0.8
3.10.07 2B4P LIV/KITCHEN	1.5
3.10.02 1B2P BED	0.1
3.10.02 1B2P LIV/KITCHEN	0.1
3.10.03 2B4P LIV/KITCHEN	0.1
3.10.03 2B4P BED 1	0.2
3.10.03 2B4P BED 2	0.2
3.11.08 2B4P BED 1	0.2
3.11.08 2B4P BED 2	0.1
3.11.08 2B4P LIV/KITCHEN	0.7
3.11.01 2B4P LIV/KITCHEN	0.1
3.11.01 2B4P BED 1	0.1
3.11.01 2B4P BED 2	0
3.11.04 2B4P BED 1	0.7
3.11.04 2B4P BED 2	0.5
3.11.04 2B4P LIV/KITCHEN	1.2
3.11.05 1B2P BED	0.9
3.11.05 1B2P LIV/KITCHEN	1.7
3.11.06 1B2P BED	0.9
3.11.06 1B2P LIV/KITCHEN	1.7
3.11.07 2B4P BED 1	0.6
3.11.07 2B4P BED 2	0.8
3.11.07 2B4P LIV/KITCHEN	1.5
3.11.02 1B2P BED	0.1
3.11.02 1B2P LIV/KITCHEN	0.1
3.11.03 2B4P LIV/KITCHEN	0.1
3.11.03 2B4P BED 1	0.2

3.11.03 2B4P BED 2	0.2
3.12.08 2B4P BED 1	0.2
3.12.08 2B4P BED 2	0.1
3.12.08 2B4P LIV/KITCHEN	0.7
3.12.01 2B4P LIV/KITCHEN	0.1
3.12.01 2B4P BED 1	0.1
3.12.01 2B4P BED 2	0
3.12.04 2B4P BED 1	0.7
3.12.04 2B4P BED 2	0.5
3.12.04 2B4P LIV/KITCHEN	1.1
3.12.05 1B2P BED	0.9
3.12.05 1B2P LIV/KITCHEN	1.7
3.12.06 1B2P BED	0.9
3.12.06 1B2P LIV/KITCHEN	1.7
3.12.07 2B4P BED 1	0.6
3.12.07 2B4P BED 2	0.8
3.12.07 2B4P LIV/KITCHEN	1.5
3.12.02 1B2P BED	0.1
3.12.02 1B2P LIV/KITCHEN	0.1
3.12.03 2B4P LIV/KITCHEN	0.1
3.12.03 2B4P BED 1	0.2
3.12.03 2B4P BED 2	0.2
3.13.08 2B4P BED 1	0.2
3.13.08 2B4P BED 2	0.1
3.13.08 2B4P LIV/KITCHEN	0.7
3.13.01 2B4P LIV/KITCHEN	0.1
3.13.01 2B4P BED 1	0.1
3.13.01 2B4P BED 2	0
3.13.04 2B4P BED 1	0.7
3.13.04 2B4P BED 2	0.5
3.13.04 2B4P LIV/KITCHEN	1.1
3.13.05 1B2P BED	0.9
3.13.05 1B2P LIV/KITCHEN	1.7
3.13.06 1B2P BED	0.9
3.13.06 1B2P LIV/KITCHEN	1.7
3.13.07 2B4P BED 1	0.6
3.13.07 2B4P BED 2	0.8
3.13.07 2B4P LIV/KITCHEN	1.5
3.13.02 1B2P BED	0.1
3.13.02 1B2P LIV/KITCHEN	0.1
3.13.03 2B4P LIV/KITCHEN	0.1
3.13.03 2B4P BED 1	0.2
3.13.03 2B4P BED 2	0.2
3.14.08 2B4P BED 1	0.2
3.14.08 2B4P BED 2	0.1
3.14.08 2B4P LIV/KITCHEN	0.7

3.14.01 2B4P LIV/KITCHEN	0.1
3.14.01 2B4P BED 1	0.1
3.14.01 2B4P BED 2	0
3.14.04 2B4P BED 1	0.7
3.14.04 2B4P BED 2	0.5
3.14.04 2B4P LIV/KITCHEN	1.2
3.14.05 1B2P BED	0.9
3.14.05 1B2P LIV/KITCHEN	1.7
3.14.06 1B2P BED	0.9
3.14.06 1B2P LIV/KITCHEN	1.7
3.14.07 2B4P BED 1	0.6
3.14.07 2B4P BED 2	0.8
3.14.07 2B4P LIV/KITCHEN	1.5
3.14.02 1B2P BED	0.1
3.14.02 1B2P LIV/KITCHEN	0.1
3.14.03 2B4P LIV/KITCHEN	0.1
3.14.03 2B4P BED 1	0.2
3.14.03 2B4P BED 2	0.2
3.15.08 2B4P BED 1	0.2
3.15.08 2B4P BED 2	0.1
3.15.08 2B4P LIV/KITCHEN	0.7
3.15.01 2B4P LIV/KITCHEN	0.1
3.15.01 2B4P BED 1	0.1
3.15.01 2B4P BED 2	0
3.15.04 2B4P BED 1	0.6
3.15.04 2B4P BED 2	0.5
3.15.04 2B4P LIV/KITCHEN	1.1
3.15.05 1B2P BED	0.9
3.15.05 1B2P LIV/KITCHEN	1.7
3.15.06 1B2P BED	0.9
3.15.06 1B2P LIV/KITCHEN	1.7
3.15.07 2B4P BED 1	0.6
3.15.07 2B4P BED 2	0.7
3.15.07 2B4P LIV/KITCHEN	1.5
3.15.02 1B2P BED	0.1
3.15.02 1B2P LIV/KITCHEN	0.1
3.15.03 2B4P LIV/KITCHEN	0.1
3.15.03 2B4P BED 1	0.1
3.15.03 2B4P BED 2	0.2
3.16.08 2B4P BED 1	0.2
3.16.08 2B4P BED 2	0.1
3.16.08 2B4P LIV/KITCHEN	0.7
3.16.01 2B4P LIV/KITCHEN	0.1
3.16.01 2B4P BED 1	0.1
3.16.01 2B4P BED 2	0
3.16.04 2B4P BED 1	0.6

3.16.04 2B4P BED 2	0.5
3.16.04 2B4P LIV/KITCHEN	1.1
3.16.05 1B2P BED	0.9
3.16.05 1B2P LIV/KITCHEN	1.7
3.16.06 1B2P BED	0.9
3.16.06 1B2P LIV/KITCHEN	1.7
3.16.07 2B4P BED 1	0.6
3.16.07 2B4P BED 2	0.7
3.16.07 2B4P LIV/KITCHEN	1.5
3.16.02 1B2P BED	0.1
3.16.02 1B2P LIV/KITCHEN	0.1
3.16.03 2B4P LIV/KITCHEN	0.1
3.16.03 2B4P BED 1	0.1
3.16.03 2B4P BED 2	0.2
3.17.08 2B4P BED 1	0.2
3.17.08 2B4P BED 2	0.1
3.17.08 2B4P LIV/KITCHEN	0.7
3.17.01 2B4P LIV/KITCHEN	0.1
3.17.01 2B4P BED 1	0.1
3.17.01 2B4P BED 2	0
3.17.04 2B4P BED 1	0.7
3.17.04 2B4P BED 2	0.5
3.17.04 2B4P LIV/KITCHEN	1.2
3.17.05 1B2P BED	0.9
3.17.05 1B2P LIV/KITCHEN	1.7
3.17.06 1B2P BED	0.9
3.17.06 1B2P LIV/KITCHEN	1.7
3.17.07 2B4P BED 1	0.6
3.17.07 2B4P BED 2	0.7
3.17.07 2B4P LIV/KITCHEN	1.5
3.17.02 1B2P BED	0.1
3.17.02 1B2P LIV/KITCHEN	0.1
3.17.03 2B4P LIV/KITCHEN	0.1
3.17.03 2B4P BED 1	0.1
3.17.03 2B4P BED 2	0.2
3.18.08 2B4P BED 1	0.2
3.18.08 2B4P BED 2	0.1
3.18.08 2B4P LIV/KITCHEN	1
3.18.01 2B4P LIV/KITCHEN	0.1
3.18.01 2B4P BED 1	0
3.18.01 2B4P BED 2	0
3.18.04 2B4P BED 1	0.7
3.18.04 2B4P BED 2	0.5
3.18.04 2B4P LIV/KITCHEN	1.3
3.18.05 1B2P BED	1
3.18.05 1B2P LIV/KITCHEN	2.1

3.18.06 1B2P BED	1
3.18.06 1B2P LIV/KITCHEN	2
3.18.07 2B4P BED 1	0.5
3.18.07 2B4P BED 2	0.8
3.18.07 2B4P LIV/KITCHEN	1.6
3.18.02 1B2P BED	0.1
3.18.02 1B2P LIV/KITCHEN	0.1
3.18.03 2B4P LIV/KITCHEN	0.1
3.18.03 2B4P BED 1	0.1
3.18.03 2B4P BED 2	0.1

RESULTS FOR BEDROOM CRITERIA – 167 BEDROOMS PASSING, 59 BEDROOMS MARGINALLY FAILING, WE WOULD EXPECT THIS TO BE RESOLVED BY OPENING THE WINDOWS FOR LONGER PERIODS OF TIME DURING HOT WEATHER CONDITIONS

LOCATION	NO. OF HOURS WHERE Ta>26degC between 2200 hours to 0700 hours (Target ≤ 32 hours)
3.01.08 2B4P BED 1	31
3.01.08 2B4P BED 2	34
3.01.01 2B4P BED 1	29
3.01.01 2B4P BED 2	29
3.01.02 1B1P LIV/KITCH/BED	28
3.01.03 1B1P LIV/KITCH/BED	39
3.01.04 2B4P BED 1	37
3.01.04 2B4P BED 2	34
3.01.05 1B2P BED	42
3.01.06 1B2P BED	42
3.01.07 2B4P BED 1	37
3.01.07 2B4P BED 2	43
3.02.08 2B4P BED 1	29
3.02.08 2B4P BED 2	30
3.02.01 2B4P BED 1	28
3.02.01 2B4P BED 2	28
3.02.02 1B1P LIV/KITCH/BED	28
3.02.03 1B1P LIV/KITCH/BED	40
3.02.04 2B4P BED 1	37
3.02.04 2B4P BED 2	35
3.02.05 1B2P BED	42
3.02.06 1B2P BED	42
3.02.07 2B4P BED 1	37
3.02.07 2B4P BED 2	43
3.03.08 2B4P BED 1	24
3.03.08 2B4P BED 2	26
3.03.01 2B4P BED 1	26
3.03.01 2B4P BED 2	26
3.03.02 1B1P LIV/KITCH/BED	25

3.03.03 1B1P LIV/KITCH/BED	37
3.03.04 2B4P BED 1	31
3.03.04 2B4P BED 2	30
3.03.05 1B2P BED	38
3.03.06 1B2P BED	38
3.03.07 2B4P BED 1	31
3.03.07 2B4P BED 2	37
3.04.08 2B4P BED 1	24
3.04.08 2B4P BED 2	25
3.04.01 2B4P BED 1	25
3.04.01 2B4P BED 2	26
3.04.02 1B1P LIV/KITCH/BED	25
3.04.03 1B1P LIV/KITCH/BED	37
3.04.04 2B4P BED 1	31
3.04.04 2B4P BED 2	30
3.04.05 1B2P BED	37
3.04.06 1B2P BED	37
3.04.07 2B4P BED 1	31
3.04.07 2B4P BED 2	36
3.05.08 2B4P BED 1	24
3.05.08 2B4P BED 2	25
3.05.01 2B4P BED 1	25
3.05.01 2B4P BED 2	26
3.05.02 1B1P LIV/KITCH/BED	25
3.05.03 1B1P LIV/KITCH/BED	37
3.05.04 2B4P BED 1	31
3.05.04 2B4P BED 2	29
3.05.05 1B2P BED	37
3.05.06 1B2P BED	37
3.05.07 2B4P BED 1	31
3.05.07 2B4P BED 2	35
3.06.08 2B4P BED 1	24
3.06.08 2B4P BED 2	25
3.06.01 2B4P BED 1	25
3.06.01 2B4P BED 2	26
3.06.02 1B1P LIV/KITCH/BED	25
3.06.03 1B1P LIV/KITCH/BED	37
3.06.04 2B4P BED 1	31
3.06.04 2B4P BED 2	29
3.06.05 1B2P BED	37
3.06.06 1B2P BED	37
3.06.07 2B4P BED 1	31
3.06.07 2B4P BED 2	35
3.07.08 2B4P BED 1	24
3.07.08 2B4P BED 2	24
3.07.01 2B4P BED 1	25

3.07.01 2B4P BED 2	26
3.07.02 1B1P LIV/KITCH/BED	25
3.07.03 1B1P LIV/KITCH/BED	37
3.07.04 2B4P BED 1	31
3.07.04 2B4P BED 2	28
3.07.05 1B2P BED	35
3.07.06 1B2P BED	35
3.07.07 2B4P BED 1	30
3.07.07 2B4P BED 2	34
3.08.08 2B4P BED 1	24
3.08.08 2B4P BED 2	24
3.08.01 2B4P BED 1	24
3.08.01 2B4P BED 2	26
3.08.02 1B1P LIV/KITCH/BED	25
3.08.03 1B1P LIV/KITCH/BED	36
3.08.04 2B4P BED 1	31
3.08.04 2B4P BED 2	28
3.08.05 1B2P BED	35
3.08.06 1B2P BED	35
3.08.07 2B4P BED 1	30
3.08.07 2B4P BED 2	34
3.09.08 2B4P BED 1	24
3.09.08 2B4P BED 2	24
3.09.01 2B4P BED 1	25
3.09.01 2B4P BED 2	26
3.09.04 2B4P BED 1	31
3.09.04 2B4P BED 2	27
3.09.05 1B2P BED	35
3.09.06 1B2P BED	35
3.09.07 2B4P BED 1	30
3.09.07 2B4P BED 2	34
3.09.02 1B2P BED	27
3.09.03 2B4P BED 1	29
3.09.03 2B4P BED 2	28
3.10.08 2B4P BED 1	24
3.10.08 2B4P BED 2	24
3.10.01 2B4P BED 1	25
3.10.01 2B4P BED 2	26
3.10.04 2B4P BED 1	31
3.10.04 2B4P BED 2	27
3.10.05 1B2P BED	35
3.10.06 1B2P BED	35
3.10.07 2B4P BED 1	30
3.10.07 2B4P BED 2	34
3.10.02 1B2P BED	28
3.10.03 2B4P BED 1	31

3.10.03 2B4P BED 2	28
3.11.08 2B4P BED 1	24
3.11.08 2B4P BED 2	24
3.11.01 2B4P BED 1	24
3.11.01 2B4P BED 2	26
3.11.04 2B4P BED 1	30
3.11.04 2B4P BED 2	27
3.11.05 1B2P BED	34
3.11.06 1B2P BED	34
3.11.07 2B4P BED 1	30
3.11.07 2B4P BED 2	31
3.11.02 1B2P BED	27
3.11.03 2B4P BED 1	29
3.11.03 2B4P BED 2	28
3.12.08 2B4P BED 1	23
3.12.08 2B4P BED 2	24
3.12.01 2B4P BED 1	24
3.12.01 2B4P BED 2	25
3.12.04 2B4P BED 1	30
3.12.04 2B4P BED 2	27
3.12.05 1B2P BED	34
3.12.06 1B2P BED	34
3.12.07 2B4P BED 1	30
3.12.07 2B4P BED 2	31
3.12.02 1B2P BED	27
3.12.03 2B4P BED 1	29
3.12.03 2B4P BED 2	28
3.13.08 2B4P BED 1	23
3.13.08 2B4P BED 2	24
3.13.01 2B4P BED 1	24
3.13.01 2B4P BED 2	25
3.13.04 2B4P BED 1	30
3.13.04 2B4P BED 2	27
3.13.05 1B2P BED	34
3.13.06 1B2P BED	34
3.13.07 2B4P BED 1	30
3.13.07 2B4P BED 2	31
3.13.02 1B2P BED	27
3.13.03 2B4P BED 1	29
3.13.03 2B4P BED 2	28
3.14.08 2B4P BED 1	23
3.14.08 2B4P BED 2	24
3.14.01 2B4P BED 1	24
3.14.01 2B4P BED 2	25
3.14.04 2B4P BED 1	30
3.14.04 2B4P BED 2	27

3.14.05 1B2P BED	34
3.14.06 1B2P BED	34
3.14.07 2B4P BED 1	30
3.14.07 2B4P BED 2	31
3.14.02 1B2P BED	26
3.14.03 2B4P BED 1	29
3.14.03 2B4P BED 2	28
3.15.08 2B4P BED 1	23
3.15.08 2B4P BED 2	24
3.15.01 2B4P BED 1	24
3.15.01 2B4P BED 2	24
3.15.04 2B4P BED 1	29
3.15.04 2B4P BED 2	26
3.15.05 1B2P BED	33
3.15.06 1B2P BED	33
3.15.07 2B4P BED 1	29
3.15.07 2B4P BED 2	31
3.15.02 1B2P BED	26
3.15.03 2B4P BED 1	28
3.15.03 2B4P BED 2	27
3.16.08 2B4P BED 1	23
3.16.08 2B4P BED 2	24
3.16.01 2B4P BED 1	24
3.16.01 2B4P BED 2	24
3.16.04 2B4P BED 1	29
3.16.04 2B4P BED 2	26
3.16.05 1B2P BED	33
3.16.06 1B2P BED	33
3.16.07 2B4P BED 1	29
3.16.07 2B4P BED 2	31
3.16.02 1B2P BED	26
3.16.03 2B4P BED 1	28
3.16.03 2B4P BED 2	27
3.17.08 2B4P BED 1	23
3.17.08 2B4P BED 2	24
3.17.01 2B4P BED 1	24
3.17.01 2B4P BED 2	23
3.17.04 2B4P BED 1	30
3.17.04 2B4P BED 2	26
3.17.05 1B2P BED	33
3.17.06 1B2P BED	33
3.17.07 2B4P BED 1	29
3.17.07 2B4P BED 2	31
3.17.02 1B2P BED	25
3.17.03 2B4P BED 1	28
3.17.03 2B4P BED 2	27

3.18.08 2B4P BED 1	20
3.18.08 2B4P BED 2	23
3.18.01 2B4P BED 1	21
3.18.01 2B4P BED 2	22
3.18.04 2B4P BED 1	30
3.18.04 2B4P BED 2	26
3.18.05 1B2P BED	31
3.18.06 1B2P BED	31
3.18.07 2B4P BED 1	27
3.18.07 2B4P BED 2	31
3.18.02 1B2P BED	25
3.18.03 2B4P BED 1	28
3.18.03 2B4P BED 2	27

RESULTS FOR COMMUNAL CORRIDORS – ALL PASSING

LOCATION	% NO. OF HOURS WHERE Ta>28degC (TARGET ≤ 3%)
3.01 COMMUNAL CORRIDOR	1.4
3.02 COMMUNAL CORRIDOR	1.4
3.03 COMMUNAL CORRIDOR	1.4
3.04 COMMUNAL CORRIDOR	1.4
3.05 COMMUNAL CORRIDOR	1.3
3.06 COMMUNAL CORRIDOR	1.3
3.07 COMMUNAL CORRIDOR	1.3
3.08 COMMUNAL CORRIDOR	1.3
3.09 COMMUNAL CORRIDOR	1.4
3.10 COMMUNAL CORRIDOR	1.4
3.11 COMMUNAL CORRIDOR	1.4
3.12 COMMUNAL CORRIDOR	1.3
3.13 COMMUNAL CORRIDOR	1.3
3.14 COMMUNAL CORRIDOR	1.3
3.15 COMMUNAL CORRIDOR	1.3
3.16 COMMUNAL CORRIDOR	1.3
3.17 COMMUNAL CORRIDOR	1.1
3.18 COMMUNAL CORRIDOR	1
3.19 CORRIDOR	0

THERMAL MODELLING RAW RESULTS FOR CIBSE LONDON HEATHROW DSY3 2020'S HIGH EMISSIONS 50TH PERCENTILE RANGE WEATHER FILE

RESULTS FOR CRITERION 1 – ALL ROOMS PASSING

Room Name	Criteria 1 (%Hrs Top-Tmax>=1K) (Target ≤ 3%)
3.01.08 2B4P BED 1	0.9
3.01.08 2B4P BED 2	0.8
3.01.08 2B4P LIV/KITCHEN	1.7
3.01.01 2B4P LIV/KITCHEN	1.1

3.01.01 2B4P BED 1	0.7
3.01.01 2B4P BED 2	0.5
3.01.02 1B1P LIV/KITCH/BED	0
3.01.03 1B1P LIV/KITCH/BED	0.1
3.01.04 2B4P BED 1	1
3.01.04 2B4P BED 2	0.9
3.01.04 2B4P LIV/KITCHEN	1.8
3.01.05 1B2P BED	1.4
3.01.05 1B2P LIV/KITCHEN	1.9
3.01.06 1B2P BED	1.3
3.01.06 1B2P LIV/KITCHEN	1.9
3.01.07 2B4P BED 1	1
3.01.07 2B4P BED 2	1.1
3.01.07 2B4P LIV/KITCHEN	1.7
3.02.08 2B4P BED 1	0.7
3.02.08 2B4P BED 2	0.7
3.02.08 2B4P LIV/KITCHEN	1.7
3.02.01 2B4P LIV/KITCHEN	0.8
3.02.01 2B4P BED 1	0.5
3.02.01 2B4P BED 2	0.4
3.02.02 1B1P LIV/KITCH/BED	0
3.02.03 1B1P LIV/KITCH/BED	0.1
3.02.04 2B4P BED 1	1
3.02.04 2B4P BED 2	0.9
3.02.04 2B4P LIV/KITCHEN	1.6
3.02.05 1B2P BED	1.4
3.02.05 1B2P LIV/KITCHEN	2
3.02.06 1B2P BED	1.4
3.02.06 1B2P LIV/KITCHEN	1.9
3.02.07 2B4P BED 1	1
3.02.07 2B4P BED 2	1.3
3.02.07 2B4P LIV/KITCHEN	2.1
3.03.08 2B4P BED 1	0.7
3.03.08 2B4P BED 2	0.6
3.03.08 2B4P LIV/KITCHEN	1.7
3.03.01 2B4P LIV/KITCHEN	0.7
3.03.01 2B4P BED 1	0.5
3.03.01 2B4P BED 2	0.4
3.03.02 1B1P LIV/KITCH/BED	0
3.03.03 1B1P LIV/KITCH/BED	0.1
3.03.04 2B4P BED 1	0.9
3.03.04 2B4P BED 2	0.9
3.03.04 2B4P LIV/KITCHEN	1.6
3.03.05 1B2P BED	1.3
3.03.05 1B2P LIV/KITCHEN	2.1
3.03.06 1B2P BED	1.3

3.03.06 1B2P LIV/KITCHEN	2.1
3.03.07 2B4P BED 1	1
3.03.07 2B4P BED 2	1.1
3.03.07 2B4P LIV/KITCHEN	1.9
3.04.08 2B4P BED 1	0.7
3.04.08 2B4P BED 2	0.5
3.04.08 2B4P LIV/KITCHEN	1.7
3.04.01 2B4P LIV/KITCHEN	0.7
3.04.01 2B4P BED 1	0.5
3.04.01 2B4P BED 2	0.4
3.04.02 1B1P LIV/KITCH/BED	0
3.04.03 1B1P LIV/KITCH/BED	0.1
3.04.04 2B4P BED 1	0.9
3.04.04 2B4P BED 2	0.9
3.04.04 2B4P LIV/KITCHEN	1.6
3.04.05 1B2P BED	1.3
3.04.05 1B2P LIV/KITCHEN	2.1
3.04.06 1B2P BED	1.3
3.04.06 1B2P LIV/KITCHEN	2.1
3.04.07 2B4P BED 1	0.9
3.04.07 2B4P BED 2	1.1
3.04.07 2B4P LIV/KITCHEN	1.9
3.05.08 2B4P BED 1	0.7
3.05.08 2B4P BED 2	0.5
3.05.08 2B4P LIV/KITCHEN	1.7
3.05.01 2B4P LIV/KITCHEN	0.7
3.05.01 2B4P BED 1	0.5
3.05.01 2B4P BED 2	0.4
3.05.02 1B1P LIV/KITCH/BED	0
3.05.03 1B1P LIV/KITCH/BED	0.1
3.05.04 2B4P BED 1	0.9
3.05.04 2B4P BED 2	0.9
3.05.04 2B4P LIV/KITCHEN	1.6
3.05.05 1B2P BED	1.3
3.05.05 1B2P LIV/KITCHEN	2.1
3.05.06 1B2P BED	1.3
3.05.06 1B2P LIV/KITCHEN	2.1
3.05.07 2B4P BED 1	0.9
3.05.07 2B4P BED 2	1.1
3.05.07 2B4P LIV/KITCHEN	1.9
3.06.08 2B4P BED 1	0.7
3.06.08 2B4P BED 2	0.5
3.06.08 2B4P LIV/KITCHEN	1.7
3.06.01 2B4P LIV/KITCHEN	0.8
3.06.01 2B4P BED 1	0.5
3.06.01 2B4P BED 2	0.4

3.06.02 1B1P LIV/KITCH/BED	0
3.06.03 1B1P LIV/KITCH/BED	0.1
3.06.04 2B4P BED 1	0.9
3.06.04 2B4P BED 2	0.9
3.06.04 2B4P LIV/KITCHEN	1.6
3.06.05 1B2P BED	1.3
3.06.05 1B2P LIV/KITCHEN	2.1
3.06.06 1B2P BED	1.3
3.06.06 1B2P LIV/KITCHEN	2.1
3.06.07 2B4P BED 1	0.9
3.06.07 2B4P BED 2	1.1
3.06.07 2B4P LIV/KITCHEN	1.9
3.07.08 2B4P BED 1	0.7
3.07.08 2B4P BED 2	0.5
3.07.08 2B4P LIV/KITCHEN	1.6
3.07.01 2B4P LIV/KITCHEN	0.8
3.07.01 2B4P BED 1	0.5
3.07.01 2B4P BED 2	0.4
3.07.02 1B1P LIV/KITCH/BED	0
3.07.03 1B1P LIV/KITCH/BED	0.1
3.07.04 2B4P BED 1	0.9
3.07.04 2B4P BED 2	0.9
3.07.04 2B4P LIV/KITCHEN	1.5
3.07.05 1B2P BED	1.3
3.07.05 1B2P LIV/KITCHEN	2.1
3.07.06 1B2P BED	1.3
3.07.06 1B2P LIV/KITCHEN	2.1
3.07.07 2B4P BED 1	0.9
3.07.07 2B4P BED 2	1.1
3.07.07 2B4P LIV/KITCHEN	1.8
3.08.08 2B4P BED 1	0.7
3.08.08 2B4P BED 2	0.5
3.08.08 2B4P LIV/KITCHEN	1.6
3.08.01 2B4P LIV/KITCHEN	0.8
3.08.01 2B4P BED 1	0.5
3.08.01 2B4P BED 2	0.4
3.08.02 1B1P LIV/KITCH/BED	0
3.08.03 1B1P LIV/KITCH/BED	0.2
3.08.04 2B4P BED 1	0.9
3.08.04 2B4P BED 2	0.9
3.08.04 2B4P LIV/KITCHEN	1.5
3.08.05 1B2P BED	1.3
3.08.05 1B2P LIV/KITCHEN	2.1
3.08.06 1B2P BED	1.3
3.08.06 1B2P LIV/KITCHEN	2.1
3.08.07 2B4P BED 1	0.9

3.08.07 2B4P BED 2	1.1
3.08.07 2B4P LIV/KITCHEN	1.8
3.09.08 2B4P BED 1	0.7
3.09.08 2B4P BED 2	0.5
3.09.08 2B4P LIV/KITCHEN	1.7
3.09.01 2B4P LIV/KITCHEN	0.9
3.09.01 2B4P BED 1	0.5
3.09.01 2B4P BED 2	0.4
3.09.04 2B4P BED 1	0.9
3.09.04 2B4P BED 2	0.9
3.09.04 2B4P LIV/KITCHEN	1.6
3.09.05 1B2P BED	1.3
3.09.05 1B2P LIV/KITCHEN	2.1
3.09.06 1B2P BED	1.3
3.09.06 1B2P LIV/KITCHEN	2.1
3.09.07 2B4P BED 1	0.9
3.09.07 2B4P BED 2	1.1
3.09.07 2B4P LIV/KITCHEN	1.8
3.09.02 1B2P BED	0.5
3.09.02 1B2P LIV/KITCHEN	0.6
3.09.03 2B4P LIV/KITCHEN	0.7
3.09.03 2B4P BED 1	0.5
3.09.03 2B4P BED 2	0.5
3.10.08 2B4P BED 1	0.7
3.10.08 2B4P BED 2	0.5
3.10.08 2B4P LIV/KITCHEN	1.6
3.10.01 2B4P LIV/KITCHEN	0.9
3.10.01 2B4P BED 1	0.5
3.10.01 2B4P BED 2	0.4
3.10.04 2B4P BED 1	0.9
3.10.04 2B4P BED 2	0.9
3.10.04 2B4P LIV/KITCHEN	1.6
3.10.05 1B2P BED	1.3
3.10.05 1B2P LIV/KITCHEN	2.1
3.10.06 1B2P BED	1.3
3.10.06 1B2P LIV/KITCHEN	2.1
3.10.07 2B4P BED 1	0.9
3.10.07 2B4P BED 2	1.1
3.10.07 2B4P LIV/KITCHEN	1.8
3.10.02 1B2P BED	0.6
3.10.02 1B2P LIV/KITCHEN	0.6
3.10.03 2B4P LIV/KITCHEN	0.7
3.10.03 2B4P BED 1	0.6
3.10.03 2B4P BED 2	0.6
3.11.08 2B4P BED 1	0.7
3.11.08 2B4P BED 2	0.5

3.11.08 2B4P LIV/KITCHEN	1.6
3.11.01 2B4P LIV/KITCHEN	0.9
3.11.01 2B4P BED 1	0.5
3.11.01 2B4P BED 2	0.4
3.11.04 2B4P BED 1	0.9
3.11.04 2B4P BED 2	0.9
3.11.04 2B4P LIV/KITCHEN	1.6
3.11.05 1B2P BED	1.3
3.11.05 1B2P LIV/KITCHEN	2.1
3.11.06 1B2P BED	1.3
3.11.06 1B2P LIV/KITCHEN	2.1
3.11.07 2B4P BED 1	0.9
3.11.07 2B4P BED 2	1.1
3.11.07 2B4P LIV/KITCHEN	1.8
3.11.02 1B2P BED	0.6
3.11.02 1B2P LIV/KITCHEN	0.6
3.11.03 2B4P LIV/KITCHEN	0.7
3.11.03 2B4P BED 1	0.6
3.11.03 2B4P BED 2	0.7
3.12.08 2B4P BED 1	0.7
3.12.08 2B4P BED 2	0.5
3.12.08 2B4P LIV/KITCHEN	1.6
3.12.01 2B4P LIV/KITCHEN	0.9
3.12.01 2B4P BED 1	0.5
3.12.01 2B4P BED 2	0.4
3.12.04 2B4P BED 1	0.9
3.12.04 2B4P BED 2	0.9
3.12.04 2B4P LIV/KITCHEN	1.6
3.12.05 1B2P BED	1.2
3.12.05 1B2P LIV/KITCHEN	2.1
3.12.06 1B2P BED	1.3
3.12.06 1B2P LIV/KITCHEN	2.1
3.12.07 2B4P BED 1	0.9
3.12.07 2B4P BED 2	1.1
3.12.07 2B4P LIV/KITCHEN	1.8
3.12.02 1B2P BED	0.6
3.12.02 1B2P LIV/KITCHEN	0.6
3.12.03 2B4P LIV/KITCHEN	0.7
3.12.03 2B4P BED 1	0.6
3.12.03 2B4P BED 2	0.7
3.13.08 2B4P BED 1	0.7
3.13.08 2B4P BED 2	0.5
3.13.08 2B4P LIV/KITCHEN	1.6
3.13.01 2B4P LIV/KITCHEN	0.9
3.13.01 2B4P BED 1	0.5
3.13.01 2B4P BED 2	0.4

3.13.04 2B4P BED 1	0.9
3.13.04 2B4P BED 2	0.9
3.13.04 2B4P LIV/KITCHEN	1.6
3.13.05 1B2P BED	1.2
3.13.05 1B2P LIV/KITCHEN	2.1
3.13.06 1B2P BED	1.3
3.13.06 1B2P LIV/KITCHEN	2.1
3.13.07 2B4P BED 1	0.9
3.13.07 2B4P BED 2	1.1
3.13.07 2B4P LIV/KITCHEN	1.8
3.13.02 1B2P BED	0.6
3.13.02 1B2P LIV/KITCHEN	0.6
3.13.03 2B4P LIV/KITCHEN	0.7
3.13.03 2B4P BED 1	0.6
3.13.03 2B4P BED 2	0.7
3.14.08 2B4P BED 1	0.7
3.14.08 2B4P BED 2	0.5
3.14.08 2B4P LIV/KITCHEN	1.6
3.14.01 2B4P LIV/KITCHEN	0.9
3.14.01 2B4P BED 1	0.5
3.14.01 2B4P BED 2	0.4
3.14.04 2B4P BED 1	0.9
3.14.04 2B4P BED 2	0.9
3.14.04 2B4P LIV/KITCHEN	1.6
3.14.05 1B2P BED	1.2
3.14.05 1B2P LIV/KITCHEN	2.1
3.14.06 1B2P BED	1.3
3.14.06 1B2P LIV/KITCHEN	2.1
3.14.07 2B4P BED 1	0.9
3.14.07 2B4P BED 2	1.1
3.14.07 2B4P LIV/KITCHEN	1.8
3.14.02 1B2P BED	0.6
3.14.02 1B2P LIV/KITCHEN	0.6
3.14.03 2B4P LIV/KITCHEN	0.7
3.14.03 2B4P BED 1	0.7
3.14.03 2B4P BED 2	0.7
3.15.08 2B4P BED 1	0.7
3.15.08 2B4P BED 2	0.5
3.15.08 2B4P LIV/KITCHEN	1.6
3.15.01 2B4P LIV/KITCHEN	0.8
3.15.01 2B4P BED 1	0.5
3.15.01 2B4P BED 2	0.4
3.15.04 2B4P BED 1	0.9
3.15.04 2B4P BED 2	0.9
3.15.04 2B4P LIV/KITCHEN	1.4
3.15.05 1B2P BED	1.2

3.15.05 1B2P LIV/KITCHEN	2
3.15.06 1B2P BED	1.2
3.15.06 1B2P LIV/KITCHEN	2.1
3.15.07 2B4P BED 1	0.9
3.15.07 2B4P BED 2	1.1
3.15.07 2B4P LIV/KITCHEN	1.8
3.15.02 1B2P BED	0.6
3.15.02 1B2P LIV/KITCHEN	0.6
3.15.03 2B4P LIV/KITCHEN	0.7
3.15.03 2B4P BED 1	0.6
3.15.03 2B4P BED 2	0.7
3.16.08 2B4P BED 1	0.7
3.16.08 2B4P BED 2	0.5
3.16.08 2B4P LIV/KITCHEN	1.6
3.16.01 2B4P LIV/KITCHEN	0.8
3.16.01 2B4P BED 1	0.5
3.16.01 2B4P BED 2	0.4
3.16.04 2B4P BED 1	0.9
3.16.04 2B4P BED 2	0.9
3.16.04 2B4P LIV/KITCHEN	1.4
3.16.05 1B2P BED	1.2
3.16.05 1B2P LIV/KITCHEN	2.1
3.16.06 1B2P BED	1.2
3.16.06 1B2P LIV/KITCHEN	2.1
3.16.07 2B4P BED 1	0.9
3.16.07 2B4P BED 2	1.1
3.16.07 2B4P LIV/KITCHEN	1.8
3.16.02 1B2P BED	0.6
3.16.02 1B2P LIV/KITCHEN	0.6
3.16.03 2B4P LIV/KITCHEN	0.7
3.16.03 2B4P BED 1	0.6
3.16.03 2B4P BED 2	0.6
3.17.08 2B4P BED 1	0.7
3.17.08 2B4P BED 2	0.5
3.17.08 2B4P LIV/KITCHEN	1.6
3.17.01 2B4P LIV/KITCHEN	0.7
3.17.01 2B4P BED 1	0.5
3.17.01 2B4P BED 2	0.4
3.17.04 2B4P BED 1	0.9
3.17.04 2B4P BED 2	0.9
3.17.04 2B4P LIV/KITCHEN	1.6
3.17.05 1B2P BED	1.2
3.17.05 1B2P LIV/KITCHEN	2.1
3.17.06 1B2P BED	1.2
3.17.06 1B2P LIV/KITCHEN	2.1
3.17.07 2B4P BED 1	0.9

3.17.07 2B4P BED 2	1
3.17.07 2B4P LIV/KITCHEN	1.8
3.17.02 1B2P BED	0.6
3.17.02 1B2P LIV/KITCHEN	0.6
3.17.03 2B4P LIV/KITCHEN	0.7
3.17.03 2B4P BED 1	0.6
3.17.03 2B4P BED 2	0.6
3.18.08 2B4P BED 1	0.6
3.18.08 2B4P BED 2	0.5
3.18.08 2B4P LIV/KITCHEN	1.7
3.18.01 2B4P LIV/KITCHEN	0.6
3.18.01 2B4P BED 1	0.3
3.18.01 2B4P BED 2	0.1
3.18.04 2B4P BED 1	1
3.18.04 2B4P BED 2	1
3.18.04 2B4P LIV/KITCHEN	1.7
3.18.05 1B2P BED	1.6
3.18.05 1B2P LIV/KITCHEN	3
3.18.06 1B2P BED	1.6
3.18.06 1B2P LIV/KITCHEN	3
3.18.07 2B4P BED 1	0.9
3.18.07 2B4P BED 2	1
3.18.07 2B4P LIV/KITCHEN	2.4
3.18.02 1B2P BED	0.4
3.18.02 1B2P LIV/KITCHEN	0.4
3.18.03 2B4P LIV/KITCHEN	0.6
3.18.03 2B4P BED 1	0.5
3.18.03 2B4P BED 2	0.6

RESULTS FOR BEDROOM CRITERIA – ALL BEDROOMS CURRENTLY FAIL THE CRITERIA, BUT WE WOULD EXPECT PASSIVE MITIGATION MEASURES SUCH AS USE OF SOLAR CONTROL BLINDS, OPENING THE WINDOWS FOR LONGER PERIODS OF TIME DURING HOT WEATHER CONDITIONS OR THE APPLICATION OF EXTERNAL SOLAR FILM TO BEDROOM WINDOWS TO LIMIT THE LEVEL OF OVERHEATING UNDER EXTREME WEATHER CONDITONS

LOCATION	NO. OF HOURS WHERE Ta>26degC between 2200 hours to 0700 hours (Target ≤ 32 hours)
3.01.08 2B4P BED 1	54
3.01.08 2B4P BED 2	57
3.01.01 2B4P BED 1	53
3.01.01 2B4P BED 2	49
3.01.02 1B1P LIV/KITCH/BED	43
3.01.03 1B1P LIV/KITCH/BED	64
3.01.04 2B4P BED 1	51
3.01.04 2B4P BED 2	46
3.01.05 1B2P BED	66
3.01.06 1B2P BED	66

3.01.07 2B4P BED 1	61
3.01.07 2B4P BED 2	65
3.02.08 2B4P BED 1	53
3.02.08 2B4P BED 2	56
3.02.01 2B4P BED 1	53
3.02.01 2B4P BED 2	47
3.02.02 1B1P LIV/KITCH/BED	42
3.02.03 1B1P LIV/KITCH/BED	65
3.02.04 2B4P BED 1	51
3.02.04 2B4P BED 2	52
3.02.05 1B2P BED	67
3.02.06 1B2P BED	67
3.02.07 2B4P BED 1	61
3.02.07 2B4P BED 2	66
3.03.08 2B4P BED 1	48
3.03.08 2B4P BED 2	48
3.03.01 2B4P BED 1	46
3.03.01 2B4P BED 2	40
3.03.02 1B1P LIV/KITCH/BED	38
3.03.03 1B1P LIV/KITCH/BED	57
3.03.04 2B4P BED 1	45
3.03.04 2B4P BED 2	45
3.03.05 1B2P BED	60
3.03.06 1B2P BED	60
3.03.07 2B4P BED 1	53
3.03.07 2B4P BED 2	60
3.04.08 2B4P BED 1	48
3.04.08 2B4P BED 2	48
3.04.01 2B4P BED 1	46
3.04.01 2B4P BED 2	39
3.04.02 1B1P LIV/KITCH/BED	37
3.04.03 1B1P LIV/KITCH/BED	56
3.04.04 2B4P BED 1	45
3.04.04 2B4P BED 2	45
3.04.05 1B2P BED	59
3.04.06 1B2P BED	60
3.04.07 2B4P BED 1	52
3.04.07 2B4P BED 2	60
3.05.08 2B4P BED 1	48
3.05.08 2B4P BED 2	48
3.05.01 2B4P BED 1	46
3.05.01 2B4P BED 2	39
3.05.02 1B1P LIV/KITCH/BED	38
3.05.03 1B1P LIV/KITCH/BED	56
3.05.04 2B4P BED 1	45
3.05.04 2B4P BED 2	45

3.05.05 1B2P BED	59
3.05.06 1B2P BED	60
3.05.07 2B4P BED 1	52
3.05.07 2B4P BED 2	59
3.06.08 2B4P BED 1	48
3.06.08 2B4P BED 2	48
3.06.01 2B4P BED 1	46
3.06.01 2B4P BED 2	40
3.06.02 1B1P LIV/KITCH/BED	38
3.06.03 1B1P LIV/KITCH/BED	56
3.06.04 2B4P BED 1	45
3.06.04 2B4P BED 2	45
3.06.05 1B2P BED	59
3.06.06 1B2P BED	60
3.06.07 2B4P BED 1	52
3.06.07 2B4P BED 2	59
3.07.08 2B4P BED 1	45
3.07.08 2B4P BED 2	48
3.07.01 2B4P BED 1	45
3.07.01 2B4P BED 2	41
3.07.02 1B1P LIV/KITCH/BED	38
3.07.03 1B1P LIV/KITCH/BED	55
3.07.04 2B4P BED 1	42
3.07.04 2B4P BED 2	44
3.07.05 1B2P BED	57
3.07.06 1B2P BED	58
3.07.07 2B4P BED 1	50
3.07.07 2B4P BED 2	56
3.08.08 2B4P BED 1	45
3.08.08 2B4P BED 2	48
3.08.01 2B4P BED 1	45
3.08.01 2B4P BED 2	41
3.08.02 1B1P LIV/KITCH/BED	39
3.08.03 1B1P LIV/KITCH/BED	55
3.08.04 2B4P BED 1	42
3.08.04 2B4P BED 2	44
3.08.05 1B2P BED	57
3.08.06 1B2P BED	58
3.08.07 2B4P BED 1	50
3.08.07 2B4P BED 2	56
3.09.08 2B4P BED 1	45
3.09.08 2B4P BED 2	48
3.09.01 2B4P BED 1	43
3.09.01 2B4P BED 2	47
3.09.04 2B4P BED 1	42
3.09.04 2B4P BED 2	44

3.09.05 1B2P BED	57
3.09.06 1B2P BED	58
3.09.07 2B4P BED 1	50
3.09.07 2B4P BED 2	56
3.09.02 1B2P BED	47
3.09.03 2B4P BED 1	49
3.09.03 2B4P BED 2	49
3.10.08 2B4P BED 1	45
3.10.08 2B4P BED 2	48
3.10.01 2B4P BED 1	42
3.10.01 2B4P BED 2	47
3.10.04 2B4P BED 1	42
3.10.04 2B4P BED 2	44
3.10.05 1B2P BED	57
3.10.06 1B2P BED	58
3.10.07 2B4P BED 1	50
3.10.07 2B4P BED 2	56
3.10.02 1B2P BED	49
3.10.03 2B4P BED 1	51
3.10.03 2B4P BED 2	50
3.11.08 2B4P BED 1	44
3.11.08 2B4P BED 2	48
3.11.01 2B4P BED 1	43
3.11.01 2B4P BED 2	45
3.11.04 2B4P BED 1	42
3.11.04 2B4P BED 2	41
3.11.05 1B2P BED	56
3.11.06 1B2P BED	56
3.11.07 2B4P BED 1	49
3.11.07 2B4P BED 2	57
3.11.02 1B2P BED	49
3.11.03 2B4P BED 1	50
3.11.03 2B4P BED 2	49
3.12.08 2B4P BED 1	44
3.12.08 2B4P BED 2	48
3.12.01 2B4P BED 1	43
3.12.01 2B4P BED 2	45
3.12.04 2B4P BED 1	42
3.12.04 2B4P BED 2	41
3.12.05 1B2P BED	56
3.12.06 1B2P BED	56
3.12.07 2B4P BED 1	49
3.12.07 2B4P BED 2	57
3.12.02 1B2P BED	49
3.12.03 2B4P BED 1	50
3.12.03 2B4P BED 2	49

3.13.08 2B4P BED 1	44
3.13.08 2B4P BED 2	48
3.13.01 2B4P BED 1	43
3.13.01 2B4P BED 2	45
3.13.04 2B4P BED 1	42
3.13.04 2B4P BED 2	41
3.13.05 1B2P BED	56
3.13.06 1B2P BED	56
3.13.07 2B4P BED 1	49
3.13.07 2B4P BED 2	57
3.13.02 1B2P BED	49
3.13.03 2B4P BED 1	50
3.13.03 2B4P BED 2	49
3.14.08 2B4P BED 1	44
3.14.08 2B4P BED 2	48
3.14.01 2B4P BED 1	43
3.14.01 2B4P BED 2	45
3.14.04 2B4P BED 1	42
3.14.04 2B4P BED 2	41
3.14.05 1B2P BED	56
3.14.06 1B2P BED	56
3.14.07 2B4P BED 1	49
3.14.07 2B4P BED 2	56
3.14.02 1B2P BED	49
3.14.03 2B4P BED 1	50
3.14.03 2B4P BED 2	49
3.15.08 2B4P BED 1	43
3.15.08 2B4P BED 2	46
3.15.01 2B4P BED 1	44
3.15.01 2B4P BED 2	43
3.15.04 2B4P BED 1	41
3.15.04 2B4P BED 2	39
3.15.05 1B2P BED	56
3.15.06 1B2P BED	56
3.15.07 2B4P BED 1	49
3.15.07 2B4P BED 2	54
3.15.02 1B2P BED	49
3.15.03 2B4P BED 1	49
3.15.03 2B4P BED 2	49
3.16.08 2B4P BED 1	43
3.16.08 2B4P BED 2	46
3.16.01 2B4P BED 1	43
3.16.01 2B4P BED 2	43
3.16.04 2B4P BED 1	41
3.16.04 2B4P BED 2	39
3.16.05 1B2P BED	56

3.16.06 1B2P BED	56
3.16.07 2B4P BED 1	49
3.16.07 2B4P BED 2	54
3.16.02 1B2P BED	49
3.16.03 2B4P BED 1	49
3.16.03 2B4P BED 2	49
3.17.08 2B4P BED 1	43
3.17.08 2B4P BED 2	45
3.17.01 2B4P BED 1	43
3.17.01 2B4P BED 2	43
3.17.04 2B4P BED 1	42
3.17.04 2B4P BED 2	40
3.17.05 1B2P BED	56
3.17.06 1B2P BED	56
3.17.07 2B4P BED 1	49
3.17.07 2B4P BED 2	55
3.17.02 1B2P BED	49
3.17.03 2B4P BED 1	49
3.17.03 2B4P BED 2	49
3.18.08 2B4P BED 1	42
3.18.08 2B4P BED 2	44
3.18.01 2B4P BED 1	39
3.18.01 2B4P BED 2	40
3.18.04 2B4P BED 1	42
3.18.04 2B4P BED 2	41
3.18.05 1B2P BED	55
3.18.06 1B2P BED	55
3.18.07 2B4P BED 1	48
3.18.07 2B4P BED 2	53
3.18.02 1B2P BED	46
3.18.03 2B4P BED 1	48
3.18.03 2B4P BED 2	48

RESULTS FOR COMMUNAL CORRIDORS – 5 OF THE CORRIDORS ARE marginally failing

LOCATION	% NO. OF HOURS WHERE Ta>28degC (TARGET ≤ 3%)
3.01 COMMUNAL CORRIDOR	3.2
3.02 COMMUNAL CORRIDOR	3.2
3.03 COMMUNAL CORRIDOR	3.1
3.04 COMMUNAL CORRIDOR	2.9
3.05 COMMUNAL CORRIDOR	2.9
3.06 COMMUNAL CORRIDOR	3
3.07 COMMUNAL CORRIDOR	3
3.08 COMMUNAL CORRIDOR	3
3.09 COMMUNAL CORRIDOR	3.1
3.10 COMMUNAL CORRIDOR	3.1

3.11 COMMUNAL CORRIDOR	3
3.12 COMMUNAL CORRIDOR	3
3.13 COMMUNAL CORRIDOR	3
3.14 COMMUNAL CORRIDOR	3
3.15 COMMUNAL CORRIDOR	3
3.16 COMMUNAL CORRIDOR	2.9
3.17 COMMUNAL CORRIDOR	2.9
3.18 COMMUNAL CORRIDOR	2.7
3.19 CORRIDOR	0

APPENDIX E

THERMAL MODELLING RESULTS FOR MORE EXTREME WEATHER FILES TO ASSESS OVERHEATING RISK UNDER HEATWAVE OR FUTURE CLIMATE CHANGE CONDITIONS USING PASSIVE MITIGATION MEASURES APPLIED TO THE THERMAL MODEL

Whilst not mandatory, we have run alternative simulations using passive mitigation measures applied to the thermal model for the DSY2 & DSY3 extreme weather files to assess overheating risk under heatwave or future climate conditions. The mitigation measures include Solar Control Blinds for each flat and longer window opening periods in each flat. The tables of raw results have been included here for information purposes only. Rooms that are failing the criteria are highlighted in red. All of the residential units were assessed.

The results for DSY2 extreme weather file show that all flats pass the thermal comfort criteria as set out by CIBSE TM59. All communal corridors are meeting the recommended thermal comfort criteria.

The results for DSY3 extreme weather file show that all flats pass Criterion 1 of the thermal comfort criteria as set out by CIBSE TM59. For Criteria 2 for bedrooms, the results show that most of the bedrooms are marginally failing, with the highest fail showing 54 hours where internal temperature in Bedroom 3.01.08 is above 26 degrees Celsius between the hours of 10pm and 7am. Please note the target criteria for bedrooms is 32 hours or less. We would expect further passive mitigation measures such as the application of external solar film to bedroom windows to limit the level of overheating under extreme weather conditions. All communal corridors are meeting the recommended thermal comfort criteria.

THERMAL MODELLING RAW RESULTS FOR CIBSE LONDON HEATHROW DSY2 2020'S HIGH EMISSIONS 50TH PERCENTILE RANGE WEATHER FILE USING PASSIVE MITIGATION MEASURES

RESULTS FOR CRITERION 1 – ALL ROOMS PASSING

Room Name	Criteria 1 (%Hrs Top-Tmax>=1K) (Target ≤ 3%)
3.01.08 2B4P BED 1	0.3
3.01.08 2B4P BED 2	0.2
3.01.08 2B4P LIV/KITCHEN	0.7
3.01.01 2B4P LIV/KITCHEN	0.2
3.01.01 2B4P BED 1	0.1
3.01.01 2B4P BED 2	0.1
3.01.02 1B1P LIV/KITCH/BED	0
3.01.03 1B1P LIV/KITCH/BED	0

3.01.04 2B4P BED 1	0.2
3.01.04 2B4P BED 2	0.1
3.01.04 2B4P LIV/KITCHEN	0.4
3.01.05 1B2P BED	0.5
3.01.05 1B2P LIV/KITCHEN	0.4
3.01.06 1B2P BED	0.5
3.01.06 1B2P LIV/KITCHEN	0.4
3.01.07 2B4P BED 1	0.2
3.01.07 2B4P BED 2	0.4
3.01.07 2B4P LIV/KITCHEN	0.5
3.02.08 2B4P BED 1	0.1
3.02.08 2B4P BED 2	0.1
3.02.08 2B4P LIV/KITCHEN	0.2
3.02.01 2B4P LIV/KITCHEN	0.1
3.02.01 2B4P BED 1	0.1
3.02.01 2B4P BED 2	0
3.02.02 1B1P LIV/KITCH/BED	0
3.02.03 1B1P LIV/KITCH/BED	0
3.02.04 2B4P BED 1	0.1
3.02.04 2B4P BED 2	0
3.02.04 2B4P LIV/KITCHEN	0.1
3.02.05 1B2P BED	0.2
3.02.05 1B2P LIV/KITCHEN	0.4
3.02.06 1B2P BED	0.2
3.02.06 1B2P LIV/KITCHEN	0.4
3.02.07 2B4P BED 1	0.1
3.02.07 2B4P BED 2	0.1
3.02.07 2B4P LIV/KITCHEN	0.4
3.03.08 2B4P BED 1	0.1
3.03.08 2B4P BED 2	0.1
3.03.08 2B4P LIV/KITCHEN	0.2
3.03.01 2B4P LIV/KITCHEN	0.1
3.03.01 2B4P BED 1	0
3.03.01 2B4P BED 2	0
3.03.02 1B1P LIV/KITCH/BED	0
3.03.03 1B1P LIV/KITCH/BED	0
3.03.04 2B4P BED 1	0
3.03.04 2B4P BED 2	0
3.03.04 2B4P LIV/KITCHEN	0.1
3.03.05 1B2P BED	0.2
3.03.05 1B2P LIV/KITCHEN	0.3
3.03.06 1B2P BED	0.2
3.03.06 1B2P LIV/KITCHEN	0.3
3.03.07 2B4P BED 1	0.1
3.03.07 2B4P BED 2	0.1
3.03.07 2B4P LIV/KITCHEN	0.3

3.04.08 2B4P BED 1	0.1
3.04.08 2B4P BED 2	0.1
3.04.08 2B4P LIV/KITCHEN	0.2
3.04.01 2B4P LIV/KITCHEN	0.1
3.04.01 2B4P BED 1	0
3.04.01 2B4P BED 2	0
3.04.02 1B1P LIV/KITCH/BED	0
3.04.03 1B1P LIV/KITCH/BED	0
3.04.04 2B4P BED 1	0
3.04.04 2B4P BED 2	0
3.04.04 2B4P LIV/KITCHEN	0.1
3.04.05 1B2P BED	0.2
3.04.05 1B2P LIV/KITCHEN	0.3
3.04.06 1B2P BED	0.2
3.04.06 1B2P LIV/KITCHEN	0.3
3.04.07 2B4P BED 1	0.1
3.04.07 2B4P BED 2	0.1
3.04.07 2B4P LIV/KITCHEN	0.3
3.05.08 2B4P BED 1	0.1
3.05.08 2B4P BED 2	0.1
3.05.08 2B4P LIV/KITCHEN	0.2
3.05.01 2B4P LIV/KITCHEN	0.1
3.05.01 2B4P BED 1	0
3.05.01 2B4P BED 2	0
3.05.02 1B1P LIV/KITCH/BED	0
3.05.03 1B1P LIV/KITCH/BED	0
3.05.04 2B4P BED 1	0
3.05.04 2B4P BED 2	0
3.05.04 2B4P LIV/KITCHEN	0.1
3.05.05 1B2P BED	0.2
3.05.05 1B2P LIV/KITCHEN	0.3
3.05.06 1B2P BED	0.2
3.05.06 1B2P LIV/KITCHEN	0.3
3.05.07 2B4P BED 1	0.1
3.05.07 2B4P BED 2	0.1
3.05.07 2B4P LIV/KITCHEN	0.3
3.06.08 2B4P BED 1	0.1
3.06.08 2B4P BED 2	0
3.06.08 2B4P LIV/KITCHEN	0.2
3.06.01 2B4P LIV/KITCHEN	0.1
3.06.01 2B4P BED 1	0
3.06.01 2B4P BED 2	0
3.06.02 1B1P LIV/KITCH/BED	0
3.06.03 1B1P LIV/KITCH/BED	0
3.06.04 2B4P BED 1	0
3.06.04 2B4P BED 2	0

3.06.04 2B4P LIV/KITCHEN	0.1
3.06.05 1B2P BED	0.1
3.06.05 1B2P LIV/KITCHEN	0.3
3.06.06 1B2P BED	0.1
3.06.06 1B2P LIV/KITCHEN	0.3
3.06.07 2B4P BED 1	0.1
3.06.07 2B4P BED 2	0.1
3.06.07 2B4P LIV/KITCHEN	0.3
3.07.08 2B4P BED 1	0.1
3.07.08 2B4P BED 2	0
3.07.08 2B4P LIV/KITCHEN	0.2
3.07.01 2B4P LIV/KITCHEN	0
3.07.01 2B4P BED 1	0
3.07.01 2B4P BED 2	0
3.07.02 1B1P LIV/KITCH/BED	0
3.07.03 1B1P LIV/KITCH/BED	0
3.07.04 2B4P BED 1	0
3.07.04 2B4P BED 2	0
3.07.04 2B4P LIV/KITCHEN	0.1
3.07.05 1B2P BED	0.1
3.07.05 1B2P LIV/KITCHEN	0.3
3.07.06 1B2P BED	0.1
3.07.06 1B2P LIV/KITCHEN	0.3
3.07.07 2B4P BED 1	0.1
3.07.07 2B4P BED 2	0.1
3.07.07 2B4P LIV/KITCHEN	0.2
3.08.08 2B4P BED 1	0.1
3.08.08 2B4P BED 2	0
3.08.08 2B4P LIV/KITCHEN	0.2
3.08.01 2B4P LIV/KITCHEN	0
3.08.01 2B4P BED 1	0
3.08.01 2B4P BED 2	0
3.08.02 1B1P LIV/KITCH/BED	0
3.08.03 1B1P LIV/KITCH/BED	0
3.08.04 2B4P BED 1	0
3.08.04 2B4P BED 2	0
3.08.04 2B4P LIV/KITCHEN	0.1
3.08.05 1B2P BED	0.1
3.08.05 1B2P LIV/KITCHEN	0.3
3.08.06 1B2P BED	0.1
3.08.06 1B2P LIV/KITCHEN	0.3
3.08.07 2B4P BED 1	0.1
3.08.07 2B4P BED 2	0.1
3.08.07 2B4P LIV/KITCHEN	0.2
3.09.08 2B4P BED 1	0.1
3.09.08 2B4P BED 2	0

3.09.08 2B4P LIV/KITCHEN	0.2
3.09.01 2B4P LIV/KITCHEN	0.1
3.09.01 2B4P BED 1	0
3.09.01 2B4P BED 2	0
3.09.04 2B4P BED 1	0
3.09.04 2B4P BED 2	0
3.09.04 2B4P LIV/KITCHEN	0.1
3.09.05 1B2P BED	0.1
3.09.05 1B2P LIV/KITCHEN	0.3
3.09.06 1B2P BED	0.1
3.09.06 1B2P LIV/KITCHEN	0.3
3.09.07 2B4P BED 1	0.1
3.09.07 2B4P BED 2	0.1
3.09.07 2B4P LIV/KITCHEN	0.3
3.09.02 1B2P BED	0
3.09.02 1B2P LIV/KITCHEN	0
3.09.03 2B4P LIV/KITCHEN	0
3.09.03 2B4P BED 1	0
3.09.03 2B4P BED 2	0
3.10.08 2B4P BED 1	0.1
3.10.08 2B4P BED 2	0
3.10.08 2B4P LIV/KITCHEN	0.2
3.10.01 2B4P LIV/KITCHEN	0.1
3.10.01 2B4P BED 1	0
3.10.01 2B4P BED 2	0
3.10.04 2B4P BED 1	0
3.10.04 2B4P BED 2	0
3.10.04 2B4P LIV/KITCHEN	0.1
3.10.05 1B2P BED	0.1
3.10.05 1B2P LIV/KITCHEN	0.3
3.10.06 1B2P BED	0.1
3.10.06 1B2P LIV/KITCHEN	0.3
3.10.07 2B4P BED 1	0.1
3.10.07 2B4P BED 2	0.1
3.10.07 2B4P LIV/KITCHEN	0.3
3.10.02 1B2P BED	0
3.10.02 1B2P LIV/KITCHEN	0
3.10.03 2B4P LIV/KITCHEN	0
3.10.03 2B4P BED 1	0
3.10.03 2B4P BED 2	0
3.11.08 2B4P BED 1	0.1
3.11.08 2B4P BED 2	0
3.11.08 2B4P LIV/KITCHEN	0.2
3.11.01 2B4P LIV/KITCHEN	0.1
3.11.01 2B4P BED 1	0
3.11.01 2B4P BED 2	0

3.11.04 2B4P BED 1	0
3.11.04 2B4P BED 2	0
3.11.04 2B4P LIV/KITCHEN	0.1
3.11.05 1B2P BED	0.1
3.11.05 1B2P LIV/KITCHEN	0.3
3.11.06 1B2P BED	0.1
3.11.06 1B2P LIV/KITCHEN	0.3
3.11.07 2B4P BED 1	0.1
3.11.07 2B4P BED 2	0.1
3.11.07 2B4P LIV/KITCHEN	0.2
3.11.02 1B2P BED	0
3.11.02 1B2P LIV/KITCHEN	0
3.11.03 2B4P LIV/KITCHEN	0
3.11.03 2B4P BED 1	0
3.11.03 2B4P BED 2	0
3.12.08 2B4P BED 1	0.1
3.12.08 2B4P BED 2	0
3.12.08 2B4P LIV/KITCHEN	0.2
3.12.01 2B4P LIV/KITCHEN	0.1
3.12.01 2B4P BED 1	0
3.12.01 2B4P BED 2	0
3.12.04 2B4P BED 1	0
3.12.04 2B4P BED 2	0
3.12.04 2B4P LIV/KITCHEN	0.1
3.12.05 1B2P BED	0.1
3.12.05 1B2P LIV/KITCHEN	0.3
3.12.06 1B2P BED	0.1
3.12.06 1B2P LIV/KITCHEN	0.3
3.12.07 2B4P BED 1	0.1
3.12.07 2B4P BED 2	0.1
3.12.07 2B4P LIV/KITCHEN	0.2
3.12.02 1B2P BED	0
3.12.02 1B2P LIV/KITCHEN	0
3.12.03 2B4P LIV/KITCHEN	0
3.12.03 2B4P BED 1	0
3.12.03 2B4P BED 2	0
3.13.08 2B4P BED 1	0.1
3.13.08 2B4P BED 2	0
3.13.08 2B4P LIV/KITCHEN	0.2
3.13.01 2B4P LIV/KITCHEN	0.1
3.13.01 2B4P BED 1	0
3.13.01 2B4P BED 2	0
3.13.04 2B4P BED 1	0
3.13.04 2B4P BED 2	0
3.13.04 2B4P LIV/KITCHEN	0.1
3.13.05 1B2P BED	0.1

3.13.05 1B2P LIV/KITCHEN	0.3
3.13.06 1B2P BED	0.1
3.13.06 1B2P LIV/KITCHEN	0.3
3.13.07 2B4P BED 1	0.1
3.13.07 2B4P BED 2	0.1
3.13.07 2B4P LIV/KITCHEN	0.2
3.13.02 1B2P BED	0
3.13.02 1B2P LIV/KITCHEN	0
3.13.03 2B4P LIV/KITCHEN	0
3.13.03 2B4P BED 1	0
3.13.03 2B4P BED 2	0
3.14.08 2B4P BED 1	0.1
3.14.08 2B4P BED 2	0
3.14.08 2B4P LIV/KITCHEN	0.2
3.14.01 2B4P LIV/KITCHEN	0
3.14.01 2B4P BED 1	0
3.14.01 2B4P BED 2	0
3.14.04 2B4P BED 1	0
3.14.04 2B4P BED 2	0
3.14.04 2B4P LIV/KITCHEN	0.1
3.14.05 1B2P BED	0.1
3.14.05 1B2P LIV/KITCHEN	0.3
3.14.06 1B2P BED	0.1
3.14.06 1B2P LIV/KITCHEN	0.3
3.14.07 2B4P BED 1	0.1
3.14.07 2B4P BED 2	0.1
3.14.07 2B4P LIV/KITCHEN	0.2
3.14.02 1B2P BED	0
3.14.02 1B2P LIV/KITCHEN	0
3.14.03 2B4P LIV/KITCHEN	0
3.14.03 2B4P BED 1	0
3.14.03 2B4P BED 2	0
3.15.08 2B4P BED 1	0.1
3.15.08 2B4P BED 2	0
3.15.08 2B4P LIV/KITCHEN	0.2
3.15.01 2B4P LIV/KITCHEN	0
3.15.01 2B4P BED 1	0
3.15.01 2B4P BED 2	0
3.15.04 2B4P BED 1	0
3.15.04 2B4P BED 2	0
3.15.04 2B4P LIV/KITCHEN	0.1
3.15.05 1B2P BED	0.1
3.15.05 1B2P LIV/KITCHEN	0.3
3.15.06 1B2P BED	0.1
3.15.06 1B2P LIV/KITCHEN	0.3
3.15.07 2B4P BED 1	0.1

3.15.07 2B4P BED 2	0.1
3.15.07 2B4P LIV/KITCHEN	0.2
3.15.02 1B2P BED	0
3.15.02 1B2P LIV/KITCHEN	0
3.15.03 2B4P LIV/KITCHEN	0
3.15.03 2B4P BED 1	0
3.15.03 2B4P BED 2	0
3.16.08 2B4P BED 1	0.1
3.16.08 2B4P BED 2	0
3.16.08 2B4P LIV/KITCHEN	0.2
3.16.01 2B4P LIV/KITCHEN	0
3.16.01 2B4P BED 1	0
3.16.01 2B4P BED 2	0
3.16.04 2B4P BED 1	0
3.16.04 2B4P BED 2	0
3.16.04 2B4P LIV/KITCHEN	0.1
3.16.05 1B2P BED	0.1
3.16.05 1B2P LIV/KITCHEN	0.3
3.16.06 1B2P BED	0.1
3.16.06 1B2P LIV/KITCHEN	0.3
3.16.07 2B4P BED 1	0.1
3.16.07 2B4P BED 2	0.1
3.16.07 2B4P LIV/KITCHEN	0.2
3.16.02 1B2P BED	0
3.16.02 1B2P LIV/KITCHEN	0
3.16.03 2B4P LIV/KITCHEN	0
3.16.03 2B4P BED 1	0
3.16.03 2B4P BED 2	0
3.17.08 2B4P BED 1	0.1
3.17.08 2B4P BED 2	0
3.17.08 2B4P LIV/KITCHEN	0.2
3.17.01 2B4P LIV/KITCHEN	0
3.17.01 2B4P BED 1	0
3.17.01 2B4P BED 2	0
3.17.04 2B4P BED 1	0
3.17.04 2B4P BED 2	0
3.17.04 2B4P LIV/KITCHEN	0.1
3.17.05 1B2P BED	0.1
3.17.05 1B2P LIV/KITCHEN	0.3
3.17.06 1B2P BED	0.1
3.17.06 1B2P LIV/KITCHEN	0.3
3.17.07 2B4P BED 1	0.1
3.17.07 2B4P BED 2	0.1
3.17.07 2B4P LIV/KITCHEN	0.2
3.17.02 1B2P BED	0
3.17.02 1B2P LIV/KITCHEN	0

3.17.03 2B4P LIV/KITCHEN	0
3.17.03 2B4P BED 1	0
3.17.03 2B4P BED 2	0
3.18.08 2B4P BED 1	0.1
3.18.08 2B4P BED 2	0
3.18.08 2B4P LIV/KITCHEN	0.3
3.18.01 2B4P LIV/KITCHEN	0
3.18.01 2B4P BED 1	0
3.18.01 2B4P BED 2	0
3.18.04 2B4P BED 1	0
3.18.04 2B4P BED 2	0
3.18.04 2B4P LIV/KITCHEN	0.1
3.18.05 1B2P BED	0.1
3.18.05 1B2P LIV/KITCHEN	0.3
3.18.06 1B2P BED	0.1
3.18.06 1B2P LIV/KITCHEN	0.3
3.18.07 2B4P BED 1	0
3.18.07 2B4P BED 2	0.1
3.18.07 2B4P LIV/KITCHEN	0.2
3.18.02 1B2P BED	0
3.18.02 1B2P LIV/KITCHEN	0
3.18.03 2B4P LIV/KITCHEN	0
3.18.03 2B4P BED 1	0
3.18.03 2B4P BED 2	0

RESULTS FOR BEDROOM CRITERIA – ALL BEDROOMS PASSING

LOCATION	NO. OF HOURS WHERE Ta>26degC between 2200 hours to 0700 hours (Target ≤ 32 hours)
3.01.08 2B4P BED 1	27
3.01.08 2B4P BED 2	30
3.01.01 2B4P BED 1	28
3.01.01 2B4P BED 2	25
3.01.02 1B1P LIV/KITCH/BED	12
3.01.03 1B1P LIV/KITCH/BED	17
3.01.04 2B4P BED 1	27
3.01.04 2B4P BED 2	25
3.01.05 1B2P BED	30
3.01.06 1B2P BED	30
3.01.07 2B4P BED 1	30
3.01.07 2B4P BED 2	32
3.02.08 2B4P BED 1	26
3.02.08 2B4P BED 2	29
3.02.01 2B4P BED 1	27
3.02.01 2B4P BED 2	25
3.02.02 1B1P LIV/KITCH/BED	12
3.02.03 1B1P LIV/KITCH/BED	16

3.02.04 2B4P BED 1	26
3.02.04 2B4P BED 2	25
3.02.05 1B2P BED	29
3.02.06 1B2P BED	30
3.02.07 2B4P BED 1	29
3.02.07 2B4P BED 2	32
3.03.08 2B4P BED 1	23
3.03.08 2B4P BED 2	25
3.03.01 2B4P BED 1	24
3.03.01 2B4P BED 2	22
3.03.02 1B1P LIV/KITCH/BED	12
3.03.03 1B1P LIV/KITCH/BED	16
3.03.04 2B4P BED 1	23
3.03.04 2B4P BED 2	23
3.03.05 1B2P BED	24
3.03.06 1B2P BED	25
3.03.07 2B4P BED 1	26
3.03.07 2B4P BED 2	27
3.04.08 2B4P BED 1	23
3.04.08 2B4P BED 2	24
3.04.01 2B4P BED 1	24
3.04.01 2B4P BED 2	22
3.04.02 1B1P LIV/KITCH/BED	12
3.04.03 1B1P LIV/KITCH/BED	16
3.04.04 2B4P BED 1	23
3.04.04 2B4P BED 2	23
3.04.05 1B2P BED	23
3.04.06 1B2P BED	24
3.04.07 2B4P BED 1	26
3.04.07 2B4P BED 2	26
3.05.08 2B4P BED 1	23
3.05.08 2B4P BED 2	24
3.05.01 2B4P BED 1	24
3.05.01 2B4P BED 2	22
3.05.02 1B1P LIV/KITCH/BED	12
3.05.03 1B1P LIV/KITCH/BED	16
3.05.04 2B4P BED 1	23
3.05.04 2B4P BED 2	23
3.05.05 1B2P BED	23
3.05.06 1B2P BED	24
3.05.07 2B4P BED 1	26
3.05.07 2B4P BED 2	26
3.06.08 2B4P BED 1	23
3.06.08 2B4P BED 2	24
3.06.01 2B4P BED 1	23
3.06.01 2B4P BED 2	21

3.06.02 1B1P LIV/KITCH/BED	12
3.06.03 1B1P LIV/KITCH/BED	16
3.06.04 2B4P BED 1	23
3.06.04 2B4P BED 2	23
3.06.05 1B2P BED	23
3.06.06 1B2P BED	23
3.06.07 2B4P BED 1	26
3.06.07 2B4P BED 2	26
3.07.08 2B4P BED 1	22
3.07.08 2B4P BED 2	24
3.07.01 2B4P BED 1	22
3.07.01 2B4P BED 2	21
3.07.02 1B1P LIV/KITCH/BED	11
3.07.03 1B1P LIV/KITCH/BED	16
3.07.04 2B4P BED 1	22
3.07.04 2B4P BED 2	22
3.07.05 1B2P BED	23
3.07.06 1B2P BED	23
3.07.07 2B4P BED 1	26
3.07.07 2B4P BED 2	25
3.08.08 2B4P BED 1	22
3.08.08 2B4P BED 2	24
3.08.01 2B4P BED 1	21
3.08.01 2B4P BED 2	21
3.08.02 1B1P LIV/KITCH/BED	11
3.08.03 1B1P LIV/KITCH/BED	16
3.08.04 2B4P BED 1	23
3.08.04 2B4P BED 2	22
3.08.05 1B2P BED	23
3.08.06 1B2P BED	23
3.08.07 2B4P BED 1	26
3.08.07 2B4P BED 2	25
3.09.08 2B4P BED 1	22
3.09.08 2B4P BED 2	24
3.09.01 2B4P BED 1	21
3.09.01 2B4P BED 2	21
3.09.04 2B4P BED 1	23
3.09.04 2B4P BED 2	22
3.09.05 1B2P BED	23
3.09.06 1B2P BED	23
3.09.07 2B4P BED 1	26
3.09.07 2B4P BED 2	25
3.09.02 1B2P BED	21
3.09.03 2B4P BED 1	22
3.09.03 2B4P BED 2	21
3.10.08 2B4P BED 1	22

3.10.08 2B4P BED 2	24
3.10.01 2B4P BED 1	21
3.10.01 2B4P BED 2	22
3.10.04 2B4P BED 1	22
3.10.04 2B4P BED 2	22
3.10.05 1B2P BED	23
3.10.06 1B2P BED	23
3.10.07 2B4P BED 1	26
3.10.07 2B4P BED 2	24
3.10.02 1B2P BED	22
3.10.03 2B4P BED 1	26
3.10.03 2B4P BED 2	22
3.11.08 2B4P BED 1	20
3.11.08 2B4P BED 2	24
3.11.01 2B4P BED 1	21
3.11.01 2B4P BED 2	21
3.11.04 2B4P BED 1	22
3.11.04 2B4P BED 2	21
3.11.05 1B2P BED	22
3.11.06 1B2P BED	22
3.11.07 2B4P BED 1	24
3.11.07 2B4P BED 2	24
3.11.02 1B2P BED	22
3.11.03 2B4P BED 1	23
3.11.03 2B4P BED 2	22
3.12.08 2B4P BED 1	20
3.12.08 2B4P BED 2	24
3.12.01 2B4P BED 1	21
3.12.01 2B4P BED 2	21
3.12.04 2B4P BED 1	22
3.12.04 2B4P BED 2	21
3.12.05 1B2P BED	22
3.12.06 1B2P BED	22
3.12.07 2B4P BED 1	24
3.12.07 2B4P BED 2	24
3.12.02 1B2P BED	22
3.12.03 2B4P BED 1	23
3.12.03 2B4P BED 2	22
3.13.08 2B4P BED 1	20
3.13.08 2B4P BED 2	24
3.13.01 2B4P BED 1	21
3.13.01 2B4P BED 2	21
3.13.04 2B4P BED 1	21
3.13.04 2B4P BED 2	21
3.13.05 1B2P BED	22
3.13.06 1B2P BED	22

3.13.07 2B4P BED 1	24
3.13.07 2B4P BED 2	24
3.13.02 1B2P BED	22
3.13.03 2B4P BED 1	23
3.13.03 2B4P BED 2	22
3.14.08 2B4P BED 1	20
3.14.08 2B4P BED 2	24
3.14.01 2B4P BED 1	21
3.14.01 2B4P BED 2	21
3.14.04 2B4P BED 1	21
3.14.04 2B4P BED 2	21
3.14.05 1B2P BED	22
3.14.06 1B2P BED	22
3.14.07 2B4P BED 1	24
3.14.07 2B4P BED 2	24
3.14.02 1B2P BED	22
3.14.03 2B4P BED 1	23
3.14.03 2B4P BED 2	22
3.15.08 2B4P BED 1	20
3.15.08 2B4P BED 2	23
3.15.01 2B4P BED 1	20
3.15.01 2B4P BED 2	21
3.15.04 2B4P BED 1	21
3.15.04 2B4P BED 2	21
3.15.05 1B2P BED	22
3.15.06 1B2P BED	22
3.15.07 2B4P BED 1	24
3.15.07 2B4P BED 2	24
3.15.02 1B2P BED	22
3.15.03 2B4P BED 1	22
3.15.03 2B4P BED 2	21
3.16.08 2B4P BED 1	20
3.16.08 2B4P BED 2	23
3.16.01 2B4P BED 1	19
3.16.01 2B4P BED 2	21
3.16.04 2B4P BED 1	21
3.16.04 2B4P BED 2	21
3.16.05 1B2P BED	22
3.16.06 1B2P BED	22
3.16.07 2B4P BED 1	24
3.16.07 2B4P BED 2	24
3.16.02 1B2P BED	22
3.16.03 2B4P BED 1	22
3.16.03 2B4P BED 2	21
3.17.08 2B4P BED 1	20
3.17.08 2B4P BED 2	23

3.17.01 2B4P BED 1	19
3.17.01 2B4P BED 2	21
3.17.04 2B4P BED 1	21
3.17.04 2B4P BED 2	21
3.17.05 1B2P BED	22
3.17.06 1B2P BED	22
3.17.07 2B4P BED 1	24
3.17.07 2B4P BED 2	24
3.17.02 1B2P BED	22
3.17.03 2B4P BED 1	22
3.17.03 2B4P BED 2	21
3.18.08 2B4P BED 1	20
3.18.08 2B4P BED 2	21
3.18.01 2B4P BED 1	18
3.18.01 2B4P BED 2	19
3.18.04 2B4P BED 1	22
3.18.04 2B4P BED 2	21
3.18.05 1B2P BED	21
3.18.06 1B2P BED	21
3.18.07 2B4P BED 1	21
3.18.07 2B4P BED 2	24
3.18.02 1B2P BED	21
3.18.03 2B4P BED 1	22
3.18.03 2B4P BED 2	22
3.18.03 2B4P BED 1	22
3.18.03 2B4P BED 2	22

RESULTS FOR COMMUNAL CORRIDORS – ALL PASSING

LOCATION	% NO. OF HOURS WHERE Ta>28degC (TARGET ≤ 3%)
3.01 COMMUNAL CORRIDOR	0.5
3.02 COMMUNAL CORRIDOR	0.4
3.03 COMMUNAL CORRIDOR	0.4
3.04 COMMUNAL CORRIDOR	0.4
3.05 COMMUNAL CORRIDOR	0.4
3.06 COMMUNAL CORRIDOR	0.3
3.07 COMMUNAL CORRIDOR	0.3
3.08 COMMUNAL CORRIDOR	0.4
3.09 COMMUNAL CORRIDOR	0.4
3.10 COMMUNAL CORRIDOR	0.4
3.11 COMMUNAL CORRIDOR	0.4
3.12 COMMUNAL CORRIDOR	0.4
3.13 COMMUNAL CORRIDOR	0.4
3.14 COMMUNAL CORRIDOR	0.4
3.15 COMMUNAL CORRIDOR	0.4
3.16 COMMUNAL CORRIDOR	0.4

3.17 COMMUNAL CORRIDOR	0.4
3.18 COMMUNAL CORRIDOR	0.3
3.19 CORRIDOR	0

THERMAL MODELLING RAW RESULTS FOR CIBSE LONDON HEATHROW DSY3 2020'S HIGH EMISSIONS 50TH PERCENTILE RANGE WEATHER FILE USING PASSIVE MITIGATION MEASURES

RESULTS FOR CRITERION 1 – ALL ROOMS PASSING

Room Name	Criteria 1 (%Hrs Top-Tmax>=1K) (Target ≤ 3%)
3.01.08 2B4P BED 1	0.8
3.01.08 2B4P BED 2	0.6
3.01.08 2B4P LIV/KITCHEN	1.3
3.01.01 2B4P LIV/KITCHEN	0.8
3.01.01 2B4P BED 1	0.5
3.01.01 2B4P BED 2	0.4
3.01.02 1B1P LIV/KITCH/BED	0
3.01.03 1B1P LIV/KITCH/BED	0
3.01.04 2B4P BED 1	0.6
3.01.04 2B4P BED 2	0.5
3.01.04 2B4P LIV/KITCHEN	0.9
3.01.05 1B2P BED	0.8
3.01.05 1B2P LIV/KITCHEN	1
3.01.06 1B2P BED	0.8
3.01.06 1B2P LIV/KITCHEN	1
3.01.07 2B4P BED 1	0.7
3.01.07 2B4P BED 2	0.8
3.01.07 2B4P LIV/KITCHEN	1
3.02.08 2B4P BED 1	0.5
3.02.08 2B4P BED 2	0.5
3.02.08 2B4P LIV/KITCHEN	0.9
3.02.01 2B4P LIV/KITCHEN	0.7
3.02.01 2B4P BED 1	0.4
3.02.01 2B4P BED 2	0.1
3.02.02 1B1P LIV/KITCH/BED	0
3.02.03 1B1P LIV/KITCH/BED	0
3.02.04 2B4P BED 1	0.4
3.02.04 2B4P BED 2	0.3
3.02.04 2B4P LIV/KITCHEN	0.6
3.02.05 1B2P BED	0.6
3.02.05 1B2P LIV/KITCHEN	0.8
3.02.06 1B2P BED	0.7
3.02.06 1B2P LIV/KITCHEN	0.8
3.02.07 2B4P BED 1	0.5
3.02.07 2B4P BED 2	0.6
3.02.07 2B4P LIV/KITCHEN	0.9

3.03.08 2B4P BED 1	0.5
3.03.08 2B4P BED 2	0.5
3.03.08 2B4P LIV/KITCHEN	0.9
3.03.01 2B4P LIV/KITCHEN	0.6
3.03.01 2B4P BED 1	0.4
3.03.01 2B4P BED 2	0.1
3.03.02 1B1P LIV/KITCH/BED	0
3.03.03 1B1P LIV/KITCH/BED	0
3.03.04 2B4P BED 1	0.3
3.03.04 2B4P BED 2	0.2
3.03.04 2B4P LIV/KITCHEN	0.5
3.03.05 1B2P BED	0.5
3.03.05 1B2P LIV/KITCHEN	0.8
3.03.06 1B2P BED	0.6
3.03.06 1B2P LIV/KITCHEN	0.8
3.03.07 2B4P BED 1	0.5
3.03.07 2B4P BED 2	0.5
3.03.07 2B4P LIV/KITCHEN	0.8
3.04.08 2B4P BED 1	0.5
3.04.08 2B4P BED 2	0.4
3.04.08 2B4P LIV/KITCHEN	0.8
3.04.01 2B4P LIV/KITCHEN	0.4
3.04.01 2B4P BED 1	0.3
3.04.01 2B4P BED 2	0
3.04.02 1B1P LIV/KITCH/BED	0
3.04.03 1B1P LIV/KITCH/BED	0
3.04.04 2B4P BED 1	0.3
3.04.04 2B4P BED 2	0.1
3.04.04 2B4P LIV/KITCHEN	0.4
3.04.05 1B2P BED	0.5
3.04.05 1B2P LIV/KITCHEN	0.7
3.04.06 1B2P BED	0.5
3.04.06 1B2P LIV/KITCHEN	0.7
3.04.07 2B4P BED 1	0.5
3.04.07 2B4P BED 2	0.5
3.04.07 2B4P LIV/KITCHEN	0.8
3.05.08 2B4P BED 1	0.5
3.05.08 2B4P BED 2	0.4
3.05.08 2B4P LIV/KITCHEN	0.8
3.05.01 2B4P LIV/KITCHEN	0.3
3.05.01 2B4P BED 1	0.2
3.05.01 2B4P BED 2	0
3.05.02 1B1P LIV/KITCH/BED	0
3.05.03 1B1P LIV/KITCH/BED	0
3.05.04 2B4P BED 1	0.3
3.05.04 2B4P BED 2	0.1

3.05.04 2B4P LIV/KITCHEN	0.4
3.05.05 1B2P BED	0.5
3.05.05 1B2P LIV/KITCHEN	0.7
3.05.06 1B2P BED	0.5
3.05.06 1B2P LIV/KITCHEN	0.7
3.05.07 2B4P BED 1	0.5
3.05.07 2B4P BED 2	0.5
3.05.07 2B4P LIV/KITCHEN	0.8
3.06.08 2B4P BED 1	0.5
3.06.08 2B4P BED 2	0.4
3.06.08 2B4P LIV/KITCHEN	0.8
3.06.01 2B4P LIV/KITCHEN	0.3
3.06.01 2B4P BED 1	0.2
3.06.01 2B4P BED 2	0
3.06.02 1B1P LIV/KITCH/BED	0
3.06.03 1B1P LIV/KITCH/BED	0
3.06.04 2B4P BED 1	0.3
3.06.04 2B4P BED 2	0.1
3.06.04 2B4P LIV/KITCHEN	0.4
3.06.05 1B2P BED	0.5
3.06.05 1B2P LIV/KITCHEN	0.7
3.06.06 1B2P BED	0.5
3.06.06 1B2P LIV/KITCHEN	0.7
3.06.07 2B4P BED 1	0.5
3.06.07 2B4P BED 2	0.5
3.06.07 2B4P LIV/KITCHEN	0.8
3.07.08 2B4P BED 1	0.5
3.07.08 2B4P BED 2	0.4
3.07.08 2B4P LIV/KITCHEN	0.8
3.07.01 2B4P LIV/KITCHEN	0.3
3.07.01 2B4P BED 1	0.2
3.07.01 2B4P BED 2	0
3.07.02 1B1P LIV/KITCH/BED	0
3.07.03 1B1P LIV/KITCH/BED	0
3.07.04 2B4P BED 1	0.2
3.07.04 2B4P BED 2	0.1
3.07.04 2B4P LIV/KITCHEN	0.4
3.07.05 1B2P BED	0.5
3.07.05 1B2P LIV/KITCHEN	0.7
3.07.06 1B2P BED	0.5
3.07.06 1B2P LIV/KITCHEN	0.7
3.07.07 2B4P BED 1	0.5
3.07.07 2B4P BED 2	0.5
3.07.07 2B4P LIV/KITCHEN	0.8
3.08.08 2B4P BED 1	0.5
3.08.08 2B4P BED 2	0.4

3.08.08 2B4P LIV/KITCHEN	0.8
3.08.01 2B4P LIV/KITCHEN	0.3
3.08.01 2B4P BED 1	0.2
3.08.01 2B4P BED 2	0
3.08.02 1B1P LIV/KITCH/BED	0
3.08.03 1B1P LIV/KITCH/BED	0
3.08.04 2B4P BED 1	0.2
3.08.04 2B4P BED 2	0.1
3.08.04 2B4P LIV/KITCHEN	0.4
3.08.05 1B2P BED	0.5
3.08.05 1B2P LIV/KITCHEN	0.7
3.08.06 1B2P BED	0.5
3.08.06 1B2P LIV/KITCHEN	0.7
3.08.07 2B4P BED 1	0.5
3.08.07 2B4P BED 2	0.5
3.08.07 2B4P LIV/KITCHEN	0.8
3.09.08 2B4P BED 1	0.5
3.09.08 2B4P BED 2	0.4
3.09.08 2B4P LIV/KITCHEN	0.8
3.09.01 2B4P LIV/KITCHEN	0.4
3.09.01 2B4P BED 1	0.3
3.09.01 2B4P BED 2	0
3.09.04 2B4P BED 1	0.3
3.09.04 2B4P BED 2	0.2
3.09.04 2B4P LIV/KITCHEN	0.5
3.09.05 1B2P BED	0.5
3.09.05 1B2P LIV/KITCHEN	0.7
3.09.06 1B2P BED	0.5
3.09.06 1B2P LIV/KITCHEN	0.7
3.09.07 2B4P BED 1	0.5
3.09.07 2B4P BED 2	0.5
3.09.07 2B4P LIV/KITCHEN	0.8
3.09.02 1B2P BED	0
3.09.02 1B2P LIV/KITCHEN	0.1
3.09.03 2B4P LIV/KITCHEN	0
3.09.03 2B4P BED 1	0
3.09.03 2B4P BED 2	0
3.10.08 2B4P BED 1	0.5
3.10.08 2B4P BED 2	0.4
3.10.08 2B4P LIV/KITCHEN	0.8
3.10.01 2B4P LIV/KITCHEN	0.4
3.10.01 2B4P BED 1	0.3
3.10.01 2B4P BED 2	0
3.10.04 2B4P BED 1	0.3
3.10.04 2B4P BED 2	0.2
3.10.04 2B4P LIV/KITCHEN	0.5

3.10.05 1B2P BED	0.5
3.10.05 1B2P LIV/KITCHEN	0.7
3.10.06 1B2P BED	0.5
3.10.06 1B2P LIV/KITCHEN	0.7
3.10.07 2B4P BED 1	0.5
3.10.07 2B4P BED 2	0.5
3.10.07 2B4P LIV/KITCHEN	0.8
3.10.02 1B2P BED	0
3.10.02 1B2P LIV/KITCHEN	0.2
3.10.03 2B4P LIV/KITCHEN	0
3.10.03 2B4P BED 1	0
3.10.03 2B4P BED 2	0
3.11.08 2B4P BED 1	0.5
3.11.08 2B4P BED 2	0.4
3.11.08 2B4P LIV/KITCHEN	0.8
3.11.01 2B4P LIV/KITCHEN	0.4
3.11.01 2B4P BED 1	0.3
3.11.01 2B4P BED 2	0
3.11.04 2B4P BED 1	0.2
3.11.04 2B4P BED 2	0.2
3.11.04 2B4P LIV/KITCHEN	0.5
3.11.05 1B2P BED	0.5
3.11.05 1B2P LIV/KITCHEN	0.7
3.11.06 1B2P BED	0.5
3.11.06 1B2P LIV/KITCHEN	0.7
3.11.07 2B4P BED 1	0.5
3.11.07 2B4P BED 2	0.5
3.11.07 2B4P LIV/KITCHEN	0.8
3.11.02 1B2P BED	0.1
3.11.02 1B2P LIV/KITCHEN	0.2
3.11.03 2B4P LIV/KITCHEN	0
3.11.03 2B4P BED 1	0
3.11.03 2B4P BED 2	0
3.12.08 2B4P BED 1	0.5
3.12.08 2B4P BED 2	0.4
3.12.08 2B4P LIV/KITCHEN	0.8
3.12.01 2B4P LIV/KITCHEN	0.4
3.12.01 2B4P BED 1	0.3
3.12.01 2B4P BED 2	0
3.12.04 2B4P BED 1	0.2
3.12.04 2B4P BED 2	0.2
3.12.04 2B4P LIV/KITCHEN	0.5
3.12.05 1B2P BED	0.5
3.12.05 1B2P LIV/KITCHEN	0.7
3.12.06 1B2P BED	0.5
3.12.06 1B2P LIV/KITCHEN	0.7

3.12.07 2B4P BED 1	0.5
3.12.07 2B4P BED 2	0.5
3.12.07 2B4P LIV/KITCHEN	0.8
3.12.02 1B2P BED	0.1
3.12.02 1B2P LIV/KITCHEN	0.2
3.12.03 2B4P LIV/KITCHEN	0
3.12.03 2B4P BED 1	0
3.12.03 2B4P BED 2	0
3.13.08 2B4P BED 1	0.5
3.13.08 2B4P BED 2	0.4
3.13.08 2B4P LIV/KITCHEN	0.8
3.13.01 2B4P LIV/KITCHEN	0.4
3.13.01 2B4P BED 1	0.3
3.13.01 2B4P BED 2	0
3.13.04 2B4P BED 1	0.2
3.13.04 2B4P BED 2	0.2
3.13.04 2B4P LIV/KITCHEN	0.5
3.13.05 1B2P BED	0.5
3.13.05 1B2P LIV/KITCHEN	0.7
3.13.06 1B2P BED	0.5
3.13.06 1B2P LIV/KITCHEN	0.7
3.13.07 2B4P BED 1	0.5
3.13.07 2B4P BED 2	0.5
3.13.07 2B4P LIV/KITCHEN	0.8
3.13.02 1B2P BED	0.1
3.13.02 1B2P LIV/KITCHEN	0.2
3.13.03 2B4P LIV/KITCHEN	0
3.13.03 2B4P BED 1	0
3.13.03 2B4P BED 2	0
3.14.08 2B4P BED 1	0.5
3.14.08 2B4P BED 2	0.4
3.14.08 2B4P LIV/KITCHEN	0.8
3.14.01 2B4P LIV/KITCHEN	0.4
3.14.01 2B4P BED 1	0.3
3.14.01 2B4P BED 2	0
3.14.04 2B4P BED 1	0.2
3.14.04 2B4P BED 2	0.2
3.14.04 2B4P LIV/KITCHEN	0.5
3.14.05 1B2P BED	0.5
3.14.05 1B2P LIV/KITCHEN	0.7
3.14.06 1B2P BED	0.5
3.14.06 1B2P LIV/KITCHEN	0.7
3.14.07 2B4P BED 1	0.5
3.14.07 2B4P BED 2	0.5
3.14.07 2B4P LIV/KITCHEN	0.8
3.14.02 1B2P BED	0.1

3.14.02 1B2P LIV/KITCHEN	0.2
3.14.03 2B4P LIV/KITCHEN	0
3.14.03 2B4P BED 1	0
3.14.03 2B4P BED 2	0
3.15.08 2B4P BED 1	0.5
3.15.08 2B4P BED 2	0.4
3.15.08 2B4P LIV/KITCHEN	0.8
3.15.01 2B4P LIV/KITCHEN	0.4
3.15.01 2B4P BED 1	0.2
3.15.01 2B4P BED 2	0
3.15.04 2B4P BED 1	0.2
3.15.04 2B4P BED 2	0.2
3.15.04 2B4P LIV/KITCHEN	0.5
3.15.05 1B2P BED	0.5
3.15.05 1B2P LIV/KITCHEN	0.7
3.15.06 1B2P BED	0.5
3.15.06 1B2P LIV/KITCHEN	0.7
3.15.07 2B4P BED 1	0.5
3.15.07 2B4P BED 2	0.5
3.15.07 2B4P LIV/KITCHEN	0.8
3.15.02 1B2P BED	0.1
3.15.02 1B2P LIV/KITCHEN	0.1
3.15.03 2B4P LIV/KITCHEN	0
3.15.03 2B4P BED 1	0
3.15.03 2B4P BED 2	0
3.16.08 2B4P BED 1	0.5
3.16.08 2B4P BED 2	0.4
3.16.08 2B4P LIV/KITCHEN	0.8
3.16.01 2B4P LIV/KITCHEN	0.4
3.16.01 2B4P BED 1	0.2
3.16.01 2B4P BED 2	0
3.16.04 2B4P BED 1	0.2
3.16.04 2B4P BED 2	0.2
3.16.04 2B4P LIV/KITCHEN	0.4
3.16.05 1B2P BED	0.5
3.16.05 1B2P LIV/KITCHEN	0.7
3.16.06 1B2P BED	0.5
3.16.06 1B2P LIV/KITCHEN	0.7
3.16.07 2B4P BED 1	0.5
3.16.07 2B4P BED 2	0.5
3.16.07 2B4P LIV/KITCHEN	0.8
3.16.02 1B2P BED	0
3.16.02 1B2P LIV/KITCHEN	0.1
3.16.03 2B4P LIV/KITCHEN	0
3.16.03 2B4P BED 1	0
3.16.03 2B4P BED 2	0

3.17.08 2B4P BED 1	0.5
3.17.08 2B4P BED 2	0.3
3.17.08 2B4P LIV/KITCHEN	0.8
3.17.01 2B4P LIV/KITCHEN	0.3
3.17.01 2B4P BED 1	0.1
3.17.01 2B4P BED 2	0
3.17.04 2B4P BED 1	0.2
3.17.04 2B4P BED 2	0.2
3.17.04 2B4P LIV/KITCHEN	0.5
3.17.05 1B2P BED	0.5
3.17.05 1B2P LIV/KITCHEN	0.7
3.17.06 1B2P BED	0.5
3.17.06 1B2P LIV/KITCHEN	0.7
3.17.07 2B4P BED 1	0.4
3.17.07 2B4P BED 2	0.5
3.17.07 2B4P LIV/KITCHEN	0.7
3.17.02 1B2P BED	0
3.17.02 1B2P LIV/KITCHEN	0.1
3.17.03 2B4P LIV/KITCHEN	0
3.17.03 2B4P BED 1	0
3.17.03 2B4P BED 2	0
3.18.08 2B4P BED 1	0.4
3.18.08 2B4P BED 2	0.2
3.18.08 2B4P LIV/KITCHEN	0.9
3.18.01 2B4P LIV/KITCHEN	0.1
3.18.01 2B4P BED 1	0
3.18.01 2B4P BED 2	0
3.18.04 2B4P BED 1	0.3
3.18.04 2B4P BED 2	0.2
3.18.04 2B4P LIV/KITCHEN	0.5
3.18.05 1B2P BED	0.5
3.18.05 1B2P LIV/KITCHEN	0.9
3.18.06 1B2P BED	0.5
3.18.06 1B2P LIV/KITCHEN	0.7
3.18.07 2B4P BED 1	0.3
3.18.07 2B4P BED 2	0.4
3.18.07 2B4P LIV/KITCHEN	0.7
3.18.02 1B2P BED	0
3.18.02 1B2P LIV/KITCHEN	0
3.18.03 2B4P LIV/KITCHEN	0
3.18.03 2B4P BED 1	0
3.18.03 2B4P BED 2	0

RESULTS FOR BEDROOM CRITERIA – 23 BEDROOMS PASSING, 203 BEDROOMS MARGINALLY FAILING – WE WOULD EXPECT FURTHER PASSIVE MITIGATION MEASURES SUCH AS THE APPLICATION OF EXTERNAL SOLAR FILM TO BEDROOM WINDOWS TO LIMIT THE LEVEL OF OVERHEATING UNDER EXTREME WEATHER CONDITONS

LOCATION	NO. OF HOURS WHERE Ta>26degC between 2200 hours to 0700 hours (Target ≤ 32 hours)
3.01.08 2B4P BED 1	51
3.01.08 2B4P BED 2	54
3.01.01 2B4P BED 1	49
3.01.01 2B4P BED 2	42
3.01.02 1B1P LIV/KITCH/BED	21
3.01.03 1B1P LIV/KITCH/BED	26
3.01.04 2B4P BED 1	43
3.01.04 2B4P BED 2	36
3.01.05 1B2P BED	51
3.01.06 1B2P BED	51
3.01.07 2B4P BED 1	50
3.01.07 2B4P BED 2	53
3.02.08 2B4P BED 1	50
3.02.08 2B4P BED 2	52
3.02.01 2B4P BED 1	47
3.02.01 2B4P BED 2	39
3.02.02 1B1P LIV/KITCH/BED	21
3.02.03 1B1P LIV/KITCH/BED	26
3.02.04 2B4P BED 1	40
3.02.04 2B4P BED 2	39
3.02.05 1B2P BED	51
3.02.06 1B2P BED	51
3.02.07 2B4P BED 1	50
3.02.07 2B4P BED 2	52
3.03.08 2B4P BED 1	42
3.03.08 2B4P BED 2	47
3.03.01 2B4P BED 1	41
3.03.01 2B4P BED 2	36
3.03.02 1B1P LIV/KITCH/BED	21
3.03.03 1B1P LIV/KITCH/BED	23
3.03.04 2B4P BED 1	33
3.03.04 2B4P BED 2	33
3.03.05 1B2P BED	44
3.03.06 1B2P BED	44
3.03.07 2B4P BED 1	44
3.03.07 2B4P BED 2	48
3.04.08 2B4P BED 1	42
3.04.08 2B4P BED 2	47
3.04.01 2B4P BED 1	39
3.04.01 2B4P BED 2	35

3.04.02 1B1P LIV/KITCH/BED	21
3.04.03 1B1P LIV/KITCH/BED	23
3.04.04 2B4P BED 1	33
3.04.04 2B4P BED 2	33
3.04.05 1B2P BED	43
3.04.06 1B2P BED	44
3.04.07 2B4P BED 1	43
3.04.07 2B4P BED 2	48
3.05.08 2B4P BED 1	42
3.05.08 2B4P BED 2	47
3.05.01 2B4P BED 1	37
3.05.01 2B4P BED 2	35
3.05.02 1B1P LIV/KITCH/BED	21
3.05.03 1B1P LIV/KITCH/BED	23
3.05.04 2B4P BED 1	33
3.05.04 2B4P BED 2	33
3.05.05 1B2P BED	42
3.05.06 1B2P BED	44
3.05.07 2B4P BED 1	43
3.05.07 2B4P BED 2	48
3.06.08 2B4P BED 1	41
3.06.08 2B4P BED 2	47
3.06.01 2B4P BED 1	37
3.06.01 2B4P BED 2	35
3.06.02 1B1P LIV/KITCH/BED	20
3.06.03 1B1P LIV/KITCH/BED	23
3.06.04 2B4P BED 1	33
3.06.04 2B4P BED 2	33
3.06.05 1B2P BED	42
3.06.06 1B2P BED	44
3.06.07 2B4P BED 1	43
3.06.07 2B4P BED 2	48
3.07.08 2B4P BED 1	38
3.07.08 2B4P BED 2	41
3.07.01 2B4P BED 1	36
3.07.01 2B4P BED 2	34
3.07.02 1B1P LIV/KITCH/BED	19
3.07.03 1B1P LIV/KITCH/BED	21
3.07.04 2B4P BED 1	33
3.07.04 2B4P BED 2	33
3.07.05 1B2P BED	42
3.07.06 1B2P BED	42
3.07.07 2B4P BED 1	41
3.07.07 2B4P BED 2	45
3.08.08 2B4P BED 1	38
3.08.08 2B4P BED 2	41

3.08.01 2B4P BED 1	36
3.08.01 2B4P BED 2	35
3.08.02 1B1P LIV/KITCH/BED	19
3.08.03 1B1P LIV/KITCH/BED	21
3.08.04 2B4P BED 1	33
3.08.04 2B4P BED 2	33
3.08.05 1B2P BED	42
3.08.06 1B2P BED	42
3.08.07 2B4P BED 1	41
3.08.07 2B4P BED 2	45
3.09.08 2B4P BED 1	38
3.09.08 2B4P BED 2	41
3.09.01 2B4P BED 1	36
3.09.01 2B4P BED 2	37
3.09.04 2B4P BED 1	33
3.09.04 2B4P BED 2	33
3.09.05 1B2P BED	42
3.09.06 1B2P BED	42
3.09.07 2B4P BED 1	41
3.09.07 2B4P BED 2	45
3.09.02 1B2P BED	38
3.09.03 2B4P BED 1	41
3.09.03 2B4P BED 2	38
3.10.08 2B4P BED 1	38
3.10.08 2B4P BED 2	41
3.10.01 2B4P BED 1	36
3.10.01 2B4P BED 2	37
3.10.04 2B4P BED 1	33
3.10.04 2B4P BED 2	33
3.10.05 1B2P BED	42
3.10.06 1B2P BED	42
3.10.07 2B4P BED 1	41
3.10.07 2B4P BED 2	45
3.10.02 1B2P BED	40
3.10.03 2B4P BED 1	42
3.10.03 2B4P BED 2	40
3.11.08 2B4P BED 1	36
3.11.08 2B4P BED 2	40
3.11.01 2B4P BED 1	35
3.11.01 2B4P BED 2	36
3.11.04 2B4P BED 1	33
3.11.04 2B4P BED 2	32
3.11.05 1B2P BED	40
3.11.06 1B2P BED	41
3.11.07 2B4P BED 1	39
3.11.07 2B4P BED 2	41

3.11.02 1B2P BED	38
3.11.03 2B4P BED 1	40
3.11.03 2B4P BED 2	37
3.12.08 2B4P BED 1	36
3.12.08 2B4P BED 2	40
3.12.01 2B4P BED 1	35
3.12.01 2B4P BED 2	36
3.12.04 2B4P BED 1	33
3.12.04 2B4P BED 2	32
3.12.05 1B2P BED	40
3.12.06 1B2P BED	41
3.12.07 2B4P BED 1	39
3.12.07 2B4P BED 2	41
3.12.02 1B2P BED	38
3.12.03 2B4P BED 1	40
3.12.03 2B4P BED 2	37
3.13.08 2B4P BED 1	36
3.13.08 2B4P BED 2	40
3.13.01 2B4P BED 1	35
3.13.01 2B4P BED 2	36
3.13.04 2B4P BED 1	33
3.13.04 2B4P BED 2	32
3.13.05 1B2P BED	40
3.13.06 1B2P BED	41
3.13.07 2B4P BED 1	39
3.13.07 2B4P BED 2	41
3.13.02 1B2P BED	38
3.13.03 2B4P BED 1	40
3.13.03 2B4P BED 2	37
3.14.08 2B4P BED 1	36
3.14.08 2B4P BED 2	40
3.14.01 2B4P BED 1	35
3.14.01 2B4P BED 2	36
3.14.04 2B4P BED 1	33
3.14.04 2B4P BED 2	32
3.14.05 1B2P BED	40
3.14.06 1B2P BED	41
3.14.07 2B4P BED 1	39
3.14.07 2B4P BED 2	41
3.14.02 1B2P BED	38
3.14.03 2B4P BED 1	40
3.14.03 2B4P BED 2	37
3.15.08 2B4P BED 1	36
3.15.08 2B4P BED 2	40
3.15.01 2B4P BED 1	35
3.15.01 2B4P BED 2	36

3.15.04 2B4P BED 1	33
3.15.04 2B4P BED 2	32
3.15.05 1B2P BED	39
3.15.06 1B2P BED	40
3.15.07 2B4P BED 1	38
3.15.07 2B4P BED 2	40
3.15.02 1B2P BED	37
3.15.03 2B4P BED 1	40
3.15.03 2B4P BED 2	36
3.16.08 2B4P BED 1	36
3.16.08 2B4P BED 2	40
3.16.01 2B4P BED 1	35
3.16.01 2B4P BED 2	36
3.16.04 2B4P BED 1	33
3.16.04 2B4P BED 2	32
3.16.05 1B2P BED	39
3.16.06 1B2P BED	39
3.16.07 2B4P BED 1	38
3.16.07 2B4P BED 2	40
3.16.02 1B2P BED	37
3.16.03 2B4P BED 1	40
3.16.03 2B4P BED 2	36
3.17.08 2B4P BED 1	36
3.17.08 2B4P BED 2	39
3.17.01 2B4P BED 1	35
3.17.01 2B4P BED 2	36
3.17.04 2B4P BED 1	33
3.17.04 2B4P BED 2	32
3.17.05 1B2P BED	39
3.17.06 1B2P BED	40
3.17.07 2B4P BED 1	38
3.17.07 2B4P BED 2	40
3.17.02 1B2P BED	37
3.17.03 2B4P BED 1	40
3.17.03 2B4P BED 2	37
3.18.08 2B4P BED 1	35
3.18.08 2B4P BED 2	38
3.18.01 2B4P BED 1	34
3.18.01 2B4P BED 2	33
3.18.04 2B4P BED 1	34
3.18.04 2B4P BED 2	33
3.18.05 1B2P BED	39
3.18.06 1B2P BED	37
3.18.07 2B4P BED 1	34
3.18.07 2B4P BED 2	39
3.18.02 1B2P BED	37

3.18.03 2B4P BED 1	40
3.18.03 2B4P BED 2	37

RESULTS FOR COMMUNAL CORRIDORS – ALL PASSING

LOCATION	% NO. OF HOURS WHERE Ta>28degC (TARGET ≤ 3%)
3.01 COMMUNAL CORRIDOR	1.1
3.02 COMMUNAL CORRIDOR	0.9
3.03 COMMUNAL CORRIDOR	0.7
3.04 COMMUNAL CORRIDOR	0.5
3.05 COMMUNAL CORRIDOR	0.5
3.06 COMMUNAL CORRIDOR	0.5
3.07 COMMUNAL CORRIDOR	0.5
3.08 COMMUNAL CORRIDOR	0.6
3.09 COMMUNAL CORRIDOR	0.7
3.10 COMMUNAL CORRIDOR	0.7
3.11 COMMUNAL CORRIDOR	0.7
3.12 COMMUNAL CORRIDOR	0.7
3.13 COMMUNAL CORRIDOR	0.7
3.14 COMMUNAL CORRIDOR	0.7
3.15 COMMUNAL CORRIDOR	0.7
3.16 COMMUNAL CORRIDOR	0.7
3.17 COMMUNAL CORRIDOR	0.6
3.18 COMMUNAL CORRIDOR	0.5
3.19 CORRIDOR	0

