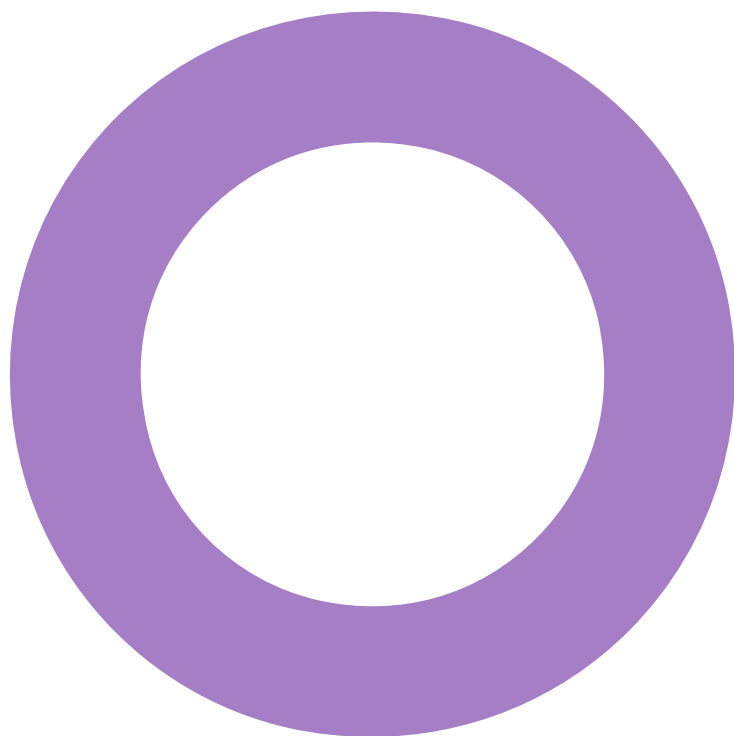


Field House. Dewsbury. Mood Developments.

SUSTAINABILITY
CIBSE TM59 ASSESSMENT

REVISION 00 – 10 SEPTEMBER 2021



Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
00	2021/09/10	Final Issue	IA	TPS	JRF

This document has been prepared for Mood Developments only and solely for the purposes expressly defined herein. We owe no duty of care to any third parties in respect of its content. Therefore, unless expressly agreed by us in signed writing, we hereby exclude all liability to third parties, including liability for negligence, save only for liabilities that cannot be so excluded by operation of applicable law. The consequences of climate change and the effects of future changes in climatic conditions cannot be accurately predicted. This report has been based solely on the specific design assumptions and criteria stated herein.

Project number: 2324092
Document reference: REP-2324092-5A-IA-20210910-Field House TM59-Rev00

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Executive summary

Overview

A dynamic simulation modelling assessment has been carried out in accordance with CIBSE TM59 ‘*Design Methodology for the Assessment of Overheating Risk in Homes*’ for the proposed conversion works at Field House, Dewsbury.

Results

The results of the TM59 overheating risk assessment of Field House demonstrate that all habitable areas of the dwellings comply with the TM59 requirements (Criterion 2, Mechanical Ventilation), except for one living room (O2-APT 2.01-Kitchen/Living). The 6 No. open plan living/kitchen rooms/bedrooms on the 3rd/4th floor where active cooling will be provided will by default comply with TM59 overheating requirements.

In order to the living room that fails to comply consideration should be to include blinds/curtains or to allow MVHR to operate in boost mode for short periods of time to mitigate the overheating risk in this one room.

Table 1: Scenario 1 TM59 Results

Room type	Number Assessed	TM59 Criteria Met	TM59 Criteria Not Met
Bedroom	22	22	0
Living/Kitchen	16	15	1

Window Restrictions

It is understood that windows will be closed and fixed with no openings due to the adjacent noise levels. Therefore, mechanical ventilation will be the primary means for providing ventilation to mitigate overheating.

Glazing g-value

The results achieved have been based on the below g-values being incorporated into the glazing specification. Please see Figure 3 for the location of the proposed g-values.

- South- G-value 0.40
- West – G-value 0.55
- East/North – G-Value 0.60

If these glazing values cannot be achieved, alternative solar control options, such as incorporation of blinds would be required to be considered.

Infiltration

Due to the age of the building being refurbished, the infiltration rate has been taken to be 0.50 ach. The infiltration rate has been estimated at the current time and it should be noted that if the simulated value significantly varies compared to the actual rate, then the results of this overheating risk assessment are likely to be unreliable. It has been demonstrated however, that through iterative assessment, that the solar gain and control of this solar gain has the greatest impact on the overheating results.

Comfort Cooling

Cooling is proposed to the 3rd/4th floor living/kitchen rooms/bedrooms and therefore these areas will comply with the requirements of TM59.

Methodology.

1.1 Thermal Comfort and ‘Risk of Overheating’

‘Overheating’ is a widely used term, but it is often not precisely defined or understood. Overheating within a space implies that occupants feel uncomfortably hot and that discomfort is caused by the indoor temperatures are too high for comfort. The risk of overheating happens in a building either through poor design, bad management or/and inadequate services and results in an internal environment too warm for comfort.

Thermal comfort is subjective and complex. Figure 1.2 shows a diagram representing the control system for ensuring the internal body temperature is kept at a constant.

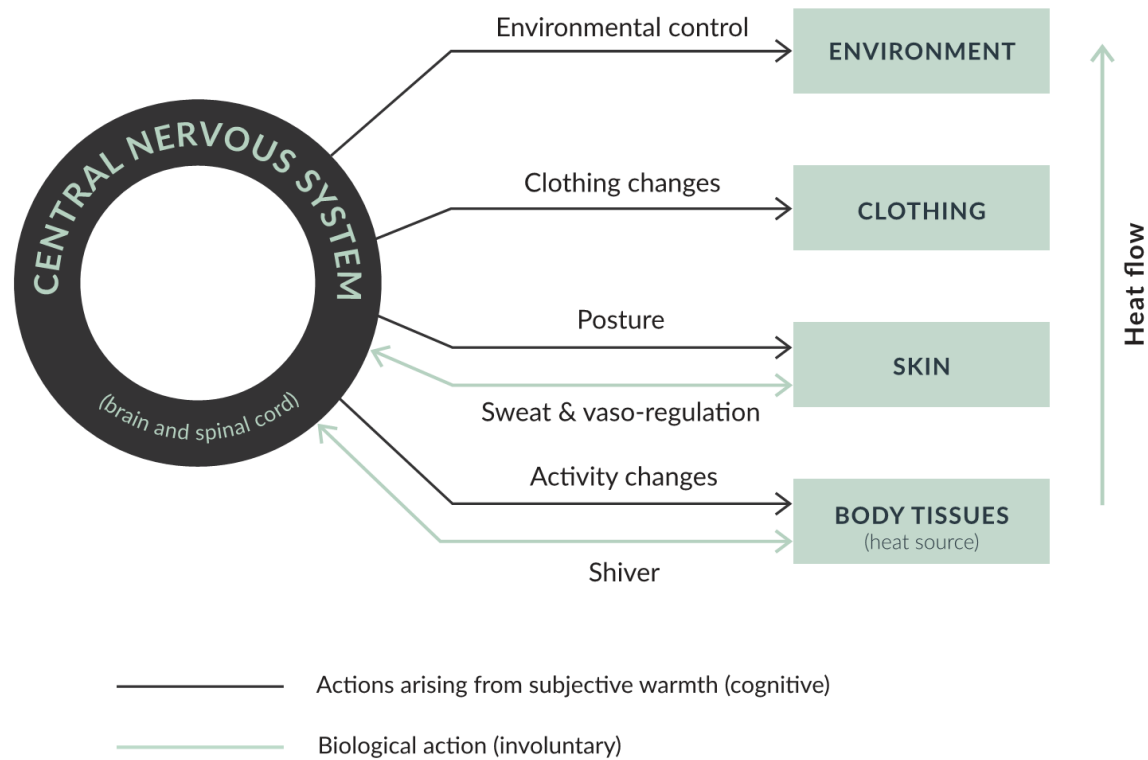


Figure 1 - Diagram to Illustrate Factors in order to Maintain Constant Body Temperature

The assessment has been undertaken in line with CIBSE TM59 ‘Design Methodology for the Assessment of Overheating Risk in Homes’.

Analysis has been carried out using the CIBSE (DSY1) Design Summer Year 2020s, high emissions, 50th percentile for Leeds, as the closest location to the site, in line with the methodology.

Table 2: Summary of CIBSE TM59 requirements

	CIBSE TM59 Requirements
Predominantly Naturally Ventilated Dwelling	Criterion 1: For living rooms, kitchens and bedrooms: the number of hours during which the internal temperature is more than 1°C above a running mean average of the external ambient temperature, during the period May to September inclusive, shall not be more than 3% of occupied hours. (CIBSE TM52 Criterion 1: Hours of exceedance). Criterion 2: For bedrooms only: to guarantee comfort during sleeping hours the internal temperature in bedrooms, from 22:00 and 07:00, 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 is 32 hours, so 33 or more hours above 26°C will be recorded as a exceed the recommended guidance).
Predominantly Mechanically Ventilated Dwelling	CIBSE Guide A fixed temperature test: Occupied spaces should not exceed operative temperature of 26°C for more than 3% of annual occupied hours.

As the windows are sealed for this project the assessment has been completed against the 2nd criteria for CIBSE TM59 for occupied spaces should not exceed operative temperature of 26°C for more than 3% of annual occupied hours.

1.2 Modelling inputs

Model geometry has been based on the architectural drawings received from DLA architects dated 13th August 2021.

The envelope properties are listed in Table 3. All other inputs relevant to the overheating analysis are referenced in Table 2. Internal heat gains and operational profiles have been set up as per the TM59 guidance.

Table 3: Stage 4 design targets – residential areas

	Parameter	Target	Comments/Description
Envelope	South Glazing g-value	0.40	Target proposed to reduce overheating whilst being mindful of promoting good daylight as far as possible. Please see Figure 3 for the location of the proposed g-values.
	West Glazing g-value	0.55	
	East/North Glazing g-value	0.60	
	Rooflights Glazing g-value	0.60	
	Rooflights/Glazing U-value	1.60 W/m².K	
	Existing Solid Wall U-value	0.70 W/m².K	Taken to be 500 mm sandstone with plasterboard finish. Lightweight exposed thermal mass.
	3 rd /4 th Floor Wall U-value	0.28 W/m².K	Taken to be lightweight
	New Roof U-value	0.18 W/m².K	
	Internal Floors	-	Timber floor with acoustic insulation, carpet finish. Light weight thermal mass.
	Internal Walls (dwelling-dwelling)	-	Double layered plasterboard with insulated stud cavity. Very light weight thermal mass.
	Internal Dwelling partition	-	Single layered plasterboard with stud cavity. Very light weight thermal mass.
	Air Tightness	N/A	It has been assumed no air tightness targets will be set.

Figure 2: 3D visualisation of the TM59 dynamic model; Aerial view from due South/West (top) and from North-East (East/North)

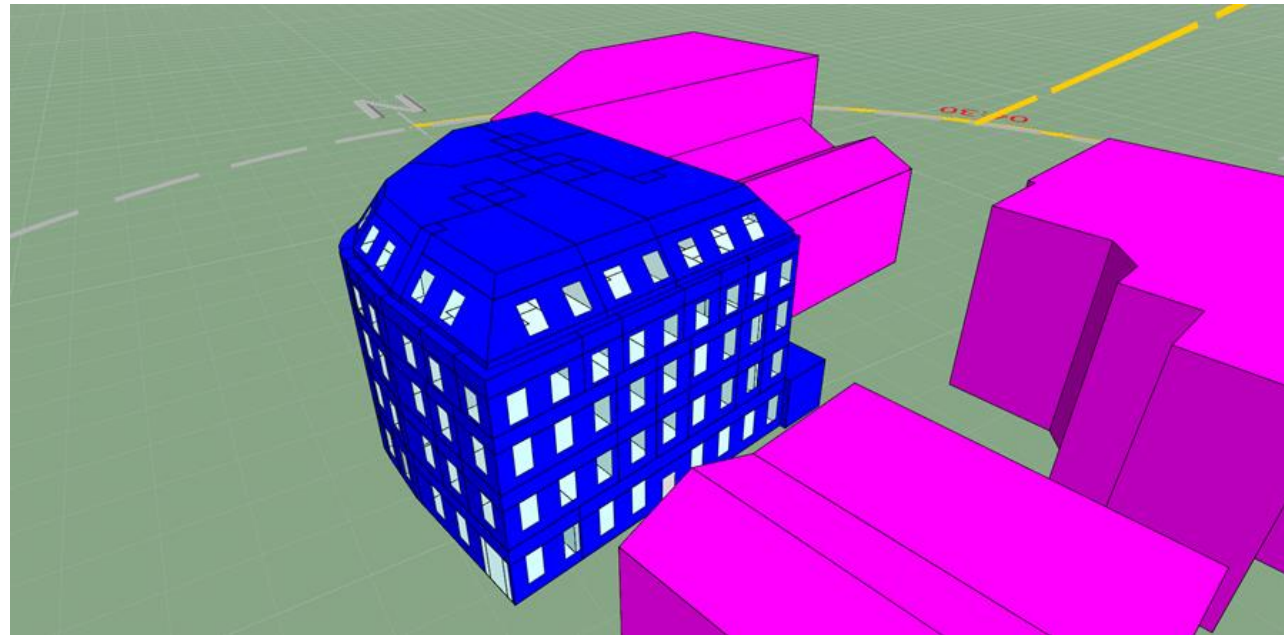


Figure 3: 3D visualisation of the glazing g-values applied to the model (North and West top, South and East bottom)

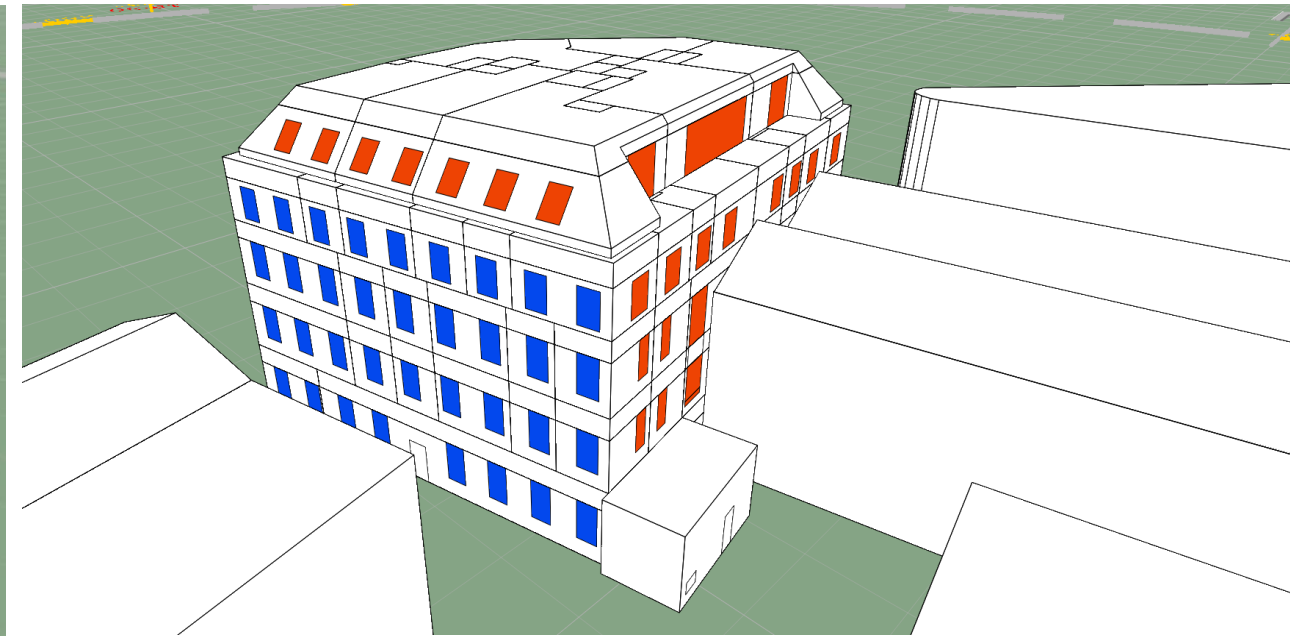
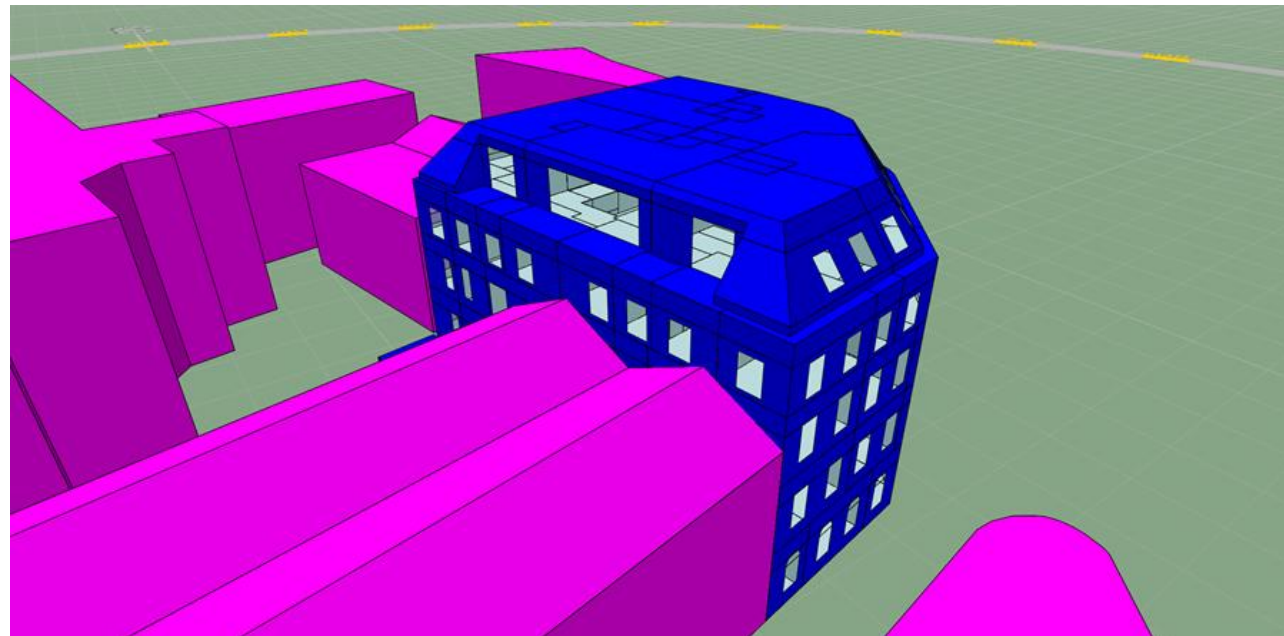
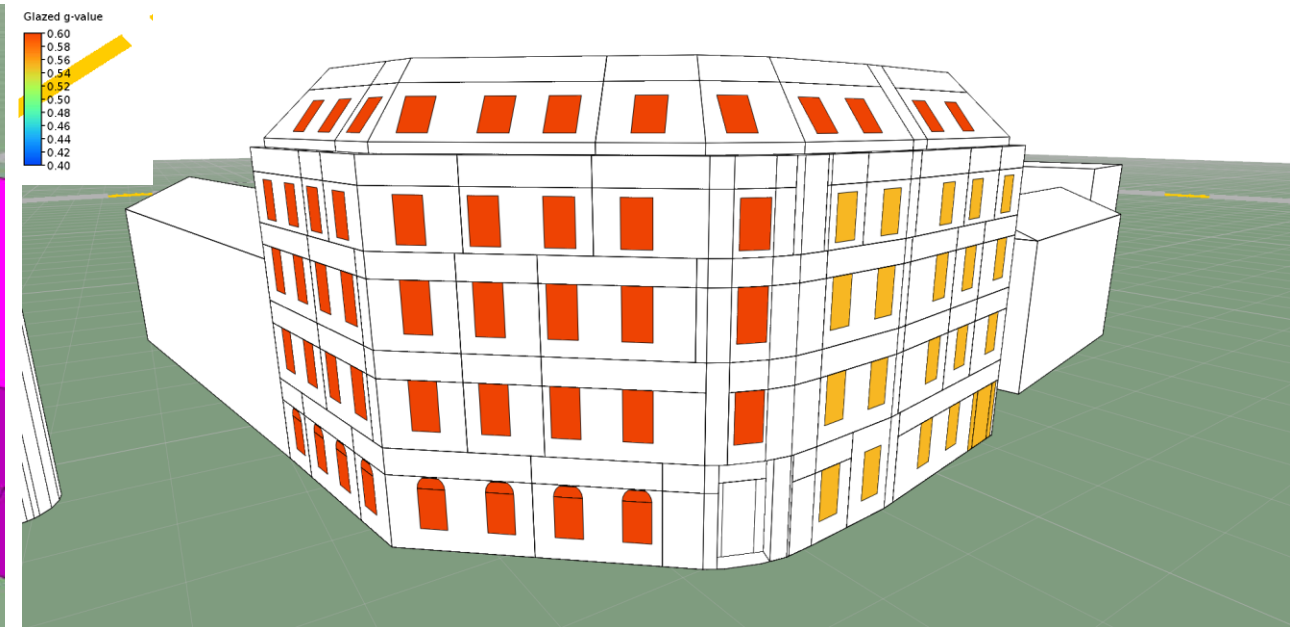


Table 4: Modelling inputs used in the overheating dynamic thermal model

Software	IES 2019 v3.2.0
Weather Data	Current - Leeds Weather Centre Design Summer Year (DSY1 2020) High Emissions 50 th percentile Current Extreme - Leeds Weather Centre Design Summer Year (DSY2, 2020, DSY3 2020) High Emissions 50 th percentile Future - Leeds Weather Centre Design Summer Year (DSY1 2050) Medium Emissions 50 th percentile
Total Occupied Hours	Bedroom: 8,760 hours Living room/Kitchen: 4,745 hours
Infiltration	0.50 ach – perimeter 0.25 ach - internal
Occupancy	Bedrooms/Studio: 24 hours Living room/Kitchen: 0900 - 2200
Maximum Occupancy Density	1 Bed – 2 People 2 Bed – 4 People
Occupancy Heat Gains	75W / person (Sensible) 55W / person (Latent)
Lighting Gains	2 W/m ² (All areas)
Max. Equipment Gains – Kitchen & Living	450 W (as per CIBSE TM59)
Max. Equipment Gains – Bedroom	80 W (as per CIBSE TM59)
MVHR Ventilation – Flats	APT 0.01 – 1.677 l/s/m ² APT 0.02 – 1.9314 l/s/m ² APT 1.01 & 2.01 – 1.9598 l/s/m ² APT 1.02 & 2.02 – 1.9279 l/s/m ² APT 1.03 & 2.03 – 2.0897 l/s/m ² APT 1.04 & 2.04 – 1.9682 l/s/m ² APT 1.05 & 2.05 – 1.9139 l/s/m ² APT 1.06 & 2.06 – 1.5451 l/s/m ²
Blinds	Blinds have not been included within the assessment.
Heating Profile	Heating assumed to be off continuously to assess overheating risk.

2. Results

The following provides a summary of the assessments undertaken and outlines whether the ‘occupied rooms’ meet the targets outlined in CIBSE TM59.

2.1 TM59: Mechanical Ventilation

Table 5 provides a summary of Mechanical ventilation results with all windows closed.

Table 5: Scenario 1 TM59 Results

Room type	Number Assessed	TM59 Criteria Met	TM59 Criteria Not Met
Bedroom	22	22	0
Living/Kitchen	16	15	1

Results show that the all assessed bedrooms and all bar one living rooms achieve the mechanical ventilation criteria set out in CIBSE TM59. Compliance with the TM59 criteria in this tested scenario is dependant from the g-values being reduced from the original g-value of 0.76 proposed. Using a g-value of 0.76, 6 living rooms and 3 bedrooms failed to comply with the TM59 criteria. Full results of this tested scenario and the proposed compliant solution are included in the appendices below.

Comfort Cooling

It is understood that the habitable rooms for the dwelling on the 3rd and 4th floor level will be comfort cooled. As these areas will be able to closely control the overheating risk, these areas have not been tested, but are fully expected to comply with the thermal comfort criteria.

Appendix A – Detailed Results – DSY 1

The below results show all bedrooms comply with TM59 but all bar one living room complies with TM59. This is tested under the varying G-value scenario.

Table 6: TM59 overheating detailed assessment results

Assessed Room	Room type	Criterion 2 (% annual hours above 26°C – threshold 3%)	TM59 Achieved?
00-APT 0.01-Kitchen/Living	Living room	1.41%	Yes
00-APT 0.02-Kitchen/Living	Living room	0.46%	Yes
01-APT 1.01-Kitchen/Living	Living room	2.91%	Yes
01-APT 1.02-Kitchen/Living	Living room	1.85%	Yes
01-APT 1.03-Kitchen/Living	Living room	2.49%	Yes
01-APT 1.04-Kitchen/Living	Living room	1.26%	Yes
01-APT 1.05-Kitchen/Living	Living room	0.76%	Yes
01-APT 1.06-Kitchen/Living	Living room	0.95%	Yes
01-APT 1.07-Kitchen/Living	Living room	1.05%	Yes
02-APT 2.01-Kitchen/Living	Living room	3.14%	No
02-APT 2.02-Kitchen/Living	Living room	1.81%	Yes
02-APT 2.03-Kitchen/Living	Living room	2.53%	Yes
02-APT 2.04-Kitchen/Living	Living room	1.29%	Yes
02-APT 2.05-Kitchen/Living	Living room	0.91%	Yes
02-APT 2.06-Kitchen/Living	Living room	1.31%	Yes
02-APT 2.07-Kitchen/Living	Living room	1.22%	Yes
00-APT 0.01-Bedroom	Bedroom	0.88%	Yes
00-APT 0.02-Bedroom	Bedroom	0.00%	Yes
01-APT 1.01-Bedroom 1	Bedroom	1.16%	Yes
01-APT 1.01-Bedroom 2	Bedroom	2.05%	Yes

Assessed Room	Room type	Criterion 2 (% annual hours above 26°C – threshold 3%)	TM59 Achieved?
01-APT 1.02-Bedroom	Bedroom	1.51%	Yes
01-APT 1.03-Bedroom 1	Bedroom	1.27%	Yes
01-APT 1.03-Bedroom 2	Bedroom	1.43%	Yes
01-APT 1.04-Bedroom	Bedroom	0.94%	Yes
01-APT 1.05-Bedroom	Bedroom	0.32%	Yes
01-APT 1.06-Bedroom 1	Bedroom	1.55%	Yes
01-APT 1.06-Bedroom 2	Bedroom	1.43%	Yes
01-APT 1.07-Bedroom	Bedroom	0.64%	Yes
02-APT 2.01-Bedroom 1	Bedroom	1.18%	Yes
02-APT 2.01-Bedroom 2	Bedroom	2.21%	Yes
02-APT 2.02-Bedroom	Bedroom	1.59%	Yes
02-APT 2.03-Bedroom 1	Bedroom	1.42%	Yes
02-APT 2.03-Bedroom 2	Bedroom	1.51%	Yes
02-APT 2.04-Bedroom	Bedroom	1.04%	Yes
02-APT 2.05-Bedroom	Bedroom	0.39%	Yes
02-APT 2.06-Bedroom 1	Bedroom	1.72%	Yes
02-APT 2.06-Bedroom 2	Bedroom	1.69%	Yes
02-APT 2.07-Bedroom	Bedroom	0.79%	Yes

Appendix B – Detailed Results - Original G-value

The below tables show that with the original g-value of 0.76 that 4 Living/Kitchen areas and 3 bedrooms would be at risk of overheating.

Table 7: TM59 overheating summary assessment results – Original G-Value

Room type	Number Assessed	TM59 Criteria Met	TM59 Criteria Not Met
Bedroom	22	19	3
Living/Kitchen	16	10	6

Table 8: TM59 overheating detailed assessment results – Original G-Value

Assessed Room	Room type	Criterion 2 (% annual hours above 26°C – threshold 3%)	TM59 Achieved?
00-APT 0.01-Kitchen/Living	Living room	2.68%	Yes
00-APT 0.02-Kitchen/Living	Living room	1.03%	Yes
01-APT 1.01-Kitchen/Living	Living room	7.25%	No
01-APT 1.02-Kitchen/Living	Living room	3.18%	No
01-APT 1.03-Kitchen/Living	Living room	3.37%	No
01-APT 1.04-Kitchen/Living	Living room	1.58%	Yes
01-APT 1.05-Kitchen/Living	Living room	1.12%	Yes
01-APT 1.06-Kitchen/Living	Living room	0.97%	Yes
01-APT 1.07-Kitchen/Living	Living room	2.17%	Yes
02-APT 2.01-Kitchen/Living	Living room	8.49%	No
02-APT 2.02-Kitchen/Living	Living room	3.84%	No
02-APT 2.03-Kitchen/Living	Living room	3.75%	No
02-APT 2.04-Kitchen/Living	Living room	1.71%	Yes
02-APT 2.05-Kitchen/Living	Living room	1.26%	Yes
02-APT 2.06-Kitchen/Living	Living room	1.81%	Yes
02-APT 2.07-Kitchen/Living	Living room	2.70%	Yes
00-APT 0.01-Bedroom	Bedroom	1.43%	Yes
00-APT 0.02-Bedroom	Bedroom	0.27%	Yes
01-APT 1.01-Bedroom 1	Bedroom	1.94%	Yes

Assessed Room	Room type	Criterion 2 (% annual hours above 26°C – threshold 3%)	TM59 Achieved?
01-APT 1.01-Bedroom 2	Bedroom	3.89%	No
01-APT 1.02-Bedroom	Bedroom	2.44%	Yes
01-APT 1.03-Bedroom 1	Bedroom	1.66%	Yes
01-APT 1.03-Bedroom 2	Bedroom	1.79%	Yes
01-APT 1.04-Bedroom	Bedroom	1.27%	Yes
01-APT 1.05-Bedroom	Bedroom	0.39%	Yes
01-APT 1.06-Bedroom 1	Bedroom	2.66%	Yes
01-APT 1.06-Bedroom 2	Bedroom	1.62%	Yes
01-APT 1.07-Bedroom	Bedroom	1.22%	Yes
02-APT 2.01-Bedroom 1	Bedroom	2.29%	Yes
02-APT 2.01-Bedroom 2	Bedroom	4.19%	No
02-APT 2.02-Bedroom	Bedroom	2.77%	Yes
02-APT 2.03-Bedroom 1	Bedroom	1.71%	Yes
02-APT 2.03-Bedroom 2	Bedroom	1.95%	Yes
02-APT 2.04-Bedroom	Bedroom	1.29%	Yes
02-APT 2.05-Bedroom	Bedroom	0.57%	Yes
02-APT 2.06-Bedroom 1	Bedroom	3.58%	No
02-APT 2.06-Bedroom 2	Bedroom	2.23%	Yes
02-APT 2.07-Bedroom	Bedroom	1.46%	Yes

Appendix C – Detailed Results - DSY 2

The below results are for a current extreme weather file using Leeds DSY2 2020 High 50th percentile. This shows that all Living/Kitchen areas and bedrooms would comply with TM59. This is tested under the varying G-value scenario.

Table 9: TM59 overheating summary assessment results – DSY 3

Room type	Number Assessed	TM59 Criteria Met	TM59 Criteria Not Met
Bedroom	22	22	0
Living/Kitchen	16	16	0

Table 10: TM59 overheating detailed assessment results – DSY3

Assessed Room	Room type	Criterion 2 (% annual hours above 26°C – threshold 3%)	TM59 Achieved?
00-APT 0.01-Kitchen/Living	Living room	1.03%	Yes
00-APT 0.02-Kitchen/Living	Living room	0.57%	
01-APT 1.01-Kitchen/Living	Living room	2.44%	
01-APT 1.02-Kitchen/Living	Living room	1.45%	Yes
01-APT 1.03-Kitchen/Living	Living room	1.88%	Yes
01-APT 1.04-Kitchen/Living	Living room	0.93%	
01-APT 1.05-Kitchen/Living	Living room	0.70%	
01-APT 1.06-Kitchen/Living	Living room	0.91%	Yes
01-APT 1.07-Kitchen/Living	Living room	1.07%	Yes
02-APT 2.01-Kitchen/Living	Living room	2.57%	
02-APT 2.02-Kitchen/Living	Living room	1.48%	
02-APT 2.03-Kitchen/Living	Living room	2.00%	Yes
02-APT 2.04-Kitchen/Living	Living room	1.07%	Yes
02-APT 2.05-Kitchen/Living	Living room	0.80%	Yes
02-APT 2.06-Kitchen/Living	Living room	1.20%	
02-APT 2.07-Kitchen/Living	Living room	1.18%	Yes
00-APT 0.01-Bedroom	Bedroom	0.75%	Yes
00-APT 0.02-Bedroom	Bedroom	0.30%	
01-APT 1.01-Bedroom 1	Bedroom	1.22%	
01-APT 1.01-Bedroom 2	Bedroom	1.84%	Yes

Assessed Room	Room type	Criterion 2 (% annual hours above 26°C – threshold 3%)	TM59 Achieved?
01-APT 1.02-Bedroom	Bedroom	1.46%	Yes
01-APT 1.03-Bedroom 1	Bedroom	1.05%	
01-APT 1.03-Bedroom 2	Bedroom	1.19%	
01-APT 1.04-Bedroom	Bedroom	0.75%	Yes
01-APT 1.05-Bedroom	Bedroom	0.47%	Yes
01-APT 1.06-Bedroom 1	Bedroom	1.32%	
01-APT 1.06-Bedroom 2	Bedroom	1.27%	
01-APT 1.07-Bedroom	Bedroom	0.97%	Yes
02-APT 2.01-Bedroom 1	Bedroom	1.26%	Yes
02-APT 2.01-Bedroom 2	Bedroom	1.91%	
02-APT 2.02-Bedroom	Bedroom	1.50%	
02-APT 2.03-Bedroom 1	Bedroom	1.24%	Yes
02-APT 2.03-Bedroom 2	Bedroom	1.40%	Yes
02-APT 2.04-Bedroom	Bedroom	1.00%	Yes
02-APT 2.05-Bedroom	Bedroom	0.61%	
02-APT 2.06-Bedroom 1	Bedroom	1.50%	Yes
02-APT 2.06-Bedroom 2	Bedroom	1.35%	Yes
02-APT 2.07-Bedroom	Bedroom	1.02%	

Appendix D – Detailed Results - DSY 3

The below results are for a current extreme weather file using Leeds DSY3 2020 High 50th percentile. This shows that 4 Living/Kitchen areas and 2 bedrooms would be at risk of overheating. This is tested under the varying G-value scenario.

Table 9: TM59 overheating summary assessment results – DSY 3

Room type	Number Assessed	TM59 Criteria Met	TM59 Criteria Not Met
Bedroom	22	20	2
Living/Kitchen	16	12	4

Table 10: TM59 overheating detailed assessment results – DSY3

Assessed Room	Room type	Criterion 2 (% annual hours above 26°C – threshold 3%)	TM59 Achieved?
00-APT 0.01-Kitchen/Living	Living room	2.38%	Yes
00-APT 0.02-Kitchen/Living	Living room	1.29%	Yes
01-APT 1.01-Kitchen/Living	Living room	4.26%	No
01-APT 1.02-Kitchen/Living	Living room	2.93%	Yes
01-APT 1.03-Kitchen/Living	Living room	3.86%	No
01-APT 1.04-Kitchen/Living	Living room	2.30%	Yes
01-APT 1.05-Kitchen/Living	Living room	1.79%	Yes
01-APT 1.06-Kitchen/Living	Living room	1.85%	Yes
01-APT 1.07-Kitchen/Living	Living room	2.00%	Yes
02-APT 2.01-Kitchen/Living	Living room	4.55%	No
02-APT 2.02-Kitchen/Living	Living room	2.82%	Yes
02-APT 2.03-Kitchen/Living	Living room	3.79%	No
02-APT 2.04-Kitchen/Living	Living room	2.21%	Yes
02-APT 2.05-Kitchen/Living	Living room	1.77%	Yes
02-APT 2.06-Kitchen/Living	Living room	2.07%	Yes
02-APT 2.07-Kitchen/Living	Living room	2.17%	Yes
00-APT 0.01-Bedroom	Bedroom	1.44%	Yes
00-APT 0.02-Bedroom	Bedroom	0.48%	Yes
01-APT 1.01-Bedroom 1	Bedroom	2.00%	Yes
01-APT 1.01-Bedroom 2	Bedroom	3.20%	No

Assessed Room	Room type	Criterion 2 (% annual hours above 26°C – threshold 3%)	TM59 Achieved?
01-APT 1.02-Bedroom	Bedroom	2.47%	Yes
01-APT 1.03-Bedroom 1	Bedroom	2.07%	Yes
01-APT 1.03-Bedroom 2	Bedroom	2.26%	Yes
01-APT 1.04-Bedroom	Bedroom	1.66%	Yes
01-APT 1.05-Bedroom	Bedroom	0.99%	Yes
01-APT 1.06-Bedroom 1	Bedroom	2.39%	Yes
01-APT 1.06-Bedroom 2	Bedroom	2.29%	Yes
01-APT 1.07-Bedroom	Bedroom	1.34%	Yes
02-APT 2.01-Bedroom 1	Bedroom	2.11%	Yes
02-APT 2.01-Bedroom 2	Bedroom	3.26%	No
02-APT 2.02-Bedroom	Bedroom	2.52%	Yes
02-APT 2.03-Bedroom 1	Bedroom	2.29%	Yes
02-APT 2.03-Bedroom 2	Bedroom	2.33%	Yes
02-APT 2.04-Bedroom	Bedroom	1.69%	Yes
02-APT 2.05-Bedroom	Bedroom	0.95%	Yes
02-APT 2.06-Bedroom 1	Bedroom	2.69%	Yes
02-APT 2.06-Bedroom 2	Bedroom	2.67%	Yes
02-APT 2.07-Bedroom	Bedroom	1.47%	Yes

Appendix E – Detailed Results – Future Weather

The below results are for a future weather file using Leeds DSY1 2050 Medium 50th percentile. This shows that when the mechanical equipment may need replacing that 6 Living/Kitchen areas and 10 bedrooms would be at risk of overheating. This is tested under the varying G-value scenario.

Table 11: TM59 overheating summary assessment results – DSY 1 2050

Room type	Number Assessed	TM59 Criteria Met	TM59 Criteria Not Met
Bedroom	22	12	10
Living/Kitchen	16	10	6

Table 12: TM59 overheating detailed assessment results – DSY 1 2050

Assessed Room	Room type	Criterion 2 (% annual hours above 26°C – threshold 3%)	TM59 Achieved?
00-APT 0.01-Kitchen/Living	Living room	2.91%	Yes
00-APT 0.02-Kitchen/Living	Living room	1.41%	Yes
01-APT 1.01-Kitchen/Living	Living room	5.65%	No
01-APT 1.02-Kitchen/Living	Living room	3.67%	No
01-APT 1.03-Kitchen/Living	Living room	4.72%	No
01-APT 1.04-Kitchen/Living	Living room	2.57%	Yes
01-APT 1.05-Kitchen/Living	Living room	1.83%	Yes
01-APT 1.06-Kitchen/Living	Living room	2.21%	Yes
01-APT 1.07-Kitchen/Living	Living room	2.40%	Yes
02-APT 2.01-Kitchen/Living	Living room	6.05%	No
02-APT 2.02-Kitchen/Living	Living room	3.65%	No
02-APT 2.03-Kitchen/Living	Living room	4.70%	No
02-APT 2.04-Kitchen/Living	Living room	2.61%	Yes
02-APT 2.05-Kitchen/Living	Living room	2.04%	Yes
02-APT 2.06-Kitchen/Living	Living room	2.70%	Yes
02-APT 2.07-Kitchen/Living	Living room	2.68%	Yes
00-APT 0.01-Bedroom	Bedroom	1.97%	Yes
00-APT 0.02-Bedroom	Bedroom	0.80%	Yes
01-APT 1.01-Bedroom 1	Bedroom	2.56%	Yes
01-APT 1.01-Bedroom 2	Bedroom	4.28%	No

Assessed Room	Room type	Criterion 2 (% annual hours above 26°C – threshold 3%)	TM59 Achieved?
01-APT 1.02-Bedroom	Bedroom	3.26%	No
01-APT 1.03-Bedroom 1	Bedroom	2.68%	Yes
01-APT 1.03-Bedroom 2	Bedroom	2.92%	Yes
01-APT 1.04-Bedroom	Bedroom	2.02%	Yes
01-APT 1.05-Bedroom	Bedroom	1.08%	Yes
01-APT 1.06-Bedroom 1	Bedroom	3.50%	No
01-APT 1.06-Bedroom 2	Bedroom	3.33%	No
01-APT 1.07-Bedroom	Bedroom	1.79%	Yes
02-APT 2.01-Bedroom 1	Bedroom	2.67%	Yes
02-APT 2.01-Bedroom 2	Bedroom	4.38%	No
02-APT 2.02-Bedroom	Bedroom	3.31%	No
02-APT 2.03-Bedroom 1	Bedroom	3.04%	No
02-APT 2.03-Bedroom 2	Bedroom	3.07%	No
02-APT 2.04-Bedroom	Bedroom	2.20%	Yes
02-APT 2.05-Bedroom	Bedroom	1.28%	Yes
02-APT 2.06-Bedroom 1	Bedroom	4.01%	No
02-APT 2.06-Bedroom 2	Bedroom	3.85%	No
02-APT 2.07-Bedroom	Bedroom	1.92%	Yes



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