

Approved Document O report
Overheating risk in residential buildings
for
CHURCH LANE, MIDDLETON

CHURCH LANE, MIDDLETON

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Building details

Project name: CHURCH LANE, MIDDLETON	Date: 10-06-2025 13:46:40
Location: Manchester Ap, United Kingdom	
Address: CHURCH LANE, MIDDLETON, HOUSING ON VACANT LAND AT M24 2UA	
Building use: Residential	
Are there any security, noise, or pollution issues: N/A	

Designer's details

Designer's name: Diya Kulkarni
Designer's organisation: CIVIC
Designer's address: Carvers Warehouse, 77 Dale Street, Manchester, M1 2HG

Dynamic thermal model

Software: IESVE version 2024.0.2.0	
Weather file: Manchester_DSY1_2020High50_.epw	
Results file: Church lane_Middleton - 002 - G 0.7.aps	
Number of rooms analysed: 6	
TM59: summer elevated air speed: 0.1	
TM59: occupant category: Category II (normal)	
Overheating mitigation strategy: Openable windows, G value 0.7	
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:	

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Summary

CIBSE TM59 overheating methodology for predominantly naturally ventilated rooms assesses against two criteria, (a) and (b) (for Category I occupancy, T_{max} 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
Lounge	Pass	N/A	-	-
Bed 2	Pass	Pass	-	-
Bed 4/Study	Pass	Pass	-	-
Bed 3	Pass	Pass	-	-
Master Bedroom	Pass	Pass	-	-
Kitchen/Dining	Pass	N/A	-	-

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 $\Delta T \geq 1^\circ\text{K}$	% Occupied hours $\Delta T \geq 1^\circ\text{K}$	Criterion a check
Lounge	1989	12	0.6	Pass
Bed 2	3672	10	0.3	Pass
Bed 4/Study	3672	4	0.1	Pass
Bed 3	3672	0	0.0	Pass
Master Bedroom	3672	0	0.0	Pass
Kitchen/Dining	1989	0	0.0	Pass

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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
Lounge	N/A	N/A	N/A	N/A
Bed 2	4	0	4	Pass
Bed 4/Study	3	0	3	Pass
Bed 3	4	0	4	Pass
Master Bedroom	0	0	0	Pass
Kitchen/Dining	N/A	N/A	N/A	N/A

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

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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 m ²	Thermal template	Occupancy profile	Equipment profile	Lighting profile
Lounge	15.78	TM59 - 4 Bedroom - Living - CL	Living Occupancy	Living Equipment	18-23h
Bed 2	12.05	TM59 - Double Bedroom - CL	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
Bed 4/Study	7.82	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
Bed 3	9.94	TM59 - Double Bedroom - CL	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
Master Bedroom	17.86	TM59 - Double Bedroom - CL	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
Kitchen/Dining	25.45	TM59 - 4 Bedroom - Kitchen - CL	Kitchen Occupancy	Kitchen Equipment	18-23h

Modelled openings

Room name	Window to wall ratio %	Window g-value (EN 410)	Opening gross area m ²	Opening free area (avg) %	Opening free area / floor area ratio %	Opening profile(s)
Lounge	20.83	0.692, 0.692, 0.692	0.41, 0.41, 0.72, 0.72, 0.36, 0.36, 0.36, 0.36, 0.41, 0.41	20.0, 100.0, 20.0, 20.0, 20.0, 100.0, 20.0, 100.0, 20.0, 100.0	13.54	ADO.Section_ 26ab, ADO.AI waysOff
Bed 2	8.21	0.692	0.37, 0.37, 0.37, 0.37	20.0, 100.0, 20.0, 100.0	7.37	ADO.Section_ 26ab, ADO.AI waysOff
Bed 4/Study	10.7	0.692	0.37, 0.37, 0.37, 0.37	20.0, 100.0, 20.0, 100.0	11.36	ADO.Section_ 26ab, ADO.AI waysOff
Bed 3	8.54	0.692	0.38, 0.38, 0.38, 0.38	20.0, 100.0, 20.0, 100.0	9.18	ADO.Section_ 26ab, ADO.AI waysOff
Master Bedroom	15.88	0.692, 0.5525	0.37, 0.37, 0.37, 0.37, 0.72, 0.72	20.0, 100.0, 20.0, 100.0, 100.0, 100.0	13.03	ADO.Section_ 26ab, ADO.AI waysOff
Kitchen/Dining	27.04	0.692, 0.692	0.38, 0.38, 0.38, 0.38, 0.38, 0.38, 1.56, 1.56, 1.56, 1.56	20.0, 100.0, 20.0, 100.0, 20.0, 100.0, 100.0, 100.0, 100.0, 100.0	29.89	ADO.Section_ 26ab, ADO.AI waysOff

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Modelled ventilation

Room name	Infiltration rate ACH	Mech vent flow rate ACH
Lounge	0.25	0
Bed 2	0.25	0
Bed 4/Study	0.25	0
Bed 3	0.25	0
Master Bedroom	0.25	0
Kitchen/Dining	0.25	0