

Project name

2026.03.16 Nursery Extension**As designed****Date:** Mon Mar 16 14:55:50 2026

Administrative information

Building Details

Address: The Nursery Extension, Bourne Green Junior School, Burlescombe Road, Southend-On-Sea, SS1 3PX

Certifier details

Name: Justin Barker

Telephone number: 07800 654321

Address: , ,

Certification tool

Calculation engine: SBEM

Calculation engine version: v6.1.e.1

Interface to calculation engine: SBEM Online

Interface to calculation engine version: v6.02

BRUKL compliance module version: v6.1.e.1

Foundation area [m²]: 91.11

The CO₂ emission and primary energy rates of the building must not exceed the targets

Target CO ₂ emission rate (TER), kgCO ₂ /m ² annum	5.56
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	5.08
Target primary energy rate (TPER), kWh _{PE} /m ² annum	58.75
Building primary energy rate (BPER), kWh _{PE} /m ² annum	54.27
Do the building's emission and primary energy rates exceed the targets?	BER ≤ TER BPER ≤ TPER

The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Fabric element	U _{a-Limit}	U _{a-Calc}	U _{i-Calc}	First surface with maximum value
Walls*	0.26	0.16	0.16	Wall7437366
Floors	0.18	0.16	0.16	Wall7437550
Pitched roofs	0.16	-	-	No heat loss pitched roofs
Flat roofs	0.18	0.24	0.24	Wall7437369
Windows** and roof windows	1.6	1.4	1.4	Window843374
Rooflights***	2.2	-	-	No external rooflights
Personnel doors^	1.6	1.6	1.6	Door188471
Vehicle access & similar large doors	1.3	-	-	No external vehicle access doors
High usage entrance doors	3	-	-	No external high usage entrance doors

U_{a-Limit} = Limiting area-weighted average U-values [W/(m²K)]

U_{i-Calc} = Calculated maximum individual element U-values [W/(m²K)]

U_{a-Calc} = Calculated area-weighted average U-values [W/(m²K)]

* 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.

*** Values for rooflights refer to the horizontal position.

^ For fire doors, limiting U-value is 1.8 W/m²K

NB: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air permeability	Limiting standard	This building
m ³ /(h.m ²) at 50 Pa	8	8

Building services

For details on the standard values listed below, system-specific guidance, and additional regulatory requirements, refer to the Approved Documents.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	NO
Whole building electric power factor achieved by power factor correction	<0.9

1- HVAC191432

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	5.5	-	-	-
Standard value	2.5*	5	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

1- HWSGenerator102125

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	-
Standard value	1	N/A

"No zones in project where local mechanical ventilation, exhaust, or terminal unit is applicable"

General lighting and display lighting	General luminaire	Display light source	
Zone name	Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m ²]
Standard value	95	80	0.3
Zonenursery	125	-	-
ZoneStaff Room	125	-	-
ZoneLobby	125	-	-

The spaces in the building should have appropriate passive control measures to limit solar gains in summer

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Zonenursery	NO (-79.5%)	YES
ZoneStaff Room	NO (-82.2%)	YES
ZoneLobby	NO (-76%)	NO

Regulation 25A: Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	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
Floor area [m ²]	91.1	91.1
External area [m ²]	350.4	350.4
Weather	LON	LON
Infiltration [m ³ /hm ² @ 50Pa]	8	3
Average conductance [W/K]	81.6	140.61
Average U-value [W/m ² K]	0.23	0.4
Alpha value* [%]	34.62	22.12

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

Building Use

% Area Building Type

Retail/Financial and Professional Services
 Restaurants and Cafes/Drinking Establishments/Takeaways
 Offices and Workshop Businesses
 General Industrial and Special Industrial Groups
 Storage or Distribution
 Hotels
 Residential Institutions: Hospitals and Care Homes
 Residential Institutions: Residential Schools
 Residential Institutions: Universities and Colleges
 Secure Residential Institutions
 Residential Spaces
 Non-residential Institutions: Community/Day Centre
 Non-residential Institutions: Libraries, Museums, and Galleries

100

Non-residential Institutions: Education

Non-residential Institutions: Primary Health Care Building
 Non-residential Institutions: Crown and County Courts
 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/m²]

	Actual	Notional
Heating	13.36	20.29
Cooling	3.49	4.77
Auxiliary	0	0
Lighting	9.09	4.54
Hot water	9.56	9.56
Equipment*	17.94	17.94
TOTAL **	35.5	39.15

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

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

Energy Production by Technology [kWh/m²]

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

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	205.86	268.33
Primary energy [kWh _{PE} /m ²]	54.27	58.75
Total emissions [kg/m ²]	5.08	5.56

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] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	156.8	49.1	13.4	3.5	0	3.26	3.91	3.5	5.5
	Notional	192.8	75.5	20.3	4.8	0	2.64	4.4	----	----

Key to terms	
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 (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