54 High Street, Ruislip

CIBSE TM59/Part O Overheating Report

7th November 2025

Project Ref: 3280522

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We are **building physics** experts

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prepared by:	Miquel Garcia – Senior Building Physics Engineer	date: 24 10 25	sig:
checked by:	Neil Hamilton – Associate	date: 24 10 25	sig:
revision:	01 – Windows Unrestricted	date: 07 11 25	sig:

abbreviations

ACH	-	Air Exchanges per Hour
ADF	-	Approved Document F
ADO	-	Approved Document O
APR	-	Air Permeability Rating
CIBSE	-	Chartered Institution of Building Service Engineers
EPC	-	Energy Performance Certificate
DSY	-	Design Summer Year
KLD	-	Kitchen / Living / Dining
MVHR	-	Mechanical Ventilation and Heat Recovery
SAP	-	Standard Assessment Procedure
VLT	-	Visible Light Transmittance

executive summary

executive summary

Thermal comfort has been assessed in accordance with CIBSE TM59 & Approved Document Part O: Overheating (2021 edition) of the Building Regulations.

Results demonstrate all assessed spaces comply with the applicable criteria (a).

Results demonstrate all bedrooms comply with the applicable criteria (b).

zed. has compiled this report on behalf of the client to provide a summary of the overheating risk assessment for the proposed development at 54 High Street located in Ruislip, London, following the guidance set out in CIBSE TM59 & Approved Document Part O: Overheating (2021 edition) of the Building Regulations.

The three-storey development at 54 High Street is a residential refurbishment and change of use project comprising five apartments. As residential spaces, all plots have been assessed against the requirements of Approved Document Part O: Overheating (2021 edition) using the CIBSE TM59 methodology.

The assessment has been carried out by Miquel Garcia, an accredited CIBSE level 5 DSM Energy Assessor and Low Carbon Consultant (LCEA206041). Government approved IES - VE (v2025.0.0.0) dynamic thermal modelling software has been used in accordance with CIBSE AM11 & CIBSE TM59.

Building attributes and performance details have been provided to **zed.** by Oak Green Services Ltd.

An annual simulation has been undertaken utilising the closest applicable weather data for the proposed building, which is London DSY weather data (CIBSE – London_DSY1_2020High50_.epw).

Compliance has been assessed against the criteria for predominantly naturally ventilated homes as set out within CIBSE TM59:

(a) *For living rooms, kitchens and bedrooms: the number of hours which ΔT is greater than or equal to one degree (K) during the period May to September inclusive shall not be more than 3 percent of occupied hours. (CIBSE TM52 Criterion 1: Hours of exceedance).*

(b) *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 7:00 for bedrooms is 32hrs, 33hrs or more hours above 26°C will be recorded as a fail).*

Results demonstrate that CIBSE TM59/Part O compliance has been achieved for all assessed spaces against both the Criteria (a) & Criteria (b) requirements.

approved document O: overheating

approved document O

Approved Document O: Overheating (ADO) gives guidance on how to comply with Part O of the Building Regulations.

Figure 1. approved document O: overheating

Approved Document Part O (ADO) outlines two standardised approaches to predicting the overheating risk for residential buildings, Section 1: Simplified Method, and Section 2: Dynamic Thermal Modelling. The dynamic method has been used in this assessment. The approach in Section 2 of ADO uses the TM59 methodology outlined in this report, in addition to further limitations in the form of standardised window opening profiles, specific to Part O outlined below:

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

i. Start to open when the internal temperature exceeds 22°C.

ii. Be fully open when the internal temperature exceeds 26°C.

iii. Start to close when the internal temperature falls below 26°C.

iv. Be fully closed when the internal temperature falls below 22°C.

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

i. The opening is on the first floor or above and not easily accessible.

ii. The internal temperature exceeds 23°C at 11pm.

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

i. In the day, windows, patio doors and balcony doors should be modelled as open, if this can be done securely, following the guidance in paragraph 3.7 [of ADO].

ii. At night, windows, patio doors and balcony doors should be modelled as closed. d. An entrance door should be included, which should be shut all the time.

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

limitations

limitations

All openable windows in both occupied and unoccupied spaces have been modelled with unrestricted openings.

Occupied spaces are bedrooms, kitchen and living/dining rooms, only bedrooms are considered as occupied spaces overnight.

All openable windows in occupied spaces have been modelled to be openable from 08:00 – 23:00.

building regulations

Outlined below are some limitations from Approved Document Part O (ADO), as well as their impact on the dynamic thermal model.

Part O Limitations

Under Section 3.6 (Security) of ADO, only windows that can be opened securely, and are not easily accessible should be considered to provide useful ventilation.

Easily Accessible is defined in Appendix A of ADO as:

(a) a window or doorway, any part of which is within 2m vertically of an accessible level surface, such as the ground or basement level, or an access boundary.

(b) a window within 2m vertically of a flat or sloping roof (with a pitch of less than 30 degrees) that is within 3.5m of ground level.

Windows to occupied rooms assessed against criterion (b) that are easily accessible must be considered closed overnight for safety reasons, even if the window opening is restricted.

Sections 3.8-3.10 (Protection from falling) states openings which are intended to be open for long periods to reduce overheating risk may pose a risk to falls from height. Table 3.1in ADO states that for a window to open more than 100mm, a guarding height (sill height) of 1100mm must be met.

All openable bedroom windows across the 54 High Street development have a sill height less or equal to 1100mm, as such due to the windows requiring to have unrestricted openings it is recommended guard rails are put in place to comply with Sections 3.8-3.10 of Approved Document O.

All balcony doors on the second floor have been modelled as fully openable to 90 degrees for the overheating assessment.

thermal model

thermal model

Thermal modelling has been carried out using IES-VE v2025.0.0.0 dynamic simulation software.

The model for 54 High Street has been constructed using IES-VE software from the architectural drawings provided by Oak Green Services. The thermal envelope specification has been assigned based on a basic design intent agreed with Oak Green Services and the minimum fabric standards set out in Part L of the Building Regulations.

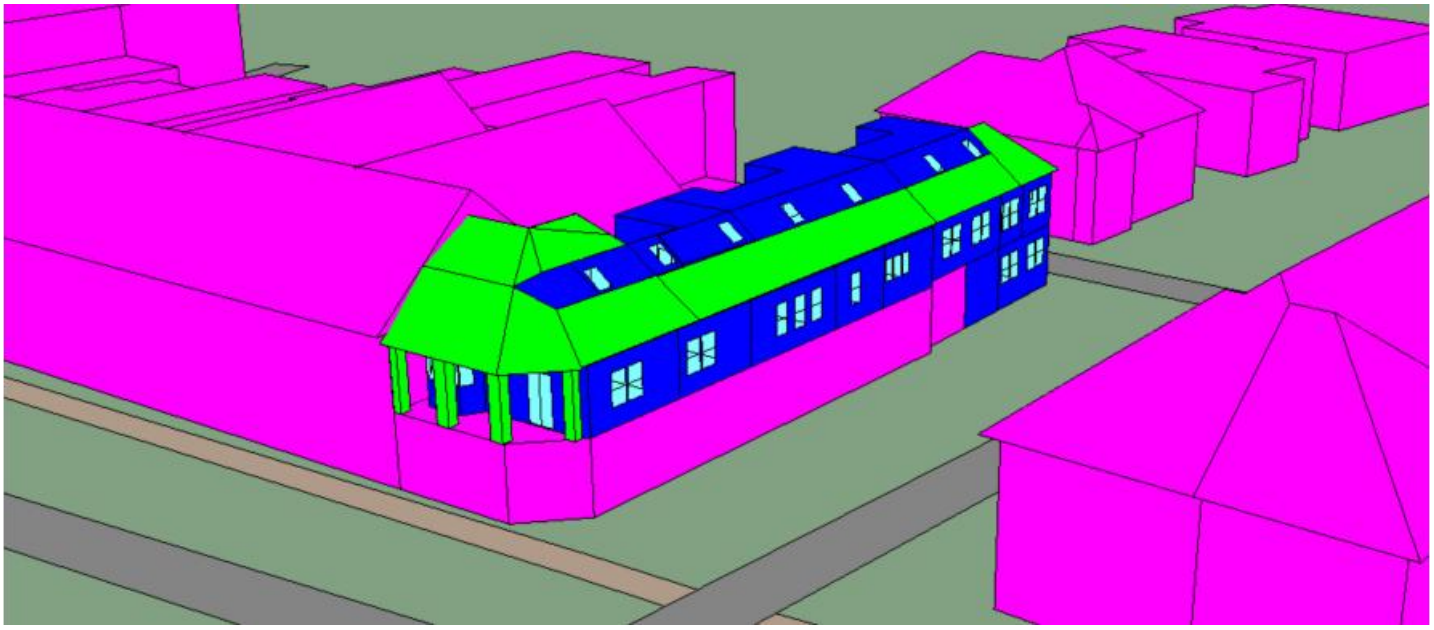

Figure 2. IES-VE thermal model geometry

Fabric & Openings	U-Value (W/m^2.K)	Notes
Ground floor - upgraded	0.25	Limiting U-value for existing elements of Part L, Table 4.3
External walls - upgraded	0.30	Limiting U-value for existing elements of Part L, Table 4.3
External walls - new	0.18	Limiting U-value for new elements of Part L, Table 4.2
Roof - upgraded	0.16	Limiting U-value for existing elements of Part L, Table 4.3
Roof – new	0.15	Limiting U-value for new elements of Part L, Table 4.2
Windows/Glazed Doors – new and replaced	1.40	Limiting U-value for new elements of Part L, Table 4.2 G-value = 0.40 / VLT = 0.60
Rooflights - new	2.20	Limiting U-value for new elements of Part L, Table 4.2 G-value = 0.55 / VLT = 0.60
External Doors - opaque	2.20	Front and rear entrance doors
Air permeability	**Infiltration (ach^{-1})**	**Notes**
Flats	0.50	Equivalent to the design target APR of 10.0m^3(hr.m^2)@50Pa.
Entrance Lobby and corridor	0.75	Equivalent to the design target APR of 15.0m^3(hr.m^2)@50Pa.

Table 1. building envelope specification

Note: Although internal blinds and curtains can help reduce solar gains, they should not be considered when determining compliance with Part O requirements.

internal gains

internal gains

Internal gains are set out within Table 2 of CIBSE: TM59 and assigned based on room and dwelling type.

The occupancy, and equipment, gains and profiles have been developed for the purpose of the CIBSE TM59 methodology. They represent a robust test that ensures the key aspects of overheating are captured namely the hours when risk is highest (i.e. the middle of the day and early afternoon) and nighttime hours when, if rooms do not cool down, sleep can be disrupted.

Unit/ room type	Occupancy	Equipment load
Studio	2 people at 70% gains from 11 pm to 8 am 2 people at 100% gains from 8 am to 11 pm	Peak load of 450 W from 6 pm to 8 pm*. 200 W from 8 pm to 10 pm 110 W from 9 am to 6 pm and 10 pm to 12 pm Base load of 85 W for the rest of the day
1-bedroom apartment: living room/kitchen	1 person from 9 am to 10 pm; room is unoccupied for the rest of the day	Peak load of 450 W from 6 pm to 8 pm 200 W from 8 pm to 10 pm 110 W from 9 am to 6 pm and from 10 pm to 12 pm Base load of 85 W for the rest of the day
1-bedroom apartment: living room	1 person at 75% gains from 9 am to 10 pm; room is unoccupied for the rest of the day	Peak load of 150 W from 6 pm to 10 pm 60 W from 9 am to 6 pm and from 10 pm to 12 pm Base load of 35 W for the rest of the day
1-bedroom apartment: kitchen	1 person at 25% gains from 9 am to 10 pm; room is unoccupied for the rest of the day	Peak load of 300 W from 6 pm to 8 pm Base load of 50 W for the rest of the day
2-bedroom apartment: living room/kitchen	2 people from 9 am to 10 pm; room is unoccupied for the rest of the day	Peak load of 450 W from 6 pm to 8 pm 200 W from 8 pm to 10 pm 110 W from 9 am to 6 pm and from 10 pm to 12 pm Base load of 85 W for the rest of the day
2-bedroom apartment: living room	2 people at 75% gains from 9 am to 10 pm; room is unoccupied for the rest of the day	Peak load of 150 W from 6 pm to 10 pm 60 W from 9 am to 6 pm and from 10 pm to 12 pm Base load of 35 W for the rest of the day
2-bedroom apartment: kitchen	2 people at 25% gains from 9 am to 10 pm; room is unoccupied for the rest of the day	Peak load of 300 W from 6 pm to 8 pm Base load of 50 W for the rest of the day
3-bedroom apartment: living room/kitchen	3 people from 9 am to 10 pm; room is unoccupied for the rest of the day	Peak load of 450 W from 6 pm to 8 pm 200W from 8 pm to 10 pm 110 W from 9 am to 6 pm and from 10 pm to 12 pm Base load of 85 W for the rest of the day
3-bedroom apartment: living room	3 people at 75% gains from 9 am to 10 pm; room is unoccupied for the rest of the day	Peak load of 150 W from 6 pm to 10 pm 60 W from 9 am to 6 pm and from 10 pm to 12 pm Base load of 35 W for the rest of the day
3-bedroom apartment: kitchen	3 people at 25% gains from 9 am to 10 pm; room is unoccupied for the rest of the day	Peak load of 300 W from 6 pm to 8 pm base load of 50 W for the rest of the day
Double bedroom	2 people at 70% gains from 11 pm to 8 am 2 people at full gains from 8 am to 9 am and from 10 pm to 11 pm 1 person at full gains in the bedroom from 9 am to 10 pm	Peak load of 80 W from 8 am to 11 pm Base load of 10 W during the sleeping hours
Single bedroom (too small to accommodate double bed)	1 person at 70% gains from 11 pm to 8 am 1 person at full gains from 8 am to 11 pm	Peak load of 80 W from 8 am to 11 pm Base load of 10 W during sleeping hours
Communal corridors	Assumed to be zero	Pipework heat loss only; see section 3.1 above

Table 2. CIBSE TM59 – table 2

window openings

window openings

Compliance has been assessed against the criteria for predominantly naturally ventilated homes as set out within CIBSE TM59.

The 54 High Street development has been proposed with natural ventilation in each dwelling as the primary strategy to mitigate the risk of overheating.

The windows in each room are controlled separately, in line with CIBSE TM59 modelling guidance and have been assigned the appropriate opening profiles specified in ADO.

Table 3 below details all opening types. The opening assignments are also displayed.

Opening Ref & Colour	Description	Opening Category	Proportions	Openable Area (%)	Max Angle Open (°)	Equivalent Free Area (% of gross)	Opening Profile
XTRN0001	ADO section 2.6d (closed)	Fixed	Various	-	-	0.00	off continuously
XTRN0002	ADO 2.6a (day)_0F_Side Hung	Window - side hung	Length/Height < 0.5	90.00	90.00	92.90	ADO Section_26a (0800-2300) 22-26deg ramp (W)
XTRN0004	ADO 2.6a (day)_0F_Sash	Window - sash	-	90.00	-	60.32	ADO Section_26a (0800-2300) 22-26deg ramp (W)
XTRN0005	ADO 2.6a+b (day & night)_1F-2F_Side Hung	Window - side hung	Length/Height < 0.5	90.00	90.00	92.90	ADO Section_26ab (0800-2300) 22-26deg ramp (W) At night (2300-0800) if 23deg at 11pm
XTRN0006	ADO 2.6a+b (day & night)_1F-2F_Door_Side Hung	Window - side hung	Length/Height < 0.5	90.00	-	92.90	ADO Section_26ab (0800-2300) 22-26deg ramp (W) At night (2300-0800) if 23deg at 11pm
XTRN0007	ADO 2.6a+b (day & night)_1F-2F_Sash	Window - sash	-	90.00	-	94.36	ADO Section_26ab (0800-2300) 22-26deg ramp (W) At night (2300-0800) if 23deg at 11pm
XTRN0008	ADO 2.6a+b (day & night)_2F_Rooflight_Centre Hung	Window – centre hung	Length/Height = 1	85.00	45.00	60.32	ADO Section_26ab (0800-2300) 22-26deg ramp (W) At night (2300-0800) if 23deg at 11pm

Table 3. IES Macroflo window and door types

window openings

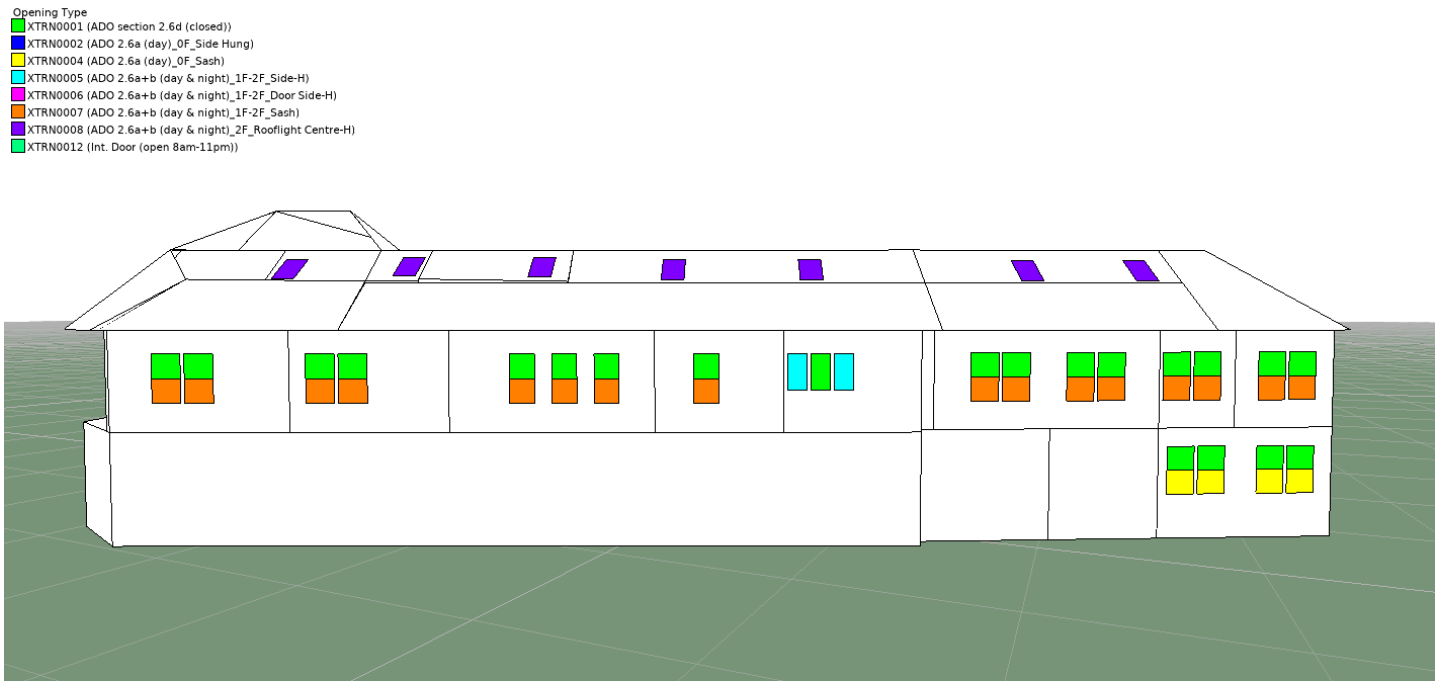

Figure 3. Openable Window Assignment – North Elevation

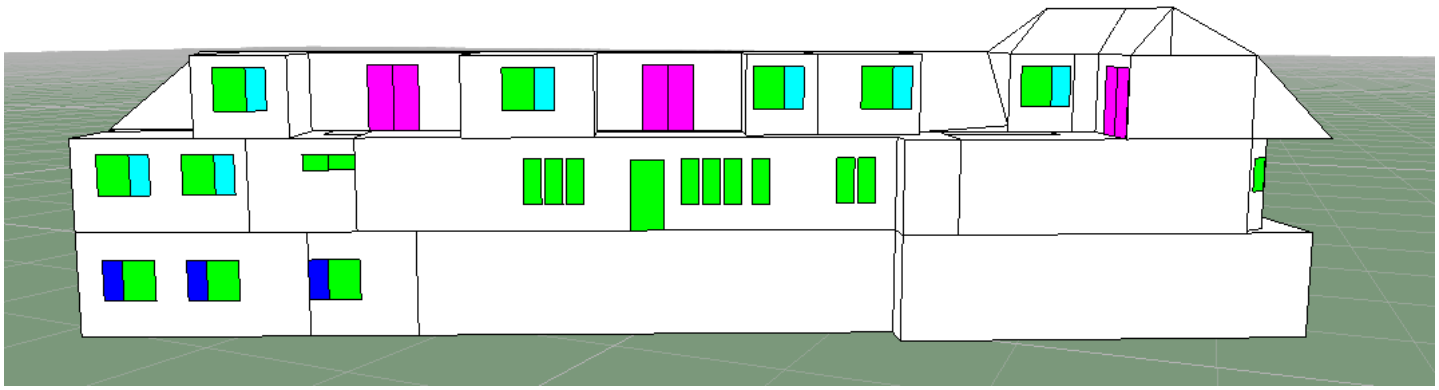

Figure 4. Openable Window Assignment – South Elevation

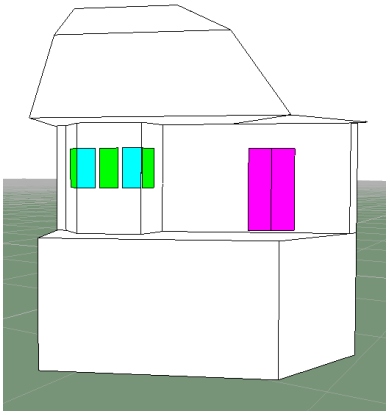

Figure 5. Openable Window Assignment – East Elevation

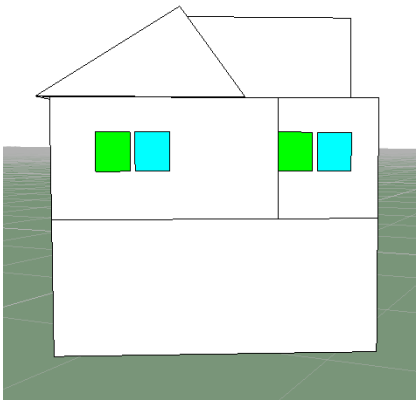

Figure 6. Openable Window Assignment – West Elevation

results

results

CIBSE TM59: Criterion 1 & 2 – Nat Vent (CIBSE London_DSY1_2020High50.epw)

The below results show all occupied rooms comply with both criterion (a) and (b) of CIBSE TM59 & Approved Document O thermal comfort criteria.

Room Name	Criterion (a) (%Hrs Top-Tmax>=1K)	(a) Pass /Fail	Criterion (b) (hrs > 26°C 10pm-7am)	(b) Pass /Fail
Limiting Value	3		32	
00_Flat 1 KLD	1.7	PASS	-	-
01_Flat 1 Bedroom 1	1.4	PASS	16	PASS
01_Flat 1 Bedroom 2	1.4	PASS	13	PASS
01_Flat 2 Bedroom 1	0.9	PASS	21	PASS
01_Flat 3 Bedroom 1	0.8	PASS	20	PASS
01_Flat 3 Bedroom 2	0.8	PASS	27	PASS
01_Flat 4 Bedroom 1	0.7	PASS	22	PASS
01_Flat 4 KLD	1.2	PASS	-	-
01_Flat 5 KLD	1.5	PASS	-	-
02_Flat 2 KLD	1.7	PASS	-	-
02_Flat 3 KLD	1.7	PASS	-	-
02_Flat 5 Bedroom 1	1.0	PASS	16	PASS
02_Flat 5 Bedroom 2	1.0	PASS	20	PASS

Table 4. CIBSE TM59/Part O – Overheating Results

conclusion

conclusion

Thermal comfort has been assessed in accordance with CIBSE TM59 & Approved Document Part O: Overheating (2021 edition) of the Building Regulations.

Results demonstrate all assessed spaces comply with the applicable criteria (a).

Results demonstrate all bedrooms comply with the applicable criteria (b).

zed. has undertaken this assessment on behalf of the client for the proposed 54 High Street located in Ruislip, London, in accordance with the Approved Document Part O and CIBSE TM59 assessment methodology for assessing overheating risk in predominantly naturally ventilated dwellings.

Analysis has been carried out against the required 2020 High50 DSY1 weather data for London, which is the closest appropriate weather data for the location of the development.

- Results demonstrate all assessed spaces comply with the applicable criteria (a).
- Results demonstrate all bedrooms comply with the applicable criteria (b).

As a result, overall compliance with CIBSE TM59 & Approved Document Part O has been achieved.

All thirteen spaces assessed meet the required CIBSE TM59 & Part O criteria.

The Approved Document Part O Compliance Report Output Document can be found in the Appendix A of this report.

Remediation measures

The following is a list of required design measures were used to reduce the risk of overheating in the zones to meet CIBSE TM59/Part O criteria:

Mechanical Supply Ventilation:

01_Flat 3 Bedroom 1 – 4.02ACH

01_Flat 3 Bedroom 2 – 4.25ACH

01_Flat 4 Bedroom 1 – 3.38ACH

Supplementary mechanical ventilation is set to operate between the hours of 22:00 & 07:00 when the internal temperature exceeds 22°C.

drawing register

drawing register

The thermal model has been constructed using the following drawings.

Drawing Title	Drawing Reference	Issued By	Revision
Location Maps	OGS/24101/201	Oak Green Services Ltd	A
Existing Ground Floor Layout Plan	OGS/24101/202	Oak Green Services Ltd	A
Existing First Floor Layout Plan	OGS/24101/203	Oak Green Services Ltd	A
Existing Roof Layout Plan	OGS/24101/204	Oak Green Services Ltd	A
Proposed Ground Floor Layout Plan	OGS/24101/205	Oak Green Services Ltd	A
Proposed First Floor Layout Plan	OGS/24101/206	Oak Green Services Ltd	A
Proposed Second Floor Layout Plan	OGS/24101/207	Oak Green Services Ltd	A
Proposed Roof Plan	OGS/24101/208	Oak Green Services Ltd	A
Existing & Proposed North Elevation	OGS/24101/209	Oak Green Services Ltd	A
Existing & Proposed South Elevation	OGS/24101/210	Oak Green Services Ltd	A
Existing & Proposed West Elevation	OGS/24101/211	Oak Green Services Ltd	A
Existing & Proposed East Elevation	OGS/24101/212	Oak Green Services Ltd	A
Typical Section A–A	OGS/24101/213	Oak Green Services Ltd	A
Proposed North Elevation	OGS/24101/214	Oak Green Services Ltd	A
Proposed South Elevation	OGS/24101/215	Oak Green Services Ltd	A
Proposed West Elevation	OGS/24101/216	Oak Green Services Ltd	A
Existing and Proposed High Street View	OGS/24101/217	Oak Green Services Ltd	A
3D Images of Proposed Development	OGS/24101/218	Oak Green Services Ltd	A

Table 5. Drawing Register

appendix A: part O report

Approved Document O report
Overheating risk in residential buildings
for
eb7 - 54 High Street

eb7 - 54 High Street

Building details

Project name: eb7 - 54 High Street	Date: 07-11-2025 10:14:37
Location: London Heathrow, United Kingdom	
Address: 54 High Street, Ruislip London HA4 7AT	
Building use: Residential	
Are there any security, noise, or pollution issues:	

Designer's details

Designer's name:
Designer's organisation:
Designer's address:

Dynamic thermal model

Software: IESVE version 2025.0.0.0	
Weather file: London_LWC_DSY1_2020High50.epw	
Results file: Part O_Rev02.aps	
Number of rooms analysed: 13	
TM59: summer elevated air speed: 0.8	
TM59: occupant category: Category II (normal)	
Overheating mitigation strategy:	
Has the building construction proposal been modelled accurately?	YES
Have the analysed rooms passed the assessment for Approved Doc O Dynamic Thermal Modelling Method (CIBSE TM 59)?	YES
Designer's signature:	

Summary

CIBSE TM59 overheating methodology for predominantly naturally ventilated rooms assesses against two criteria, (a) and (b) (for Category I occupancy, Tmax is reduced by 1K):

- Criterion (a) states that for living rooms, kitchens and bedrooms, the number of hours during which ΔT is greater than or equal to 1K from May to September (or November to March for southern hemisphere locations) shall not exceed 3% of occupied hours
- Criterion (b) states that the operative temperature of the bedrooms from 22:00-07:00 shall not exceed 26°C for more than 1% of annual hours (33 hours is therefore recorded as a fail). Approved document O applies limits to CIBSE TM59 section 3.3 (openings); these requirements are applied by appropriate assignment of MacroFlo types / scripted profiles in the model (see Modelled Openings Section).

CIBSE TM59 overheating methodology for predominantly mechanically ventilated rooms states the operative temperature of all rooms shall not exceed 26°C for more than 3% of annual occupied hours.

CIBSE TM59 also states that the inclusion of corridors in the overheating analysis is mandatory where community heating pipework runs through them. While there is no mandatory target for communal corridors, if an operative temperature of 28°C is exceeded for more than 3% of the total annual hours this should be identified as a significant risk.

Room name	Naturally ventilated Criterion a check	Naturally ventilated Criterion b check	Mechanically ventilated check	Corridor overheating risk check
00_Flat 1 KLD	Pass	N/A	-	-
01_Flat 1 Bedroom 1	Pass	Pass	-	-
01_Flat 1 Bedroom 2	Pass	Pass	-	-
01_Flat 2 Bedroom 1	Pass	Pass	-	-
01_Flat 3 Bedroom 1	Pass	Pass	-	-
01_Flat 3 Bedroom 2	Pass	Pass	-	-
01_Flat 4 Bedroom 1	Pass	Pass	-	-
01_Flat 4 KLD	Pass	N/A	-	-
01_Flat 5 KLD	Pass	N/A	-	-
02_Flat 2 KLD	Pass	N/A	-	-
02_Flat 3 KLD	Pass	N/A	-	-
02_Flat 5 Bedroom 1	Pass	Pass	-	-
02_Flat 5 Bedroom 2	Pass	Pass	-	-

Naturally ventilated rooms – criterion (a)

Criterion (a) states that for living rooms, kitchens and bedrooms, the number of hours during which ΔT is greater than or equal to 1K from May to September (or November to March for southern hemisphere locations) shall not exceed 3% of occupied hours.

Room name	Occupied hours	No. hours ΔT ≥ 1°K	% Occupied hours ΔT ≥ 1°K	Criterion a check
00_Flat 1 KLD	1989	33	1.7	Pass
01_Flat 1 Bedroom 1	3672	51	1.4	Pass
01_Flat 1 Bedroom 2	3672	51	1.4	Pass
01_Flat 2 Bedroom 1	3672	33	0.9	Pass
01_Flat 3 Bedroom 1	3672	31	0.8	Pass
01_Flat 3 Bedroom 2	3672	28	0.8	Pass
01_Flat 4 Bedroom 1	3672	25	0.7	Pass
01_Flat 4 KLD	1989	23	1.2	Pass
01_Flat 5 KLD	1989	29	1.5	Pass
02_Flat 2 KLD	1989	34	1.7	Pass
02_Flat 3 KLD	1989	34	1.7	Pass
02_Flat 5 Bedroom 1	3672	38	1.0	Pass
02_Flat 5 Bedroom 2	3672	35	1.0	Pass

Naturally ventilated rooms – criterion (b)

Criterion (b) states that the operative temperature of the bedrooms from 22:00-07:00 shall not exceed 26°C for more than 1% of annual hours (33 hours is therefore recorded as a fail). Any rooms that are not bedrooms are therefore not assessed, hence the corresponding N/A values.

Room name	No. hours > 26°C 22:00-24:00	No. hours > 26°C 00:00-07:00	Total hours > 26°C	Criterion b check
00_Flat 1 KLD	N/A	N/A	N/A	N/A
01_Flat 1 Bedroom 1	13	3	16	Pass
01_Flat 1 Bedroom 2	10	3	13	Pass
01_Flat 2 Bedroom 1	12	9	21	Pass
01_Flat 3 Bedroom 1	12	8	20	Pass
01_Flat 3 Bedroom 2	17	10	27	Pass
01_Flat 4 Bedroom 1	14	8	22	Pass
01_Flat 4 KLD	N/A	N/A	N/A	N/A
01_Flat 5 KLD	N/A	N/A	N/A	N/A
02_Flat 2 KLD	N/A	N/A	N/A	N/A
02_Flat 3 KLD	N/A	N/A	N/A	N/A
02_Flat 5 Bedroom 1	11	5	16	Pass
02_Flat 5 Bedroom 2	13	7	20	Pass

Mechanically ventilated rooms

CIBSE TM59 overheating methodology for predominantly mech. vent. rooms states the operative temperature of all rooms shall not exceed 26°C for more than 3% of annual occupied hours.

Room name	No. hours > 26°C	% Annual hours > 26°C	Mechanically ventilated check
No mech vent rooms	N/A	N/A	N/A

Communal corridors

CIBSE TM59 states that whilst there is no mandatory target for communal corridors, if an operative temperature of 28°C is exceeded for more than 3% of annual hours, then this should be identified as a significant risk within the TM59 overheating report.

Room name	No. hours > 28°C	% Annual hours > 28°C	Corridor overheating risk check
No corridors	N/A	N/A	N/A

Modelled details & overheating mitigation strategy

Approved document O: Providing Information & Appendix B requires information about the model and the overheating mitigation strategy. The following tables detail the modelling method and mitigation strategies applied to each analysed room. Where multiple active openings per space (windows & louvres) exist they are all listed. Occupancy, equipment and lighting profiles for occupied rooms comply with TM59 section 5.

Modelled occupancy

Room name	Floor area m²	Thermal template	Occupancy profile	Equipment profile	Lighting profile
00_Flat 1 KLD	38.12	TM59 - 2 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
01_Flat 1 Bedroom 1	13.48	TM59 - Double Bedroom	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
01_Flat 1 Bedroom 2	10.67	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
01_Flat 2 Bedroom 1	17.26	TM59 - Double Bedroom	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
01_Flat 3 Bedroom 1	13.53	TM59 - Double Bedroom - Mech Vent	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
01_Flat 3 Bedroom 2	12.78	TM59 - Double Bedroom - Mech Vent	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
01_Flat 4 Bedroom 1	16.06	TM59 - Double Bedroom - Mech Vent	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
01_Flat 4 KLD	26.76	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
01_Flat 5 KLD	42.7	TM59 - 2 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
02_Flat 2 KLD	32.25	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
02_Flat 3 KLD	45.56	TM59 - 2 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
02_Flat 5 Bedroom 1	17.56	TM59 - Double Bedroom	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
02_Flat 5 Bedroom 2	15.02	TM59 - Double Bedroom	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h

Modelled openings

Room name	Window to wall ratio %	Window g-value (EN 410)	Opening gross area m²	Opening free area (avg) %	Opening free area / floor area ratio %	Opening profile(s)
00_Flat 1 KLD	13.11	0.4005, 0.4005	1.04, 0.63, 0.63, 1.03, 0.49, 0.49, 0.49, 0.49, 0.49, 0.49, 0.49, 0.49, 1.6	0.0, 90.0, 90.0, 0.0, 0.0, 90.0, 0.0, 90.0, 90.0, 0.0, 90.0, 0.0, 90.0	11.38	ADO.Section_26a, * MacroFlo_Int Doors (open 8am-11pm) [WK], ADO.AlwaysOff
01_Flat 1 Bedroom 1	15.91	0.4005, 0.4005	0.64, 0.64, 0.49, 0.49, 0.49, 0.49, 1.6, 1.6	0.0, 90.0, 90.0, 0.0, 90.0, 0.0, 90.0, 90.0	32.18	ADO.Section_26ab, * MacroFlo_Int Doors (open 8am-11pm) [WK], ADO.AlwaysOff
01_Flat 1 Bedroom 2	24.68	0.4005, 0.4005	0.64, 0.64, 1.04, 0.63, 0.63, 1.04, 1.6	0.0, 90.0, 0.0, 90.0, 90.0, 0.0, 90.0	29.52	ADO.Section_26ab, * MacroFlo_Int Doors (open 8am-11pm) [WK], ADO.AlwaysOff
01_Flat 2 Bedroom 1	23.93	0.4005	0.49, 0.49, 0.49, 0.49, 0.49, 0.49, 0.49, 0.49, 1.6	90.0, 0.0, 90.0, 0.0, 90.0, 0.0, 90.0, 0.0, 90.0	18.56	ADO.Section_26ab, * MacroFlo_Int Doors (open 8am-11pm) [WK], ADO.AlwaysOff
01_Flat 3 Bedroom 1	12.07	0.4005	0.47, 0.47, 0.48, 1.6	90.0, 90.0, 0.0, 90.0	16.9	ADO.Section_26ab, * MacroFlo_Int Doors (open 8am-11pm) [WK], ADO.AlwaysOff
01_Flat 3 Bedroom 2	9.51	0.4005	0.42, 0.42, 1.6	0.0, 90.0, 90.0	14.23	ADO.Section_26ab, * MacroFlo_Int Doors (open 8am-11pm) [WK], ADO.AlwaysOff

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Room name	Window to wall ratio %	Window g-value (EN 410)	Opening gross area m²	Opening free area (avg) %	Opening free area / floor area ratio %	Opening profile(s)
01_Flat 4 Bedroom 1	17.71	0.4005	0.49, 0.49, 0.49, 0.49, 1.6	90.0, 0.0, 90.0, 0.0, 90.0	14.46	ADO.Section_26ab, * MacroFlo_Int Doors (open 8am-11pm) [WK], ADO.AlwaysOff
01_Flat 4 KLD	17.86	0.4005	0.42, 0.42, 0.42, 0.42, 0.42, 0.42, 1.6	0.0, 90.0, 90.0, 0.0, 90.0, 0.0, 90.0	9.62	ADO.Section_26ab, * MacroFlo_Int Doors (open 8am-11pm) [WK], ADO.AlwaysOff
01_Flat 5 KLD	17.07	0.4005, 0.4005, 0.4005, 0.4005, 0.4005	0.49, 0.49, 0.49, 0.49, 0.48, 0.43, 0.43, 0.43, 0.48, 1.1, 1.1	90.0, 0.0, 90.0, 0.0, 0.0, 90.0, 0.0, 90.0, 0.0, 90.0, 90.0	8.52	ADO.Section_26ab, ADO.AlwaysOff
02_Flat 2 KLD	10.63	0.5522, 0.4005, 0.4005	0.65, 0.65, 1.08, 0.66, 1.46, 1.46	85.0, 85.0, 0.0, 90.0, 90.0, 90.0	13.42	ADO.Section_26ab, ADO.AlwaysOff
02_Flat 3 KLD	13.09	0.5522, 0.4005, 0.4005, 0.4005	0.65, 0.65, 1.08, 0.66, 1.46, 1.46, 1.08, 0.66	85.0, 85.0, 0.0, 90.0, 90.0, 90.0, 0.0, 90.0	10.8	ADO.Section_26ab, ADO.AlwaysOff
02_Flat 5 Bedroom 1	14.59	0.4005	1.44, 1.46, 1.46	90.0, 90.0, 90.0	22.35	ADO.Section_26ab, * MacroFlo_Int Doors (open 8am-11pm) [WK]
02_Flat 5 Bedroom 2	7.65	0.5522, 0.4005	0.65, 1.17, 1.08, 0.66	85.0, 90.0, 0.0, 90.0	14.64	ADO.Section_26ab, ADO.AlwaysOff, * MacroFlo_Int Doors (open 8am-11pm) [WK]

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Modelled ventilation

Room name	Infiltration rate ACH	Mech vent flow rate ACH
00_Flat 1 KLD	0.5	0
01_Flat 1 Bedroom 1	0.5	0
01_Flat 1 Bedroom 2	0.5	0
01_Flat 2 Bedroom 1	0.5	0
01_Flat 3 Bedroom 1	0.15	4.02
01_Flat 3 Bedroom 2	0.15	4.25
01_Flat 4 Bedroom 1	0.15	3.38
01_Flat 4 KLD	0.5	0
01_Flat 5 KLD	0.5	0
02_Flat 2 KLD	0.5	0
02_Flat 3 KLD	0.5	0
02_Flat 5 Bedroom 1	0.5	0
02_Flat 5 Bedroom 2	0.5	0

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