

Appendix C – Overheating Analysis Details

Overheating Criteria

As per BB101,

Three parameters have been developed which indicate when overheating is likely to be problematic. These standards apply outside the heating season and are for the occupied period of 09:00 to 15:30, Monday to Friday, from 1st May to 30th September.

- the number of hours for which a threshold temperature is exceeded
- the degree to which the internal temperature exceeds the external temperature
- the maximum temperature experienced at any occupied time.

The performance standards for summertime overheating in compliance with Approved document L2 for teaching and learning areas are:

a) There should be no more than 120 hours when the air temperature in the classroom rises above 28°C

b) The average internal to external temperature difference should not exceed 5°C (i.e. the internal air temperature should be no more than 5°C above the external air temperature on average)

c) The internal air temperature when the space is occupied should not exceed 32°C.

In order to show that the proposed school will not suffer overheating two of these three criteria must be met.

Rooms Analysed and Results

Activity	Criteria 1		Criteria 2		Criteria 3		Overall Overheating Criteria Pass
	45 hrs at Temps>28°C	PASS	7.0°C average over ambient	FAIL	0hrs above 32°C	PASS	
Ground Floor Year 3 (1)	45 hrs at Temps>28°C	PASS	7.0°C average over ambient	FAIL	0hrs above 32°C	PASS	PASS
Ground Floor Year 3 (2)	60 hrs at Temps>28°C	PASS	7.8°C average over ambient	FAIL	0hrs above 32°C	PASS	PASS
Ground Floor Year 4 (1)	206 hrs at Temps>28°C	FAIL	9.4°C average over ambient	FAIL	4hrs above 32°C	FAIL	FAIL
Ground Floor Year 4 (2)	258 hrs at Temps>28°C	FAIL	9.6°C average over ambient	FAIL	0hrs above 32°C	PASS	FAIL
First Floor Year 5 (1)	49 hrs at Temps>28°C	PASS	6.9°C average over ambient	FAIL	2hrs above 32°C	FAIL	FAIL
First Floor Year 5 (2)	62 hrs at Temps>28°C	PASS	7.8°C average over ambient	FAIL	2hrs above 32°C	FAIL	FAIL
First Floor Year 6 (1)	197 hrs at Temps>28°C	FAIL	9.3°C average over ambient	FAIL	6hrs above 32°C	FAIL	FAIL
First Floor Year 6 (2)	244 hrs at Temps>28°C	FAIL	9.5°C average over ambient	FAIL	2hrs above 32°C	FAIL	FAIL

Appendix D – Fuel Emissions Factors

The assessment has assumed the following fuel carbon emissions factors:

Carbon Emission Factor	SBEM kgCO ₂ /KWh
Grid electricity	0.496
Grid displaced electricity	0.496
Manufactured smokeless fuel	0.433
Coal (traditional British Coal)	0.345
Heating oil	0.319
LPG	0.241
Dual fuel (mineral + wood)	0.226
Natural Gas	0.184
Waste heat	0.058
Biomass	0.028