BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

Horley Town Council-Actual

As designed

Date: Mon Jul 21 17:05:31 2025

Administrative information

Building Details

Address: 92 Albert Road, Horley, Surrey, RH6 7HZ

Certifier details

Name: Dr Bilal Alsheglawi

Telephone number: 01625 315040

Address: Suite F6.3 (B), Adelphi Mill, Grimshaw Lane, Bollington, Macclesfield, SK10 5JB

Certification tool

Calculation engine: SBEM

Calculation engine version: v6.1.e.2

Interface to calculation engine: Virtual Environment

Interface to calculation engine version: v7.0.28

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

Foundation area [m^2]: 284.47

The CO_2 emission and primary energy rates of the building must not exceed the targets

The building does not comply with England Building Regulations Part L 2021

Target CO_2 emission rate (TER), $kgCO_2/m^2.annum$	10.1	
Building CO_2 emission rate (BER), $kgCO_2/m^2.annum$	17.91	
Target primary energy rate (TPER), $kWh_{PE}/m^2.annum$	41.4	
Building primary energy rate (BPER), $kWh_{PE}/m^2.annum$	114.09	
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	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	First surface with maximum value
Walls*	0.26	0.2	0.21	GF000003_W-1
Floors	0.18	0.27	0.3	GF000003_F
Pitched roofs	0.16	0.27	0.3	GF000003_C
Flat roofs	0.18	0.3	0.3	GF000000_C
Windows** and roof windows	1.6	1.15	1.15	GF000003_W-1_O0
Rooflights***	2.2	1.2	1.2	R_000001_C_O0
Personnel doors^	1.6	1.55	1.55	GF000000_W1_O2
Vehicle access & similar large doors	1.3	-	-	No external vehicle access doors
High usage entrance doors	3	-	-	No external high usage entrance doors

$U_{a\text{-}Limit}$ = Limiting area-weighted average U-values [$W/(m^2K)$] $U_{i\text{-}Calc}$ = Calculated maximum individual element U-values [$W/(m^2K)$]

$U_{a\text{-}Calc}$ = Calculated area-weighted average U-values [$W/(m^2K)$]

* 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/m^2K

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	5

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	YES
Whole building electric power factor achieved by power factor correction	<0.9

1- Combi gas-Rads

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	0.93	2.5	-	-	-
Standard value	0.93*	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 gas single boiler systems <=2 MW output and overall for multi-boiler systems. For single boiler systems >2 MW or any individual boiler in a multi-boiler system, limiting efficiency is 0.88.					

2- Combi gas-UFH

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	0.93	2.5	-	-	-
Standard value	0.93*	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 gas single boiler systems <=2 MW output and overall for multi-boiler systems. For single boiler systems >2 MW or any individual boiler in a multi-boiler system, limiting efficiency is 0.88.					

1- SYST0000-DHW

	Water heating efficiency	**Storage loss factor [kWh/litre per day]**
This building	Hot water provided by HVAC system	-
Standard value	N/A	N/A

2- SYST0001-DHW

	Water heating efficiency	**Storage loss factor [kWh/litre per day]**
This building	Hot water provided by HVAC system	-
Standard value	N/A	N/A

Zone-level mechanical ventilation, exhaust, and terminal units

ID	**System type in the Approved Documents**
A	Local supply or extract ventilation units
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 balanced supply and extract ventilation system
E	Local balanced supply and extract ventilation units
F	Other local ventilation units
G	Fan assisted terminal variable air volume units
H	Fan coil units
I	Kitchen extract with the fan remote from the zone and a grease filter
NB: Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.	

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	2.3	2	0.5	0.5	0.4	1	**Zone**	**Standard**
GF-Kitchen	0.2	-	-	-	-	-	-	-	-	-	N/A
GF-D WC	0.2	-	-	-	-	-	-	-	-	-	N/A

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	2.3	2	0.5	0.5	0.4	1	Zone	Standard
GF-M WC	0.2	-	-	-	-	-	-	-	-	-	N/A
GF-F WC	0.2	-	-	-	-	-	-	-	-	-	N/A
GF-Kitchen	0.2	-	-	-	-	-	-	-	-	-	N/A

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
GF-Hall	50	-	-
GF-Rear Entrance	50	-	-
GF-Town Hall Office	50	-	-
GF-Kitchen	50	-	-
GF-Store	50	-	-
GF- Pasage 2	50	-	-
GF-Staff rest room	50	-	-
GF-Hallway	50	-	-
GF-Hallway	50	-	-
GF-Passage 2	50	-	-
GF-D WC	50	-	-
GF-M WC	50	-	-
GF-F WC	50	-	-
GF-Kitchen	50	-	-
GF-Passage 4	50	-	-
GF-Meeting room	50	-	-
GF-Store	50	-	-
GF-Workshop	50	-	-
GF-Store	50	-	-

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?
GF-Hall	NO (-11%)	NO
GF-Rear Entrance	NO (-47.9%)	NO
GF-Town Hall Office	NO (-51.9%)	NO
GF-Kitchen	NO (-46%)	NO
GF-Store	YES (+6771.2%)	NO
GF- Pasage 2	N/A	N/A
GF-Staff rest room	N/A	N/A
GF-Hallway	N/A	N/A
GF-Hallway	N/A	N/A
GF-Passage 2	N/A	N/A
GF-D WC	NO (-76.9%)	NO
GF-M WC	NO (-71.3%)	NO
GF-F WC	NO (-76.4%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
GF-Kitchen	NO (-89.3%)	NO
GF-Passage 4	YES (+20.9%)	NO
GF-Meeting room	NO (-92.6%)	NO
GF-Store	N/A	N/A
GF-Workshop	YES (+10.9%)	NO
GF-Store	N/A	N/A

Regulation 25A: Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	NO
Is evidence of such assessment available as a separate submission?	NO
Are any such measures included in the proposed design?	NO

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m^2]	284.5	284.5
External area [m^2]	1054.6	1054.6
Weather	LON	LON
Infiltration [m^3/hm^2@ 50Pa]	5	3
Average conductance [W/K]	307.12	321.71
Average U-value [W/m^2K]	0.29	0.31
Alpha value* [%]	26.87	18.41

* 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
100	**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
	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/m^2]

	Actual	Notional
Heating	67.87	57.5
Cooling	16.15	5.45
Auxiliary	0.11	0.21
Lighting	32.16	10.09
Hot water	2.17	1.92
Equipment*	37.92	37.92
TOTAL**	**118.46**	**75.17**

* 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/m^2]

	Actual	Notional
Photovoltaic systems	25.11	33.37
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	*25.11*	*33.37*

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	315.05	264.36
Primary energy [kWh_{PE}/m^2]	114.09	41.4
Total emissions [kg/m^2]	17.91	10.1

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 SSEEF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Split or multi-split system, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
	Actual	221.3	99.3	70.9	15.5	0.1	0.87	1.78	0.93	2.5
	Notional	174.4	78.6	56.3	5	0.2	0.86	4.4	----	----
[ST] Split or multi-split system, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
	Actual	162.9	123.5	52.2	19.3	0.1	0.87	1.78	0.93	2.5
	Notional	196.4	126.4	63.4	8	0.3	0.86	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