Approved Document O report
Overheating risk in residential buildings
for
Winters Buildings

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Winters Buildings

Building details

Project name: Winters Buildings	Date: 13-07-2026 17:40:35
Location: Manchester; ENG, GB	
Address: 5No. Apartments Winters Buildings, St Anns Square Manchester, M2 7PW	
Building use: mMixed use	
Are there any security, noise, or pollution issues: No known security issues. Potential accoustic issues.	

Designer's details

Designer's name: Benjamin Byrom
Designer's organisation: Hurstwood Environmental Consulting
Designer's address: 23 Goodlass Road Liverpool L24 9HJ

Dynamic thermal model

Software: IESVE version 2025.2.0.0	
Weather file: Manchester_DSY1_2020High50_.epw	
Results file: Winters Building.aps	
Number of rooms analysed: 17	
TM59: summer elevated air speed: 0.1	
TM59: occupant category: Category II (normal)	
Overheating mitigation strategy: MVHR and VRF cooling.	
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
03_APT.2.02_BED 2	-	-	Pass	-
03_APT.2.02_KITCHEN/ LIVING	-	-	Pass	-
03_APT.2.02_BED 1	-	-	Pass	-
03_APT.2.01_BED 2	-	-	Pass	-
03_APT.2.01_KITCHEN/ LIVING	-	-	Pass	-
03_APT.2.01_BED 1	-	-	Pass	-
04_APT.3.02_BED 2	-	-	Pass	-
04_APT.3.02_KITCHEN/ LIVING	-	-	Pass	-
04_APT.3.02_BED 1	-	-	Pass	-
04_APT.3.02_SUITE	-	-	Pass	-
04_APT.3.01_KITCHEN/ LIVING	-	-	Pass	-
04_APT.3.01_BED 2	-	-	Pass	-
04_APT.3.01_BED 1	-	-	Pass	-
05_APT.4.01_BED 2	-	-	Pass	-
05_APT.4.01_BED 3	-	-	Pass	-
05_APT.4.01_MASTER BEDROOM	-	-	Pass	-
05_APT.4.01_KITCHEN/ LIVING	-	-	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
No nat vent rooms	N/A	N/A	N/A	N/A

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
No nat vent rooms	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
03_APT.2.02_BED 2	0	0.0	Pass
03_APT.2.02_KITCHEN/LIVING	0	0.0	Pass
03_APT.2.02_BED 1	0	0.0	Pass
03_APT.2.01_BED 2	0	0.0	Pass
03_APT.2.01_KITCHEN/LIVING	0	0.0	Pass
03_APT.2.01_BED 1	0	0.0	Pass
04_APT.3.02_BED 2	0	0.0	Pass
04_APT.3.02_KITCHEN/LIVING	0	0.0	Pass
04_APT.3.02_BED 1	0	0.0	Pass
04_APT.3.02_SUITE	0	0.0	Pass
04_APT.3.01_KITCHEN/LIVING	0	0.0	Pass
04_APT.3.01_BED 2	0	0.0	Pass
04_APT.3.01_BED 1	0	0.0	Pass
05_APT.4.01_BED 2	0	0.0	Pass
05_APT.4.01_BED 3	0	0.0	Pass
05_APT.4.01_MASTER BEDROOM	0	0.0	Pass
05_APT.4.01_KITCHEN/LIVING	0	0.0	Pass

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
03_APT.2.02_BED 2	22.34	TM59 - Double Bedroom	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
03_APT.2.02_KITCHEN/LIVING	56.28	TM59 - 2 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
03_APT.2.02_BED 1	35.08	TM59 - Double Bedroom	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
03_APT.2.01_BED 2	19.01	TM59 - Double Bedroom	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
03_APT.2.01_KITCHEN/LIVING	57.34	TM59 - 2 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
03_APT.2.01_BED 1	31.85	TM59 - Double Bedroom	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
04_APT.3.02_BED 2	22.48	TM59 - Double Bedroom	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
04_APT.3.02_KITCHEN/LIVING	56.25	TM59 - 2 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
04_APT.3.02_BED 1	34.68	TM59 - Double Bedroom	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
04_APT.3.02_SUITE	44.85	TM59 - Double Bedroom	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
04_APT.3.01_KITCHEN/LIVING	56.09	TM59 - 2 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
04_APT.3.01_BED 2	19.82	TM59 - Double Bedroom	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
04_APT.3.01_BED 1	31.68	TM59 - Double Bedroom	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
05_APT.4.01_BED 2	18.11	TM59 - Double Bedroom	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
05_APT.4.01_BED 3	20.61	TM59 - Double Bedroom	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
05_APT.4.01_MASTER BEDROOM	45.45	TM59 - Double Bedroom	Double Bedroom Occupancy	Double Bedroom Equipment	18-23h
05_APT.4.01_KITCHEN/LIVING	82.26	TM59 - 3 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen 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)
03_APT.2.02_BED 2	20.51	0.3971	1.58, 1.58	0.0, 0.0	0.0	off continuously
03_APT.2.02_KITCHEN/LIVING	21.64	0.3971, 0.3971, 0.3971, 0.3971	1.57, 1.58, 1.58, 1.58, 1.58	0.0, 0.0, 0.0, 0.0, 0.0	0.0	off continuously
03_APT.2.02_BED 1	24.34	0.3971, 0.3971	1.58, 1.58, 1.57, 1.58	0.0, 0.0, 0.0, 0.0	0.0	off continuously
03_APT.2.01_BED 2	24.31	0.3971	1.57, 1.57	0.0, 0.0	0.0	off continuously
03_APT.2.01_KITCHEN/LIVING	19.13	0.3971, 0.3971, 0.3971, 0.3971, 0.3971, 0.3971, 0.3971	1.58, 1.58, 1.58, 1.58, 1.57, 1.57, 1.58, 1.58	0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0	0.0	off continuously
03_APT.2.01_BED 1	26.27	0.3971, 0.3971, 0.3971	1.58, 1.57, 1.57	0.0, 0.0, 0.0	0.0	off continuously
04_APT.3.02_BED 2	17.58	0.3971	1.35, 1.35	0.0, 0.0	0.0	off continuously
04_APT.3.02_KITCHEN/LIVING	20.45	0.3971, 0.3971	1.17, 1.17, 1.17, 1.17, 1.35, 1.35	0.0, 0.0, 0.0, 0.0, 0.0, 0.0	0.0	off continuously
04_APT.3.02_BED 1	18.78	0.3971, 0.3971	1.35, 1.35, 1.35, 1.35	0.0, 0.0, 0.0, 0.0	0.0	off continuously
04_APT.3.02_SUITE	11.79	0.3971	1.54, 1.54, 1.54	0.0, 0.0, 0.0	0.0	off continuously
04_APT.3.01_KITCHEN/LIVING	22.9	0.3971, 0.3971, 0.3971, 0.3971	1.17, 1.17, 1.17, 1.17, 1.17, 1.17, 1.17, 1.17, 1.17, 1.17, 1.17	0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0	0.0	off continuously
04_APT.3.01_BED 2	18.51	0.3971	1.17, 1.17	0.0, 0.0	0.0	off continuously
04_APT.3.01_BED 1	26.47	0.3971	1.17, 1.17, 1.17, 1.17	0.0, 0.0, 0.0, 0.0	0.0	off continuously
05_APT.4.01_BED 2	27.12	0.3971	2.4	0.0	0.0	off continuously
05_APT.4.01_BED 3	27.01	0.3971	2.78, 2.78	0.0, 0.0	0.0	off continuously

Winters Buildings

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)
05_APT.4.01_MASTER BEDROOM	20.8	0.3971, 0.3971, 0.3971	5.88, 3.52, 2.4	0.0, 0.0, 0.0	0.0	off continuously
05_APT.4.01_KITCHEN/LIVING	46.94	0.3971	5.74, 5.51, 4.95, 4.5	0.0, 0.0, 0.0, 0.0	0.0	off continuously

Modelled ventilation

Room name	Infiltration rate ACH	Mech vent flow rate ACH
03_APT.2.02_BED 2	0.25	0.4
03_APT.2.02_KITCHEN/LIVING	0.25	0.26
03_APT.2.02_BED 1	0.25	0.26
03_APT.2.01_BED 2	0.25	0.47
03_APT.2.01_KITCHEN/LIVING	0.25	0.26
03_APT.2.01_BED 1	0.25	0.28
04_APT.3.02_BED 2	0.25	0.4
04_APT.3.02_KITCHEN/LIVING	0.25	0.26
04_APT.3.02_BED 1	0.25	0.26
04_APT.3.02_SUITE	0.25	0.2
04_APT.3.01_KITCHEN/LIVING	0.25	0.26
04_APT.3.01_BED 2	0.25	0.45
04_APT.3.01_BED 1	0.25	0.28
05_APT.4.01_BED 2	0.25	0.53
05_APT.4.01_BED 3	0.25	0.47
05_APT.4.01_MASTER BEDROOM	0.25	0.21
05_APT.4.01_KITCHEN/LIVING	0.25	0.19