

Project name

Collingwood College

As designed

Date: Tue May 26 14:37:10 2009

Administrative information**Building Details**

Address: SPORTS HALL, CAMBERLEY, GU15 4AE

Certification tool

Calculation engine: Apache

Calculation engine version: "5.9.2"

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 5.9.2

BRUKL compliance check version: v3.4.a

Occupier Details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Certifier details

Name: Robin Pritchett

Telephone number: 01844 347474

Address: 4-5 Tower Court Horns Lane, Princes
Risborough, HP27 0AJ**Criterion 1: Predicted CO2 emission from proposed building does not exceed the target**

1.1	Calculated CO2 emission rate from notional building	43.4 KgCO2/m2.annum
1.2	Improvement factor	0.16
1.3	LZC benchmark	0.1
1.4	Target CO2 Emission Rate (TER)	32.6 KgCO2/m2.annum
1.5	Building CO2 Emission Rate (BER)	25.1 KgCO2/m2.annum
1.6	Are emissions from building less than or equal to the target?	BER =< TER
1.7	Are as built details the same as used in BER calculations?	Separate submission

Criterion 2: The performance of the building fabric and the building services systems should be no worse than the design limits2.1 Are the U-values better than the design limits? **Better than design limits**

Element	U _a -Limit	U _a -Calc	U _i -Limit	U _i -Calc	Surface where this maximum value occurs*
Wall**	0.35	0.23	0.7	0.23	WC__0000:Surf[1]
Floor	0.25	0.25	0.7	0.25	WC__0000:Surf[0]
Roof	0.25	0.23	0.35	0.23	WC__0001:Surf[1]
Windows***, roof windows, and rooflights	2.2	2.1	3.3	2.1	MNSP0000:Surf[12]
Personnel doors	2.2	2.2	3	2.2	CRRD0000:Surf[3]
Vehicle access & similar large doors	1.5	0	4	0	No Vehicle access doors in building
High usage entrance doors	6	0	6	0	No High usage entrance doors in building
U _a -Limit = Limiting area-weighted average U-values [W/(m2K)] U _a -Calc = Calculated area-weighted average U-values [W/(m2K)]			U _i -Limit = Limiting individual element U-values [W/(m2K)] U _i -Calc = Calculated individual element U-values [W/(m2K)]		
* There might be more than one surface exceeding the limiting standards.					
** Automatic U-value check by the tool does not apply to curtain walls whose limiting standards are similar to those for windows.					
*** Display windows and similar glazing are not required to meet the standard given in this table.					

2.2 Is air permeability no greater than the worst acceptable standard? **No greater than worst acceptable standard**

Air Permeability	Worst acceptable standard	This building (Design value)
m ³ /(h.m ²) at 50 Pa	10	3.8

2.3 Are all building services standards acceptable?

2.3a-1 Heating Only

HVAC system standard is acceptable

Efficiency check	Limiting heat source seasonal efficiency	This building
Heat source efficiency	0.84	0.93
0.84 is the overall limiting efficiency for a single or a multiple boiler system. For a multiple boiler system the limiting efficiency for any individual boiler is 0.80.		

2.3a-2 Heating plus HR

HVAC system standard is acceptable

Efficiency check	Limiting heat source seasonal efficiency	This building
Heat source efficiency	0.84	0.93
0.84 is the overall limiting efficiency for a single or a multiple boiler system. For a multiple boiler system the limiting efficiency for any individual boiler is 0.80.		

2.3b- "No HWS in project, or hot water is provided by HVAC system"

2.4	Does fixed internal lighting comply with England and Wales Building Regulations Part L paragraphs 49 to 61?	Separate submission
2.5	Are energy meters installed in accordance with GIL65?	Separate submission

Criterion 3: The spaces in the building without air-conditioning have appropriate passive control measures to limit the effects of solar gains

3.1	Method of showing compliance with England and Wales Building Regulations Part L in paragraph 64?	Separate submission
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Criterion 4: The performance of the building, as built, is consistent with the BER

4.1	Have the key features of the design been included (or bettered) in practice?	Separate submission
4.2	Is the level of thermal bridging acceptable?	Separate submission
4.3	Has satisfactory documentary evidence of site inspection checks been produced?	Separate submission

4.4 Design air permeability

Air Permeability	Worst acceptable standard	This building (Design value)
m ³ /(h.m ²) at 50 Pa	10	3.8

4.5	Has evidence been provided that demonstrates that the design air permeability has been achieved satisfactorily?	Separate submission
4.6	Has commissioning been completed satisfactorily?	Separate submission
4.7	Has evidence been provided that demonstrates that the ductwork is sufficiently airtight?	Separate submission

Criterion 5: Providing information

5.1	Has a suitable building log-book been prepared?	Separate submission
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Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Area (m2)	1090	1090
External area (m2)	2563	2563
Weather	LON	LON
Infiltration (m3/hm2 @ 50Pa)	4	10
Average conductance (W/K)	1156.42	1397.77
Average U-value (W/m2K)	0.45	0.55
Alpha value (%)	7.76	10

Building Use

% area	Building Type
	Office
	Primary school
100	Secondary school
	Further education universities
	Primary health care buildings
	Nursing residential homes and hostels
	Hospital
	Hotel
	Restaurant/public house
	Sports centre/leisure centre
	Sports ground arena
	Retail
	Warehouse and storage
	Theatres/cinemas/music halls and auditoria
	Social clubs
	Community/day centre
	Libraries/museums/galleries
	Prisons
	Emergency services
	Crown and county courts
	Airport terminals
	Bus station/train station/seaport terminal
	Workshops/maintenance depot
	Telephone exchanges
	Industrial process building
	Launderette
	Dwelling
	Retail warehouses
	Miscellaneous 24hr activities

HVAC Systems Performance

System Type	Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEFF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Central heating using water: convectors, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Grid Supplied Electricity									
Actual	73.1	0	24.5	0	5.4	0.83	0	0.93	0
Notional	108.8	0	41.4	0	2	0.73	0	----	----
[ST] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Grid Supplied Electricity									
Actual	182.3	0	61	0	3.7	0.83	0	0.93	0
Notional	265.2	0	94.5	0	0	0.78	0	----	----

Key to terms

Alpha value (%)	= percentage of the building's average heat transfer coefficient which is due to thermal bridging
Heat dem (MJ/m2)	= Heating energy demand
Cool dem (MJ/m2)	= Cooling energy demand
Heat con (kWh/m2)	= Heating energy consumption
Cool con (kWh/m2)	= Cooling energy consumption
Aux con (kWh/m2)	= Auxiliary energy consumption
Heat SSEFF	= Heating system seasonal efficiency
Cool SSEER	= Cooling system seasonal energy efficiency ratio
Heat gen SSEFF	= Heating generator seasonal efficiency
Cool gen SSEER	= Cooling generator seasonal energy efficiency ratio
ST	= System type
HS	= Heat source
HFT	= Heating fuel type
CFT	= Cooling fuel type