

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]	1582.8	1582.8
External area [m ²]	1989	1947.7
Weather	SOU	SOU
Infiltration [m ³ /hm ² @ 50Pa]	25	3
Average conductance [W/K]	1955.63	876.68
Average U-value [W/m ² K]	0.98	0.45
Alpha value* [%]	30.82	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
 Hotels
 Residential Institutions: Hospitals and Care Homes
 Residential Institutions: Residential Schools

100 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	159.27	47.23
Cooling	2.44	0.18
Auxiliary	1.49	1.41
Lighting	11.76	6.74
Hot water	21.19	17.84
Equipment*	14.53	14.53
TOTAL**	196.15	73.4

* 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	4.3
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>0</i>	<i>4.3</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	555.08	277.24
Primary energy [kWh _{PE} /m ²]	302.51	103.73
Total emissions [kg/m ²]	28.75	9.85

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	352.2	29.9	52.5	5.8	0	1.86	1.42	2	2
Notional	167.8	7	16.8	0.4	0	2.78	4.63	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	714.9	0	248.2	0	2.7	0.8	0	1	0
Notional	369.1	0	72.7	0	2.6	1.41	0	----	----
[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

Project name

LIGHTINGIMPROVEMENTS

As designed

Date: Thu Dec 14 16:52:31 2023

Administrative information**Building Details**

Address: 52-53 Old Stein, Brighton, BN

Certifier details

Name: Nathan Williams

Telephone number: 01245 206801

Address: Elizabeth House, Baddow Road, Chelmsford,
CM2 0DG**Certification tool**

Calculation engine: Apache

Calculation engine version: 7.0.24

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.24

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

Foundation area [m²]: 259.35**The CO₂ 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	9.86	
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	28.55	
Target primary energy rate (TPER), kWh _{PE} /m ² annum	103.75	
Building primary energy rate (BPER), kWh _{PE} /m ² annum	300.12	
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	0.87	1.7	BM000002:Surf[1]
Floors	0.18	0.22	0.22	BM000002:Surf[0]
Pitched roofs	0.16	0.76	1.1	3R000027:Surf[54]
Flat roofs	0.18	0.43	1.72	3R000009:Surf[1]
Windows** and roof windows	1.6	4	5.24	BM000002:Surf[2]
Rooflights***	2.2	2.23	6.38	3R000001:Surf[17]
Personnel doors [^]	1.6	2.2	2.2	BM000000:Surf[2]
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	25

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- EXISTING electric heating and hot water

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	0.2	-	-
Standard value	N/A	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

2- EXISTING General split system

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	2	2	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.

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

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	
	A	B	C	D	E	F	G	H	I	Zone	Standard	
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1			
Bmt Studio 02 Cooking area	-	-	0.4	-	-	-	-	-	-	-	N/A	
Bmt Studio 02 WC	-	-	0.4	-	-	-	-	-	-	-	N/A	
Bmt Studio 02 Shower	-	-	0.4	-	-	-	-	-	-	-	N/A	
Bmt Studio 01 Ensuite	-	-	0.4	-	-	-	-	-	-	-	N/A	
Grd Studio 03 Ensuite	-	-	0.4	-	-	-	-	-	-	-	N/A	
Grd Studio 04 Ensuite	-	-	0.4	-	-	-	-	-	-	-	N/A	
1st Studio 05 Ensuite	-	-	0.4	-	-	-	-	-	-	-	N/A	
1st Staff Welfare	-	-	0.4	-	-	-	-	-	-	-	N/A	
1st Studio 06 Ensuite	-	-	0.4	-	-	-	-	-	-	-	N/A	
2nd Studio 07 Ensuite	-	-	0.4	-	-	-	-	-	-	-	N/A	
2nd Studio 08 Ensuite	-	-	0.4	-	-	-	-	-	-	-	N/A	

Zone name	SFP [W/(l/s)]									HR efficiency		
	ID of system type	A	B	C	D	E	F	G	H	I	Zone	Standard
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1			
2nd Studio 14 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 15 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 19 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 18 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 17 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 16 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 13 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 10 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 09 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 11 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 12 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 20 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 21 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 22 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 23 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 24 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 25 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 26 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 31 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 30 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 29 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 28 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 36 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 37 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 35 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 34 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 38 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 39 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 32 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 33 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 27 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A

Zone name	General lighting and display lighting	General luminaire	Display light source	
	Standard value	Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m ²]
	95	80	0.3	
Bmt Studio 02 Cooking area	226	-	-	
Bmt Studio 02 WC	329	-	-	
Bmt Studio 02 Shower	262	-	-	
Bmt Studio 02	134	-	-	
Bmt Common Lobby and Stairs	363	-	-	
Bmt Studio 01	136	-	-	
Bmt Common Stairs	300	-	-	
Bmt Studio 02 Lobby	338	-	-	

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
Bmt LV Switch room		113	-	-
Bmt Studio 01 Ensuite		224	-	-
Grd 52 Entrance hallway		221	-	-
Grd Studio 03		144	-	-
Grd Stairwell circular		194	-	-
Grd Lobby		319	-	-
Grd Studio 03 Ensuite		256	-	-
Grd Lift		172	-	-
Grd Store		181	-	-
Grd 53 Entrance hallway and stairs		184	-	-
Grd Reception Desk		108	-	-
Grd Studio 04 Ensuite		287	-	-
Grd Studio 04		137	-	-
1st Stairwell circular		202	-	-
1st Studio 05		142	-	-
1st Studio 05 Ensuite		184	-	-
1st Lobby		318	-	-
1st Lift		181	-	-
1st Store		181	-	-
1st Lobby		267	-	-
1st Stairwell		222	-	-
1st Staff Welfare		229	-	-
1st Studio 06		140	-	-
1st Studio 06 Ensuite		160	-	-
2nd Stairwell circular		182	-	-
2nd Lobby		257	-	-
2nd Lift		139	-	-
2nd Studio 07		134	-	-
2nd Studio 07 Ensuite		215	-	-
2nd Studio 08		133	-	-
2nd Studio 08 Ensuite		244	-	-
2nd Lobby		250	-	-
2nd Stairwell		210	-	-
2nd Lobby		296	-	-
2nd Studio 14		144	-	-
2nd Studio 14 Ensuite		189	-	-
2nd Studio 15 Ensuite		224	-	-
2nd Studio 15		161	-	-
2nd Lobby		240	-	-
2nd Studio 19 Ensuite		232	-	-
2nd Studio 19		152	-	-
2nd Studio 18 Ensuite		199	-	-
2nd Studio 18		148	-	-

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
2nd Studio 17		159	-	-
2nd Studio 17 Ensuite		202	-	-
2nd Studio 16 Ensuite		211	-	-
2nd Studio 16		160	-	-
2nd Circulation 3		174	-	-
2nd Studio 13		151	-	-
2nd Studio 13 Ensuite		185	-	-
2nd Plantroom		111	-	-
2nd Corridor rear stairwell		212	-	-
2nd Cupboard		181	-	-
2nd Circulation 1		156	-	-
2nd Circulation 2		164	-	-
2nd Cupboard		181	-	-
2nd Store		158	-	-
2nd Studio 10		147	-	-
2nd Studio 10 Ensuite		222	-	-
2nd Studio 09 Ensuite		180	-	-
2nd Studio 09		148	-	-
2nd Studio 11 Ensuite		201	-	-
2nd Studio 11		160	-	-
2nd Studio 12 Ensuite		200	-	-
2nd Studio 12		160	-	-
3rd Studio 20		132	-	-
3rd Stairwell circular		220	-	-
3rd Studio 20 Ensuite		200	-	-
3rd Lift		113	-	-
3rd Studio 21		130	-	-
3rd Studio 21 Ensuite		220	-	-
3rd Stairwell		236	-	-
3rd Lobby		186	-	-
3rd Laundry Staff		144	-	-
3rd Lobby		221	-	-
3rd Studio 22		140	-	-
3rd Studio 22 Ensuite		189	-	-
3rd Studio 23 Ensuite		200	-	-
3rd Studio 23		155	-	-
3rd Studio 24 Ensuite		199	-	-
3rd Studio 24		157	-	-
3rd Studio 25 Ensuite		180	-	-
3rd Studio 25		150	-	-
3rd Plantroom		80	-	-
3rd Studio 26		142	-	-
3rd Studio 26 Ensuite		184	-	-

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
3rd Lobby		207	-	-
3rd Studio 31		160	-	-
3rd Studio 31 Ensuite		219	-	-
3rd Studio 30 Ensuite		193	-	-
3rd Studio 30		151	-	-
3rd Studio 29		150	-	-
3rd Studio 29 Ensuite		219	-	-
3rd Studio 28		160	-	-
3rd Studio 28 Ensuite		215	-	-
3rd Quiet Study		128	-	-
3rd Stairwell		235	-	-
3rd Lobby		351	-	-
3rd Stairwell central		153	-	-
3rd Circulation 1		160	-	-
3rd Circulation 2		176	-	-
3rd Stairwell rear		198	-	-
4th Studio 36		150	-	-
4th Studio 36 Ensuite		219	-	-
4th Studio 37		143	-	-
4th Studio 37 Ensuite		249	-	-
4th Lobby		204	-	-
4th Stairwell central		212	-	-
4th Studio 35 Ensuite		195	-	-
4th Studio 35		142	-	-
4th Studio 34		144	-	-
4th Studio 34 Ensuite		198	-	-
4th Studio 38		139	-	-
4th Lobby		169	-	-
4th Stairwell		192	-	-
4th Studio 38 Ensuite		184	-	-
4th Studio 39 Ensuite		176	-	-
4th Studio 39		131	-	-
4th Studio 32		149	-	-
4th Studio 32 Ensuite		190	-	-
4th Studio 33 Ensuite		216	-	-
4th Studio 33		151	-	-
4th Lobby		228	-	-
3rd Studio 27		159	-	-
3rd Studio 27 Ensuite		211	-	-
3rd Break out area		123	-	-
4th Lift overrun		66	-	-

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?
Bmt Studio 02	NO (-64.1%)	NO
Bmt Studio 01	NO (-48.6%)	NO
Grd Studio 03	NO (-67.4%)	NO
Grd Reception Desk	NO (-75.8%)	NO
Grd Studio 04	NO (-47.8%)	NO
1st Studio 05	NO (-53.2%)	NO
1st Studio 06	NO (-35.5%)	NO
2nd Studio 07	NO (-60.3%)	NO
2nd Studio 08	NO (-60.7%)	NO
2nd Studio 14	NO (-93.2%)	NO
2nd Studio 15	YES (+4.6%)	NO
2nd Studio 19	NO (-42.6%)	NO
2nd Studio 18	NO (-27.2%)	NO
2nd Studio 17	NO (-16.9%)	NO
2nd Studio 16	NO (-11.4%)	NO
2nd Studio 13	NO (-66.6%)	NO
2nd Studio 10	NO (-80.4%)	NO
2nd Studio 09	NO (-40.7%)	NO
2nd Studio 11	NO (-21.5%)	NO
2nd Studio 12	NO (-25.5%)	NO
3rd Studio 20	NO (-52.7%)	NO
3rd Studio 21	NO (-49.1%)	NO
3rd Studio 22	NO (-28.1%)	NO
3rd Studio 23	NO (-7.8%)	NO
3rd Studio 24	NO (-5.2%)	NO
3rd Studio 25	NO (-39.8%)	NO
3rd Studio 26	NO (-91.9%)	NO
3rd Studio 31	NO (-15.3%)	NO
3rd Studio 30	NO (-44.5%)	NO
3rd Studio 29	NO (-15.9%)	NO
3rd Studio 28	YES (+14.9%)	NO
3rd Quiet Study	YES (+34.5%)	NO
4th Studio 36	NO (-27.2%)	NO
4th Studio 37	NO (-14.7%)	NO
4th Studio 35	NO (-31.9%)	NO
4th Studio 34	NO (-31.7%)	NO
4th Studio 38	NO (-90.7%)	NO
4th Studio 39	NO (-86.6%)	NO
4th Studio 32	NO (-70.5%)	NO
4th Studio 33	NO (-41.3%)	NO
3rd Studio 27	YES (+17.7%)	NO
3rd Break out area	YES (+29.9%)	NO

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Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	565.26	277.24
Primary energy [kWh _{PE} /m ²]	300.12	103.75
Total emissions [kg/m ²]	28.55	9.86

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
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Actual	363.1	26.3	54.1	5.1	0	1.86	1.42	2	2
Notional	167.8	7	16.8	0.4	0	2.78	4.63	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	727.8	0	252.7	0	2.7	0.8	0	1	0
Notional	369.1	0	72.7	0	2.6	1.41	0	----	----
[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

Project name

VRVHEATPUMPS

As designed

Date: Thu Dec 14 17:00:26 2023

Administrative information

Building Details

Address: 52-53 Old Stein, Brighton, BN

Certifier details

Name: Nathan Williams

Telephone number: 01245 206801

Address: Elizabeth House, Baddow Road, Chelmsford,
CM2 0DG

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.24

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.24

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

Foundation area [m²]: 259.35The CO₂ 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	9.59
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	28.09
Target primary energy rate (TPER), kWh _{PE} /m ² annum	101.38
Building primary energy rate (BPER), kWh _{PE} /m ² annum	296.07
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	0.87	1.7	BM000002:Surf[1]
Floors	0.18	0.22	0.22	BM000002:Surf[0]
Pitched roofs	0.16	0.76	1.1	3R000027:Surf[54]
Flat roofs	0.18	0.43	1.72	3R000009:Surf[1]
Windows** and roof windows	1.6	4	5.24	BM000002:Surf[2]
Rooflights***	2.2	2.23	6.38	3R000001:Surf[17]
Personnel doors [^]	1.6	2.2	2.2	BM000000:Surf[2]
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	25

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- EXISTING electric heating and hot water

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	0.2	-	-
Standard value	N/A	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

2- General VRV system and hot water

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	3	0	3	-
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.

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

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	ID of system type	SFP [W/(l/s)]									HR efficiency	
		A	B	C	D	E	F	G	H	I	Zone	Standard
	Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1		
Bmt Studio 02 Cooking area		-	-	0.4	-	-	-	-	-	-	-	N/A
Bmt Studio 02 WC		-	-	0.4	-	-	-	-	-	-	-	N/A
Bmt Studio 02 Shower		-	-	0.4	-	-	-	-	-	-	-	N/A
Bmt Studio 01 Ensuite		-	-	0.4	-	-	-	-	-	-	-	N/A
Grd Studio 03 Ensuite		-	-	0.4	-	-	-	-	-	-	-	N/A
Grd Studio 04 Ensuite		-	-	0.4	-	-	-	-	-	-	-	N/A
1st Studio 05 Ensuite		-	-	0.4	-	-	-	-	-	-	-	N/A
1st Staff Welfare		-	-	0.4	-	-	-	-	-	-	-	N/A
1st Studio 06 Ensuite		-	-	0.4	-	-	-	-	-	-	-	N/A
2nd Studio 07 Ensuite		-	-	0.4	-	-	-	-	-	-	-	N/A

Zone name	SFP [W/(l/s)]									HR efficiency		
	ID of system type	A	B	C	D	E	F	G	H	I	Zone	Standard
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1			
2nd Studio 08 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 14 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 15 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 19 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 18 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 17 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 16 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 13 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 10 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 09 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 11 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 12 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 20 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 21 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 22 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 23 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 24 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 25 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 26 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 31 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 30 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 29 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 28 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 36 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 37 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 35 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 34 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 38 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 39 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 32 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 33 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 27 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A

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
Bmt Studio 02 Cooking area		226	-	-
Bmt Studio 02 WC		329	-	-
Bmt Studio 02 Shower		262	-	-
Bmt Studio 02		134	-	-
Bmt Common Lobby and Stairs		363	-	-
Bmt Studio 01		136	-	-
Bmt Common Stairs		300	-	-

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
Bmt Studio 02 Lobby		338	-	-
Bmt LV Switch room		113	-	-
Bmt Studio 01 Ensuite		224	-	-
Grd 52 Entrance hallway		221	-	-
Grd Studio 03		144	-	-
Grd Stairwell circular		194	-	-
Grd Lobby		319	-	-
Grd Studio 03 Ensuite		256	-	-
Grd Lift		172	-	-
Grd Store		181	-	-
Grd 53 Entrance hallway and stairs		184	-	-
Grd Reception Desk		108	-	-
Grd Studio 04 Ensuite		287	-	-
Grd Studio 04		137	-	-
1st Stairwell circular		202	-	-
1st Studio 05		142	-	-
1st Studio 05 Ensuite		184	-	-
1st Lobby		318	-	-
1st Lift		181	-	-
1st Store		181	-	-
1st Lobby		267	-	-
1st Stairwell		222	-	-
1st Staff Welfare		229	-	-
1st Studio 06		140	-	-
1st Studio 06 Ensuite		160	-	-
2nd Stairwell circular		182	-	-
2nd Lobby		257	-	-
2nd Lift		139	-	-
2nd Studio 07		134	-	-
2nd Studio 07 Ensuite		215	-	-
2nd Studio 08		133	-	-
2nd Studio 08 Ensuite		244	-	-
2nd Lobby		250	-	-
2nd Stairwell		210	-	-
2nd Lobby		296	-	-
2nd Studio 14		144	-	-
2nd Studio 14 Ensuite		189	-	-
2nd Studio 15 Ensuite		224	-	-
2nd Studio 15		161	-	-
2nd Lobby		240	-	-
2nd Studio 19 Ensuite		232	-	-
2nd Studio 19		152	-	-
2nd Studio 18 Ensuite		199	-	-

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
2nd Studio 18		148	-	-
2nd Studio 17		159	-	-
2nd Studio 17 Ensuite		202	-	-
2nd Studio 16 Ensuite		211	-	-
2nd Studio 16		160	-	-
2nd Circulation 3		174	-	-
2nd Studio 13		151	-	-
2nd Studio 13 Ensuite		185	-	-
2nd Plantroom		111	-	-
2nd Corridor rear stairwell		212	-	-
2nd Cupboard		181	-	-
2nd Circulation 1		156	-	-
2nd Circulation 2		164	-	-
2nd Cupboard		181	-	-
2nd Store		158	-	-
2nd Studio 10		147	-	-
2nd Studio 10 Ensuite		222	-	-
2nd Studio 09 Ensuite		180	-	-
2nd Studio 09		148	-	-
2nd Studio 11 Ensuite		201	-	-
2nd Studio 11		160	-	-
2nd Studio 12 Ensuite		200	-	-
2nd Studio 12		160	-	-
3rd Studio 20		132	-	-
3rd Stairwell circular		220	-	-
3rd Studio 20 Ensuite		200	-	-
3rd Lift		113	-	-
3rd Studio 21		130	-	-
3rd Studio 21 Ensuite		220	-	-
3rd Stairwell		236	-	-
3rd Lobby		186	-	-
3rd Laundry Staff		144	-	-
3rd Lobby		221	-	-
3rd Studio 22		140	-	-
3rd Studio 22 Ensuite		189	-	-
3rd Studio 23 Ensuite		200	-	-
3rd Studio 23		155	-	-
3rd Studio 24 Ensuite		199	-	-
3rd Studio 24		157	-	-
3rd Studio 25 Ensuite		180	-	-
3rd Studio 25		150	-	-
3rd Plantroom		80	-	-
3rd Studio 26		142	-	-

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
3rd Studio 26 Ensuite		184	-	-
3rd Lobby		207	-	-
3rd Studio 31		160	-	-
3rd Studio 31 Ensuite		219	-	-
3rd Studio 30 Ensuite		193	-	-
3rd Studio 30		151	-	-
3rd Studio 29		150	-	-
3rd Studio 29 Ensuite		219	-	-
3rd Studio 28		160	-	-
3rd Studio 28 Ensuite		215	-	-
3rd Quiet Study		128	-	-
3rd Stairwell		235	-	-
3rd Lobby		351	-	-
3rd Stairwell central		153	-	-
3rd Circulation 1		160	-	-
3rd Circulation 2		176	-	-
3rd Stairwell rear		198	-	-
4th Studio 36		150	-	-
4th Studio 36 Ensuite		219	-	-
4th Studio 37		143	-	-
4th Studio 37 Ensuite		249	-	-
4th Lobby		204	-	-
4th Stairwell central		212	-	-
4th Studio 35 Ensuite		195	-	-
4th Studio 35		142	-	-
4th Studio 34		144	-	-
4th Studio 34 Ensuite		198	-	-
4th Studio 38		139	-	-
4th Lobby		169	-	-
4th Stairwell		192	-	-
4th Studio 38 Ensuite		184	-	-
4th Studio 39 Ensuite		176	-	-
4th Studio 39		131	-	-
4th Studio 32		149	-	-
4th Studio 32 Ensuite		190	-	-
4th Studio 33 Ensuite		216	-	-
4th Studio 33		151	-	-
4th Lobby		228	-	-
3rd Studio 27		159	-	-
3rd Studio 27 Ensuite		211	-	-
3rd Break out area		123	-	-
4th Lift overrun		66	-	-

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?
Bmt Studio 02	NO (-64.1%)	NO
Bmt Studio 01	NO (-48.6%)	NO
Grd Studio 03	NO (-67.4%)	NO
Grd Reception Desk	NO (-75.8%)	NO
Grd Studio 04	NO (-47.8%)	NO
1st Studio 05	NO (-53.2%)	NO
1st Studio 06	NO (-35.5%)	NO
2nd Studio 07	NO (-60.3%)	NO
2nd Studio 08	NO (-60.7%)	NO
2nd Studio 14	NO (-93.2%)	NO
2nd Studio 15	YES (+4.6%)	NO
2nd Studio 19	NO (-42.6%)	NO
2nd Studio 18	NO (-27.2%)	NO
2nd Studio 17	NO (-16.9%)	NO
2nd Studio 16	NO (-11.4%)	NO
2nd Studio 13	NO (-66.6%)	NO
2nd Studio 10	NO (-80.4%)	NO
2nd Studio 09	NO (-40.7%)	NO
2nd Studio 11	NO (-21.5%)	NO
2nd Studio 12	NO (-25.5%)	NO
3rd Studio 20	NO (-52.7%)	NO
3rd Studio 21	NO (-49.1%)	NO
3rd Laundry Staff	NO (-69.9%)	NO
3rd Studio 22	NO (-28.1%)	NO
3rd Studio 23	NO (-7.8%)	NO
3rd Studio 24	NO (-5.2%)	NO
3rd Studio 25	NO (-39.8%)	NO
3rd Studio 26	NO (-91.9%)	NO
3rd Studio 31	NO (-15.3%)	NO
3rd Studio 30	NO (-44.5%)	NO
3rd Studio 29	NO (-15.9%)	NO
3rd Studio 28	YES (+14.9%)	NO
3rd Quiet Study	YES (+34.5%)	NO
4th Studio 36	NO (-27.2%)	NO
4th Studio 37	NO (-14.7%)	NO
4th Studio 35	NO (-31.9%)	NO
4th Studio 34	NO (-31.7%)	NO
4th Studio 38	NO (-90.7%)	NO
4th Studio 39	NO (-86.6%)	NO
4th Studio 32	NO (-70.5%)	NO
4th Studio 33	NO (-41.3%)	NO
3rd Studio 27	YES (+17.7%)	NO
3rd Break out area	YES (+29.9%)	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]	1582.8	1582.8
External area [m ²]	1989	1947.7
Weather	SOU	SOU
Infiltration [m ³ /hm ² @ 50Pa]	25	3
Average conductance [W/K]	1955.63	876.68
Average U-value [W/m ² K]	0.98	0.45
Alpha value* [%]	30.82	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
 Hotels
 Residential Institutions: Hospitals and Care Homes
 Residential Institutions: Residential Schools

100 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	151.89	40.5
Cooling	1.72	0.24
Auxiliary	9.28	6.68
Lighting	7.26	6.74
Hot water	21.97	17.84
Equipment*	14.53	14.53
TOTAL**	192.14	71.99

* 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	4.28
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>0</i>	<i>4.28</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	565.53	214.7
Primary energy [kWh _{PE} /m ²]	296.07	101.38
Total emissions [kg/m ²]	28.09	9.59

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	356.1	26.2	28.7	4	18.2	3.45	1.81	3.5	3
Notional	24.1	9.4	2.4	0.6	12.3	2.78	4.63	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	740	0	257	0	2.7	0.8	0	1	0
Notional	368.8	0	72.6	0	2.6	1.41	0	----	----
[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

Project name

VRVHOTWATER

As designed

Date: Thu Dec 14 17:08:43 2023

Administrative information

Building Details

Address: 52-53 Old Stein, Brighton, BN

Certifier details

Name: Nathan Williams

Telephone number: 01245 206801

Address: Elizabeth House, Baddow Road, Chelmsford,
CM2 0DG

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.24

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.24

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

Foundation area [m²]: 259.35The CO₂ 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	8.43
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	26.12
Target primary energy rate (TPER), kWh _{PE} /m ² annum	88.76
Building primary energy rate (BPER), kWh _{PE} /m ² annum	274.63
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	0.87	1.7	BM000002:Surf[1]
Floors	0.18	0.22	0.22	BM000002:Surf[0]
Pitched roofs	0.16	0.76	1.1	3R000027:Surf[54]
Flat roofs	0.18	0.43	1.72	3R000009:Surf[1]
Windows** and roof windows	1.6	4	5.24	BM000002:Surf[2]
Rooflights***	2.2	2.23	6.38	3R000001:Surf[17]
Personnel doors [^]	1.6	2.2	2.2	BM000000:Surf[2]
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	25

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- EXISTING electric heating and hot water

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	0.2	-	-
Standard value	N/A	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

2- General VRV system and hot water

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	3	0	3	-
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.

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

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	ID of system type	SFP [W/(l/s)]									HR efficiency	
		A	B	C	D	E	F	G	H	I	Zone	Standard
	Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1		
Bmt Studio 02 Cooking area		-	-	0.4	-	-	-	-	-	-	-	N/A
Bmt Studio 02 WC		-	-	0.4	-	-	-	-	-	-	-	N/A
Bmt Studio 02 Shower		-	-	0.4	-	-	-	-	-	-	-	N/A
Bmt Studio 01 Ensuite		-	-	0.4	-	-	-	-	-	-	-	N/A
Grd Studio 03 Ensuite		-	-	0.4	-	-	-	-	-	-	-	N/A
Grd Studio 04 Ensuite		-	-	0.4	-	-	-	-	-	-	-	N/A
1st Studio 05 Ensuite		-	-	0.4	-	-	-	-	-	-	-	N/A
1st Staff Welfare		-	-	0.4	-	-	-	-	-	-	-	N/A
1st Studio 06 Ensuite		-	-	0.4	-	-	-	-	-	-	-	N/A
2nd Studio 07 Ensuite		-	-	0.4	-	-	-	-	-	-	-	N/A

Zone name	SFP [W/(l/s)]									HR efficiency		
	ID of system type	A	B	C	D	E	F	G	H	I	Zone	Standard
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1			
2nd Studio 08 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 14 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 15 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 19 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 18 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 17 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 16 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 13 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 10 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 09 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 11 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 12 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 20 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 21 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 22 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 23 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 24 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 25 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 26 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 31 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 30 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 29 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 28 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 36 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 37 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 35 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 34 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 38 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 39 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 32 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 33 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 27 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A

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
Bmt Studio 02 Cooking area		226	-	-
Bmt Studio 02 WC		329	-	-
Bmt Studio 02 Shower		262	-	-
Bmt Studio 02		134	-	-
Bmt Common Lobby and Stairs		363	-	-
Bmt Studio 01		136	-	-
Bmt Common Stairs		300	-	-

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
Bmt Studio 02 Lobby		338	-	-
Bmt LV Switch room		113	-	-
Bmt Studio 01 Ensuite		224	-	-
Grd 52 Entrance hallway		221	-	-
Grd Studio 03		144	-	-
Grd Stairwell circular		194	-	-
Grd Lobby		319	-	-
Grd Studio 03 Ensuite		256	-	-
Grd Lift		172	-	-
Grd Store		181	-	-
Grd 53 Entrance hallway and stairs		184	-	-
Grd Reception Desk		108	-	-
Grd Studio 04 Ensuite		287	-	-
Grd Studio 04		137	-	-
1st Stairwell circular		202	-	-
1st Studio 05		142	-	-
1st Studio 05 Ensuite		184	-	-
1st Lobby		318	-	-
1st Lift		181	-	-
1st Store		181	-	-
1st Lobby		267	-	-
1st Stairwell		222	-	-
1st Staff Welfare		229	-	-
1st Studio 06		140	-	-
1st Studio 06 Ensuite		160	-	-
2nd Stairwell circular		182	-	-
2nd Lobby		257	-	-
2nd Lift		139	-	-
2nd Studio 07		134	-	-
2nd Studio 07 Ensuite		215	-	-
2nd Studio 08		133	-	-
2nd Studio 08 Ensuite		244	-	-
2nd Lobby		250	-	-
2nd Stairwell		210	-	-
2nd Lobby		296	-	-
2nd Studio 14		144	-	-
2nd Studio 14 Ensuite		189	-	-
2nd Studio 15 Ensuite		224	-	-
2nd Studio 15		161	-	-
2nd Lobby		240	-	-
2nd Studio 19 Ensuite		232	-	-
2nd Studio 19		152	-	-
2nd Studio 18 Ensuite		199	-	-

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
2nd Studio 18		148	-	-
2nd Studio 17		159	-	-
2nd Studio 17 Ensuite		202	-	-
2nd Studio 16 Ensuite		211	-	-
2nd Studio 16		160	-	-
2nd Circulation 3		174	-	-
2nd Studio 13		151	-	-
2nd Studio 13 Ensuite		185	-	-
2nd Plantroom		111	-	-
2nd Corridor rear stairwell		212	-	-
2nd Cupboard		181	-	-
2nd Circulation 1		156	-	-
2nd Circulation 2		164	-	-
2nd Cupboard		181	-	-
2nd Store		158	-	-
2nd Studio 10		147	-	-
2nd Studio 10 Ensuite		222	-	-
2nd Studio 09 Ensuite		180	-	-
2nd Studio 09		148	-	-
2nd Studio 11 Ensuite		201	-	-
2nd Studio 11		160	-	-
2nd Studio 12 Ensuite		200	-	-
2nd Studio 12		160	-	-
3rd Studio 20		132	-	-
3rd Stairwell circular		220	-	-
3rd Studio 20 Ensuite		200	-	-
3rd Lift		113	-	-
3rd Studio 21		130	-	-
3rd Studio 21 Ensuite		220	-	-
3rd Stairwell		236	-	-
3rd Lobby		186	-	-
3rd Laundry Staff		144	-	-
3rd Lobby		221	-	-
3rd Studio 22		140	-	-
3rd Studio 22 Ensuite		189	-	-
3rd Studio 23 Ensuite		200	-	-
3rd Studio 23		155	-	-
3rd Studio 24 Ensuite		199	-	-
3rd Studio 24		157	-	-
3rd Studio 25 Ensuite		180	-	-
3rd Studio 25		150	-	-
3rd Plantroom		80	-	-
3rd Studio 26		142	-	-

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
3rd Studio 26 Ensuite		184	-	-
3rd Lobby		207	-	-
3rd Studio 31		160	-	-
3rd Studio 31 Ensuite		219	-	-
3rd Studio 30 Ensuite		193	-	-
3rd Studio 30		151	-	-
3rd Studio 29		150	-	-
3rd Studio 29 Ensuite		219	-	-
3rd Studio 28		160	-	-
3rd Studio 28 Ensuite		215	-	-
3rd Quiet Study		128	-	-
3rd Stairwell		235	-	-
3rd Lobby		351	-	-
3rd Stairwell central		153	-	-
3rd Circulation 1		160	-	-
3rd Circulation 2		176	-	-
3rd Stairwell rear		198	-	-
4th Studio 36		150	-	-
4th Studio 36 Ensuite		219	-	-
4th Studio 37		143	-	-
4th Studio 37 Ensuite		249	-	-
4th Lobby		204	-	-
4th Stairwell central		212	-	-
4th Studio 35 Ensuite		195	-	-
4th Studio 35		142	-	-
4th Studio 34		144	-	-
4th Studio 34 Ensuite		198	-	-
4th Studio 38		139	-	-
4th Lobby		169	-	-
4th Stairwell		192	-	-
4th Studio 38 Ensuite		184	-	-
4th Studio 39 Ensuite		176	-	-
4th Studio 39		131	-	-
4th Studio 32		149	-	-
4th Studio 32 Ensuite		190	-	-
4th Studio 33 Ensuite		216	-	-
4th Studio 33		151	-	-
4th Lobby		228	-	-
3rd Studio 27		159	-	-
3rd Studio 27 Ensuite		211	-	-
3rd Break out area		123	-	-
4th Lift overrun		66	-	-

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?
Bmt Studio 02	NO (-64.1%)	NO
Bmt Studio 01	NO (-48.6%)	NO
Grd Studio 03	NO (-67.4%)	NO
Grd Reception Desk	NO (-75.8%)	NO
Grd Studio 04	NO (-47.8%)	NO
1st Studio 05	NO (-53.2%)	NO
1st Studio 06	NO (-35.5%)	NO
2nd Studio 07	NO (-60.3%)	NO
2nd Studio 08	NO (-60.7%)	NO
2nd Studio 14	NO (-93.2%)	NO
2nd Studio 15	YES (+4.6%)	NO
2nd Studio 19	NO (-42.6%)	NO
2nd Studio 18	NO (-27.2%)	NO
2nd Studio 17	NO (-16.9%)	NO
2nd Studio 16	NO (-11.4%)	NO
2nd Studio 13	NO (-66.6%)	NO
2nd Studio 10	NO (-80.4%)	NO
2nd Studio 09	NO (-40.7%)	NO
2nd Studio 11	NO (-21.5%)	NO
2nd Studio 12	NO (-25.5%)	NO
3rd Studio 20	NO (-52.7%)	NO
3rd Studio 21	NO (-49.1%)	NO
3rd Laundry Staff	NO (-69.9%)	NO
3rd Studio 22	NO (-28.1%)	NO
3rd Studio 23	NO (-7.8%)	NO
3rd Studio 24	NO (-5.2%)	NO
3rd Studio 25	NO (-39.8%)	NO
3rd Studio 26	NO (-91.9%)	NO
3rd Studio 31	NO (-15.3%)	NO
3rd Studio 30	NO (-44.5%)	NO
3rd Studio 29	NO (-15.9%)	NO
3rd Studio 28	YES (+14.9%)	NO
3rd Quiet Study	YES (+34.5%)	NO
4th Studio 36	NO (-27.2%)	NO
4th Studio 37	NO (-14.7%)	NO
4th Studio 35	NO (-31.9%)	NO
4th Studio 34	NO (-31.7%)	NO
4th Studio 38	NO (-90.7%)	NO
4th Studio 39	NO (-86.6%)	NO
4th Studio 32	NO (-70.5%)	NO
4th Studio 33	NO (-41.3%)	NO
3rd Studio 27	YES (+17.7%)	NO
3rd Break out area	YES (+29.9%)	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]	1582.8	1582.8
External area [m ²]	1989	1947.7
Weather	SOU	SOU
Infiltration [m ³ /hm ² @ 50Pa]	25	3
Average conductance [W/K]	1955.63	876.68
Average U-value [W/m ² K]	0.98	0.45
Alpha value* [%]	30.82	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
 Hotels
 Residential Institutions: Hospitals and Care Homes
 Residential Institutions: Residential Schools

100 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	151.89	40.5
Cooling	1.72	0.24
Auxiliary	10.11	7.41
Lighting	7.26	6.74
Hot water	6.98	8.56
Equipment*	14.53	14.53
TOTAL**	177.97	63.44

* 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	4.28
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>0</i>	<i>4.28</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	565.53	214.7
Primary energy [kWh _{PE} /m ²]	274.63	88.76
Total emissions [kg/m ²]	26.12	8.43

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	356.1	26.2	28.7	4	18.2	3.45	1.81	3.5	3
Notional	24.1	9.4	2.4	0.6	12.3	2.78	4.63	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	740	0	257	0	2.7	0.8	0	1	0
Notional	368.8	0	72.6	0	2.6	1.41	0	----	----
[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

Project name

PV MODEL

As designed

Date: Thu Dec 14 17:19:28 2023

Administrative information

Building Details

Address: 52-53 Old Stein, Brighton, BN

Certifier details

Name: Nathan Williams

Telephone number: 01245 206801

Address: Elizabeth House, Baddow Road, Chelmsford,
CM2 0DG

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.24

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.24

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

Foundation area [m²]: 259.35The CO₂ 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	8.43
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	25.43
Target primary energy rate (TPER), kWh _{PE} /m ² annum	88.76
Building primary energy rate (BPER), kWh _{PE} /m ² annum	266.53
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	0.87	1.7	BM000002:Surf[1]
Floors	0.18	0.22	0.22	BM000002:Surf[0]
Pitched roofs	0.16	0.76	1.1	3R000027:Surf[54]
Flat roofs	0.18	0.43	1.72	3R000009:Surf[1]
Windows** and roof windows	1.6	4	5.24	BM000002:Surf[2]
Rooflights***	2.2	2.23	6.38	3R000001:Surf[17]
Personnel doors [^]	1.6	2.2	2.2	BM000000:Surf[2]
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	25

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- EXISTING electric heating and hot water

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	0.2	-	-
Standard value	N/A	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

2- General VRV system and hot water

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	3	0	3	-
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.

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

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	ID of system type	SFP [W/(l/s)]									HR efficiency	
		A	B	C	D	E	F	G	H	I	Zone	Standard
	Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1		
Bmt Studio 02 Cooking area		-	-	0.4	-	-	-	-	-	-	-	N/A
Bmt Studio 02 WC		-	-	0.4	-	-	-	-	-	-	-	N/A
Bmt Studio 02 Shower		-	-	0.4	-	-	-	-	-	-	-	N/A
Bmt Studio 01 Ensuite		-	-	0.4	-	-	-	-	-	-	-	N/A
Grd Studio 03 Ensuite		-	-	0.4	-	-	-	-	-	-	-	N/A
Grd Studio 04 Ensuite		-	-	0.4	-	-	-	-	-	-	-	N/A
1st Studio 05 Ensuite		-	-	0.4	-	-	-	-	-	-	-	N/A
1st Staff Welfare		-	-	0.4	-	-	-	-	-	-	-	N/A
1st Studio 06 Ensuite		-	-	0.4	-	-	-	-	-	-	-	N/A
2nd Studio 07 Ensuite		-	-	0.4	-	-	-	-	-	-	-	N/A

Zone name	SFP [W/(l/s)]									HR efficiency		
	ID of system type	A	B	C	D	E	F	G	H	I	Zone	Standard
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1			
2nd Studio 08 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 14 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 15 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 19 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 18 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 17 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 16 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 13 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 10 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 09 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 11 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
2nd Studio 12 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 20 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 21 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 22 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 23 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 24 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 25 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 26 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 31 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 30 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 29 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 28 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 36 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 37 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 35 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 34 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 38 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 39 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 32 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
4th Studio 33 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A
3rd Studio 27 Ensuite	-	-	0.4	-	-	-	-	-	-	-	-	N/A

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
Bmt Studio 02 Cooking area		226	-	-
Bmt Studio 02 WC		329	-	-
Bmt Studio 02 Shower		262	-	-
Bmt Studio 02		134	-	-
Bmt Common Lobby and Stairs		363	-	-
Bmt Studio 01		136	-	-
Bmt Common Stairs		300	-	-

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
Bmt Studio 02 Lobby		338	-	-
Bmt LV Switch room		113	-	-
Bmt Studio 01 Ensuite		224	-	-
Grd 52 Entrance hallway		221	-	-
Grd Studio 03		144	-	-
Grd Stairwell circular		194	-	-
Grd Lobby		319	-	-
Grd Studio 03 Ensuite		256	-	-
Grd Lift		172	-	-
Grd Store		181	-	-
Grd 53 Entrance hallway and stairs		184	-	-
Grd Reception Desk		108	-	-
Grd Studio 04 Ensuite		287	-	-
Grd Studio 04		137	-	-
1st Stairwell circular		202	-	-
1st Studio 05		142	-	-
1st Studio 05 Ensuite		184	-	-
1st Lobby		318	-	-
1st Lift		181	-	-
1st Store		181	-	-
1st Lobby		267	-	-
1st Stairwell		222	-	-
1st Staff Welfare		229	-	-
1st Studio 06		140	-	-
1st Studio 06 Ensuite		160	-	-
2nd Stairwell circular		182	-	-
2nd Lobby		257	-	-
2nd Lift		139	-	-
2nd Studio 07		134	-	-
2nd Studio 07 Ensuite		215	-	-
2nd Studio 08		133	-	-
2nd Studio 08 Ensuite		244	-	-
2nd Lobby		250	-	-
2nd Stairwell		210	-	-
2nd Lobby		296	-	-
2nd Studio 14		144	-	-
2nd Studio 14 Ensuite		189	-	-
2nd Studio 15 Ensuite		224	-	-
2nd Studio 15		161	-	-
2nd Lobby		240	-	-
2nd Studio 19 Ensuite		232	-	-
2nd Studio 19		152	-	-
2nd Studio 18 Ensuite		199	-	-

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
2nd Studio 18		148	-	-
2nd Studio 17		159	-	-
2nd Studio 17 Ensuite		202	-	-
2nd Studio 16 Ensuite		211	-	-
2nd Studio 16		160	-	-
2nd Circulation 3		174	-	-
2nd Studio 13		151	-	-
2nd Studio 13 Ensuite		185	-	-
2nd Plantroom		111	-	-
2nd Corridor rear stairwell		212	-	-
2nd Cupboard		181	-	-
2nd Circulation 1		156	-	-
2nd Circulation 2		164	-	-
2nd Cupboard		181	-	-
2nd Store		158	-	-
2nd Studio 10		147	-	-
2nd Studio 10 Ensuite		222	-	-
2nd Studio 09 Ensuite		180	-	-
2nd Studio 09		148	-	-
2nd Studio 11 Ensuite		201	-	-
2nd Studio 11		160	-	-
2nd Studio 12 Ensuite		200	-	-
2nd Studio 12		160	-	-
3rd Studio 20		132	-	-
3rd Stairwell circular		220	-	-
3rd Studio 20 Ensuite		200	-	-
3rd Lift		113	-	-
3rd Studio 21		130	-	-
3rd Studio 21 Ensuite		220	-	-
3rd Stairwell		236	-	-
3rd Lobby		186	-	-
3rd Laundry Staff		144	-	-
3rd Lobby		221	-	-
3rd Studio 22		140	-	-
3rd Studio 22 Ensuite		189	-	-
3rd Studio 23 Ensuite		200	-	-
3rd Studio 23		155	-	-
3rd Studio 24 Ensuite		199	-	-
3rd Studio 24		157	-	-
3rd Studio 25 Ensuite		180	-	-
3rd Studio 25		150	-	-
3rd Plantroom		80	-	-
3rd Studio 26		142	-	-

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
3rd Studio 26 Ensuite		184	-	-
3rd Lobby		207	-	-
3rd Studio 31		160	-	-
3rd Studio 31 Ensuite		219	-	-
3rd Studio 30 Ensuite		193	-	-
3rd Studio 30		151	-	-
3rd Studio 29		150	-	-
3rd Studio 29 Ensuite		219	-	-
3rd Studio 28		160	-	-
3rd Studio 28 Ensuite		215	-	-
3rd Quiet Study		128	-	-
3rd Stairwell		235	-	-
3rd Lobby		351	-	-
3rd Stairwell central		153	-	-
3rd Circulation 1		160	-	-
3rd Circulation 2		176	-	-
3rd Stairwell rear		198	-	-
4th Studio 36		150	-	-
4th Studio 36 Ensuite		219	-	-
4th Studio 37		143	-	-
4th Studio 37 Ensuite		249	-	-
4th Lobby		204	-	-
4th Stairwell central		212	-	-
4th Studio 35 Ensuite		195	-	-
4th Studio 35		142	-	-
4th Studio 34		144	-	-
4th Studio 34 Ensuite		198	-	-
4th Studio 38		139	-	-
4th Lobby		169	-	-
4th Stairwell		192	-	-
4th Studio 38 Ensuite		184	-	-
4th Studio 39 Ensuite		176	-	-
4th Studio 39		131	-	-
4th Studio 32		149	-	-
4th Studio 32 Ensuite		190	-	-
4th Studio 33 Ensuite		216	-	-
4th Studio 33		151	-	-
4th Lobby		228	-	-
3rd Studio 27		159	-	-
3rd Studio 27 Ensuite		211	-	-
3rd Break out area		123	-	-
4th Lift overrun		66	-	-

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?
Bmt Studio 02	NO (-64.1%)	NO
Bmt Studio 01	NO (-48.6%)	NO
Grd Studio 03	NO (-67.4%)	NO
Grd Reception Desk	NO (-75.8%)	NO
Grd Studio 04	NO (-47.8%)	NO
1st Studio 05	NO (-53.2%)	NO
1st Studio 06	NO (-35.5%)	NO
2nd Studio 07	NO (-60.3%)	NO
2nd Studio 08	NO (-60.7%)	NO
2nd Studio 14	NO (-93.2%)	NO
2nd Studio 15	YES (+4.6%)	NO
2nd Studio 19	NO (-42.6%)	NO
2nd Studio 18	NO (-27.2%)	NO
2nd Studio 17	NO (-16.9%)	NO
2nd Studio 16	NO (-11.4%)	NO
2nd Studio 13	NO (-66.6%)	NO
2nd Studio 10	NO (-80.4%)	NO
2nd Studio 09	NO (-40.7%)	NO
2nd Studio 11	NO (-21.5%)	NO
2nd Studio 12	NO (-25.5%)	NO
3rd Studio 20	NO (-52.7%)	NO
3rd Studio 21	NO (-49.1%)	NO
3rd Laundry Staff	NO (-69.9%)	NO
3rd Studio 22	NO (-28.1%)	NO
3rd Studio 23	NO (-7.8%)	NO
3rd Studio 24	NO (-5.2%)	NO
3rd Studio 25	NO (-39.8%)	NO
3rd Studio 26	NO (-91.9%)	NO
3rd Studio 31	NO (-15.3%)	NO
3rd Studio 30	NO (-44.5%)	NO
3rd Studio 29	NO (-15.9%)	NO
3rd Studio 28	YES (+14.9%)	NO
3rd Quiet Study	YES (+34.5%)	NO
4th Studio 36	NO (-27.2%)	NO
4th Studio 37	NO (-14.7%)	NO
4th Studio 35	NO (-31.9%)	NO
4th Studio 34	NO (-31.7%)	NO
4th Studio 38	NO (-90.7%)	NO
4th Studio 39	NO (-86.6%)	NO
4th Studio 32	NO (-70.5%)	NO
4th Studio 33	NO (-41.3%)	NO
3rd Studio 27	YES (+17.7%)	NO
3rd Break out area	YES (+29.9%)	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]	1582.8	1582.8
External area [m ²]	1989	1947.7
Weather	SOU	SOU
Infiltration [m ³ /hm ² @ 50Pa]	25	3
Average conductance [W/K]	1955.63	876.68
Average U-value [W/m ² K]	0.98	0.45
Alpha value* [%]	30.82	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
 Hotels
 Residential Institutions: Hospitals and Care Homes
 Residential Institutions: Residential Schools

100 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	151.89	40.5
Cooling	1.72	0.24
Auxiliary	10.11	7.41
Lighting	7.26	6.74
Hot water	6.98	8.56
Equipment*	14.53	14.53
TOTAL**	177.97	63.44

* 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	5.53	4.28
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>5.53</i>	<i>4.28</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	565.53	214.7
Primary energy [kWh _{PE} /m ²]	266.53	88.76
Total emissions [kg/m ²]	25.43	8.43

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	356.1	26.2	28.7	4	18.2	3.45	1.81	3.5	3
Notional	24.1	9.4	2.4	0.6	12.3	2.78	4.63	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	740	0	257	0	2.7	0.8	0	1	0
Notional	368.8	0	72.6	0	2.6	1.41	0	----	----
[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

Energy Performance Certificate

Non-Domestic Building



52-53 Old Stein

Address 3

Address 4

Brighton

BN

Certificate Reference Number:

0741-0938-0448-4398-6261

This certificate shows the energy rating of this building. It indicates the energy efficiency of the building fabric and the heating, ventilation, cooling and lighting systems. The rating is compared to two benchmarks for this type of building: one appropriate for new buildings and one appropriate for existing buildings. There is more advice on how to interpret this information in the guidance document *Energy Performance Certificates for the construction, sale and let of non-dwellings* available on the Government's website at www.gov.uk/government/collections/energy-performance-certificates.

Energy Performance Asset Rating

More energy efficient



Net zero CO₂ emissions



◀ 51 This is how energy efficient the building is.

Less energy efficient

Technical information

Main heating fuel:	Grid Supplied Electricity
Building environment:	Heating and Natural Ventilation
Total useful floor area (m ²):	1582.778
Building complexity:	Level 5
Building emission rate (kgCO ₂ /m ² per year):	29.98
Primary energy use (kWh _{PE} /m ² per year):	316.38

Benchmarks

Buildings similar to this one could have ratings as follows:

16 If newly built

65 If typical of the existing stock

Administrative information

This is an Energy Performance Certificate as defined in the Energy Performance of Buildings Regulations 2012 as amended.

Assessment Software:	Virtual Environment v7.0.24 using calculation engine ApacheSim v7.0.24
Property Reference:	UPRN-000000000000
Assessor Name:	Nathan Williams
Assessor Number:	LCEA015347
Accreditation Scheme:	CIBSE Certification Limited
Assessor Qualifications:	NOS5
Employer/Trading Name:	Trading Name
Employer/Trading Address:	Trading Address
Issue Date:	14 Dec 2023
Valid Until:	13 Dec 2033 (unless superseded by a later certificate)
Related Party Disclosure:	Not related to the owner

Recommendations for improving the energy performance of the building are contained in the associated Recommendation Report: 7405-1468-1190-2610-9398

About this document and the data in it

This document has been produced following an energy assessment undertaken by a qualified Energy Assessor, accredited by CIBSE Certification Limited. You can obtain contact details of the Accreditation Scheme at www.cibsecertification.com.

A copy of this certificate has been lodged on a national register as a requirement under the Energy Performance of Buildings Regulations 2012 as amended. It will be made available via the online search function at www.ndepcregister.com. The certificate (including the building address) and other data about the building collected during the energy assessment but not shown on the certificate, for instance heating system data, will be made publicly available at www.opendatacommunities.org.

This certificate and other data about the building may be shared with other bodies (including government departments and enforcement agencies) for research, statistical and enforcement purposes. For further information about how data about the property are used, please visit www.ndepcregister.com. To opt out of having information about your building made publicly available, please visit www.ndepcregister.com/optout.

There is more information in the guidance document *Energy Performance Certificates for the construction, sale and let of non-dwellings* available on the Government website at: www.gov.uk/government/collections/energy-performance-certificates. It explains the content and use of this document and advises on how to identify the authenticity of a certificate and how to make a complaint.

Opportunity to benefit from a Green Deal on this property

The Green Deal can help you cut your energy bills by making energy efficiency improvements at no upfront costs. Use the Green Deal to find trusted advisors who will come to your property, recommend measures that are right for you and help you access a range of accredited installers. Responsibility for repayments stays with the property - whoever pays the energy bills benefits so they are responsible for the payments.

To find out how you could use Green Deal finance to improve your property please call 0300 123 1234.