In partnership with

Mount Hermon Care Home

ADL2A 2013 “as designed” Compliance Report

Design Stage Report

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Rev	*Date*	*By*	*Summary of Changes*	*Ckd*	*Appr*
A	*08/02/2024*	*DMS*	*Updated to latest design*	*CL*	*DMS*
B	*02/12/2024*	*DMS*	*Renewable contribution section added*	*CL*	*DMS*

Hopkins
Concorde House
Concorde Way
Segensworth North
Fareham
PO15 5RL

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EXECUTIVE SUMMARY

This report discusses the findings of an "as designed" ADL2A 2013 SBEM calculation for Mount Hermon Care Home.

The objective of this study is to highlight the design requirements in order to achieve compliance under ADL2 2013, for criterion 1 (limiting CO_2 emission levels) and criterion 3 (control of solar gain).

To assess the performance of the proposed new building design a dynamic thermal modelling software suite (IES <VE> Pro) has been used to predict the building emissions. Work has been conducted and checked by CIBSE accredited Low Carbon Energy Assessors.

Modelling has been carried out based on the drawings provided. The outline design efficiencies have been agreed with Hopkins.

The building achieves the design requirements for ADL2A 2013 in relation to criterion 1 and criterion 3. The full BRUKL certificate is provided within the Appendix.

The proposed building achieves four ENE01 BREEAM credits under 2018 based on an estimate, this need to be confirmed by an accredited BREEAM assessor.

This report outlines that the strategy can achieve compliance; during detail design this assessment needs to be reviewed and worked up as part of the design development. If not specified, the design must conform to the requirements of the Non-Domestic Building Services Compliance Guide.

The proportions of energy is the building provided by renewables sources is estimated at 39%.

INTRODUCTION

The building is a three-storey block care home with an area of 3,590 m^2. The accommodation consists of bedrooms with bathrooms and shared dinning and lounge facilities along with associated ancillary spaces.

The building is undertaken under the 2013 regulations.

The building is independent in terms of structure and services and as such is assessed under ADL2A 2013.

This section of the report summarises the design criteria for the building fabric and services, used in the calculation to show compliance. If not detailed, the Non-domestic Building Services Compliance Guide should be used to detail the minimum design standards.

OUR APPROACH

To assess the performance of the proposed new building design a dynamic thermal modelling software suite (IES <VE> Pro) has been used, which runs a specific accredited simulation for L2A studies. Studies provide detailed temperature profiles for each space throughout the assessment period. Ventilation, solar shading and load profiles are considered in detail.

Modelling has been carried out for all occupied spaces using appropriate hourly weather data, Southampton TRY, stipulated by the CL2.1 SBEM weather locations lookup spread sheet. The NCM templates set levels for internal gains, heating, cooling, ventilation and infiltration losses. The model is then adapted with the variable modelling parameters as per the initial design drawings provided, within the constraints of the L2A methodology.

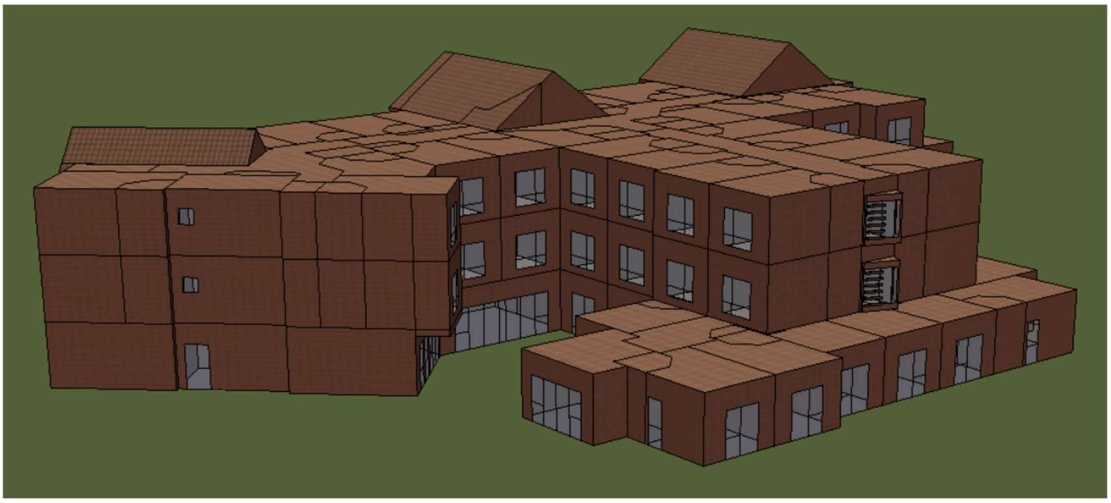
The IES <VE> ApacheSim software, supported by the Suncast and Macroflo modules, is compliant with the requirements of CIBSE Application Manual AM11 and meets the requirements laid out in BREEAM.

Input parameters including building orientation, geometry and thermo-physical data for the main construction elements have been specified in accordance with the description provided by the design team.

All parameters should be reviewed and signed-off. Should any amendments be required then these can be included within a revision exercise.

MODEL IMAGES





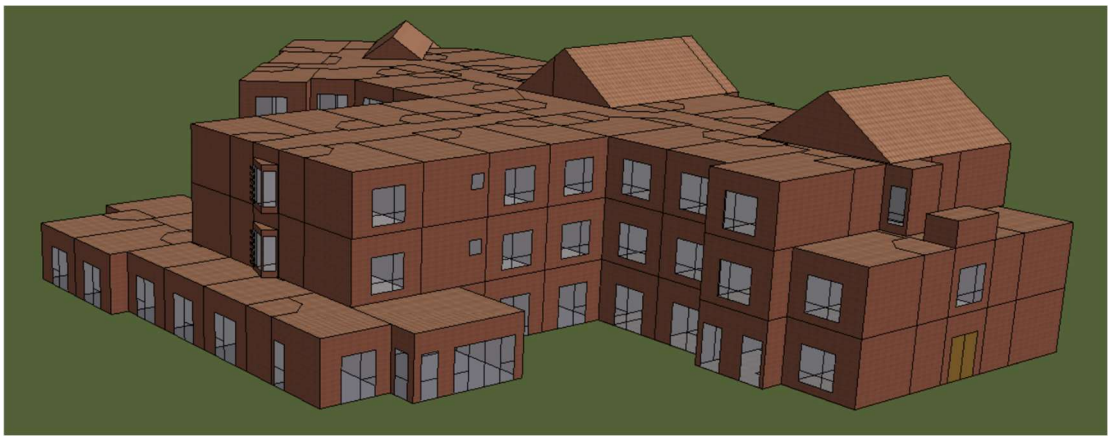


Figure 1 – Model images

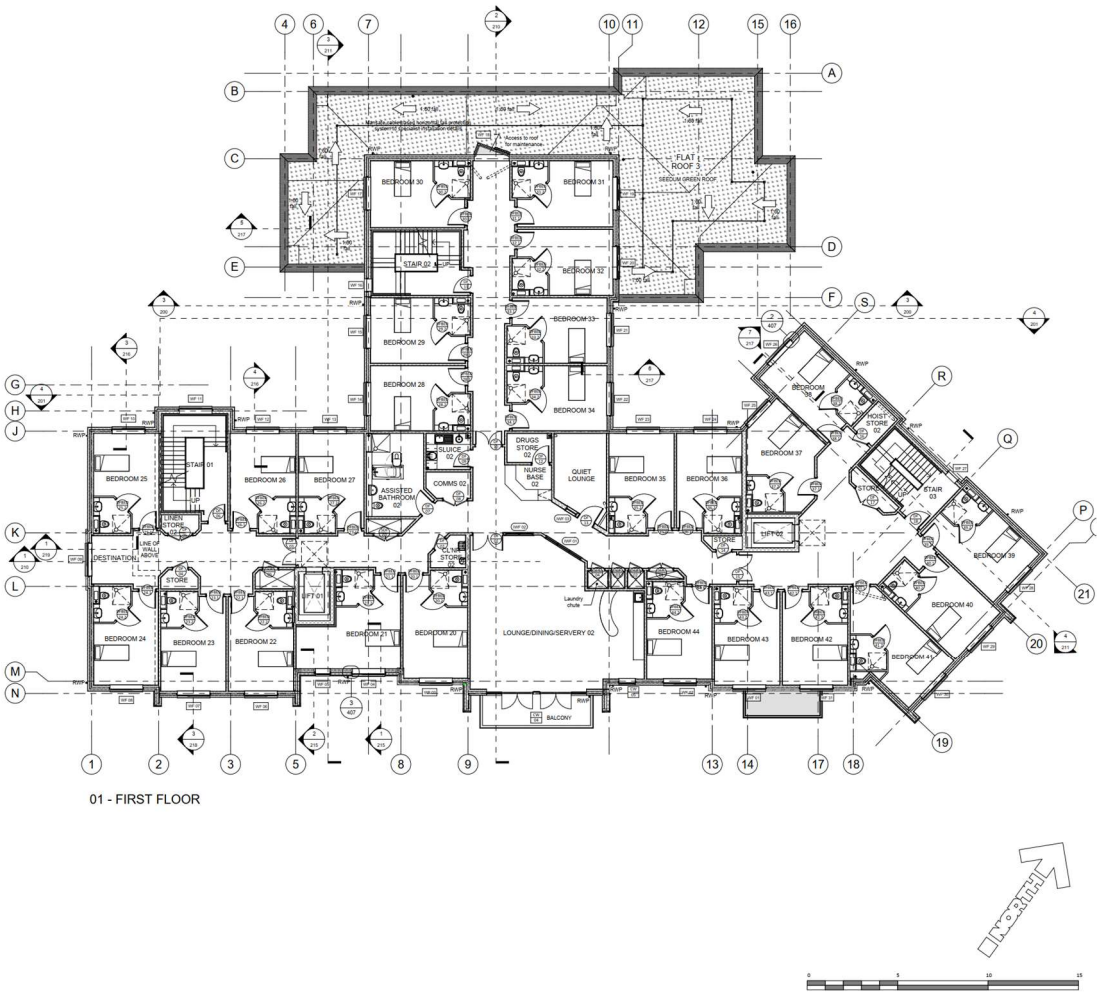


Figure 2 - Orientation, North at the bottom of the page.

MODEL CONSTRUCTION INFORMATION

The model has been based on the following plans provided by Hopkins on the 05/10/2022:

- A-827 - 100 - A - BASEMENT PLAN
- A-827 - 110 - GROUND FLOOR PLAN
- A-827 - 120 - A - FIRST FLOOR PLAN
- A-827 - 130 - A - SECOND FLOOR PLAN

And additional information from sections and elevations:

- A-827 - 200 - A - ELEVATIONS (1 OF 2)
- A-827 - 201 - ELEVATIONS (2 OF 2)
- A-827 - 210 - A - GA SECTIONS (1 OF 2)
- A-827 - 211 - A - GA SECTIONS (2 OF 2)

Information was also gleaned from the Revit model

- A-827-CA-XX-MOUNT-HERMON_2022_GMORRISVEGHH

LOCATION

This project uses the location of Southampton weather centre, this being the most appropriate location to the site on Mount Hermon Road, Brighton Road, Lancing, BN15 8RB. The thermal comfort study uses the Southampton_DSY1_2020 high50 weather file.

BUILDING FABRIC

The constructions assigned to the model have the basic properties as agreed with Hopkins:

EXTERNAL OPAQUE ELEMENTS

Element	Description	Thermal Mass, Cm	U-value
External walls	Brick, render or cladding, insulation, block, plasterboard	145	0.2
Basement Wall	Cast concrete, insulation, plasterboard	10	0.2
Floor	Concrete, insulation, screed, carpet	80	0.2
Flat Roof	Plaster ceiling, boarding, insulation, waterproof, wooden deck, finish	10	0.14
Pitched Roof	Plaster ceiling, boarding, insulation, zinc cladding	10	0.14
Wooden Door		23	2.19

Table 1 – U-values for opaque elements

GLAZING TO WINDOWS/ ROOFLIGHTS/ DOORS

Element	Description	U-value (Net inc. frame) W/m²/K	g-factor	Blinds	Solar Shading
Windows	Double Glazing 10 to 40% Frame *	1.4	0.34	None	None
Glazed Door	Double Glazing 10 to 40% Frame *	1.4	0.34	None	None
Internal Glazing to Lobby	Single Glazing 10% Frame	3.7	0.88	None	None

Table 2 – Glazing properties

* Frame percentage taken from elevations provided by Hopkins by e-mail on 05/10/2022

INTERNAL OPAQUE ELEMENTS

Element	Description	Thermal Mass, Cm	U-value
Internal Wall	Plaster, block, plaster	76	1.71
Internal Floor	Plaster ceiling, cavity, concrete, carpet	10	1.43

Table 3 – U-values for opaque elements

AIR PERMEABILITY

Air Permeability	Method	m³/ m²hr @ 50Pa	ach
AP target	Guide TM23	5	0.067

Table 4 – Air permeability

SYSTEM DESCRIPTION

System descriptions as agreed with Hopkins. The following table demonstrates the systems strategies.

Room Type	Ventilation Type	Heating / Cooling Type	DHW
Plant Room	NV	None	Gas DHW
Store	NV	None	Gas DHW
Store Refuse	NV	None	Gas DHW
Bedroom	NV	LTHW Rads	Gas DHW
Lobby	NV	LTHW Rads	Gas DHW
Office Admin	NV	LTHW Rads	Gas DHW
Office Manager	NV	LTHW Rads	Gas DHW
Stair	NV	LTHW Rads	Gas DHW
Hairdresser	MVHR	LTHW Rads	Gas DHW
Laundry	MVHR	LTHW Rads	Gas DHW
Nurse Base	MVHR	LTHW Rads	Gas DHW
Office Kitchen	MVHR	LTHW Rads	Gas DHW
Office Staff Rest	MVHR	LTHW Rads	Gas DHW
Shop	MVHR	LTHW Rads	Gas DHW
Assisted Bathroom	Extract	LTHW Rads	Gas DHW
Changing	Extract	LTHW Rads	Gas DHW
COSHH	Extract	LTHW Rads	Gas DHW
EnSuite	Extract	LTHW Rads	Gas DHW
Sluice	Extract	LTHW Rads	Gas DHW
WC	Extract	LTHW Rads	Gas DHW
WC & Shower	Extract	LTHW Rads	Gas DHW
Store Cleaner	Extract	None	Gas DHW
Kitchen	Supply & Extract	LTHW Coil	Gas DHW
Store Drugs	Extract	VRF Cooling/Heating	Gas DHW
Plant Comms	NV	DX Cool	Gas DHW
Store Dry	Supply	LTHW Coil	Gas DHW
Lounge	MVHR	VRF Cooling/Heating	Gas DHW
Lounge Bistro	MVHR	VRF Cooling/Heating	Gas DHW
Lounge Small	MVHR	VRF Cooling/Heating	Gas DHW
Multi-Purpose	MVHR	VRF Cooling/Heating	Gas DHW
Reception	MVHR	VRF Cooling/Heating	Gas DHW
Corridor	MVHR	LTHW Coil	Gas DHW

Table 5 - Heating and ventilation strategies

MECHANICAL SYSTEM EFFICIENCIES

System efficiencies as agreed with Hopkins

Ventilation System	SFP, W/l/s	Heat Exchange %
MVHR*	0.4 – 0.97	77 - 86
Remote Extract Ventilation	0.3	N/A
Ensuite Extract Ventilation	0.11	N/A
Supply Only	0.4	N/A
Kitchen Supply & Extract	1.1	N/A

Table 6 - Mechanical system efficiencies

- Based on Hopkings schedule SCH-21.2 Schedule of heat recovery units

ASHP	SCOP	SEER	EER
CDU R01	4.4	6.9	3.0
CDU R02	4.5	7.5	3.0
CDU R03	4.2	7.6	3.0
CDU R04	4.0	6.3	3.0

Table 7 - Mechanical system efficiencies

Boiler to be 95.8% efficient with central time control, optimum start/stop, local temperature and weather compensation.

All pumps to be inverter driven, with sensors across pump.

Radiator systems to have local control through TRV.

Hot Water System	Delivery efficiency	Storage, l	Storage Losses, kW/l/day	Pipework Losses, W/m	DHWS secondary Pump power, kW	Loop length, m
HWS	1	1500	0.0027	8	0.15	233

Table 8 – Hot water system efficiencies

The hot water system is a supplied by a lead ASHP providing 68.4% (Based on Hopkings calculation of load with an SCOP of 4.9 with the remaining load supplied by gas fired boiler with an efficiency of 95.8%.

ELECTRICAL SYSTEM EFFICIENCIES

Power correction factor greater than 0.95

Lighting based on calculations provided by Hopkins

Parasitic power of occupancy not to exceed 0.1 W/m^2.

It is assumed that the metering will be in line with TM39 and that lighting will be sub-metered.

RENEWABLES

There is a renewable system which is proposed is a PV system, modelled with the following outputs:

System	Output, kWh
PV	31,000

Table 9 – Renewable systems

RESULTS

The images below show the results from the BRUKL certificate, for the full certificate see the end of the report.

Criterion 1: The calculated CO_2 emission rate for the building must not exceed the target

CO_2 emission rate from the notional building, kgCO_2/m^2.annum	32.6
Target CO_2 emission rate (TER), kgCO_2/m^2.annum	32.6
Building CO_2 emission rate (BER), kgCO_2/m^2.annum	22.3
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

Figure 3 - Criterion 1

All rooms are predicted to pass Criteria 3 requirements.

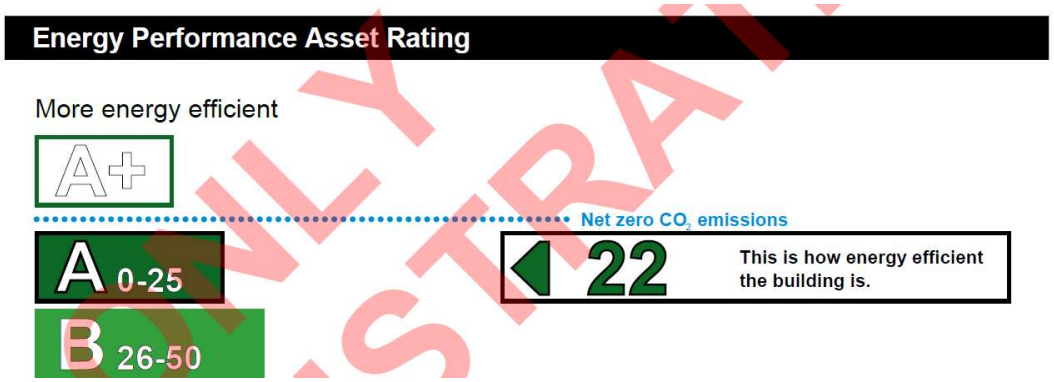


Figure 4 – Predicted EPC

RENEWABLE CONTRIBUTION

The build uses PV to generate 31,000 kWh/ per annum and ASHP to contribute 68.4% of the DHW load.

Energy Consumption by End Use [kWh/m^2]

	Actual	Notional
Heating	19.03	30.58
Cooling	0.73	3.21
Auxiliary	6.65	5.28
Lighting	19.79	21.69
Hot water	30.23	35.33
Equipment*	61.66	61.66
TOTAL**	**76.43**	**96.1**

* 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.

Figure 5 – Regulated energy table taken from the BRUKL

Energy	kWh/m^2	Proportion or regulated energy %
Building regulated energy total	76.43	100
PV	9.08	11.9
ASHP (DHW)	20.7	27.1
Total renewable energy proportion	29.78	39.0

Table 10 – Renewable systems

Renewable contribution requirement is 10%, the proportions of energy is the building provided by renewables sources is estimated at 39%.

CONCLUSION

The building achieves the design requirements for ADL2A 2013 in relation to criterion 1 and criterion 3.

The proposed building achieves four ENE01 BREEAM credits under 2018 based on an estimate, this need to be confirmed by an accredited BREEAM assessor.

This report outlines that the strategy can achieve compliance; during detail design this assessment needs to be reviewed and worked up as part of the design development.

The proportions of energy is the building provided by renewables sources is estimated at 39%.

APPENDIX 1 – MOUNT HERMON CARE HOME BASE DESIGN BRUKL CERTIFICATE

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2013

Project name

Mount Hermon Care Home AP5 PV 31 MWH 50 DHW ASHP GA

As designed

Date: Fri Nov 15 12:49:23 2024

Administrative information

Building Details

Address: 85-87 Brighton Road, Lancing, BN15 8RB

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.19

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.19

BRUKL compliance check version: v5.6.b.0

Certifier details

Name: Damian Markham-Smith

Telephone number: 07738 946988

Address: The Old Diary, 8 Blackfield Road, Fawley, SO45 1ED

Criterion 1: The calculated CO_2 emission rate for the building must not exceed the target

CO_2 emission rate from the notional building, $kgCO_2/m^2.annum$	32.6
Target CO_2 emission rate (TER), $kgCO_2/m^2.annum$	32.6
Building CO_2 emission rate (BER), $kgCO_2/m^2.annum$	22.3
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	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	Surface where the maximum value occurs*
Wall**	0.35	0.2	0.2	00000012:Surf[4]
Floor	0.25	0.2	0.2	00000038:Surf[0]
Roof	0.25	0.14	0.72	10000037:Surf[2]
Windows***, roof windows, and rooflights	2.2	1.4	1.4	00000095:Surf[2]
Personnel doors	2.2	2.2	2.2	0000002F:Surf[0]
Vehicle access & similar large doors	1.5	-	-	No vehicle access doors in building
High usage entrance doors	3.5	-	-	No high usage entrance doors in building

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

* 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	5

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	>0.95

1- MH 03 Extract & LTHW Rads

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.96	-	0.2	-	-
Standard value	0.91*	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO
* Standard shown is for gas single boiler systems <=2 MW output. For single boiler systems >2 MW or multi-boiler systems, (overall) limiting efficiency is 0.86. For any individual boiler in a multi-boiler system, limiting efficiency is 0.82.					

2- MH 01 NV & LTHW Rads

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.96	-	0.18	-	-
Standard value	0.91*	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO
* Standard shown is for gas single boiler systems <=2 MW output. For single boiler systems >2 MW or multi-boiler systems, (overall) limiting efficiency is 0.86. For any individual boiler in a multi-boiler system, limiting efficiency is 0.82.					

3- MH 07 NV & DX Split

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4	3	-	-	-
Standard value	2.5*	2.6	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. For types <=12 kW output, refer to EN 14825 for limiting standards.					

4- MH 02A MVHR & LTHW Rads 825

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.96	-	0.03	-	0.82
Standard value	0.91*	N/A	N/A	N/A	0.5
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO
* Standard shown is for gas single boiler systems <=2 MW output. For single boiler systems >2 MW or multi-boiler systems, (overall) limiting efficiency is 0.86. For any individual boiler in a multi-boiler system, limiting efficiency is 0.82.					

5- MH 02B MVHR & LTHW Rads 770

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.96	-	0	-	0.77
Standard value	0.91*	N/A	N/A	N/A	0.5
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO
* Standard shown is for gas single boiler systems <=2 MW output. For single boiler systems >2 MW or multi-boiler systems, (overall) limiting efficiency is 0.86. For any individual boiler in a multi-boiler system, limiting efficiency is 0.82.					

6- MH 06 Extract & VRV System

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.2	3	0	-	-
Standard value	2.5*	2.6	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. For types <=12 kW output, refer to EN 14825 for limiting standards.					

7- MH 09C3 MVHR & VRF SFP 096 830

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.2	3	0	-	0.82
Standard value	2.5*	2.6	N/A	N/A	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.

8- MH 02C MVHR & LTHW Rads 860

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.96	-	0	-	0.77
Standard value	0.91*	N/A	N/A	N/A	0.5
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

* Standard shown is for gas single boiler systems <=2 MW output. For single boiler systems >2 MW or multi-boiler systems, (overall) limiting efficiency is 0.86. For any individual boiler in a multi-boiler system, limiting efficiency is 0.82.

9- MH 09C2 MVHR & VRF SFP 096 830

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.5	3	0	-	0.82
Standard value	2.5*	2.6	N/A	N/A	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.

10- MH 05 Supply & Extract & LTHW Coil Air

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.96	-	0	1.1	-
Standard value	0.91	N/A	N/A	1.1^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

^ 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.

11- MH 11 MVHR & LTHW Rads 860

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.4	3	0	-	0.86
Standard value	2.5*	2.6	N/A	N/A	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.

12- MH 08 Supply & LTHW Coil Air (Copy)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.96	-	0	1.1	-
Standard value	0.91	N/A	N/A	1.1^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

^ 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.

13- MH 09A1 MVHR & VRF SFP 07 780

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.4	3	0	-	0.78
Standard value	2.5*	2.6	N/A	N/A	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.

1- MH 20 DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	2.13	0.005
Standard value	0.8	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		
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
0 00 Assisted Bathroom 01	-	-	0.3	-	-	-	-	-	-	-	N/A
0 00 Bedroom 01 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
0 00 Bedroom 02 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
0 00 Bedroom 03 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
0 00 Bedroom 04 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
0 00 Bedroom 05 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
0 00 Bedroom 06 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
0 00 Bedroom 07 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
0 00 Bedroom 08 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
0 00 Bedroom 09 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
0 00 Bedroom 10 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
0 00 Bedroom 11 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
0 00 Bedroom 12 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
0 00 Bedroom 13 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
0 00 Bedroom 14 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
0 00 Bedroom 15 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
0 00 Bedroom 16 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
0 00 Bedroom 17 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
0 00 Bedroom 18 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
0 00 Bedroom 19 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A

Zone name	SFP [W/(l/s)]									HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I		
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
0 00 Corridor Lounge 01	-	-	-	1	-	-	-	-	-	-	N/A
0 00 Corridor Quiet Lounge	-	-	-	1	-	-	-	-	-	-	N/A
0 00 Corridor Stair 01	-	-	-	0.9	-	-	-	-	-	-	N/A
0 00 Hair Dressing/SPA	-	-	0.4	-	-	-	-	-	-	-	N/A
0 00 Lounge/Dining/Servery 01	-	-	-	1	-	-	-	-	-	-	N/A
0 00 Nurse Base 01	-	-	-	1	-	-	-	-	-	-	N/A
0 00 Sluice 01	-	-	0.3	-	-	-	-	-	-	-	N/A
1 00 Assisted Bathroom 01	-	-	0.3	-	-	-	-	-	-	-	N/A
1 00 Bedroom 20 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 21 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 22 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 23 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 24 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 25 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 26 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 27 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 28 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 29 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 30 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 31 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 32 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 33 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 34 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 35 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 36 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 37 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 38 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 39 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 40 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 41 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 42 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 43 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Bedroom 44 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
1 00 Corridor Lounge 01	-	-	-	1	-	-	-	-	-	-	N/A
1 00 Corridor Stair 01	-	-	-	0.9	-	-	-	-	-	-	N/A
1 00 Corridor Stair 02	-	-	-	1	-	-	-	-	-	-	N/A
1 00 Corridor Stair 03	-	-	-	0.9	-	-	-	-	-	-	N/A
1 00 Lounge/Dining/Servery 02	-	-	-	1	-	-	-	-	-	-	N/A
1 00 Sluice 01	-	-	0.3	-	-	-	-	-	-	-	N/A
B 00 Corridor 1	-	-	-	1	-	-	-	-	-	-	N/A
B 00 Corridor 2	-	-	-	1	-	-	-	-	-	-	N/A
B 00 Corridor 3	-	-	-	1	-	-	-	-	-	-	N/A
B 00 Laundry	-	-	-	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		
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
B 00 Multi-Purpose	-	-	-	0.9	-	-	-	-	-	-	N/A
B 00 Office Kitchen	-	-	-	1	-	-	-	-	-	-	N/A
B 00 Staff Rest Room	-	-	-	1	-	-	-	-	-	-	N/A
2 00 Assisted Bathroom 03	-	-	0.3	-	-	-	-	-	-	-	N/A
2 00 Bedroom 45 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Bedroom 46 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Bedroom 47 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Bedroom 48 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Bedroom 49 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Bedroom 50 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Bedroom 51 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Bedroom 52 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Bedroom 53 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Bedroom 54 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Bedroom 55 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Bedroom 56 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Bedroom 57 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Bedroom 58 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Bedroom 59 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Bedroom 60 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Bedroom 61 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Bedroom 62 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Bedroom 64 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Bedroom 65 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Bedroom 66 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Corridor Lounge 03	-	-	-	1	-	-	-	-	-	-	N/A
2 00 Lounge/Dining/Servery 03	-	-	-	1	-	-	-	-	-	-	N/A
2 00 Nurse Base 03	-	-	-	0.4	-	-	-	-	-	-	N/A
2 00 Quiet Lounge	-	-	-	0.4	-	-	-	-	-	-	N/A
2 00 Sluice 03	-	-	0.3	-	-	-	-	-	-	-	N/A
2 00 Corridor Stair 03	-	-	-	0.9	-	-	-	-	-	-	N/A
2 00 Bedroom 63 EnSuite	-	-	0.1	-	-	-	-	-	-	-	N/A
2 00 Corridor Stair 01	-	-	-	0.9	-	-	-	-	-	-	N/A
2 00 Corridor Stair 02	-	-	-	0.4	-	-	-	-	-	-	N/A
0 00 Bistro Lounge	-	-	-	0.7	-	-	-	-	-	-	N/A
0 00 Reception	-	-	-	0.7	-	-	-	-	-	-	N/A
1 00 Therapy Room 164	-	-	-	1	-	-	-	-	-	-	N/A

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	Luminaire	Lamp	Display lamp	General lighting [W]
Standard value	60	60	22	
0 00 Assisted Bathroom 01	-	148	-	67
0 00 Bedroom 01	-	143	-	45

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
0 00 Bedroom 01 EnSuite	-	108	-	25
0 00 Bedroom 02	-	146	-	41
0 00 Bedroom 02 EnSuite	-	108	-	25
0 00 Bedroom 03	-	147	-	40
0 00 Bedroom 03 EnSuite	-	105	-	27
0 00 Bedroom 04	-	145	-	42
0 00 Bedroom 04 EnSuite	-	105	-	27
0 00 Bedroom 05	-	147	-	40
0 00 Bedroom 05 EnSuite	-	102	-	28
0 00 Bedroom 06	-	146	-	41
0 00 Bedroom 06 EnSuite	-	102	-	28
0 00 Bedroom 07	-	148	-	39
0 00 Bedroom 07 EnSuite	-	108	-	25
0 00 Bedroom 08	-	145	-	41
0 00 Bedroom 08 EnSuite	-	111	-	24
0 00 Bedroom 09	-	146	-	40
0 00 Bedroom 09 EnSuite	-	110	-	25
0 00 Bedroom 10	-	147	-	40
0 00 Bedroom 10 EnSuite	-	107	-	26
0 00 Bedroom 11	-	148	-	40
0 00 Bedroom 11 EnSuite	-	105	-	27
0 00 Bedroom 12	-	148	-	39
0 00 Bedroom 12 EnSuite	-	107	-	26
0 00 Bedroom 13	-	148	-	39
0 00 Bedroom 13 EnSuite	-	107	-	26
0 00 Bedroom 14	-	147	-	39
0 00 Bedroom 14 EnSuite	-	110	-	25
0 00 Bedroom 15	-	145	-	41
0 00 Bedroom 15 EnSuite	-	105	-	27
0 00 Bedroom 16	-	146	-	41
0 00 Bedroom 16 EnSuite	-	104	-	27
0 00 Bedroom 17	-	146	-	41
0 00 Bedroom 17 EnSuite	-	108	-	25
0 00 Bedroom 18	-	147	-	40
0 00 Bedroom 18 EnSuite	-	108	-	25
0 00 Bedroom 19	-	148	-	39
0 00 Bedroom 19 EnSuite	-	105	-	27
0 00 Comms 01	164	-	-	32
0 00 Corridor Lounge 01	-	141	-	103
0 00 Corridor Quiet Lounge	-	137	-	146
0 00 Corridor Stair 01	-	158	-	53
0 00 Drugs Store 01	173	-	-	39
0 00 Entrance Lobby	-	125	-	22

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
0 00 Private Dining	134	-	-	194
0 00 Hair Dressing/SPA	111	-	-	164
0 00 Lounge/Dining/Servery 01	136	-	-	348
0 00 Nurse Base 01	167	-	-	42
0 00 Office Admin	151	-	-	106
0 00 Office Manager	174	-	-	102
0 00 Platrom Lift	-	172	-	11
0 00 Library	149	-	-	90
0 00 Servery/Shop	172	-	-	44
0 00 Service Entrance	-	142	-	15
0 00 Sluice 01	-	144	-	28
0 00 Stair 01	-	34	-	277
0 00 Stair 02	-	35	-	242
0 00 Stair 03	-	36	-	201
0 00 Stair 04	-	47	-	113
0 00 Store Bedroom 04	231	-	-	11
0 00 Store Bedroom 08	81	-	-	26
0 00 Store Bedroom 15	81	-	-	22
0 00 Store Bedroom 18	61	-	-	55
0 00 Store Clnr 01	104	-	-	27
0 00 Store Garden lounge	93	-	-	12
0 00 Store Hoist 01	72	-	-	45
0 00 Store Linen	231	-	-	10
0 00 WC 02	-	167	-	19
0 00 WC 03	-	239	-	11
0 00 WC Visitors 01	-	124	-	30
1 00 Assisted Bathroom 01	-	148	-	67
1 00 Bedroom 20	-	143	-	45
1 00 Bedroom 20 EnSuite	-	108	-	25
1 00 Bedroom 21	-	140	-	55
1 00 Bedroom 21 EnSuite	-	108	-	25
1 00 Bedroom 22	-	147	-	40
1 00 Bedroom 22 EnSuite	-	105	-	27
1 00 Bedroom 23	-	145	-	42
1 00 Bedroom 23 EnSuite	-	105	-	27
1 00 Bedroom 24	-	147	-	40
1 00 Bedroom 24 EnSuite	-	102	-	28
1 00 Bedroom 25	-	146	-	41
1 00 Bedroom 25 EnSuite	-	102	-	28
1 00 Bedroom 26	-	148	-	39
1 00 Bedroom 26 EnSuite	-	108	-	25
1 00 Bedroom 27	-	145	-	41
1 00 Bedroom 27 EnSuite	-	111	-	24

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
1 00 Bedroom 28	-	146	-	40
1 00 Bedroom 28 EnSuite	-	110	-	25
1 00 Bedroom 29	-	147	-	40
1 00 Bedroom 29 EnSuite	-	107	-	26
1 00 Bedroom 30	-	145	-	42
1 00 Bedroom 30 EnSuite	-	104	-	27
1 00 Bedroom 31	-	145	-	42
1 00 Bedroom 31 EnSuite	-	104	-	27
1 00 Bedroom 32	-	145	-	41
1 00 Bedroom 32 EnSuite	-	107	-	26
1 00 Bedroom 33	-	147	-	40
1 00 Bedroom 33 EnSuite	-	108	-	25
1 00 Bedroom 34	-	148	-	39
1 00 Bedroom 34 EnSuite	-	105	-	27
1 00 Bedroom 35	-	147	-	39
1 00 Bedroom 35 EnSuite	-	111	-	24
1 00 Bedroom 36	-	148	-	39
1 00 Bedroom 36 EnSuite	-	108	-	25
1 00 Bedroom 37	-	145	-	42
1 00 Bedroom 37 EnSuite	-	101	-	29
1 00 Bedroom 38	-	145	-	42
1 00 Bedroom 38 EnSuite	-	106	-	26
1 00 Bedroom 39	-	144	-	44
1 00 Bedroom 39 EnSuite	-	108	-	26
1 00 Bedroom 40	-	143	-	40
1 00 Bedroom 40 EnSuite	-	107	-	26
1 00 Bedroom 41	-	148	-	47
1 00 Bedroom 41 EnSuite	-	108	-	31
1 00 Bedroom 42	-	146	-	41
1 00 Bedroom 42 EnSuite	-	105	-	27
1 00 Bedroom 43	-	146	-	41
1 00 Bedroom 43 EnSuite	-	105	-	27
1 00 Bedroom 44	-	148	-	39
1 00 Bedroom 44 EnSuite	-	107	-	26
1 00 Store	70	-	-	37
1 00 Corridor Lounge 01	-	114	-	142
1 00 Corridor Stair 01	-	111	-	70
1 00 Corridor Stair 02	-	109	-	96
1 00 Corridor Stair 03	-	117	-	104
1 00 Lounge/Dining/Servery 02	136	-	-	348
1 00 Sluice 01	-	144	-	28
1 00 Stair 01	-	34	-	277
1 00 Stair 02	-	35	-	247

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
1 00 Stair 03	-	36	-	201
1 00 Store Bedroom 23	93	-	-	23
1 00 Store Bedroom 08	93	-	-	21
1 00 Store Bedroom 36	93	-	-	18
1 00 Store Clnr 01	104	-	-	27
1 00 Store Hoist 02	74	-	-	35
1 00 Store Linen	93	-	-	23
1 00 Store Stair 03	93	-	-	27
B 00 Changing Female	-	134	-	65
B 00 Changing Kitchen	-	180	-	33
B 00 Changing Male	-	140	-	44
B 00 Cleaner Kitchen	106	-	-	27
B 00 Corridor 1	-	106	-	148
B 00 Corridor 2	-	102	-	84
B 00 Corridor 3	-	120	-	70
B 00 COSHH	-	104	-	27
B 00 Kitchen	-	160	-	291
B 00 Laundry	-	163	-	209
B 00 Multi-Purpose	134	-	-	232
B 00 Office Kitchen	172	-	-	36
B 00 Plant Room	163	-	-	141
B 00 Staff Rest Room	146	-	-	100
B 00 Stair 01	-	46	-	182
B 00 Store Cold	175	-	-	20
B 00 Store Dry	170	-	-	39
B 00 Store Multi-Purpose	141	-	-	20
B 00 Store Refuse	166	-	-	73
B 00 Store Stair	88	-	-	46
B 00 Water Storage Room	161	-	-	137
B 00 WC 01	-	118	-	30
B 00 WC Female Changing 1	-	191	-	15
B 00 WC Female Changing 2	-	202	-	14
B 00 WC Male Changing 1	-	272	-	11
B 00 WC Shower Female Changing	-	98	-	38
B 00 WC Shower Kitchen	-	189	-	21
B 00 WC Shower Male Changing	-	95	-	40
2 00 Assisted Bathroom 03	-	146	-	67
2 00 Bedroom 45 EnSuite	-	104	-	25
2 00 Bedroom 46	-	138	-	55
2 00 Bedroom 46 EnSuite	-	104	-	25
2 00 Bedroom 47	-	144	-	40
2 00 Bedroom 47 EnSuite	-	101	-	27
2 00 Bedroom 48	-	143	-	42

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
2 00 Bedroom 48 EnSuite	-	101	-	27
2 00 Bedroom 49	-	145	-	39
2 00 Bedroom 49 EnSuite	-	104	-	25
2 00 Bedroom 50	-	143	-	41
2 00 Bedroom 50 EnSuite	-	107	-	24
2 00 Bedroom 51	-	144	-	40
2 00 Bedroom 51 EnSuite	-	106	-	25
2 00 Bedroom 52	-	145	-	40
2 00 Bedroom 52 EnSuite	-	103	-	26
2 00 Bedroom 53	-	142	-	42
2 00 Bedroom 53 EnSuite	-	100	-	27
2 00 Bedroom 54	-	142	-	42
2 00 Bedroom 54 EnSuite	-	100	-	27
2 00 Bedroom 55	-	143	-	41
2 00 Bedroom 55 EnSuite	-	103	-	26
2 00 Bedroom 56	-	144	-	40
2 00 Bedroom 56 EnSuite	-	104	-	25
2 00 Bedroom 57	-	145	-	39
2 00 Bedroom 57 EnSuite	-	101	-	27
2 00 Bedroom 58	-	144	-	39
2 00 Bedroom 58 EnSuite	-	107	-	24
2 00 Bedroom 59	-	145	-	39
2 00 Bedroom 59 EnSuite	-	104	-	25
2 00 Bedroom 60	-	143	-	42
2 00 Bedroom 60 EnSuite	-	97	-	29
2 00 Bedroom 61	-	143	-	42
2 00 Bedroom 61 EnSuite	-	102	-	26
2 00 Bedroom 62	-	142	-	44
2 00 Bedroom 62 EnSuite	-	104	-	26
2 00 Bedroom 64	-	144	-	41
2 00 Bedroom 64 EnSuite	-	101	-	27
2 00 Bedroom 65	-	144	-	41
2 00 Bedroom 65 EnSuite	-	101	-	27
2 00 Bedroom 66	-	146	-	39
2 00 Bedroom 66 EnSuite	-	103	-	26
2 00 Store Sluice 03	68	-	-	37
2 00 Corridor Lounge 03	-	109	-	142
2 00 Drugs Store 03	145	-	-	33
2 00 Lounge/Dining/Servery 03	136	-	-	348
2 00 Nurse Base 03	125	-	-	30
2 00 Quiet Lounge	142	-	-	72
2 00 Sluice 03	-	140	-	28
2 00 Stair 03	-	36	-	201

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
2 00 Store Bedroom 50	93	-	-	21
2 00 Store Bedroom 59	93	-	-	18
2 00 Store Clnr 03	100	-	-	27
2 00 Store Hoist 02	71	-	-	35
2 00 Store Stair 03	93	-	-	27
2 00 Store Bedroom 48	93	-	-	21
2 00 Corridor Stair 03	-	113	-	111
2 00 Bedroom 63 EnSuite	-	104	-	25
2 00 Lobby Roof Access	-	155	-	11
2 00 Stair 01	-	35	-	241
2 00 Corridor Stair 01	-	112	-	53
2 00 Stair 02	-	34	-	238
2 00 Corridor Stair 02	-	106	-	98
B 00 Stair 04	-	39	-	206
B 00 Store Stair 04	57	-	-	63
0 00 Games room	134	-	-	145
2 00 Store Bedroom 63	55	-	-	66
2 00 Bedroom 63	-	139	-	59
2 00 Store Bedroom 63	93	-	-	12
2 00 Bedroom 63	42	-	-	60
0 00 Bistro Lounge	144	-	-	216
0 00 Reception	-	144	80	349
2 00 Bedroom 45	-	141	-	45
1 00 Therapy Room 164	103	-	-	148

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?
0 00 Bedroom 01	NO (-76%)	NO
0 00 Bedroom 02	NO (-71.1%)	NO
0 00 Bedroom 03	NO (-77.2%)	NO
0 00 Bedroom 04	NO (-72.9%)	NO
0 00 Bedroom 05	NO (-84.9%)	NO
0 00 Bedroom 06	NO (-89.6%)	NO
0 00 Bedroom 07	NO (-79.6%)	NO
0 00 Bedroom 08	NO (-79.6%)	NO
0 00 Bedroom 09	NO (-70.9%)	NO
0 00 Bedroom 10	NO (-67.9%)	NO
0 00 Bedroom 11	NO (-74.6%)	NO
0 00 Bedroom 12	NO (-72.1%)	NO
0 00 Bedroom 13	NO (-72.2%)	NO
0 00 Bedroom 14	NO (-73%)	NO
0 00 Bedroom 15	NO (-78.9%)	NO
0 00 Bedroom 16	NO (-80.6%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
0 00 Bedroom 17	NO (-89.6%)	NO
0 00 Bedroom 18	NO (-86.6%)	NO
0 00 Bedroom 19	NO (-87.2%)	NO
0 00 Comms 01	N/A	N/A
0 00 Drugs Store 01	N/A	N/A
0 00 Private Dining	NO (-77.5%)	NO
0 00 Hair Dressing/SPA	NO (-74.2%)	NO
0 00 Lounge/Dining/Servery 01	NO (-69.2%)	NO
0 00 Nurse Base 01	N/A	N/A
0 00 Office Admin	NO (-60.1%)	NO
0 00 Office Manager	NO (-61%)	NO
0 00 Library	NO (-82.6%)	NO
0 00 Servery/Shop	NO (-60.1%)	NO
1 00 Bedroom 20	NO (-76%)	NO
1 00 Bedroom 21	NO (-75.1%)	NO
1 00 Bedroom 22	NO (-77.2%)	NO
1 00 Bedroom 23	NO (-72.9%)	NO
1 00 Bedroom 24	NO (-84.9%)	NO
1 00 Bedroom 25	NO (-89.5%)	NO
1 00 Bedroom 26	NO (-82.2%)	NO
1 00 Bedroom 27	NO (-82.2%)	NO
1 00 Bedroom 28	NO (-73.7%)	NO
1 00 Bedroom 29	NO (-69.1%)	NO
1 00 Bedroom 30	NO (-84.1%)	NO
1 00 Bedroom 31	NO (-88.7%)	NO
1 00 Bedroom 32	NO (-82.4%)	NO
1 00 Bedroom 33	NO (-84.3%)	NO
1 00 Bedroom 34	NO (-88.1%)	NO
1 00 Bedroom 35	NO (-86.6%)	NO
1 00 Bedroom 36	NO (-85.9%)	NO
1 00 Bedroom 37	NO (-76.8%)	NO
1 00 Bedroom 38	NO (-90.7%)	NO
1 00 Bedroom 39	NO (-85%)	NO
1 00 Bedroom 40	NO (-73.7%)	NO
1 00 Bedroom 41	NO (-81.9%)	NO
1 00 Bedroom 42	NO (-70.2%)	NO
1 00 Bedroom 43	NO (-72.2%)	NO
1 00 Bedroom 44	NO (-69.8%)	NO
1 00 Store	N/A	N/A
1 00 Lounge/Dining/Servery 02	NO (-70.3%)	NO
B 00 Laundry	N/A	N/A
B 00 Multi-Purpose	N/A	N/A
B 00 Office Kitchen	N/A	N/A
B 00 Staff Rest Room	N/A	N/A
2 00 Bedroom 46	NO (-74.6%)	NO
2 00 Bedroom 47	NO (-77.2%)	NO
2 00 Bedroom 48	NO (-85%)	NO
2 00 Bedroom 49	NO (-80.7%)	NO
2 00 Bedroom 50	NO (-80.6%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
2 00 Bedroom 51	NO (-69.9%)	NO
2 00 Bedroom 52	NO (-67.8%)	NO
2 00 Bedroom 53	NO (-83.9%)	NO
2 00 Bedroom 54	NO (-87.9%)	NO
2 00 Bedroom 55	NO (-78.4%)	NO
2 00 Bedroom 56	NO (-77.8%)	NO
2 00 Bedroom 57	NO (-83.5%)	NO
2 00 Bedroom 58	NO (-84.3%)	NO
2 00 Bedroom 59	NO (-81%)	NO
2 00 Bedroom 60	NO (-64.2%)	NO
2 00 Bedroom 61	NO (-88.4%)	NO
2 00 Bedroom 62	NO (-84.8%)	NO
2 00 Bedroom 64	NO (-70.1%)	NO
2 00 Bedroom 65	NO (-72.2%)	NO
2 00 Bedroom 66	NO (-69.5%)	NO
2 00 Drugs Store 03	N/A	N/A
2 00 Lounge/Dining/Servery 03	NO (-45%)	NO
2 00 Nurse Base 03	N/A	N/A
2 00 Quiet Lounge	N/A	N/A
0 00 Games room	NO (-68.3%)	NO
2 00 Bedroom 63	NO (-83.8%)	NO
0 00 Bistro Lounge	NO (-90.6%)	NO
0 00 Reception	NO (-95.7%)	NO
2 00 Bedroom 45	NO (-81.4%)	NO
1 00 Therapy Room 164	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]	3414.3	3414.3
External area [m^2]	4422.6	4327.4
Weather	SOU	SOU
Infiltration [m^3/hm^2@ 50Pa]	5	3
Average conductance [W/K]	1280.99	0
Average U-value [W/m^2K]	0.29	0
Alpha value* [%]	10.32	10

* 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
	B8 Storage or Distribution
	C1 Hotels
100	**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/m^2]

	Actual	Notional
Heating	19.03	30.58
Cooling	0.73	3.21
Auxiliary	6.65	5.28
Lighting	19.79	21.69
Hot water	30.23	35.33
Equipment*	61.66	61.66
TOTAL**	**76.43**	**96.1**

* Energy used by equipment does not count towards the total for consumption or calculating emissions.
** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m^2]

	Actual	Notional
Photovoltaic systems	9.08	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	72.28	138.96
Primary energy* [kWh/m^2]	157.4	198.41
Total emissions [kg/m^2]	22.3	32.6

* 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 SSEEF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
	Actual	112.9	0	36.7	0	14	0.85	0	0.96	0
	Notional	134.6	0	43.4	0	11	0.86	0	----	----
[ST] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
	Actual	16.9	0	5.5	0	12.5	0.85	0	0.96	0
	Notional	20.3	0	6.5	0	10.3	0.86	0	----	----
[ST] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
	Actual	25.3	0	8.2	0	12.6	0.85	0	0.96	0
	Notional	38.4	0	12.4	0	9.7	0.86	0	----	----
[ST] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity										
	Actual	0	247.9	0	14.1	2.9	4.1	4.9	4.4	6.9
	Notional	0	515.5	0	37.8	3.8	2.56	3.79	----	----
[ST] Central heating using air distribution, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
	Actual	0.4	0	0.2	0	30.7	0.81	0	0.96	0
	Notional	0	0	0	0	47.7	0.86	0	----	----
[ST] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity										
	Actual	0	0	0	0	0	3.73	4.47	4	6.3
	Notional	0	0	0	0	0	2.56	3.79	----	----
[ST] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity										
	Actual	0.4	110.5	0	5.7	9.6	3.91	5.4	4.2	7.6
	Notional	0.2	402.5	0	29.5	5.3	2.56	3.79	----	----
[ST] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity										
	Actual	4.7	60.3	0.3	3.1	9.6	4.19	5.33	4.5	7.5
	Notional	1.5	344.6	0.2	25.3	5.3	2.56	3.79	----	----
[ST] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity										
	Actual	4.1	87	0.3	4.9	6.2	4.1	4.9	4.4	6.9
	Notional	6.7	261.6	0.7	19.2	4.7	2.56	3.79	----	----
[ST] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
	Actual	39.7	0	12.9	0	3.1	0.85	0	0.96	0
	Notional	82.3	0	26.5	0	1.8	0.86	0	----	----
[ST] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity										
	Actual	0	174.2	0	9	2.2	3.91	5.4	4.2	7.6
	Notional	0	132.4	0	9.7	4.8	2.56	3.79	----	----
[ST] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
	Actual	273.9	0	89	0	5.7	0.85	0	0.96	0
	Notional	393.1	0	126.7	0	7.1	0.86	0	----	----
[ST] Central heating using air distribution, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
	Actual	3.9	0	1.3	0	6.8	0.81	0	0.96	0
	Notional	0	0	0	0	11.7	0.86	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

Key Features

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

Building fabric

Element	$U_{i\text{-}Typ}$	$U_{i\text{-}Min}$	Surface where the minimum value occurs*
Wall	0.23	0.2	B000001A:Surf[1]
Floor	0.2	0.2	00000038:Surf[0]
Roof	0.15	-	0000006F:Surf[40]
Windows, roof windows, and rooflights	1.5	1.4	00000005:Surf[0]
Personnel doors	1.5	2.2	0000002F:Surf[0]
Vehicle access & similar large doors	1.5	-	No vehicle access doors in building
High usage entrance doors	1.5	-	No high usage entrance doors in building

$U_{i\text{-}Typ}$ = Typical individual element U-values [W/(m²K)] $U_{i\text{-}Min}$ = 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	5