

Project name

Hologic Heron House**As built****Date:** Thu Jun 03 14:38:12 2021

Administrative information

Building Details

Address: Hologic Heron House, Oaks Business Park,
Crew Road, Wythenshawe, MANCHESTER, M23
9HZ

Certification tool

Calculation engine: SBEM**Calculation engine version:** v5.6.b.0**Interface to calculation engine:** DesignBuilder SBEM**Interface to calculation engine version:** v6.1.8**BRUKL compliance check version:** v5.6.b.0

Certifier details

Name: Mark Scotson**Telephone number:** 01257 249677**Address:** Chorley Business & Technology Centre, , PR7
6TECriterion 1: The calculated CO₂ emission rate for the building must not exceed the target

CO ₂ emission rate from the notional building, kgCO ₂ /m ² .annum	39
Target CO ₂ emission rate (TER), kgCO ₂ /m ² .annum	39
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	38.4
Are emissions from the building less than or equal to the target?	BER =< TER
Are as built details the same as used in the BER calculations?	Separate submission

Criterion 2: The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Values which do not achieve the standards in the Non-Domestic Building Services Compliance Guide and Part L are displayed in red.

Building fabric

Element	U _a -Limit	U _a -Calc	U _i -Calc	Surface where the maximum value occurs*
Wall**	0.35	0.21	0.22	"Z1 - Lift_W_8"
Floor	0.25	0.25	0.25	"Z1 - Lift_S_3"
Roof	0.25	0.18	0.18	"Z1 - Warehouse_R_4"
Windows***, roof windows, and rooflights	2.2	1.27	1.4	"Z1 - Warehouse_G_15"
Personnel doors	2.2	1.8	1.8	"Z1 - Stairs_D_9"
Vehicle access & similar large doors	1.5	1.5	1.5	"Z1 - Loading Bay area_D_10"
High usage entrance doors	3.5	-	-	"No external high usage entrance doors"
U _a -Limit = Limiting area-weighted average U-values [W/(m ² K)] U _a -Calc = Calculated area-weighted average U-values [W/(m ² K)] U _i -Calc = Calculated maximum individual element U-values [W/(m ² K)]				
* There might be more than one surface where the maximum U-value occurs. ** 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. N.B.: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.				

Air Permeability	Worst acceptable standard	This building
m ³ /(h.m ²) at 50 Pa	10	4.28

Building services

The standard values listed below are minimum values for efficiencies and maximum values for SFPs. Refer to the Non-Domestic Building Services Compliance Guide for details.

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- Constant Volume System

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.09	3.77	-	0.9	0.89
Standard value	2.5*	N/A	N/A	1.6^	0.5
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. For types <=12 kW output, refer to EN 14825 for limiting standards.					
^ Limiting SFP may be extended by the amounts specified in the Non-Domestic Building Services Compliance Guide if the system includes additional components as listed in the Guide.					

2- Electric Radiant Heaters

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	0.56	-	-
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

1- Water heater 30 Litre

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	0.024
Standard value	1	N/A

Local mechanical ventilation, exhaust, and terminal units

ID	System type in Non-domestic Building Services Compliance Guide
A	Local supply or extract ventilation units serving a single area
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 supply and extract ventilation units serving a single room or zone with heating and heat recovery
E	Local supply and extract ventilation system serving a single area with heating and heat recovery
F	Other local ventilation units
G	Fan-assisted terminal VAV unit
H	Fan coil units
I	Zonal extract system where the fan is remote from the zone with grease filter

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	1.9	1.6	0.5	1.1	0.5	1			
Z1 - WC	0.3	-	-	-	-	-	-	-	-	-	-	N/A
Z2 - WC	0.3	-	-	-	-	-	-	-	-	-	-	N/A

General lighting and display lighting

		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
Standard value		60	60	22	
Z1 - Lift		-	99	-	26

General lighting and display lighting		Luminous efficacy [lm/W]		
Zone name		Luminaire	Lamp	Display lamp
	Standard value	60	60	22
Z1 - Stairs		-	99	-
Z1 - WC		-	112	-
Z1 - Rest Room		-	112	-
Z1 - Warehouse		245	-	-
Z2 - Mezzanine Office		293	-	-
Z2 - Lift		-	98	-
Z2 - Stairs		-	99	-
Z2 - WC		-	112	-
Z2 - Kitchenette		418	-	-
Z1 - Loading Bay area		288	-	-
Z1 - Plant Room		338	-	-

Criterion 3: The spaces in the building should have appropriate passive control measures to limit solar gains

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Z1 - Lift	N/A	N/A
Z1 - Stairs	N/A	N/A
Z1 - WC	N/A	N/A
Z1 - Rest Room	N/A	N/A
Z1 - Warehouse	NO (-90.2%)	NO
Z2 - Mezzanine Office	NO (-29.4%)	NO
Z2 - Lift	NO (-31.5%)	NO
Z2 - Stairs	NO (-90.5%)	NO
Z2 - WC	NO (-77.7%)	NO
Z2 - Kitchenette	NO (-93.4%)	NO
Z1 - Loading Bay area	N/A	N/A

Criterion 4: The performance of the building, as built, should be consistent with the calculated BER

Separate submission

Criterion 5: The necessary provisions for enabling energy-efficient operation of the building should be in place

Separate submission

EPBD (Recast): Consideration of alternative energy systems

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

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Area [m ²]	1101.4	1101.4
External area [m ²]	2768.4	2768.4
Weather	MAN	MAN
Infiltration [m ³ /hm ² @ 50Pa]	4	7
Average conductance [W/K]	877.16	963.71
Average U-value [W/m ² K]	0.32	0.35
Alpha value* [%]	25.85	40.3

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area Building Type

	A1/A2 Retail/Financial and Professional services
	A3/A4/A5 Restaurants and Cafes/Drinking Est./Takeaways
	B1 Offices and Workshop businesses
	B2 to B7 General Industrial and Special Industrial Groups
100	B8 Storage or Distribution
	C1 Hotels
	C2 Residential Institutions: Hospitals and Care Homes
	C2 Residential Institutions: Residential schools
	C2 Residential Institutions: Universities and colleges
	C2A Secure Residential Institutions
	Residential spaces
	D1 Non-residential Institutions: Community/Day Centre
	D1 Non-residential Institutions: Libraries, Museums, and Galleries
	D1 Non-residential Institutions: Education
	D1 Non-residential Institutions: Primary Health Care Building
	D1 Non-residential Institutions: Crown and County Courts
	D2 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	17.85	22.08
Cooling	4.8	7.34
Auxiliary	34.02	19.56
Lighting	11.71	27.4
Hot water	5.55	5.84
Equipment*	39.09	39.09
TOTAL **	73.93	82.22

* Energy used by equipment does not count towards the total for consumption or calculating emissions.

** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	0	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	186.49	259.37
Primary energy* [kWh/m ²]	226.97	220.04
Total emissions [kg/m ²]	38.4	39

* Primary energy is net of any electrical energy displaced by CHP generators, if applicable.

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] Constant volume system (fixed fresh air rate), [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity										
	Actual	133.6	65.5	11.7	6.6	46.5	3.18	2.78	4.09	5.2
	Notional	169.1	130	19.3	10	26.7	2.43	3.6	----	----
[ST] Unflued radiant heater, [HS] Unflued radiant heater, [HFT] Electricity, [CFT] Natural Gas										
	Actual	116.7	35.4	34.8	0	0	0.93	0	1	0
	Notional	91.5	59.3	29.6	0	0	0.82	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

Key Features

The Building Control Body is advised to give particular attention to items whose specifications are better than typically expected.

Building fabric

Element	U _{i-Typ}	U _{i-Min}	Surface where the minimum value occurs*
Wall	0.23	0.18	"Z1 - Warehouse_W_10"
Floor	0.2	0.25	"Z1 - Lift_S_3"
Roof	0.15	0.18	"Z1 - Warehouse_R_4"
Windows, roof windows, and rooflights	1.5	1.25	"Z1 - Warehouse_G_9"
Personnel doors	1.5	1.8	"Z1 - Stairs_D_9"
Vehicle access & similar large doors	1.5	1.5	"Z1 - Loading Bay area_D_10"
High usage entrance doors	1.5	-	"No external high usage entrance doors"
U _{i-Typ} = Typical individual element U-values [W/(m²K)]		U _{i-Min} = Minimum individual element U-values [W/(m²K)]	
* There might be more than one surface where the minimum U-value occurs.			

Air Permeability	Typical value	This building
m³/(h.m²) at 50 Pa	5	4.28