

Project name

C9074 PI Reading Gateway As Built**As built****Date:** Fri Feb 27 12:18:32 2026

Administrative information

Building Details

Address: C9074 PI Reading Gateway, Reading, RG2 0GG

Certifier details

Name: Lajos Pallagi**Telephone number:** Phone**Address:** Century House, 257 Cutler Heights Lane,
Bradford, BD4 9JG

Certification tool

Calculation engine: Apache**Calculation engine version:** 7.0.29**Interface to calculation engine:** IES Virtual Environment**Interface to calculation engine version:** 7.0.29**BRUKL compliance module version:** v6.1.e.1**Foundation area [m²]:** 369.23The 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	23.35
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	21.62
Target primary energy rate (TPER), kWh _{PE} /m ² annum	192.75
Building primary energy rate (BPER), kWh _{PE} /m ² annum	170.45
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	0.15	0.15	00000005:Surf[1]
Floors	0.18	0.15	0.15	00000005:Surf[3]
Pitched roofs	0.16	-	-	No pitched roofs in building
Flat roofs	0.18	0.1	0.1	00000005:Surf[4]
Windows** and roof windows	1.6	0.9	0.9	00000005:Surf[0]
Rooflights***	2.2	-	-	No roof lights in building
Personnel doors^	1.6	0.9	0.9	00000007:Surf[0]
Vehicle access & similar large doors	1.3	-	-	No vehicle access doors in building
High usage entrance doors	3	-	-	No high usage entrance doors in building

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	15*
* Buildings with less than 500 m ² total useful floor area may avoid the need for a pressure test provided that the air permeability used to calculate the BER and BPER is taken as 15 m ³ /(h.m ²) at 50 Pa.		

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- [RE] Sys1 ASHP (Bedroom)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	5.53	7.17	0	1.1	0.82
Standard value	2.5*	N/A	N/A	2^	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.					
^ Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.					

2- [RE] Sys1 ASHP (Restaurant)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	5.53	7.17	0	1.1	0.82
Standard value	2.5*	N/A	N/A	2^	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.					
^ Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.					

1- [RE] HWS CAVH Preheat + Andrews Boiler

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	2.11	0.005
Standard value	0.91	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/m²]
	Standard value	95	80	0.3
00.05 Bedroom		122	-	-
00.07 Bedroom		125	-	-
00.08 Bedroom		125	-	-
00.11 Bedroom		120	-	-
00.12 Bedroom		120	-	-
00.13 Bedroom		121	-	-
00.14 Bedroom		120	-	-
00.30 Bedroom		117	-	-
00.10 Bedroom		119	-	-
00.28 Linen Room		170	-	-
00.27 Corridor		250	-	-
00.41 Public UA WC		273	-	-
00.43 WC Lobby		122	-	-
00.26 Glass Wash		373	-	-
00.31 Bar		257	80	1.875

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
00.04 Corridor		170	-	-
00.04 Corridor		124	-	-
00.24 Circulation		171	-	-
00.42 Restaurant		147	80	1.875

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?
00.05 Bedroom	NO (-87.5%)	NO
00.07 Bedroom	NO (-62.4%)	NO
00.08 Bedroom	NO (-77.7%)	NO
00.11 Bedroom	NO (-60.6%)	NO
00.12 Bedroom	NO (-60.6%)	NO
00.13 Bedroom	NO (-60%)	NO
00.14 Bedroom	NO (-60.9%)	NO
00.30 Bedroom	NO (-77.7%)	NO
00.10 Bedroom	NO (-61.6%)	NO
00.31 Bar	NO (-94.8%)	NO
00.42 Restaurant	NO (-53.8%)	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?	NO
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]	460.8	460.8
External area [m ²]	829.6	829.6
Weather	SWI	SWI
Infiltration [m ³ /hm ² @ 50Pa]	15	3
Average conductance [W/K]	135.24	231.57
Average U-value [W/m ² K]	0.16	0.28
Alpha value* [%]	25.06	10

* 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

100 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
 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	4.54	7.41
Cooling	0.55	1.49
Auxiliary	8.36	15.66
Lighting	12.11	16.23
Hot water	101.2	100.65
Equipment*	43.62	43.62
TOTAL **	126.77	141.43

* 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
<i>Displaced electricity</i>	<i>0</i>	<i>0</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	92.84	98.88
Primary energy [kWh _{PE} /m ²]	170.45	192.76
Total emissions [kg/m ²]	21.62	23.35

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] Variable refrigerant flow, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	127.2	2.1	6.9	0.1	3.6	5.11	4.68	5.53	7.17
	Notional	150.2	8.2	15	0.5	16	2.78	4.63	----	----
[ST] Variable refrigerant flow, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	77.2	22.8	4.2	1.4	13.5	5.11	4.68	5.53	7.17
	Notional	24.1	57.9	2.4	3.5	14.3	2.78	4.63	----	----
[ST] No Heating or Cooling										
	Actual	0	0	0	0	0	0	0	0	0
	Notional	0	0	0	0	0	0	0	----	----

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