

Approved document O: overheating risk in residential buildings

Results file name: ado_2239 Creighton Summer Elevated Air Speed: 0.1m/s
Weather file: London_LHR_DSY1 Occupant category: Category II (normal)

CIBSE TM59 overheating methodology for predominately nat vent rooms assesses against two criteria, (a) and (b) (for Category 1 occupancy criterion A Tmax is reduced by 1 °K):

- Criterion (a) states that for living rooms, kitchens and bedrooms, the number of hours during which ΔT is greater than or equal to 1°K 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 section 2.6 applies limits to CIBSE TM 59 section 3.3 (openings); these requirements are applied by appropriate assignment of Macroflo types / scripted profiles in the model (see room data tab).

CIBSE TM59 overheating methodology for predominately mech vent 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.

Natvent room name	Natvent criterion (a) result	Natvent criterion (b) result	Pass/Fail	Mechvent room name	Pass/Fail	Corridor name	Significant overheating risk?
GF-Reception+Play Room	Pass	NA	Pass	No mech vent rooms to be analysed: NA		1F-Hall	No
GF-Study	Pass	NA	Pass			1F-WiW	No
1F-Bedroom-01	Pass	Pass	Pass			2F-Corridor	No
1F-Bedroom-02	Pass	Pass	Pass			GF-Entrance Hall	No
1F-Bedroom-04	Pass	Pass	Pass				
1F-Bedroom-03	Pass	Pass	Pass				
GF-Kitchen+Living+Dining	Pass	NA	Pass				
2F-Yoga Room	Pass	NA	Pass				
2F-Guest Bedroom	Pass	Pass	Pass				

Approved document O: overheating risk in residential buildings - Predominately nat vent 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 1°K 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 $\Delta T \geq 1^{\circ}\text{K}$	Pass/Fail
GF-Reception+Play Room	1989	36	1.8	Pass
GF-Study	1989	32	1.6	Pass
1F-Bedroom-01	3672	16	0.4	Pass
1F-Bedroom-02	3672	17	0.5	Pass
1F-Bedroom-04	3672	40	1.1	Pass
1F-Bedroom-03	3672	20	0.5	Pass
GF-Kitchen+Living+Dining	1989	45	2.3	Pass
2F-Yoga Room	1989	32	1.6	Pass
2F-Guest Bedroom	3672	32	0.9	Pass

VE 2022.1.1.0

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 NA values.

Room Name	No. hours > 26°C 22:00-24:00	No. hours > 26°C 00:00-07:00	Total hours > 26°C	Pass/Fail
GF-Reception+Play Room	NA	NA	NA	NA
GF-Study	NA	NA	NA	NA
1F-Bedroom-01	20	12	32	Pass
1F-Bedroom-02	18	10	28	Pass
1F-Bedroom-04	15	5	20	Pass
1F-Bedroom-03	18	11	29	Pass
GF-Kitchen+Living+Dining	NA	NA	NA	NA
2F-Yoga Room	NA	NA	NA	NA
2F-Guest Bedroom	13	5	18	Pass

VE 2022.1.1.0

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 the total annual hours, then this should be identified as a significant risk within the TM59 overheating report.

Corridor name	No. hours > 28°C	% Annual hours > 28°C	Significant overheating risk?
1F-Hall		41	0.5 No
1F-WiW		13	0.1 No
2F-Corridor		45	0.5 No
GF-Entrance Hall		51	0.6 No

Approved document O: overheating risk in residential buildings - Room data

Approved document O Overheating Section 4 requires information about the overheating strategy. The following model data details the design elements and ventilation strategies applied to each analysed room. Where multiple openings per space (windows & louvres) exist they are all listed. Where users have used default TMS9 profiles these comply with TMS9 section 5. Users should also add a design narrative.

Room name	Floor area m2	Thermal template	Occupancy profile	Equipment profile	Lighting profile	Opening profile	Opening gross area m2	Opening free area %	Total opening free area / floor area	Infiltration rate ACH	Mech vent flow rate ACH	WWR %	Window g-value (EN 410)
1F-Hall	29.01	Approved Doc O Circulation - in flats			18-23h	ADO.AlwaysOff, off continuously, off continuously, off continuously, off continuously, ADO.AlwaysOff, ADO.Section_26ab, ADO.AlwaysOff, ADO.Section_26ab, ADO.AlwaysOff, off continuously, off continuously	4.0, 1.68, 1.68, 1.68, 3.0, 1.16, 0.44, 1.17, 5.46, 0.47, 1.68	20.0, 0.0, 0.0, 0.0, 0.0, 20.0, 90.0, 20.0, 90.0, 20.0, 0.0, 0.0	16.12	0.150000006	0	74.15	0.3993, 0.3993, 0.3993
1F-WIW	11.35	Approved Doc O Circulation - in flats			18-23h	off continuously, off continuously	2.1, 2.1	0.0, 0.0	0	0.150000006	0	0	
2F-Corridor	12.3	Approved Doc O Circulation - in flats			18-23h	ADO.AlwaysOff, ADO.AlwaysOff, ADO.Section_26ab, ADO.Section_26a, ADO.AlwaysOff, ADO.AlwaysOff, ADO.Section_26a	1.69, 3.72, 2.01, 0.03, 1.01, 1.1, 1.68	20.0, 20.0, 90.0, 90.0, 20.0, 20.0, 90.0	39.45	0.150000006	0	50.68	0.4878, 0.3993, 0.3993
GF-Entrance Hall	20.06	Approved Doc O Circulation - in flats			18-23h	ADO.Section_26a, off continuously, ADO.Section_26a, off continuously, off continuously, off continuously	1.56, 3.64, 6.76, 1.68, 1.68, 2.99	90.0, 0.0, 90.0, 0.0, 0.0, 0.0	37.33	0.150000006	0	58.22	0.3993, 0.3993
GF-Reception+Play Room	21.89	Approved Doc O 3 Bed Living	Approved Doc O 3 Bed Living Occupancy	Approved Doc O Living Equipment	Approved Doc O Lighting	ADO.Section_26a, ADO.AlwaysOff, ADO.AlwaysOff, ADO.AlwaysOff, ADO.Section_26ab, ADO.AlwaysOff, off continuously	1.2, 0.4, 1.6, 2.4, 1.2, 0.4, 2.99 0.0	90.0, 20.0, 20.0, 20.0, 90.0, 20.0, 0.0	14.25	0.25	0	19.64	0.3993, 0.3993
GF-Study	15.16	Approved Doc O 3 Bed Living	Approved Doc O 3 Bed Living Occupancy	Approved Doc O Living Equipment	Approved Doc O Lighting	ADO.Section_26a, ADO.AlwaysOff, ADO.AlwaysOff, off continuously	1.2, 0.4, 1.6, 1.68	90.0, 20.0, 20.0, 0.0	9.76	0.25	0	12.89	0.3993
1F-Bedroom-01	17.05	Approved Doc O Double Bed	Approved Doc O Double Bed Occupancy	Approved Doc O Double Bed Equipment	Approved Doc O Lighting	ADO.Section_26ab, ADO.AlwaysOff, ADO.AlwaysOff, off continuously	1.2, 0.4, 1.6, 1.68	90.0, 20.0, 20.0, 0.0	8.68	0.25	0	11.26	0.3993
1F-Bedroom-02	15.1	Approved Doc O Double Bed	Approved Doc O Double Bed Occupancy	Approved Doc O Double Bed Equipment	Approved Doc O Lighting	ADO.Section_26ab, ADO.AlwaysOff, ADO.AlwaysOff, off continuously	1.2, 0.4, 1.6, 1.68	90.0, 20.0, 20.0, 0.0	9.8	0.25	0	15.94	0.3993
1F-Bedroom-04	15.92	Approved Doc O Double Bed	Approved Doc O Double Bed Occupancy	Approved Doc O Double Bed Equipment	Approved Doc O Lighting	ADO.AlwaysOff, ADO.AlwaysOff, ADO.Section_26ab, ADO.AlwaysOff, off continuously, off continuously, ADO.Section_26ab, ADO.AlwaysOff	1.16, 0.44, 1.16, 0.44, 0.89, 0.47, 1.68, 1.27, 0.42	20.0, 20.0, 90.0, 20.0, 0.0, 0.0, 0.0, 90.0, 20.0	16.83	0.25	0	12.18	0.3993, 0.3993
1F-Bedroom-03	18.66	Approved Doc O Double Bed	Approved Doc O Double Bed Occupancy	Approved Doc O Double Bed Equipment	Approved Doc O Lighting	ADO.AlwaysOff, ADO.Section_26ab, ADO.AlwaysOff, off continuously, ADO.Section_26a, off continuously	4.4, 1.2, 0.4, 1.68, 1.0, 2.1	20.0, 90.0, 20.0, 0.0, 90.0, 0.0	15.76	0.25	0	24.94	0.3993, 0.4878
GF-Kitchen+Living+Dining	69.44	Approved Doc O 3 Bed Living/Kitchen	Approved Doc O 3 Bed Living/Kitchen Occupancy	Approved Doc O Living/Kitchen Equipment	Approved Doc O Lighting	ADO.Section_26a, ADO.Section_26ab, off continuously, ADO.AlwaysOff, ADO.Section_26a, ADO.Section_26ab, ADO.AlwaysOff, ADO.Section_26a, ADO.AlwaysOff	6.24, 2.08, 1.89, 4.33, 6.75, 1.0, 1.81, 16.62, 2.89	90.0, 90.0, 0.0, 20.0, 90.0, 90.0, 20.0, 90.0, 20.0	44.97	0.25	0	32.99	0.3993, 0.4878, 0.3993, 0.3993, 0.4878, 0.3993, 0.4878
2F-Yoga Room	10.01	Approved Doc O 2 Bed Living	Approved Doc O 2 Bed Living Occupancy	Approved Doc O Living Equipment	Approved Doc O Lighting	ADO.Section_26a, ADO.Section_26ab	1.68, 2.16	90.0, 90.0	34.53	0.25	0	37.44	0.3993
2F-Guest Bedroom	19.41	Approved Doc O Double Bed	Approved Doc O Double Bed Occupancy	Approved Doc O Double Bed Equipment	Approved Doc O Lighting	ADO.Section_26ab, ADO.Section_26ab	1.62, 1.44	90.0, 90.0	14.19	0.25	0	26.86	0.3993, 0.3993