

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- NV + VRF (Reception lobby)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	5	-	-	-
Standard value	2.5*	5	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

2- NV + EPH

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	0.86	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

3- EOL + EPH (3 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	0.86	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

4- MVHR + EPH (GF Lockers (no shower))

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	0.75
Standard value	0.86	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

5- MVHR + VRF (3 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	5	-	-	0.75
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					YES
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

1- New HWS Circuit

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	0
Standard value	1	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 WC disabled	-	-	0.5	-	-	-	-	-	-	-	-	N/A
FF WC Uni	-	-	0.5	-	-	-	-	-	-	-	-	N/A
Office DL1	-	-	-	-	1.4	-	-	-	-	-	-	N/A
Office NDL	-	-	-	-	1.4	-	-	-	-	-	-	N/A
GF Changing (shower)	-	-	0.5	-	-	-	-	-	-	-	-	N/A
Office DL2	-	-	-	-	1.4	-	-	-	-	-	-	N/A

Shell and core configuration

Zone	Assumed shell?
GF WC disabled	NO
FF WC Uni	NO
GF Lockers (no shower)	NO
Office DL1	NO
Office NDL	NO
Reception lobby	NO
Staircase	NO
GF Lobby	NO
GF Changing (shower)	NO
FF Lobby WC Uni	NO
FF Roof access	NO
Office DL2	NO

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	
Warehouse	120	-	-	
Warehouse Undercroft NDL	120	-	-	
GF WC disabled	95	-	-	
FF WC Uni	95	-	-	
Cleaners storage	95	-	-	

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 Lockers (no shower)		95	-	-
Office DL1		100	-	-
Office NDL		100	-	-
Reception lobby		100	95	-
Staircase		95	-	-
GF Lobby		95	-	-
GF Changing (shower)		95	-	-
FF Lobby WC Uni		95	-	-
FF Roof access		95	-	-
Services		95	-	-
Office DL2		100	-	-

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?
Warehouse	YES (+70%)	NO
Warehouse Undercroft NDL	NO (-67%)	NO
Cleaners storage	N/A	N/A
GF Lockers (no shower)	N/A	N/A
Office DL1	NO (-13%)	NO
Office NDL	NO (-56%)	NO
Reception lobby	YES (+34%)	NO
Office DL2	YES (+16%)	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]	1120	1120
External area [m ²]	2936	2936
Weather	SWI	SWI
Infiltration [m ³ /hm ² @ 50Pa]	3	5
Average conductance [W/K]	1105	941
Average U-value [W/m ² K]	0.38	0.32
Alpha value* [%]	20.69	5.69

* 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
90	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
10	Others: Miscellaneous 24hr Activities
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	5.44	4.18
Cooling	0.89	1.41
Auxiliary	2.19	1.6
Lighting	21.48	21.36
Hot water	22.9	22.9
Equipment*	50.86	50.86
TOTAL**	52.91	51.45

* 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	11.06	2.48
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>11.06</i>	<i>2.48</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	54.86	54.72
Primary energy [kWh _{PE} /m ²]	64.29	72.49
Total emissions [kg/m ²]	6.06	6.71

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	239.2	114.1	19	6.3	0	3.5	5	3.5	5
Notional	0	216.4	0	13.7	0	0	4.4	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	186.3	0	51.8	0	0	1	0	1	0
Notional	145	0	30.1	0	0	1.34	0	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	255.3	0	70.9	0	38.7	1	0	1	0
Notional	232.2	0	48.1	0	46.5	1.34	0	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	21	0	5.8	0	11.7	1	0	1	0
Notional	0	0	0	0	11	0	0	----	----
[ST] Variable refrigerant flow, [HS] ASHP, [HFT] Electricity, [CFT] Electricity									
Actual	124.3	100.1	9.9	5.6	11.7	3.5	5	3.5	5
Notional	46.4	124.5	4.9	7.9	5.7	2.64	4.4	----	----

Key to terms

Heat dem [MJ/m2]	= Heating energy demand
Cool dem [MJ/m2]	= Cooling energy demand
Heat con [kWh/m2]	= Heating energy consumption
Cool con [kWh/m2]	= Cooling energy consumption
Aux con [kWh/m2]	= Auxiliary energy consumption
Heat SSEFF	= Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER	= Cooling system seasonal energy efficiency ratio
Heat gen SSEFF	= Heating generator seasonal efficiency
Cool gen SSEER	= Cooling generator seasonal energy efficiency ratio
ST	= System type
HS	= Heat source
HFT	= Heating fuel type
CFT	= Cooling fuel type

Project name

Shell and Core

Shinfield Park Unit 3B - For Planning

As designed

Date: Fri Jan 31 10:19:47 2025

Administrative information

Building Details

Address: Shinfield Park Unit 3B - For Planning, Reading,
RG2 9FW

Certifier details

Name: Ivonne Ortega Nava

Telephone number: 01908 320099

Address: Woodlands Business Park, Milton Keynes, MK14
6FG

Certification tool

Calculation engine: TAS

Calculation engine version: "v9.5.6"

Interface to calculation engine: TAS

Interface to calculation engine version: v9.5.6

BRUKL compliance module version: v6.1.e.0

Foundation area [m²]: 135.01The 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	6.42
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	5.81
Target primary energy rate (TPER), kWh _{PE} /m ² .annum	69.4
Building primary energy rate (BPER), kWh _{PE} /m ² .annum	61.7
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	0.26	0.26	External Wall
Floors	0.18	0.18	0.18	Ground Floor
Pitched roofs	0.16	0.16	0.16	Roof
Flat roofs	0.18	-	-	No flat roofs in project
Windows** and roof windows	1.6	1.6	1.6	Curtain Wall Frame
Rooflights***	2.2	2.2	2.2	Rooflight (horizontal)
Personnel doors^	1.6	1.6	1.6	Fire Door
Vehicle access & similar large doors	1.3	1.3	1.3	Vehicle Door large
High usage entrance doors	3	-	-	No high usage entrance doors in project

U_{a-Limit} = Limiting area-weighted average U-values [W/(m²K)]U_{a-Calc} = Calculated area-weighted average U-values [W/(m²K)]U_{i-Calc} = Calculated maximum individual element 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	2.5

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- NV + VRF (Reception lobby)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	5	-	-	-
Standard value	2.5*	5	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

2- NV + EPH

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	0.86	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

3- EOL + EPH (3 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	0.86	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

4- MVHR + EPH (GF Lockers (no shower))

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	0.75
Standard value	0.86	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

5- MVHR + VRF (3 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	5	-	-	0.75
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					YES
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

1- Electric DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	0
Standard value	1	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 WC disabled	-	-	0.5	-	-	-	-	-	-	-	-	N/A
FF WC Uni	-	-	0.5	-	-	-	-	-	-	-	-	N/A
Office DL1	-	-	-	-	1.4	-	-	-	-	-	-	N/A
Office NDL	-	-	-	-	1.4	-	-	-	-	-	-	N/A
GF Changing (shower)	-	-	0.5	-	-	-	-	-	-	-	-	N/A
Office DL2	-	-	-	-	1.4	-	-	-	-	-	-	N/A

Shell and core configuration

Zone	Assumed shell?
GF WC disabled	NO
FF WC Uni	NO
GF Lockers (no shower)	NO
Office DL1	NO
Office NDL	NO
Reception lobby	NO
Staircase	NO
GF Lobby	NO
GF Changing (shower)	NO
FF Lobby WC Uni	NO
FF Roof access	NO
Office DL2	NO

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	
Warehouse	120	-	-	
Warehouse Undercroft NDL	120	-	-	
GF WC disabled	95	-	-	
FF WC Uni	95	-	-	
Cleaners storage	95	-	-	

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 Lockers (no shower)		95	-	-
Office DL1		100	-	-
Office NDL		100	-	-
Reception lobby		100	95	-
Staircase		95	-	-
GF Lobby		95	-	-
GF Changing (shower)		95	-	-
FF Lobby WC Uni		95	-	-
FF Roof access		95	-	-
Services		95	-	-
Office DL2		100	-	-

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?
Warehouse	YES (+71%)	NO
Warehouse Undercroft NDL	NO (-66%)	NO
Cleaners storage	N/A	N/A
GF Lockers (no shower)	N/A	N/A
Office DL1	NO (-2%)	NO
Office NDL	N/A	N/A
Reception lobby	YES (+68%)	NO
Office DL2	YES (+37%)	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]	1125	1125
External area [m ²]	2945	2945
Weather	SWI	SWI
Infiltration [m ³ /hm ² @ 50Pa]	3	5
Average conductance [W/K]	1099	942
Average U-value [W/m ² K]	0.37	0.32
Alpha value* [%]	20.9	5.9

* 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
90	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
10	Others: Miscellaneous 24hr Activities
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	4.97	4.09
Cooling	1	1.52
Auxiliary	2.17	1.59
Lighting	21.52	21.47
Hot water	20.81	20.81
Equipment*	50.8	50.8
TOTAL**	50.46	49.47

* 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	10.27	2.59
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>10.27</i>	<i>2.59</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	52.88	55.91
Primary energy [kWh _{PE} /m ²]	61.7	69.4
Total emissions [kg/m ²]	5.81	6.42

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	184.3	134.8	14.6	7.5	0	3.5	5	3.5	5
Notional	0	236.5	0	14.9	0	0	4.4	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	171.6	0	47.7	0	0	1	0	1	0
Notional	137	0	28.4	0	0	1.34	0	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	241.8	0	67.2	0	38.4	1	0	1	0
Notional	224.8	0	46.6	0	46.1	1.34	0	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	14.9	0	4.1	0	11.7	1	0	1	0
Notional	0	0	0	0	11.1	0	0	----	----
[ST] Variable refrigerant flow, [HS] ASHP, [HFT] Electricity, [CFT] Electricity									
Actual	114.5	110.6	9.1	6.2	11.7	3.5	5	3.5	5
Notional	42.7	131.6	4.5	8.3	5.7	2.64	4.4	----	----

Key to terms

Heat dem [MJ/m2]	= Heating energy demand
Cool dem [MJ/m2]	= Cooling energy demand
Heat con [kWh/m2]	= Heating energy consumption
Cool con [kWh/m2]	= Cooling energy consumption
Aux con [kWh/m2]	= Auxiliary energy consumption
Heat SSEFF	= Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER	= Cooling system seasonal energy efficiency ratio
Heat gen SSEFF	= Heating generator seasonal efficiency
Cool gen SSEER	= Cooling generator seasonal energy efficiency ratio
ST	= System type
HS	= Heat source
HFT	= Heating fuel type
CFT	= Cooling fuel type

Project name

Shell and Core

Shinfield Park - Unit 4 - For Planning

As designed

Date: Fri Jan 31 10:25:01 2025

Administrative information

Building Details

Address: Shinfield Park - Unit 4 - For Planning, Reading,

Certifier details

Name: Ivonne Ortega Nava

Telephone number: 01908 320099

Address: Woodlands Business Park, Milton Keynes,
MK14 6FG

Certification tool

Calculation engine: TAS

Calculation engine version: "v9.5.6"

Interface to calculation engine: TAS

Interface to calculation engine version: v9.5.6

BRUKL compliance module version: v6.1.e.0

Foundation area [m²]: 234.22The 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	6.91
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	6.4
Target primary energy rate (TPER), kWh _{PE} /m ² .annum	74.83
Building primary energy rate (BPER), kWh _{PE} /m ² .annum	68.3
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	0.26	0.26	External Wall
Floors	0.18	0.18	0.18	Internal Floor/Insulated Floor (between warehouse and
Pitched roofs	0.16	0.16	0.16	Roof
Flat roofs	0.18	-	-	No flat roofs in project
Windows** and roof windows	1.6	1.6	1.6	Curtain Wall Frame
Rooflights***	2.2	2.2	2.2	Rooflight (horizontal)
Personnel doors^	1.6	1.6	1.6	Fire Door
Vehicle access & similar large doors	1.3	1.3	1.3	Vehicle Door large
High usage entrance doors	3	-	-	No high usage entrance doors in project

U_a-Limit = Limiting area-weighted average U-values [W/(m²K)]
U_a-Calc = Calculated area-weighted average U-values [W/(m²K)]
U_i-Calc = Calculated maximum individual element 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	2.5

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- NV + VRF (Reception lobby)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	5	-	-	-
Standard value	2.5*	5	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

2- MVHR + VRF (4 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	5	-	-	0.75
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					YES
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

3- NV + EPH

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	0.86	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

4- EOL + EPH (6 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	0.86	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

5- MVHR + EPH (GF Lockers (no shower))

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	0.75
Standard value	0.86	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

1- New HWS Circuit

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	0
Standard value	1	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 WC disabled	-	-	0.5	-	-	-	-	-	-	-	-	N/A
FF WC Male	-	-	0.5	-	-	-	-	-	-	-	-	N/A
FF WC Female	-	-	0.5	-	-	-	-	-	-	-	-	N/A
FF WC disabled	-	-	0.5	-	-	-	-	-	-	-	-	N/A
Cleaners storage	-	-	0.5	-	-	-	-	-	-	-	-	N/A
GF Lockers (no shower)	-	-	-	-	1.4	-	-	-	-	-	-	N/A
Office DL1	-	-	-	-	1.4	-	-	-	-	-	-	N/A
Office NDL	-	-	-	-	1.4	-	-	-	-	-	-	N/A
GF Changing disabled (shower)	-	-	0.5	-	-	-	-	-	-	-	-	N/A
GF Changing (shower)	-	-	0.5	-	-	-	-	-	-	-	-	N/A
Office DL2	-	-	-	-	1.4	-	-	-	-	-	-	N/A
Office DL3	-	-	-	-	1.4	-	-	-	-	-	-	N/A

Shell and core configuration

Zone	Assumed shell?
GF WC disabled	NO
FF WC Male	NO
FF WC Female	NO
FF WC disabled	NO
GF Lockers (no shower)	NO
Office DL1	NO
Office NDL	NO
Reception lobby	NO
GF Staircase	NO
GF Lobby	NO
GF Changing disabled (shower)	NO
GF Changing (shower)	NO
FF Lobby WC male	NO
FF Lobby WC female	NO
FF Corridor	NO
FF Roof access	NO
Office DL2	NO

Shell and core configuration

Zone	Assumed shell?
Office DL3	NO
FF Staircase	NO

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
Warehouse		120	-	-
Warehouse Undercroft DL1		120	-	-
Warehouse Undercroft NDL		120	-	-
GF WC disabled		95	-	-
FF WC Male		95	-	-
FF WC Female		95	-	-
FF WC disabled		95	-	-
Cleaners storage		95	-	-
GF Lockers (no shower)		95	-	-
Office DL1		100	-	-
Office NDL		100	-	-
Reception lobby		100	95	-
GF Staircase		95	-	-
GF Lobby		95	-	-
GF Changing disabled (shower)		95	-	-
GF Changing (shower)		95	-	-
FF Lobby WC male		95	-	-
FF Lobby WC female		95	-	-
FF Corridor		95	-	-
FF Roof access		95	-	-
Warehouse Undercroft DL2		120	-	-
Office DL2		100	-	-
Office DL3		100	-	-
FF Staircase		95	-	-

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?
Warehouse	YES (+54%)	NO
Warehouse Undercroft DL1	YES (+305%)	NO
Warehouse Undercroft NDL	NO (-19%)	NO
GF Lockers (no shower)	N/A	N/A
Office DL1	NO (-4%)	NO
Office NDL	NO (-6%)	NO
Reception lobby	YES (+48%)	NO
Warehouse Undercroft DL2	YES (+115%)	NO
Office DL2	YES (+5%)	NO
Office DL3	YES (+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]	2485	2485
External area [m ²]	6371	6371
Weather	SWI	SWI
Infiltration [m ³ /hm ² @ 50Pa]	3	5
Average conductance [W/K]	2435	2074
Average U-value [W/m ² K]	0.38	0.33
Alpha value* [%]	18.9	3.9

* 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
92	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
8	Others: Miscellaneous 24hr Activities
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	3.08	2.16
Cooling	1.23	1.76
Auxiliary	2.07	1.66
Lighting	20.24	19.02
Hot water	29.81	29.22
Equipment*	48.82	48.82
TOTAL**	56.42	53.81

* 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	11.8	3.19
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>11.8</i>	<i>3.19</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	40.1	44.1
Primary energy [kWh _{PE} /m ²]	68.3	74.83
Total emissions [kg/m ²]	6.4	6.91

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	282	79.6	22.4	4.4	0	3.5	5	3.5	5
Notional	0	88.4	0	5.6	0	0	4.4	----	----
[ST] Variable refrigerant flow, [HS] ASHP, [HFT] Electricity, [CFT] Electricity									
Actual	16.1	208.9	1.3	11.6	11.7	3.5	5	3.5	5
Notional	0	265.9	0	16.8	5.7	0	4.4	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	126.7	0	35.2	0	0	1	0	1	0
Notional	78.5	0	16.3	0	0	1.34	0	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	191.1	0	53.1	0	35.5	1	0	1	0
Notional	161.7	0	33.5	0	42.6	1.34	0	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	15.7	0	4.4	0	11.7	1	0	1	0
Notional	2.7	0	0.6	0	11	1.34	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

Shell and Core

Shinfield Park - Unit 5 - For Planning

As designed

Date: Fri Jan 31 10:31:20 2025

Administrative information

Building Details

Address: Shinfield Park - Unit 5 - For Planning, Reading,

Certifier details

Name: Ivonne Ortega Nava

Telephone number: 01908 320099

Address: Woodlands Business Park, Milton Keynes,
MK14 6FG

Certification tool

Calculation engine: TAS

Calculation engine version: "v9.5.6"

Interface to calculation engine: TAS

Interface to calculation engine version: v9.5.6

BRUKL compliance module version: v6.1.e.0

Foundation area [m²]: 271.14The 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	6.01
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	5.38
Target primary energy rate (TPER), kWh _{PE} /m ² .annum	65.04
Building primary energy rate (BPER), kWh _{PE} /m ² .annum	57.28
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	0.26	0.26	External Wall
Floors	0.18	0.18	0.18	Ground Floor
Pitched roofs	0.16	0.16	0.16	Roof
Flat roofs	0.18	-	-	No flat roofs in project
Windows** and roof windows	1.6	1.6	1.6	Curtain Wall Frame
Rooflights***	2.2	2.2	2.2	Rooflight (vertical)
Personnel doors [^]	1.6	1.6	1.6	Fire Door
Vehicle access & similar large doors	1.3	1.3	1.3	Vehicle Door large 2
High usage entrance doors	3	-	-	No high usage entrance doors in project

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	2.5

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- NV + VRF (Reception lobby)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	5	-	-	-
Standard value	2.5*	5	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

2- MVHR + VRF (4 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	5	-	-	0.75
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					YES
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

3- NV + EPH

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	0.86	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

4- EOL + EPH (6 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	0.86	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

5- MVHR + EPH (GF Lockers (no shower))

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	0.75
Standard value	0.86	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

1- New HWS Circuit

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	0
Standard value	1	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 WC disabled	-	-	0.5	-	-	-	-	-	-	-	-	N/A
FF WC Male	-	-	0.5	-	-	-	-	-	-	-	-	N/A
FF WC Female	-	-	0.5	-	-	-	-	-	-	-	-	N/A
Cleaners storage	-	-	0.5	-	-	-	-	-	-	-	-	N/A
GF Lockers (no shower)	-	-	-	-	1.4	-	-	-	-	-	-	N/A
Office DL1	-	-	-	-	1.4	-	-	-	-	-	-	N/A
Office NDL	-	-	-	-	1.4	-	-	-	-	-	-	N/A
GF Changing disabled (shower)	-	-	0.5	-	-	-	-	-	-	-	-	N/A
GF Changing (shower)	-	-	0.5	-	-	-	-	-	-	-	-	N/A
Office DL2	-	-	-	-	1.4	-	-	-	-	-	-	N/A
Office DL3	-	-	-	-	1.4	-	-	-	-	-	-	N/A
FF WC disabled	-	-	0.5	-	-	-	-	-	-	-	-	N/A

Shell and core configuration

Zone	Assumed shell?
GF WC disabled	NO
FF WC Male	NO
FF WC Female	NO
GF Lockers (no shower)	NO
Office DL1	NO
Office NDL	NO
Reception lobby	NO
GF Staircase	NO
GF Lobby	NO
GF Changing disabled (shower)	NO
GF Changing (shower)	NO
FF Lobby WC male	NO
FF Lobby WC female	NO
FF Corridor	NO
FF Roof access	NO
Office DL2	NO
Office DL3	NO

Shell and core configuration

Zone	Assumed shell?
FF Corridor 2	NO
FF WC disabled	NO

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
Warehouse		120	-	-
Warehouse Undercroft DL1		120	-	-
Warehouse Undercroft NDL		120	-	-
GF WC disabled		95	-	-
FF WC Male		95	-	-
FF WC Female		95	-	-
Cleaners storage		95	-	-
GF Lockers (no shower)		95	-	-
Office DL1		100	-	-
Office NDL		100	-	-
Reception lobby		100	95	-
GF Staircase		95	-	-
GF Lobby		95	-	-
GF Changing disabled (shower)		95	-	-
GF Changing (shower)		95	-	-
FF Lobby WC male		95	-	-
FF Lobby WC female		95	-	-
FF Corridor		95	-	-
FF Roof access		95	-	-
Office DL2		100	-	-
Office DL3		100	-	-
FF Corridor 2		95	-	-
FF WC disabled		95	-	-

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?
Warehouse	YES (+54%)	NO
Warehouse Undercroft DL1	YES (+171%)	NO
Warehouse Undercroft NDL	NO (-32%)	NO
GF Lockers (no shower)	N/A	N/A
Office DL1	NO (-3%)	NO
Office NDL	NO (-7%)	NO
Reception lobby	YES (+62%)	NO
Office DL2	YES (+5%)	NO
Office DL3	YES (+7%)	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]	3477	3477
External area [m ²]	8931	8931
Weather	SWI	SWI
Infiltration [m ³ /hm ² @ 50Pa]	3	5
Average conductance [W/K]	3282	2926
Average U-value [W/m ² K]	0.37	0.33
Alpha value* [%]	18.45	3.45

* 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
94	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
6	Others: Miscellaneous 24hr Activities
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	2.81	2.24
Cooling	0.71	0.84
Auxiliary	1.73	1.34
Lighting	19.31	18
Hot water	23.64	23.17
Equipment*	48.21	48.21
TOTAL**	48.19	45.59

* 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	10.83	1.63
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>10.83</i>	<i>1.63</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	33.37	30.1
Primary energy [kWh _{PE} /m ²]	57.28	65.04
Total emissions [kg/m ²]	5.38	6.01

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	400.6	56.4	31.8	3.1	0	3.5	5	3.5	5
Notional	19.6	39.9	2.1	2.5	0	2.64	4.4	----	----
[ST] Variable refrigerant flow, [HS] ASHP, [HFT] Electricity, [CFT] Electricity									
Actual	72.1	135.9	5.7	7.6	11.7	3.5	5	3.5	5
Notional	32.5	145.5	3.4	9.2	5.7	2.64	4.4	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	87.7	0	24.4	0	0	1	0	1	0
Notional	69.9	0	14.5	0	0	1.34	0	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	242.7	0	67.4	0	37.3	1	0	1	0
Notional	246.9	0	51.2	0	44.8	1.34	0	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	10.4	0	2.9	0	11.7	1	0	1	0
Notional	2.1	0	0.4	0	10.6	1.34	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

APPENDIX C – DRAFT INDICATIVE EPC CERTIFICATE (BE GREEN STAGE)

Energy Performance Certificate

Non-Domestic Building



Shinfield Park - Unit 1 - For Planning
Reading

Certificate Reference Number:
5215-4468-3727-9506-7675

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



This is how energy efficient the building is.



Less energy efficient

Technical information

Main heating fuel:	Grid Supplied Electricity
Building environment:	Air Conditioning
Total useful floor area (m ²):	8086
Building complexity:	Level 5
Building emission rate (kgCO ₂ /m ² per year):	3.59
Primary energy use (kWh _{PE} /m ² per year):	38.13

Benchmarks

Buildings similar to this one could have ratings as follows:

14 If newly built

54 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:	TAS v9.5.6 using calculation engine TAS v9.5.6
Property Reference:	UPRN-123456789012
Assessor Name:	Ivonne Ortega Nava
Assessor Number:	IOEN123456
Accreditation Scheme:	Information not available
Assessor Qualifications:	NOS5
Employer/Trading Name:	MBA Consllting Engineers Ltd
Employer/Trading Address:	Woodlands Business Park, Milton Keynes, MK14 6FG
Issue Date:	31 Jan 2025
Valid Until:	30 Jan 2035 (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: 5172-4010-5888-8144-2839

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 Information not available. You can obtain contact details of the Accreditation Scheme at Information not available.

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.

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Energy Performance Certificate

Non-Domestic Building



Shinfield Park - Unit 2 - For Planning
Reading

Certificate Reference Number:
6144-8795-1778-4022-4286

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

A 0-25

◀ **13**

This is how energy efficient the building is.

B 26-50

C 51-75

D 76-100

E 101-125

F 126-150

G Over 150

Less energy efficient

Technical information

Main heating fuel:	Grid Supplied Electricity
Building environment:	Air Conditioning
Total useful floor area (m ²):	3571
Building complexity:	Level 5
Building emission rate (kgCO ₂ /m ² per year):	5.24
Primary energy use (kWh _{PE} /m ² per year):	55.87

Benchmarks

Buildings similar to this one could have ratings as follows:

15 If newly built

59 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:	TAS v9.5.6 using calculation engine TAS v9.5.6
Property Reference:	UPRN-123456789012
Assessor Name:	Ivonne Ortega Nava
Assessor Number:	IONE123456
Accreditation Scheme:	Information not available
Assessor Qualifications:	NOS5
Employer/Trading Name:	MBA Consulting Engineers Ltd
Employer/Trading Address:	Woodlands Business Park, Milton Keynes, MK14 6FG
Issue Date:	31 Jan 2025
Valid Until:	30 Jan 2035 (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: 9033-7179-2349-8275-4907

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 Information not available. You can obtain contact details of the Accreditation Scheme at Information not available.

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Energy Performance Certificate

Non-Domestic Building



Shinfield Park Unit 3A - For Planning
Reading
RG2 9FW

Certificate Reference Number:
7384-4842-6783-6861-9378

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

A 0-25

◀ **14**

This is how energy efficient the building is.

B 26-50

C 51-75

D 76-100

E 101-125

F 126-150

G Over 150

Less energy efficient

Technical information

Main heating fuel:	Grid Supplied Electricity
Building environment:	Air Conditioning
Total useful floor area (m ²):	1120
Building complexity:	Level 5
Building emission rate (kgCO ₂ /m ² per year):	6.06
Primary energy use (kWh _{PE} /m ² per year):	64.29

Benchmarks

Buildings similar to this one could have ratings as follows:

15 If newly built

62 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:	TAS v9.5.6 using calculation engine TAS v9.5.6
Property Reference:	UPRN-123456789012
Assessor Name:	Ivonne Ortega Nava
Assessor Number:	IONE123456
Accreditation Scheme:	Information not available
Assessor Qualifications:	NOS5
Employer/Trading Name:	MBA Consulting Engineers Ltd
Employer/Trading Address:	Woodlands Business Park, Milton Keynes, MK14 6FG
Issue Date:	31 Jan 2025
Valid Until:	30 Jan 2035 (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: 4111-0791-3182-5544-0793

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 Information not available. You can obtain contact details of the Accreditation Scheme at Information not available.

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.

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Energy Performance Certificate

Non-Domestic Building



Shinfield Park Unit 3B - For Planning
Reading
RG2 9FW

Certificate Reference Number:
7498-3138-8421-3612-0603

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

A 0-25

◀ **14**

This is how energy efficient the building is.

B 26-50

C 51-75

D 76-100

E 101-125

F 126-150

G Over 150

Less energy efficient

Technical information

Main heating fuel:	Grid Supplied Electricity
Building environment:	Air Conditioning
Total useful floor area (m ²):	1125
Building complexity:	Level 5
Building emission rate (kgCO ₂ /m ² per year):	5.81
Primary energy use (kWh _{PE} /m ² per year):	61.7

Benchmarks

Buildings similar to this one could have ratings as follows:

15 If newly built

61 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:	TAS v9.5.6 using calculation engine TAS v9.5.6
Property Reference:	UPRN-123456789012
Assessor Name:	Ivonne Ortega Nava
Assessor Number:	IONE123456
Accreditation Scheme:	Information not available
Assessor Qualifications:	NOS5
Employer/Trading Name:	MBA Consulting Engineers Ltd
Employer/Trading Address:	Woodlands Business Park, Milton Keynes, MK14 6FG
Issue Date:	31 Jan 2025
Valid Until:	30 Jan 2035 (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: 9532-9787-8401-8073-4256

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 Information not available. You can obtain contact details of the Accreditation Scheme at Information not available.

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Energy Performance Certificate

Non-Domestic Building



Shinfield Park - Unit 4 - For Planning
Reading

Certificate Reference Number:
2638-8443-2615-7846-3132

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

A 0-25

◀ **14**

This is how energy efficient the building is.

B 26-50

C 51-75

D 76-100

E 101-125

F 126-150

G Over 150

Less energy efficient

Technical information

Main heating fuel:	Grid Supplied Electricity
Building environment:	Air Conditioning
Total useful floor area (m ²):	2485
Building complexity:	Level 5
Building emission rate (kgCO ₂ /m ² per year):	6.4
Primary energy use (kWh _{PE} /m ² per year):	68.3

Benchmarks

Buildings similar to this one could have ratings as follows:

15 If newly built

59 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:	TAS v9.5.6 using calculation engine TAS v9.5.6
Property Reference:	UPRN-123456789012
Assessor Name:	Ivonne Ortega Nava
Assessor Number:	IONE123456
Accreditation Scheme:	Information not available
Assessor Qualifications:	NOS5
Employer/Trading Name:	MBA Consulting Engineers Ltd
Employer/Trading Address:	Woodlands Business Park, Milton Keynes, MK14 6FG
Issue Date:	31 Jan 2025
Valid Until:	30 Jan 2035 (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: 5812-8001-2119-7175-4178

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 Information not available. You can obtain contact details of the Accreditation Scheme at Information not available.

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.

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Energy Performance Certificate

Non-Domestic Building



Shinfield Park - Unit 5 - For Planning
Reading

Certificate Reference Number:
0159-3605-3120-2184-6295

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

A 0-25

◀ **13**

This is how energy efficient the building is.

B 26-50

C 51-75

D 76-100

E 101-125

F 126-150

G Over 150

Less energy efficient

Technical information

Main heating fuel:	Grid Supplied Electricity
Building environment:	Air Conditioning
Total useful floor area (m ²):	3477
Building complexity:	Level 5
Building emission rate (kgCO ₂ /m ² per year):	5.38
Primary energy use (kWh _{PE} /m ² per year):	57.28

Benchmarks

Buildings similar to this one could have ratings as follows:

15 If newly built

60 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:	TAS v9.5.6 using calculation engine TAS v9.5.6
Property Reference:	UPRN-123456789012
Assessor Name:	Ivonne Ortega Nava
Assessor Number:	IONE123456
Accreditation Scheme:	Information not available
Assessor Qualifications:	NOS5
Employer/Trading Name:	MBA Consulting Engineers Ltd
Employer/Trading Address:	Woodlands Business Park, Milton Keynes, MK14 6FG
Issue Date:	31 Jan 2025
Valid Until:	30 Jan 2035 (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: 1037-8328-8543-9791-0031

About this document and the data in it

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APPENDIX D – ARCHITECTURAL DRAWINGS USED FOR DYNAMIC MODELLING

DRAWING	DATE RECEIVED
5704-CA-01-00-DR-A-00100-UNIT 1 - WAREHOUSE GA PLAN-P3	21.01.2025
5704-CA-01-RF-DR-A-00102-UNIT 1 - ROOF GA PLAN-P3	21.01.2025
5704-CA-01-ZZ-DR-A-00101-UNIT 1 -OFFICE FLOOR GA PLANS-P3	21.01.2025
5704-CA-01-ZZ-DR-A-00150-UNIT 1 - PROPOSED WAREHOUSE GA SECTIONS-P3	21.01.2025
5704-CA-01-ZZ-DR-A-00151-UNIT 1 - PROPOSED OFFICE SECTIONS-P3	21.01.2025
5704-CA-01-ZZ-DR-A-00170-UNIT 1 - PROPOSED ELEVATIONS-P3	21.01.2025
5704-CA-02-00-DR-A-00100-UNIT 2 - WAREHOUSE GA PLAN-P3	21.01.2025
5704-CA-02-RF-DR-A-00102-UNIT 2 - ROOF GA PLAN-P3	21.01.2025
5704-CA-02-ZZ-DR-A-00101-UNIT 2 - OFFICE FLOOR GA PLANS-P3	21.01.2025
5704-CA-02-ZZ-DR-A-00150-UNIT 2 - PROPOSED WAREHOUSE GA SECTIONS-P3	21.01.2025
5704-CA-02-ZZ-DR-A-00151-UNIT 2 - PROPOSED OFFICE SECTIONS-P3	21.01.2025
5704-CA-02-ZZ-DR-A-00170-UNIT 2 - PROPOSED ELEVATIONS-P3	21.01.2025
5704-CA-03-00-DR-A-00100-UNIT 3A AND 3B - WAREHOUSE GA PLAN-P3	21.01.2025
5704-CA-03-RF-DR-A-00102-UNIT 3A AND 3B - ROOF GA PLAN-P3	21.01.2025
5704-CA-03-ZZ-DR-A-00101-UNIT 3A AND 3B - OFFICE FLOOR GA PLANS-P3	21.01.2025
5704-CA-03-ZZ-DR-A-00150-UNIT 3A AND 3B - PROPOSED WAREHOUSE GA SECTIONS-P3	21.01.2025
5704-CA-03-ZZ-DR-A-00151-UNIT 3A AND 3B - PROPOSED OFFICE SECTIONS-P3	21.01.2025
5704-CA-03-ZZ-DR-A-00170-UNIT 3A AND 3B - PROPOSED ELEVATIONS-P3	21.01.2025
5704-CA-04-00-DR-A-00100-UNIT 4 - WAREHOUSE GA PLAN-P3	21.01.2025
5704-CA-04-RF-DR-A-00102-UNIT 4 - ROOF GA PLAN-P3	21.01.2025
5704-CA-04-ZZ-DR-A-00101-UNIT 4 - OFFICE FLOOR GA PLANS-P3	21.01.2025
5704-CA-04-ZZ-DR-A-00150-UNIT 4 - PROPOSED WAREHOUSE GA SECTIONS-P3	21.01.2025
5704-CA-04-ZZ-DR-A-00151-UNIT 4 - PROPOSED OFFICE SECTIONS-P3	21.01.2025
5704-CA-04-ZZ-DR-A-00170-UNIT 4 - PROPOSED ELEVATIONS-P3	21.01.2025
5704-CA-05-00-DR-A-00100-UNIT 5 - WAREHOUSE GA PLAN-P3	21.01.2025
5704-CA-05-RF-DR-A-00102-UNIT 5 - ROOF GA PLAN-P3	21.01.2025
5704-CA-05-ZZ-DR-A-00101-UNIT 5 - OFFICE FLOOR GA PLANS-P3	21.01.2025
5704-CA-05-ZZ-DR-A-00150-UNIT 5 - PROPOSED WAREHOUSE GA SECTIONS-P3	21.01.2025
5704-CA-05-ZZ-DR-A-00151-UNIT 5 - PROPOSED OFFICE SECTIONS-P3	21.01.2025
5704-CA-05-ZZ-DR-A-00170-UNIT 5 - PROPOSED ELEVATIONS-P3	21.01.2025
5704-CA-ZZ-00-DR-A-00051 - PROPOSED SITE LAYOUT MASTERPLAN-P4	21.01.2025

Table 13 – Architectural Drawings used to produce the draft thermal model

APPENDIX E – BREEAM DRAFT ENE 01 CALCULATIONS OUTPUTS

Energy performance - Building score	
Heating and cooling demand energy performance ratio (EPRdem)	0.326
Primary energy consumption performance ratio (EPRpe)	0.012
CO ₂ -eq energy performance ratio (EPRco2-eq)	0.14
Overall building energy performance ratio (EPRnc)	0.479
Total BREEAM credits achieved	4.0
Is the primary energy consumption the same or lower than that of the notional building?	Yes ▾
Is the primary energy consumption at least 10% lower than that of or higher than that of the notional building?	Yes ▾

Figure 25 – BREEAM Calculation Outputs for Unit 1

Energy performance - Building score	
Heating and cooling demand energy performance ratio (EPRdem)	0.269
Primary energy consumption performance ratio (EPRpe)	0.005
CO ₂ -eq energy performance ratio (EPRco2-eq)	0.132
Overall building energy performance ratio (EPRnc)	0.407
Total BREEAM credits achieved	4.0
Is the primary energy consumption the same or lower than that of the notional building?	Yes
Is the primary energy consumption at least 10% lower than that of or higher than that of the notional building?	Yes

Figure 26 – BREEAM Calculation Outputs for Unit 2

Energy performance - Building score	
Heating and cooling demand energy performance ratio (EPRdem)	0.259
Primary energy consumption performance ratio (EPRpe)	0.01
CO ₂ -eq energy performance ratio (EPRco2-eq)	0.171
Overall building energy performance ratio (EPRnc)	0.441
Total BREEAM credits achieved	4.0
Is the primary energy consumption the same or lower than that of the notional building?	Yes ▴ ▾
Is the primary energy consumption at least 10% lower than that of or higher than that of the notional building?	Yes ▴ ▾

Figure 27 – BREEAM Calculation Outputs for Unit 3A

Energy performance - Building score	
Heating and cooling demand energy performance ratio (EPRdem)	0.29
Primary energy consumption performance ratio (EPRpe)	0.01
CO ₂ -eq energy performance ratio (EPRco2-eq)	0.165
Overall building energy performance ratio (EPRnc)	0.467
Total BREEAM credits achieved	4.0
Is the primary energy consumption the same or lower than that of the notional building?	Yes
Is the primary energy consumption at least 10% lower than that of or higher than that of the notional building?	Yes

Figure 28 – BREEAM Calculation Outputs for Unit 3B

Energy performance - Building score

Heating and cooling demand energy performance ratio (EPRdem)	0.303
Primary energy consumption performance ratio (EPRpe)	0.001
CO ₂ -eq energy performance ratio (EPRco2-eq)	0.123
Overall building energy performance ratio (EPRnc)	0.429
Total BREEAM credits achieved	4.0
Is the primary energy consumption the same or lower than that of the notional building?	Yes ↕
Is the primary energy consumption at least 10% lower than that of or higher than that of the notional building?	No ↕

Figure 29 – BREEAM Calculation Outputs for Unit 4

Energy performance - Building score	
Heating and cooling demand energy performance ratio (EPRdem)	0.259
Primary energy consumption performance ratio (EPRpe)	0.006
CO ₂ -eq energy performance ratio (EPRco2-eq)	0.149
Overall building energy performance ratio (EPRnc)	0.414
Total BREEAM credits achieved	4.0
Is the primary energy consumption the same or lower than that of the notional building?	Yes ▴ ▾
Is the primary energy consumption at least 10% lower than that of or higher than that of the notional building?	Yes ▴ ▾

Figure 30 – BREEAM Calculation Outputs for Unit 5