

TM59 Assessment for cooling – 41 Fitzroy Street Hotel

A dynamic simulation has been carried out using the CIBSE TM59 methodology in order to assess the existing design with respect to the risk of overheating and whether mitigation measures would be required.

An initial simulation was run with the as built data and without the addition of any cooling, highlighting that there was a significant risk of overheating.

Room	Mitigation Measures	Criterion A	Criterion B	Result
Studio 1	-	7.13	410.33	Fail
Studio 2	-	2.53	173.33	Fail
Studio 3	-	8.66	363	Fail
Studio 4	-	6.45	322.5	Fail
Studio 5	-	2.89	121.83	Fail
Studio 6	-	5.3	140.5	Fail
Studio 7	-	5.77	201.83	Fail
Studio 8	-	13.43	224.83	Fail
Studio 9	-	6.61	134	Fail
Studio 10	-	5.66	173.67	Fail
Studio 11	-	5.23	117.33	Fail
Studio 12	-	7.63	159	Fail
Studio 13	-	6.19	122	Fail
Studio 14	-	7.19	199.5	Fail

A secondary set of calculations was then run with a proposed cooling system for each studio, demonstrating how the risk of overheating would be mitigated.

Room	Mitigation Measures	Criterion A	Criterion B	Result
Studio 1	1.7 kW cooling	1.31	3	Pass
Studio 2	2.2 kW cooling	0.44	2.83	Pass
Studio 3	2.8 kW cooling	2.4	3	Pass
Studio 4	2.2 kW cooling	2.33	9.33	Pass
Studio 5	2.8 kW cooling	0.86	5	Pass
Studio 6	2.8 kW cooling	0.93	8.5	Pass
Studio 7	2.2 kW cooling	1.79	4.67	Pass
Studio 8	3.6 kW cooling	2.59	12	Pass
Studio 9	3.6 kW cooling	1.77	5.67	Pass
Studio 10	1.7 kW cooling	0.92	10.33	Pass
Studio 11	2.2 kW cooling	1.62	7.67	Pass
Studio 12	2.8 kW cooling	1.28	17.67	Pass
Studio 13	2.8 kW cooling	1.22	9	Pass
Studio 14	2.8 kW cooling	1.73	17	Pass