

## Project name

**2310513 Stag Brewery School**

As designed

Date: Fri Sep 08 16:13:16 2017

## Administrative information

## Building Details

Address: Stag Brewery (The Mortlake Brewery), London, SW14

## Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.6

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.6

BRUKL compliance check version: v5.2.g.3

## Owner Details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

## Certifier details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Criterion 1: The calculated CO<sub>2</sub> emission rate for the building should not exceed the target

The building does not comply with England Building Regulations Part L 2013

CO <sub>2</sub> emission rate from the notional building, kgCO <sub>2</sub> /m <sup>2</sup> .annum	19
Target CO <sub>2</sub> emission rate (TER), kgCO <sub>2</sub> /m <sup>2</sup> .annum	19
Building CO <sub>2</sub> emission rate (BER), kgCO <sub>2</sub> /m <sup>2</sup> .annum	22.7
Are emissions from the building less than or equal to the target?	BER > TER
Are as built details the same as used in the BER calculations?	Separate submission

## Criterion 2: The performance of the building fabric and the building services should achieve reasonable overall standards of energy efficiency

Values not achieving standards in the Non-Domestic Building Services Compliance Guide and Part L are displayed in red.

## Building fabric

Element	U <sub>a</sub> -Limit	U <sub>a</sub> -Calc	U <sub>i</sub> -Calc	Surface where the maximum value occurs*
Wall**	0.35	0.2	0.22	00000000:Surf[5]
Floor	0.25	0.2	0.2	00000000:Surf[0]
Roof	0.25	0.2	0.2	01000013:Surf[0]
Windows***, roof windows, and rooflights	2.2	1.67	2	02000001:Surf[0]
Personnel doors	2.2	2.2	2.2	02000023:Surf[1]
Vehicle access & similar large doors	1.5	-	-	No Vehicle access doors in building
High usage entrance doors	3.5	-	-	No High usage entrance doors in building
U <sub>a</sub> -Limit = Limiting area-weighted average U-values [W/(m <sup>2</sup> K)] U <sub>a</sub> -Calc = Calculated area-weighted average U-values [W/(m <sup>2</sup> K)] U <sub>i</sub> -Calc = Calculated maximum individual element U-values [W/(m <sup>2</sup> K)]				
* There might be more than one surface where the maximum U-value occurs.				
** Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.				
*** Display windows and similar glazing are excluded from the U-value check.				
N.B.: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.				

Air Permeability	Worst acceptable standard	This building
m <sup>3</sup> /(h.m <sup>2</sup> ) at 50 Pa	10	5

## Building services

The standard values listed below are minimum values for efficiencies and maximum values for SFPs. Refer to the Non-Domestic Building Services Compliance Guide for details.

<b>Whole building lighting automatic monitoring &amp; targeting with alarms for out-of-range values</b>	YES
<b>Whole building electric power factor achieved by power factor correction</b>	>0.95

### 1- Stag Brewery Radiator Eff 0\_94

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
<b>This system</b>	0.94	-	0	0	-
<b>Standard value</b>	0.91*	N/A	N/A	N/A	N/A
<b>Automatic monitoring &amp; targeting with alarms for out-of-range values for this HVAC system</b>					YES
* Standard shown is for gas single boiler systems <=2 MW output. For single boiler systems >2 MW or multi-boiler systems, (overall) limiting efficiency is 0.86. For any individual boiler in a multi-boiler system, limiting efficiency is 0.82.					

### 2- Stag Brewery All Air System - Sports Halls

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
<b>This system</b>	0.94	-	0	1.8	0.7
<b>Standard value</b>	0.91	N/A	N/A	1.5^	0.5
<b>Automatic monitoring &amp; targeting with alarms for out-of-range values for this HVAC system</b>					YES
^ Allowed SFP may be increased by the amounts specified in the Non-Domestic Building Services Compliance Guide if the system includes additional components as listed in the Guide.					

### 3- Stag Brewery DX Clg Server Rm/ IT Space

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
<b>This system</b>	3	4	0	0	0.7
<b>Standard value</b>	2.5*	3.2	N/A	N/A	0.5
<b>Automatic monitoring &amp; targeting with alarms for out-of-range values for this HVAC system</b>					YES
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps. For types <=12 kW output, refer to EN 14825 for limiting standards.					

### 4- Stag Brewery Electrical Panel

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
<b>This system</b>	0.94	-	-	0.5	-
<b>Standard value</b>	N/A	N/A	N/A	1.1^	N/A
<b>Automatic monitoring &amp; targeting with alarms for out-of-range values for this HVAC system</b>					YES
^ Allowed SFP may be increased by the amounts specified in the Non-Domestic Building Services Compliance Guide if the system includes additional components as listed in the Guide.					

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

### Local mechanical ventilation, exhaust, and terminal units

ID	System type in Non-domestic Building Services Compliance Guide
A	Local supply or extract ventilation units serving a single area
B	Zonal supply system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal supply and extract ventilation units serving a single room or zone with heating and heat recovery
E	Local supply and extract ventilation system serving a single area with heating and heat recovery
F	Other local ventilation units
G	Fan-assisted terminal VAV unit
H	Fan coil units
I	Zonal extract system where the fan is remote from the zone with grease filter

Zone name	SFP [W/(l/s)]										HR efficiency	
	ID of system type	A	B	C	D	E	F	G	H	I		
	Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
00-Staff WC 01	-	-	0.3	-	-	-	-	-	-	-	-	N/A
00-Staff WC 02	-	-	0.3	-	-	-	-	-	-	-	-	N/A
00-CL ST 01	-	-	0.3	-	-	-	-	-	-	-	-	N/A
00-WC 03	-	-	0.3	-	-	-	-	-	-	-	-	N/A
00-AC WC 01	-	-	0.3	-	-	-	-	-	-	-	-	N/A
00-CL ST 03	-	-	0.3	-	-	-	-	-	-	-	-	N/A
00-Unknown Rm / WC	-	-	0.3	-	-	-	-	-	-	-	-	N/A
00-WC 01	-	-	0.3	-	-	-	-	-	-	-	-	N/A
00-WC 02	-	-	0.3	-	-	-	-	-	-	-	-	N/A
00-Kitchen	-	-	1	-	-	-	-	-	-	1	-	N/A
00-CL ST 02	-	-	0.3	-	-	-	-	-	-	-	-	N/A
00-AC WC 02	-	-	0.3	-	-	-	-	-	-	-	-	N/A
01-Staff WC X 4	-	-	0.3	-	-	-	-	-	-	-	-	N/A
01-AC WC 01	-	-	0.3	-	-	-	-	-	-	-	-	N/A
01-AC WC 02	-	-	0.3	-	-	-	-	-	-	-	-	N/A
01-Staff WC 02	-	-	0.3	-	-	-	-	-	-	-	-	N/A
01-Satff WC 01	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-Staff WC 01	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-Staff WC 02	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-Science Lab 7	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-Science Lab 6	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-Science Lab 4	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-Science Lab 3	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-Science Lab 2	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-Science Lab 1	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-Spec Science Lab 01	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-Spec Science Lab 02	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-AC WC 01	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-Science Prep Room	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-Staff WC	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-AC WC 02	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-AC WC 03	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-AC WC 04	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-AC WC 05	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-CL ST 01	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-Chem Store	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-CL ST 02	-	-	0.3	-	-	-	-	-	-	-	-	N/A
02-Science Lab 5	-	-	0.3	-	-	-	-	-	-	-	-	N/A
00-Staff WC	-	-	0.3	-	-	-	-	-	-	-	-	N/A
01-Unknown Rm / Changing Rm08 TBC	-	-	0.3	-	-	-	-	-	-	-	-	N/A
01-Unknown Rm / Changing Rm16 TBC	-	-	0.3	-	-	-	-	-	-	-	-	N/A
01-Unknown Rm / Changing Rm08 TBC	-	-	0.3	-	-	-	-	-	-	-	-	N/A
01-Unknown Rm / Changing Rm16 TBC	-	-	0.3	-	-	-	-	-	-	-	-	N/A

Zone name	SFP [W/(l/s)]									HR efficiency	
	A	B	C	D	E	F	G	H	I	Zone	Standard
<b>ID of system type</b>	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1		
<b>Standard value</b>	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1		
00-Unknown Rm / Changing Rm10 TBC	-	0.3	-	-	-	-	-	-	-	-	N/A
00-Unknown Rm / Changing Rm20 TBC	-	0.3	-	-	-	-	-	-	-	-	N/A

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
<b>Standard value</b>	60	60	60	22	
00-Graphics	60	-	-	-	669
00-Food Prep/ST	60	-	-	-	26
00-Prac ST 01	60	-	-	-	14
00-Prac ST 02	60	-	-	-	14
00-Food 1	-	60	-	-	427
00-Conference	60	-	-	-	205
00-Hygiene Rm	60	-	-	-	180
00-Staff WC 01	-	60	-	-	49
00-Staff WC 02	-	60	-	-	49
00-Head PA	60	-	-	-	140
00-Head Office	60	-	-	-	261
00-Int Rm	60	-	-	-	163
00-CL ST 01	60	-	-	-	11
00-WC 03	-	60	-	-	48
00-Entrance	-	60	-	-	125
00-General Office	60	-	-	-	497
00-Reception	-	60	22	-	61
00-Sick Rm	60	-	-	-	133
00-Art SWR	60	-	-	-	210
00-ART 2	60	-	-	-	668
00-ART 3D	60	-	-	-	752
00-Prac ST 07	60	-	-	-	15
00-Prac ST 03	60	-	-	-	15
00-KILN Rm	60	-	-	-	15
00-Prac ST 05	60	-	-	-	17
00-Corridor 08	-	60	-	-	51
00-Maintennace ST	60	-	-	-	19
00-Office-premises	60	-	-	-	175
00-AC WC 01	-	60	-	-	49
00-Server	60	-	-	-	197
00-Reprographics	60	-	-	-	287
00-Female Changing	-	60	-	-	165
00-IT Tech	60	-	-	-	177
00-CL ST 03	60	-	-	-	12
00-SEN ST	60	-	-	-	14
00-Small GRP Rm 01	60	-	-	-	157
00-Small GRP Rm 02	60	-	-	-	157

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name	Standard value	Luminaire	Lamp	Display lamp	
		60	60	22	
00-Small GRP Rm 03		60	-	-	157
00-Hallway 01		-	60	-	35
00-Staff Change 01		-	60	-	33
00-Male Changing		-	60	-	180
00-Unknown Rm / WC		-	60	-	48
00-WC 01		-	60	-	48
00-WC 02		-	60	-	50
00-Change		-	60	-	33
00-Office 01		60	-	-	136
00-Office 02		60	-	-	145
00-Central Stock		60	-	-	17
00-Dry Store		60	-	-	13
00-Chiller		60	-	-	69
00-Freezer		60	-	-	91
00-Seminar 01		60	-	-	365
00-Kitchen		-	60	-	1223
00-Seminar 02		60	-	-	365
00-Dining Hall		-	60	-	825
00-Stair 01		-	60	-	43
00-DT SWR		60	-	-	312
00-Drama		60	-	-	668
00-Office/ MTG		60	-	-	158
00-Drama Store		60	-	-	20
00-Archive Store		60	-	-	17
00-Exam Store		60	-	-	20
00-ICT RICH 1		60	-	-	709
00-ICT RICH 2		60	-	-	710
00-Plant		60	-	-	454
00-Large GRP RM		60	-	-	243
00-External Store		60	-	-	24
00-Community Store		60	-	-	18
00-Staff Change 02		-	60	-	30
00-Small GRP RM		60	-	-	145
00-MI Room		60	-	-	187
00-Common Corridor 01		-	60	-	884
00-Common Corridor 02		-	60	-	121
00-Common Corridor 05		-	60	-	159
00-Chair Store 01		60	-	-	22
00-Main Hall		-	60	-	534
00-Chair Store 02		60	-	-	22
00-Music Practice 02		60	-	-	99
00-Music Practice 03		60	-	-	97
00-Music Practice 04		60	-	-	110

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name	Standard value	Luminaire	Lamp	Display lamp	
		60	60	22	
00-Music 2		60	-	-	499
00-Music 1		60	-	-	549
00-Music ST		60	-	-	18
00-INST ST		60	-	-	16
00-Prac ST 08		60	-	-	17
00-CL ST 02		60	-	-	12
00-AC WC 02		-	60	-	49
00-ART ST		60	-	-	15
00-Resistant MAT 2		60	-	-	751
00-RM Prep		-	60	-	123
00-Resistant MAT 1		60	-	-	751
00-Prac ST 09		60	-	-	16
00-Prac ST 10		60	-	-	17
00-Textiles		60	-	-	681
00-Stair 02		-	60	-	107
00-Stair 03		-	60	-	87
00-Stair 04		-	60	-	70
00-Community Entrance and Locker		-	60	-	80
00-Staff Rm		60	-	-	605
01-Sports Hall		60	-	-	4896
01-Activity Studio		60	-	-	1161
01-English 1		60	-	-	441
01-English 2		60	-	-	441
01-English 3		60	-	-	441
01-English 4		60	-	-	441
01-English 5		60	-	-	441
01-English 6		60	-	-	441
01-English 7		60	-	-	441
01-English 8		60	-	-	441
01-Humanities 5		60	-	-	441
01-Humanities 4		60	-	-	465
01-English SWR		60	-	-	207
01-Office / Meeting 02		60	-	-	178
01-ICT / Business 2		60	-	-	660
01-ICT / Business 1		60	-	-	660
01-Void Over Dining Area		-	60	-	28
01-Learning Resources Centre		60	-	-	1500
01-Void Over Dance Studio		60	-	-	30
01-Void Over Main Hall		-	60	-	34
01-PE Store		60	-	-	102
01-Maths 1		60	-	-	444
01-Maths 2		60	-	-	444
01-Maths 3		60	-	-	444

General lighting and display lighting	Luminous efficacy [lm/W]			General lighting [W]	
	Zone name	Luminaire	Lamp		Display lamp
	<b>Standard value</b>	60	60	22	
01-Maths 4	60	-	-		444
01-Maths 5	60	-	-		444
01-Maths 6	60	-	-		444
01-Maths 7	60	-	-		444
01-Maths 8	60	-	-		444
01-Humanities 1	60	-	-		444
01-Humanities 2	60	-	-		467
01-Maths SWR	60	-	-		207
01-Humanities 3	60	-	-		444
01-Humanities SWR	60	-	-		148
01-Office	60	-	-		152
01-Lighting Room	60	-	-		77
01-Staff WC X 4	-	60	-		103
01-Maths ST	60	-	-		19
01-Office / Meeting 03	60	-	-		173
01-AC WC 01	-	60	-		53
01-HUM ST	60	-	-		14
01-CL ST 01	60	-	-		13
01-Office / Meeting 04	60	-	-		178
01-General ST	60	-	-		12
01-ENG ST	60	-	-		17
01-Locker 01	60	-	-		17
01-Locker 02	60	-	-		14
01-AC WC 02	-	60	-		53
01-Staff WC 02	-	60	-		48
01-Activity Store	60	-	-		28
01-Office / Meeting 05	60	-	-		163
01-LRC ST	60	-	-		13
01-CL ST 02	60	-	-		10
01-Lobby 01	-	60	-		24
01-CL ST 03	60	-	-		11
01-Office / Meeting 01	60	-	-		168
01-Office	60	-	-		152
01-Office / Meeting 06	60	-	-		190
01-Office	60	-	-		132
01-Staff WC 01	-	60	-		49
01-Lobby 02	-	60	-		22
01-Common Corridor 01	-	60	-		614
01-Common Corridor 04	-	60	-		119
01-Stair 03	-	60	-		82
01-Stair 02	-	60	-		76
01-Stair 01	-	60	-		43
01-Stair 04	-	60	-		70

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name	Standard value	Luminaire	Lamp	Display lamp	
		60	60	22	
01-Locker 04		60	-	-	17
01-Lobby 03		-	60	-	42
02-Void on Sports Hall		60	-	-	4955
02-6th Form Study		60	-	-	537
02-MFL 1		60	-	-	441
02-MFL 2		60	-	-	441
02-MFL 3		60	-	-	441
02-MFL 4		60	-	-	441
02-MFL SWR		60	-	-	160
02-Staff WC 01		-	60	-	48
02-Staff WC 02		-	60	-	48
02-Lobby 01		-	60	-	40
02-MFL 5		60	-	-	441
02-Science Lab 7		60	-	-	1833
02-Science Lab 6		60	-	-	1833
02-Science Lab 4		60	-	-	1903
02-Science Lab 3		60	-	-	1900
02-Science Lab 2		60	-	-	1844
02-Science Lab 1		60	-	-	1848
02-Spec Science Lab 01		60	-	-	1985
02-Spec Science Lab 02		60	-	-	1985
02-ICT / Business 4		60	-	-	709
02-ICT / Business 3		60	-	-	709
02-Plant		60	-	-	470
02-Science SWR		60	-	-	245
02-AC WC 01		-	60	-	47
02-6th Form Social		60	-	-	874
02-Void Over Dining Area		-	60	-	552
01-Void Above Activity Studio		60	-	-	1160
02-Science Prep Room		60	-	-	2169
02-ICT / Business 5		60	-	-	696
02-Seminar		60	-	-	386
02-Staff WC		-	60	-	56
02-AC WC 02		-	60	-	60
02-AC WC 03		-	60	-	60
02-AC WC 04		-	60	-	281
02-Office / Meeting		60	-	-	222
02-AC WC 05		-	60	-	48
02-CL ST 01		60	-	-	10
02-Lobby 03		-	60	-	35
02-Chem Store		60	-	-	17
02-MFL ST		60	-	-	13
02-Central Stock		60	-	-	16



General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name	Standard value	Luminaire	Lamp	Display lamp	
		60	60	22	
02-CL ST 02		60	-	-	12
02-Office		60	-	-	146
02-Lobby 02		-	60	-	29
02-Stair 03		-	60	-	70
02-Stair 02		-	60	-	74
02-Stair 01		-	60	-	43
02-Stair 04		-	60	-	69
00-SEN CO		60	-	-	194
00-SEN Resource		60	-	-	230
01-Common Corridor 06		-	60	-	52
02-Common Corridor 01		-	60	-	433
02-Common Corridor 02		-	60	-	205
02-Common Corridor 07		-	60	-	316
02-Common Corridor 03		-	60	-	297
02-Common Corridor 04		-	60	-	52
02-Common Corridor 05		-	60	-	67
00-Common Corridor 06		-	60	-	278
00-Common Corridor 07		-	60	-	66
00-Common Corridor 03		-	60	-	66
00-Common Corridor 04		-	60	-	265
00-Group Practice		60	-	-	143
00-Music Practice 05		60	-	-	110
00-Music Practice 01		60	-	-	97
00-Bleacher Seating Store		60	-	-	43
00-Prac ST 06		60	-	-	16
00-ART 1 - SMALL		60	-	-	698
00-Hallway 02		-	60	-	26
00-Prac ST 04		60	-	-	17
01-Locker 03		60	-	-	14
01-Common Corridor 02		-	60	-	149
02-Science Lab 5		60	-	-	1928
01-Common Corridor 03		-	60	-	52
01-Common Corridor 03		-	60	-	232
01-Common Corridor 05		-	60	-	255
02-Common Corridor 06		-	60	-	52
00-Staff WC		-	60	-	65
00-Lobby		-	60	-	49
01-Unknown Rm / Changing Rm08 TBC		-	60	-	133
01-Unknown Rm / Changing Rm16 TBC		-	60	-	133
01-Unknown Rm / Changing Rm08 TBC		-	60	-	133
01-Unknown Rm / Changing Rm16 TBC		-	60	-	133
00-Unknown Rm / Changing Rm10 TBC		-	60	-	161
00-Unknown Rm / Changing Rm20 TBC		-	60	-	161

**Criterion 3: The spaces in the building should have appropriate passive control measures to limit solar gains**

<b>Zone</b>	<b>Solar gain limit exceeded? (%)</b>	<b>Internal blinds used?</b>
00-Graphics	NO (-38.9%)	NO
00-Food 1	NO (-63.4%)	NO
00-Conference	NO (-66.6%)	NO
00-Hygiene Rm	N/A	N/A
00-Head PA	NO (-70.8%)	NO
00-Head Office	NO (-80.3%)	NO
00-Int Rm	N/A	N/A
00-General Office	NO (-80.9%)	NO
00-Reception	N/A	N/A
00-Sick Rm	N/A	N/A
00-Art SWR	N/A	N/A
00-ART 2	NO (-74.1%)	NO
00-ART 3D	NO (-71.8%)	NO
00-Office-premises	N/A	N/A
00-Server	N/A	N/A
00-Reprographics	N/A	N/A
00-IT Tech	N/A	N/A
00-Small GRP Rm 01	N/A	N/A
00-Small GRP Rm 02	N/A	N/A
00-Small GRP Rm 03	N/A	N/A
00-Office 01	N/A	N/A
00-Office 02	N/A	N/A
00-Freezer	N/A	N/A
00-Seminar 01	N/A	N/A
00-Seminar 02	N/A	N/A
00-Dining Hall	NO (-99.6%)	NO
00-DT SWR	N/A	N/A
00-Drama	N/A	N/A
00-Office/ MTG	N/A	N/A
00-ICT RICH 1	NO (-43.3%)	NO
00-ICT RICH 2	NO (-33.4%)	NO
00-Large GRP RM	NO (-46.6%)	NO
00-Small GRP RM	N/A	N/A
00-MI Room	N/A	N/A
00-Music Practice 02	N/A	N/A
00-Music Practice 03	N/A	N/A
00-Music Practice 04	N/A	N/A
00-Music 2	NO (-59.4%)	NO
00-Music 1	NO (-44.1%)	NO
00-Resistant MAT 2	NO (-49.4%)	NO
00-Resistant MAT 1	NO (-63.2%)	NO
00-Textiles	NO (-75.6%)	NO
00-Staff Rm	NO (-87.7%)	NO
01-Sports Hall	NO (-63.6%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
01-Activity Studio	N/A	N/A
01-English 1	NO (-71.2%)	NO
01-English 2	NO (-80.5%)	NO
01-English 3	NO (-81.5%)	NO
01-English 4	NO (-69.9%)	NO
01-English 5	NO (-84.7%)	NO
01-English 6	NO (-73.5%)	NO
01-English 7	NO (-79.1%)	NO
01-English 8	NO (-70.5%)	NO
01-Humanities 5	NO (-76.5%)	NO
01-Humanities 4	NO (-74%)	NO
01-English SWR	NO (-77.9%)	NO
01-Office / Meeting 02	N/A	N/A
01-ICT / Business 2	N/A	N/A
01-ICT / Business 1	N/A	N/A
01-Void Over Dining Area	NO (-87%)	NO
01-Learning Resources Centre	N/A	N/A
01-Void Over Dance Studio	N/A	N/A
01-Maths 1	NO (-60.7%)	NO
01-Maths 2	NO (-52.6%)	NO
01-Maths 3	NO (-42.6%)	NO
01-Maths 4	NO (-54%)	NO
01-Maths 5	NO (-60.5%)	NO
01-Maths 6	NO (-54.1%)	NO
01-Maths 7	NO (-60.7%)	NO
01-Maths 8	NO (-60.9%)	NO
01-Humanities 1	NO (-43.5%)	NO
01-Humanities 2	NO (-60.6%)	NO
01-Maths SWR	NO (-87.4%)	NO
01-Humanities 3	NO (-61.9%)	NO
01-Humanities SWR	N/A	N/A
01-Office	N/A	N/A
01-Office / Meeting 03	N/A	N/A
01-Office / Meeting 04	N/A	N/A
01-Office / Meeting 05	N/A	N/A
01-Office / Meeting 01	N/A	N/A
01-Office	N/A	N/A
01-Office / Meeting 06	N/A	N/A
01-Office	N/A	N/A
02-Void on Sports Hall	NO (-23.2%)	NO
02-6th Form Study	NO (-68.6%)	NO
02-MFL 1	NO (-80.8%)	NO
02-MFL 2	NO (-81.2%)	NO
02-MFL 3	NO (-65.6%)	NO
02-MFL 4	NO (-76.7%)	NO
02-MFL SWR	N/A	N/A
02-MFL 5	NO (-77.2%)	NO
02-Science Lab 7	NO (-72%)	NO
02-Science Lab 6	NO (-81.6%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
02-Science Lab 4	NO (-70.7%)	NO
02-Science Lab 3	NO (-72.6%)	NO
02-Science Lab 2	NO (-58.6%)	NO
02-Science Lab 1	NO (-46.7%)	NO
02-Spec Science Lab 01	NO (-48%)	NO
02-Spec Science Lab 02	NO (-50.5%)	NO
02-ICT / Business 4	NO (-91.9%)	NO
02-ICT / Business 3	NO (-68.9%)	NO
02-Science SWR	N/A	N/A
02-6th Form Social	YES (+4.4%)	NO
02-Void Over Dining Area	YES (+278%)	NO
01-Void Above Activity Studio	YES (+21.3%)	NO
02-Science Prep Room	YES (+2.5%)	NO
02-ICT / Business 5	NO (-49.8%)	NO
02-Seminar	YES (+12.9%)	NO
02-Office / Meeting	N/A	N/A
02-Office	N/A	N/A
00-SEN CO	NO (-64.3%)	NO
00-SEN Resource	NO (-81.9%)	NO
00-Group Practice	N/A	N/A
00-Music Practice 05	N/A	N/A
00-Music Practice 01	N/A	N/A
00-ART 1 - SMALL	NO (-72.4%)	NO
02-Science Lab 5	NO (-70%)	NO

**Criterion 4: The performance of the building, as built, should be consistent with the calculated BER**

Separate submission

**Criterion 5: The necessary provisions for enabling energy-efficient operation of the building should be in place**

Separate submission

**EPBD (Recast): Consideration of alternative energy systems**

<b>Were alternative energy systems considered and analysed as part of the design process?</b>	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

# Technical Data Sheet (Actual vs. Notional Building)

## Building Global Parameters

	Actual	Notional
Area [m <sup>2</sup> ]	10571.7	10571.7
External area [m <sup>2</sup> ]	11329	11329
Weather	LON	LON
Infiltration [m <sup>3</sup> /hm <sup>2</sup> @ 50Pa]	5	3
Average conductance [W/K]	4537.49	4110.7
Average U-value [W/m <sup>2</sup> K]	0.4	0.36
Alpha value* [%]	9.81	10

\* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

## Building Use

### % Area Building Type

A1/A2 Retail/Financial and Professional services  
A3/A4/A5 Restaurants and Cafes/Drinking Est./Takeaways  
B1 Offices and Workshop businesses  
B2 to B7 General Industrial and Special Industrial Groups  
B8 Storage or Distribution  
C1 Hotels  
C2 Residential Inst.: Hospitals and Care Homes  
C2 Residential Inst.: Residential schools  
C2 Residential Inst.: Universities and colleges  
C2A Secure Residential Inst.  
Residential spaces  
D1 Non-residential Inst.: Community/Day Centre  
D1 Non-residential Inst.: Libraries, Museums, and Galleries  
**100 D1 Non-residential Inst.: Education**  
D1 Non-residential Inst.: Primary Health Care Building  
D1 Non-residential Inst.: Crown and County Courts  
D2 General Assembly and Leisure, Night Clubs and Theatres  
Others: Passenger terminals  
Others: Emergency services  
Others: Miscellaneous 24hr activities  
Others: Car Parks 24 hrs  
Others - Stand alone utility block

## Energy Consumption by End Use [kWh/m<sup>2</sup>]

	Actual	Notional
Heating	9.27	14.56
Cooling	0.26	0.14
Auxiliary	2.88	2.08
Lighting	8.79	13.14
Hot water	55.23	36.94
Equipment*	21.07	21.07
<b>TOTAL**</b>	<b>76.43</b>	<b>66.85</b>

\* Energy used by equipment does not count towards the total for calculating emissions.

\*\* Total is net of any electrical energy displaced by CHP generators, if applicable.

## Energy Production by Technology [kWh/m<sup>2</sup>]

	Actual	Notional
Photovoltaic systems	0	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0

## Energy & CO<sub>2</sub> Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m <sup>2</sup> ]	35.7	49.39
Primary energy* [kWh/m <sup>2</sup> ]	136.22	110.58
Total emissions [kg/m <sup>2</sup> ]	22.7	19

\* Primary energy is net of any electrical energy displaced by CHP generators, if applicable.

## HVAC Systems Performance

System Type	Heat dem MJ/m <sup>2</sup>	Cool dem MJ/m <sup>2</sup>	Heat con kWh/m <sup>2</sup>	Cool con kWh/m <sup>2</sup>	Aux con kWh/m <sup>2</sup>	Heat SSEFF	Cool SSEER	Heat gen SEFF	Cool gen SEER	
<b>[ST] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity</b>										
Actual	36.2	0	11.4	0	1	0.88	0	0.94	0	
Notional	60.2	0	19.4	0	1.1	0.86	0	----	----	
<b>[ST] Central heating using air distribution, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity</b>										
Actual	19.3	0	5	0	11.9	1.08	0	0.94	0	
Notional	9.5	0	3.1	0	7.4	0.86	0	----	----	
<b>[ST] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity</b>										
Actual	65.8	45	6.2	4.2	0	2.94	2.99	3	4	
Notional	56.5	31	6.1	2.3	0	2.56	3.79	----	----	
<b>[ST] Central heating using air distribution, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity</b>										
Actual	0	0	0	0	0	1.07	0	0.94	0	
Notional	0	0	0	0	0	0.86	0	----	----	
<b>[ST] No Heating or Cooling</b>										
Actual	0	0	0	0	0	0	0	0	0	
Notional	0	0	0	0	0	0	0	----	----	

### Key to terms

Heat dem [MJ/m <sup>2</sup> ]	= Heating energy demand
Cool dem [MJ/m <sup>2</sup> ]	= Cooling energy demand
Heat con [kWh/m <sup>2</sup> ]	= Heating energy consumption
Cool con [kWh/m <sup>2</sup> ]	= Cooling energy consumption
Aux con [kWh/m <sup>2</sup> ]	= Auxiliary energy consumption
Heat SSEFF	= Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
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

# Key Features

The BCO can give particular attention to items with specifications that are better than typically expected.

## Building fabric

Element	U <sub>i-Typ</sub>	U <sub>i-Min</sub>	Surface where the minimum value occurs*
Wall	0.23	0.2	00000000:Surf[8]
Floor	0.2	0.2	00000000:Surf[0]
Roof	0.15	0.2	01000013:Surf[0]
Windows, roof windows, and rooflights	1.5	1.6	00000000:Surf[1]
Personnel doors	1.5	2.2	02000023:Surf[1]
Vehicle access & similar large doors	1.5	-	No Vehicle access doors in building
High usage entrance doors	1.5	-	No High usage entrance doors in building
U <sub>i-Typ</sub> = Typical individual element U-values [W/(m <sup>2</sup> K)]		U <sub>i-Min</sub> = Minimum individual element U-values [W/(m <sup>2</sup> K)]	
* There might be more than one surface where the minimum U-value occurs.			

Air Permeability	Typical value	This building
m <sup>3</sup> /(h.m <sup>2</sup> ) at 50 Pa	5	5