

Project name

Interbridges Site

As designed

Date: Fri Dec 06 14:24:29 2024

Administrative information

Building Details

Address: New Brighton Road, Emsworth, Postcode

Certifier details

Name: SRE Ltd

Telephone number: 01730710044

Address: 3 London Sq, Cross Lanes, Surrey, Guildford,
GU1 1UJ

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.26

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.26

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

Foundation area [m²]: 1057.78The 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	3.36
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	2.16
Target primary energy rate (TPER), kWh _{PE} /m ² annum	35.79
Building primary energy rate (BPER), kWh _{PE} /m ² annum	22.86
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	0.18	0.18	00000060:Surf[0]
Floors	0.18	0.12	0.12	00000070:Surf[2]
Pitched roofs	0.16	0.12	0.12	00000069:Surf[6]
Flat roofs	0.18	0.12	0.12	00000060:Surf[4]
Windows** and roof windows	1.6	1.39	1.39	00000037:Surf[1]
Rooflights***	2.2	1.62	1.7	00000069:Surf[4]
Personnel doors^	1.6	1.6	1.6	00000022:Surf[2]
Vehicle access & similar large doors	1.3	1.3	1.3	00000069:Surf[2]
High usage entrance doors	3	1.39	1.39	00000034:Surf[12]

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	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	NO
Whole building electric power factor achieved by power factor correction	<0.9

1- VRF System + Extract

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.8	5.1	0	-	-
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- DHW Instantaneous electric

	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/m²]
	Standard value	95	80	0.3
Mezzanine		120	-	-
Mezzanine		120	-	-
Mezzanine		120	-	-
Mezzanine		120	-	-
Mezzanine		120	-	-
Mezzanine		120	-	-
Mezzanine		120	-	-
Mezzanine		120	-	-
Mezzanine		120	-	-
Mezzanine		120	-	-
Mezzanine		120	-	-
Mezzanine		120	-	-
Mezzanine		120	-	-
Mezzanine		120	-	-
Stairs		120	-	-
Stairs		120	-	-
Stairs		120	-	-
Stairs		120	-	-
Stairs		120	-	-
Stairs		120	-	-
Stairs		120	-	-
Stairs		120	-	-
Stairs		120	-	-
Stairs		120	-	-

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
Stairs		120		-	-
Stairs		120		-	-
Stairs		120		-	-
Stairs		120		-	-
Stairs		120		-	-
Stairs		120		-	-
Void		150		-	-
Void		150		-	-
Void		150		-	-
Void		150		-	-
Void		150		-	-
Void		150		-	-
Void		150		-	-
Void		150		-	-
Void		150		-	-
Void		150		-	-
Void		150		-	-
Void		150		-	-
Void		150		-	-
Warehouse		150		-	-
Warehouse		150		-	-
Warehouse		150		-	-
Warehouse		150		-	-
Warehouse		150		-	-
Warehouse		150		-	-
Warehouse		150		-	-
Warehouse		150		-	-
Warehouse		150		-	-
Warehouse		150		-	-
Warehouse		150		-	-
Warehouse		150		-	-
Warehouse		150		-	-
Warehouse		150		-	-
Warehouse		150		-	-
Warehouse		150		-	-
WC		120		-	-
WC		120		-	-
WC		120		-	-
WC		120		-	-
WC		120		-	-
WC		120		-	-
WC		120		-	-
WC		120		-	-
WC		120		-	-

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
WC		120	-	-
WC		120	-	-
WC		120	-	-
WC		120	-	-

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?
Mezzanine	NO (-22.8%)	NO
Mezzanine	YES (+14.9%)	NO
Mezzanine	NO (-47%)	NO
Mezzanine	NO (-48.4%)	NO
Mezzanine	YES (+15.1%)	NO
Mezzanine	NO (-43.3%)	NO
Mezzanine	YES (+12.8%)	NO
Mezzanine	YES (+12.8%)	NO
Mezzanine	YES (+0.4%)	NO
Mezzanine	YES (+13.1%)	NO
Mezzanine	YES (+12.8%)	NO
Mezzanine	NO (-3.3%)	NO
Mezzanine	YES (+12.1%)	NO
Mezzanine	NO (-1.8%)	NO
Void	YES (+18.6%)	NO
Void	YES (+15.7%)	NO
Void	YES (+17.5%)	NO
Void	YES (+2.6%)	NO
Void	NO (-13%)	NO
Void	YES (+17.5%)	NO
Void	NO (-13.3%)	NO
Void	NO (-25.1%)	NO
Void	NO (-26%)	NO
Void	YES (+70.3%)	NO
Void	YES (+101.9%)	NO
Void	NO (-10.2%)	NO
Warehouse	NO (-48.1%)	NO
Warehouse	N/A	N/A
Warehouse	YES (+43.9%)	NO
Warehouse	YES (+33.8%)	NO
Warehouse	NO (-59.5%)	NO
Warehouse	NO (-52.9%)	NO
Warehouse	NO (-70.1%)	NO
Warehouse	NO (-64.7%)	NO
Warehouse	NO (-64.9%)	NO
Warehouse	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Warehouse	NO (-65.1%)	NO
Warehouse	NO (-60.1%)	NO
Warehouse	NO (-55.4%)	NO
Warehouse	NO (-54.1%)	NO
Warehouse	NO (-69.7%)	NO
Warehouse	NO (-54.9%)	NO
WC	N/A	N/A
WC	N/A	N/A
WC	N/A	N/A
WC	N/A	N/A
WC	N/A	N/A
WC	N/A	N/A
WC	N/A	N/A
WC	N/A	N/A
WC	N/A	N/A
WC	N/A	N/A
WC	N/A	N/A
WC	N/A	N/A
WC	N/A	N/A
WC	NO (-100%)	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]	2193	2193
External area [m ²]	4667.3	4667.3
Weather	SOU	SOU
Infiltration [m ³ /hm ² @ 50Pa]	5	4
Average conductance [W/K]	1263.97	1556.01
Average U-value [W/m ² K]	0.27	0.33
Alpha value* [%]	25	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
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/m²]

	Actual	Notional
Heating	6.74	8.67
Cooling	2.87	1.15
Auxiliary	0.04	0.05
Lighting	7.61	12.25
Hot water	1.93	1.83
Equipment*	25.02	25.02
TOTAL **	19.19	23.95

* 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	4.35	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>4.35</i>	<i>0</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	123.37	105.98
Primary energy [kWh _{PE} /m ²]	22.86	35.79
Total emissions [kg/m ²]	2.16	3.36

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	90.3	39.3	7.1	3	0	3.54	3.62	3.8	5.1
	Notional	91.1	20.2	9.1	1.2	0.1	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