PJR

BUILDING SERVICES
DESIGN ENGINEERS

ENERGY STRATEGY

FOR

PROPOSED DEVELOPMENT

WIMBLEHURST HOTEL

HORSHAM

WEST SUSSEX

Date: SEPTEMBER 2026

Ref: v1

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Contents

1.0 INTRODUCTION 2

2.0 PLANNING POLICY 8

3.0 BASELINE ASSESSMENT 10

4.0 BE LEAN 11

5.0 BE CLEAN 13

6.0 BE GREEN 13

7.0 GRANTS 15

8.0 PROPOSED STRATEGY 16

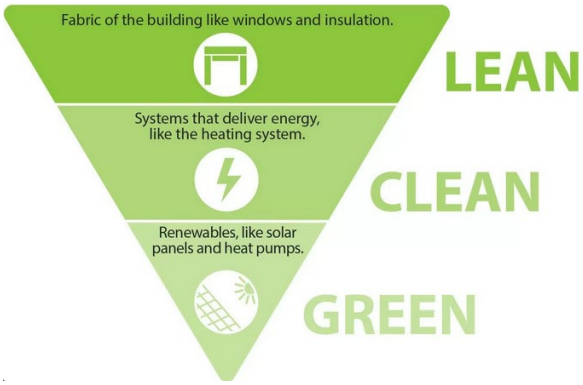
9.0 CONCLUSIONS 17

1.0 INTRODUCTION

PJR Services have been instructed to prepare an Energy Statement to support the planning application of conversion and extension of Wimblehurst Hotel to increase the facilities for Ashtonleigh Nursing Home in Horsham which includes:

> *Erection of a three-storey residential care facility (Use Class C2) providing 39 en-suite resident bedrooms. The accommodation is arranged over ground, first and second floors and includes communal lounges, dining facilities, nursing stations, assisted bathing facilities, hydrotherapy pool, treatment and support spaces, staff offices, kitchen and laundry facilities, plant rooms and associated ancillary accommodation.*

The energy strategy for the proposed development scheme has been assessed using the following Energy Hierarchy:



Be Lean: Reducing the building energy consumption by optimising the design and construction of the building to ensure less energy is required.

Be Clean: Supplying the energy required in an efficient manner.

Be Green: Supplying the energy from Low Zero Carbon and Renewable Energy Sources

Using a strategic approach in this order ensures that energy reduction is prioritised first using passive measures resulting in the more appropriate application and size of renewable energy technologies.

1.1 The Development

The new Ashtonleigh Nursing Home comprises:

- Basement Floor: Hydro Pool, Gym, Cinema, Kitchen, Director's office, Training room, Laundry room, WC and shower, illustrated in Figure 1.
- Ground Floor: a salon, lounge, dining room, quiet area, nurse station, drug store, 14 bedrooms with inclusive baths, admin office, 1 Assist WC and 1 Assist bath, illustrated in Figure 2;
- First Floor: a lounge, dining room, 15 bedrooms with inclusive baths, 1 Assist WC and 1 Assist bath, nurse station, sluice and drug store. The first floor also has a bridge that connects with the existing Wimblehurst building, illustrated in Figure 3;
- Second Floor: a lounge, nurse station, drug station, sluice, 10 bedrooms with inclusive baths, 1 assist WC and 1 assist bath, illustrated in Figure 4.

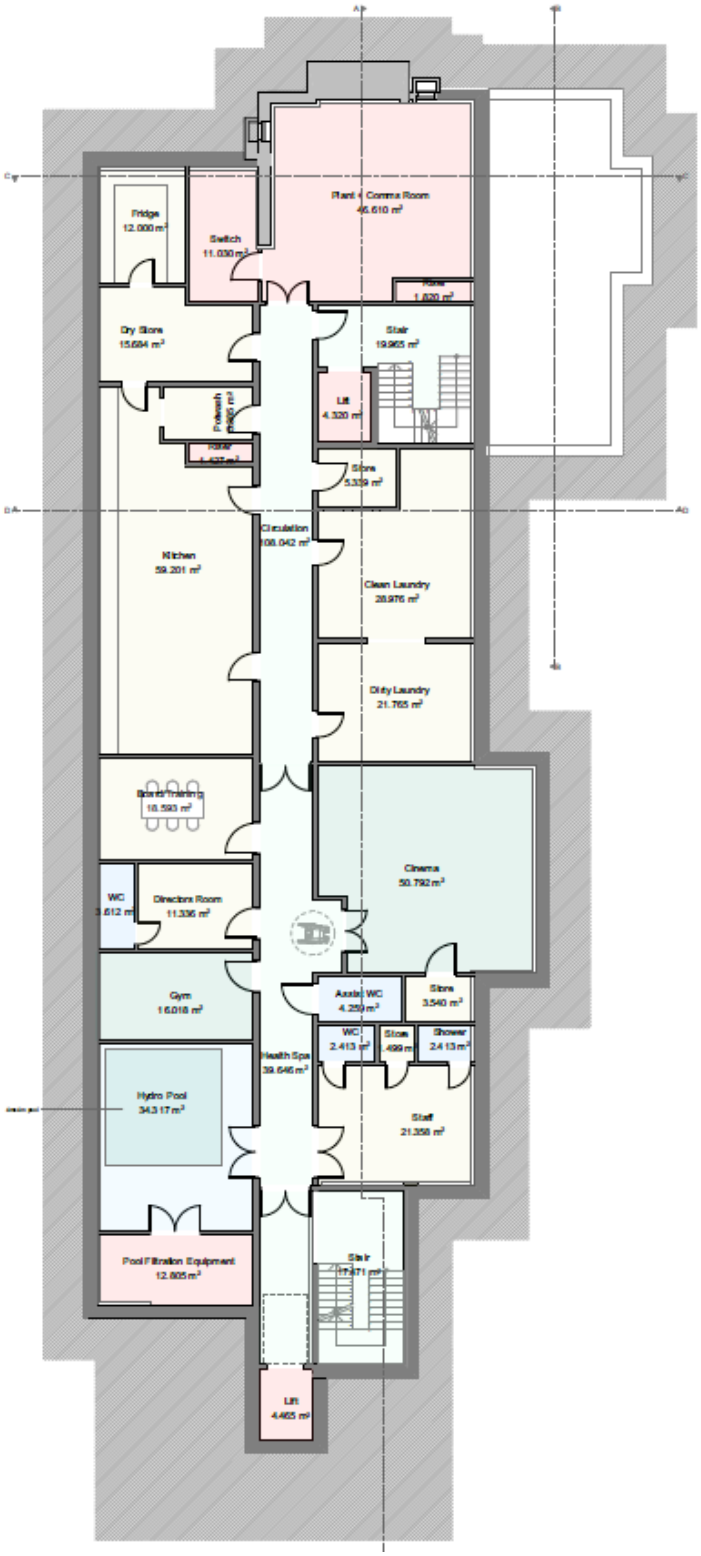


Figure 1 Basement Floor Plan

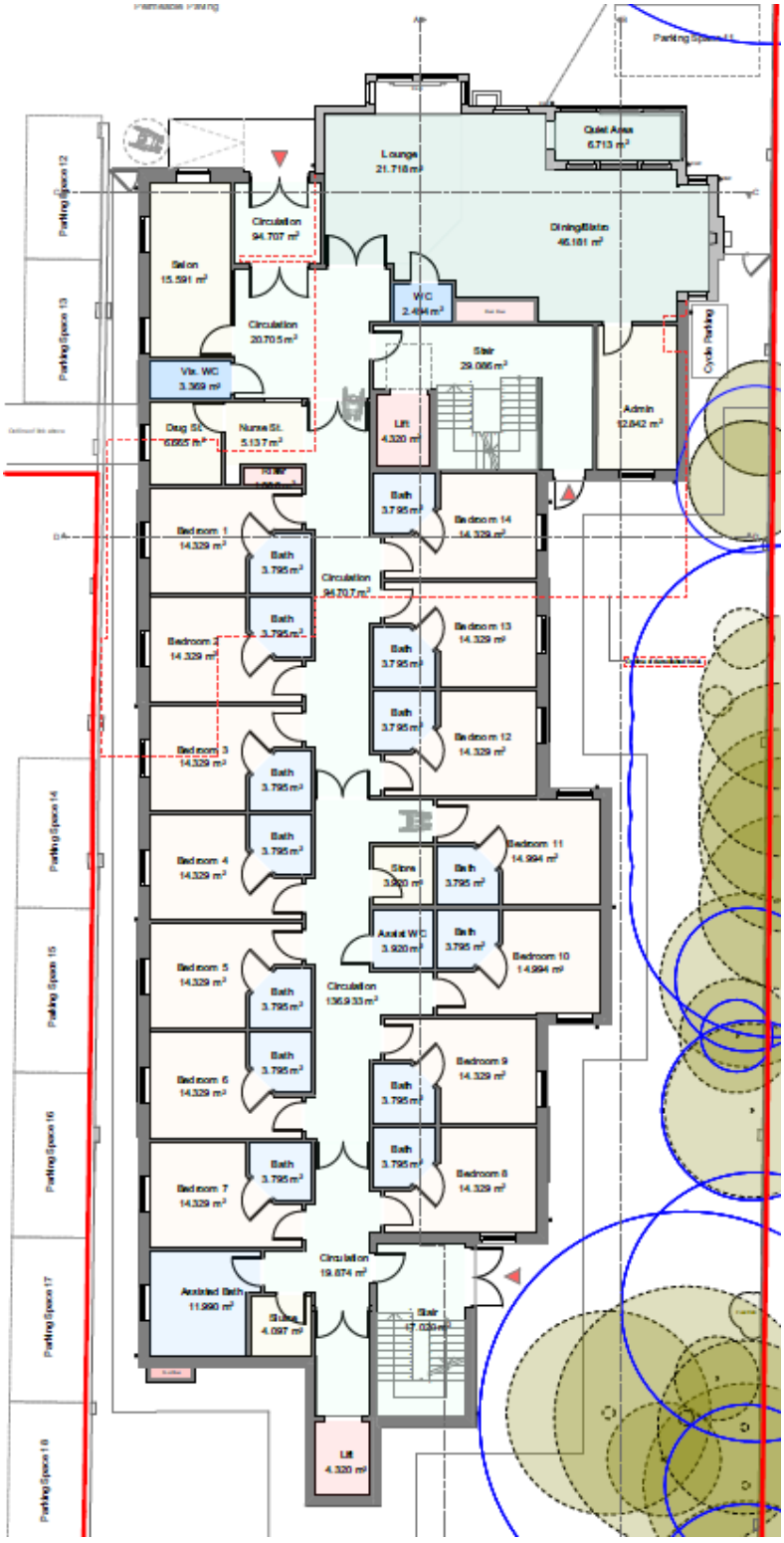


Figure 2 Ground Floor Plan

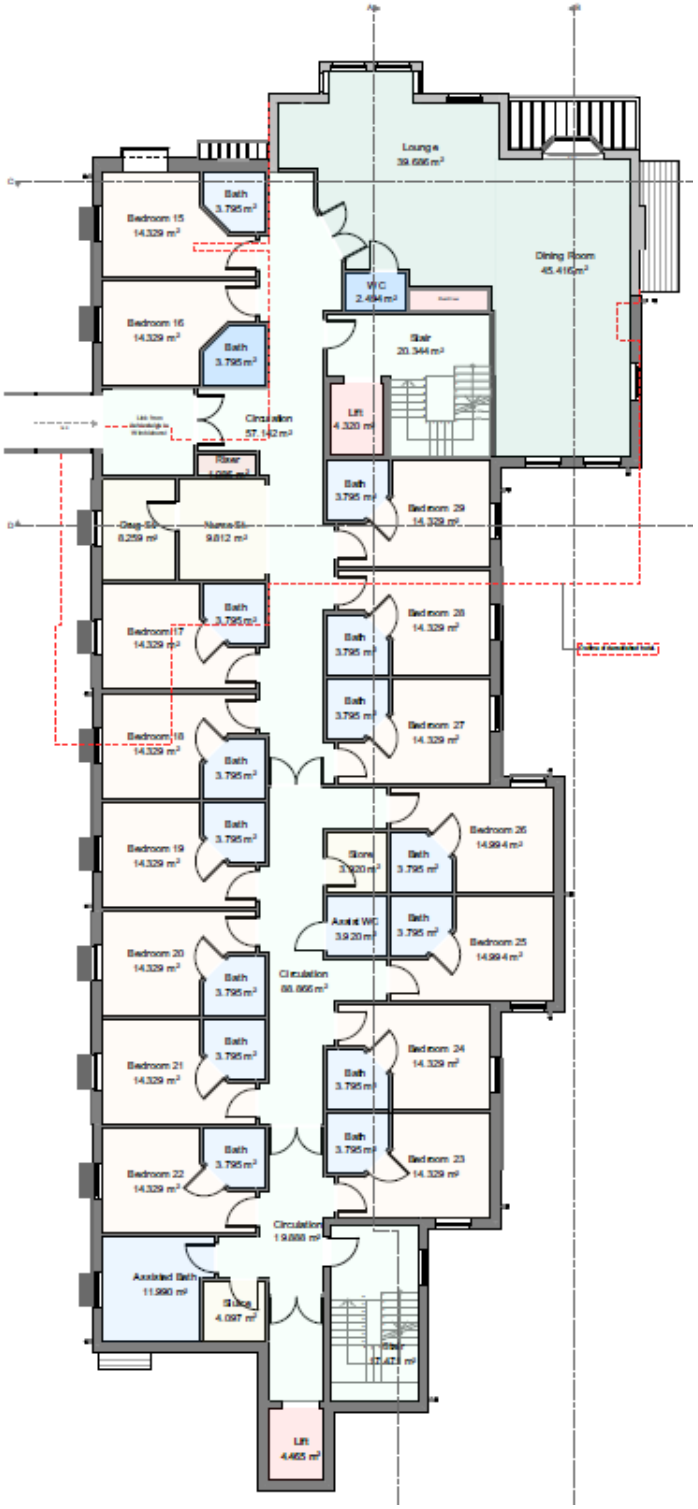


Figure 3 First Floor Plan

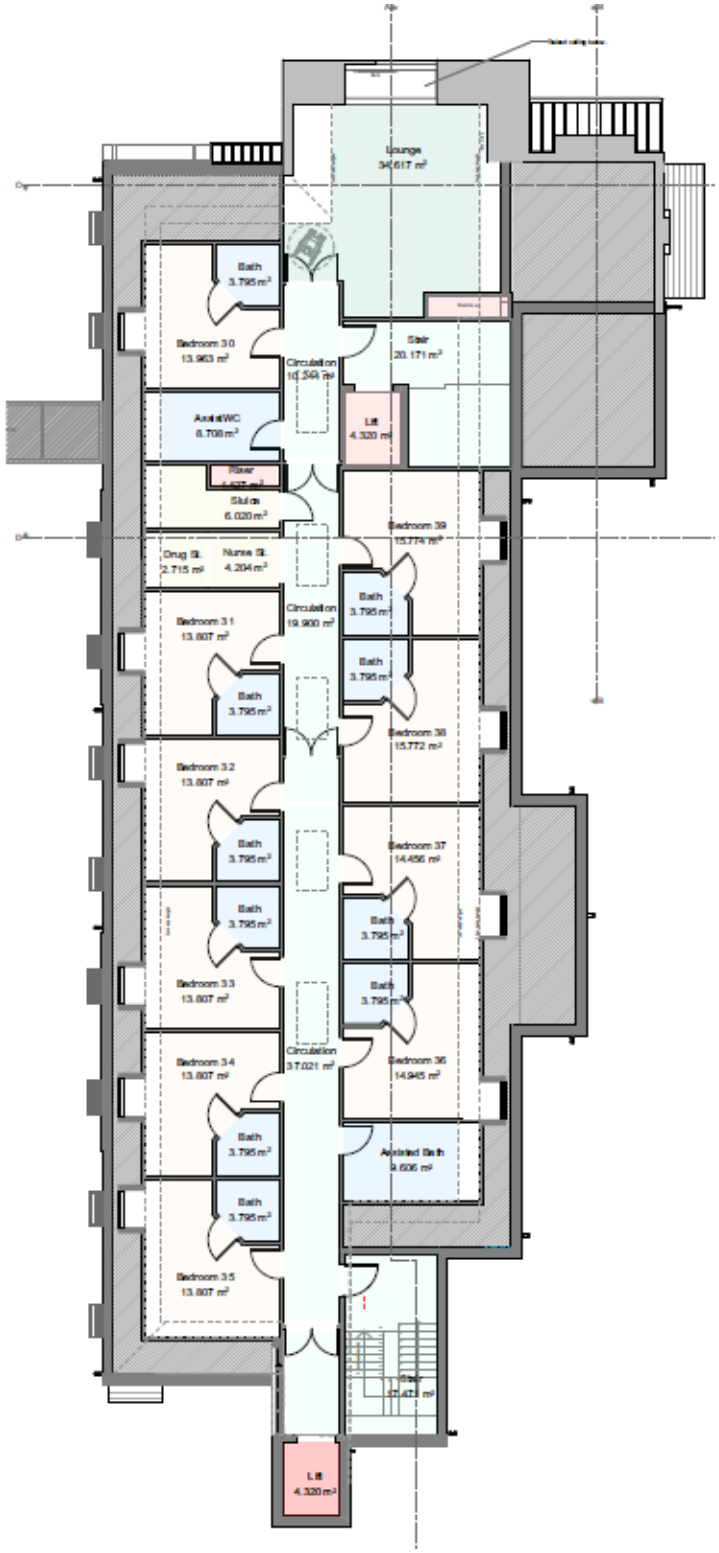


Figure 4 Second Floor Plan

2.0 PLANNING POLICY

2.1 National Policy – The NPPF

The National Planning Policy Framework (NPPF), updated August 2026, sets out the government's planning policies for England and how these are expected to be applied and states that:

The purpose of the planning system is to contribute to the achievement of sustainable development. At a very high level, the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways:

- Economic
- Social
- Environmental

So that sustainable development is pursued in a positive way, at the heart of the Framework is a presumption in favour of sustainable development.

2.2 Local Policy

2.2.1 Horsham District Council Local Plan

This plan was adopted in November 2015, and its overall objective is to support sustainable development by balancing economic, social and environmental considerations whilst addressing the causes and impacts of climate change. In relation to energy and sustainability, the Local Plan seeks to reduce carbon emissions, improve energy efficiency, promote renewable and low-carbon energy generation, and ensure that development is resilient to future climate conditions.

Policy 35 Climate Change requires all development proposals to demonstrate how they will both mitigate climate change and adapt to its impacts. The policy seeks to ensure that new development contributes to reducing greenhouse gas emissions while being resilient to future climate conditions such as flooding, drought, overheating and water stress. Relevant requirements of Policy 35 include:

1. Reduced energy use in construction;

2. Improved energy efficiency in new developments, including influencing the behaviour of occupants to reduce energy use

3. The use of decentralised, renewable and low carbon energy supply systems;

Policy 36 Appropriate Energy Use sets out the requirement for development to minimise its energy use in accordance with the energy hierarchy (Be Lean, Be Clean, Be Green) and to incorporate renewable and low carbon energy supplies where technically and financially feasible.

This involves reducing energy demand through efficient building design, supplying energy as efficiently as possible, and incorporating renewable and low-carbon energy technologies where feasible. The policy supports district heating networks and renewable energy generation, provided proposals do not have unacceptable impacts on landscape character, biodiversity, heritage assets or amenity.

Commercial and residential developments in Heat Priority Areas or the strategic development locations will be expected to connect to district heating networks where they exist using the following hierarchy, or incorporate the necessary infrastructure for connection to future network.

Development should demonstrate that the heating and cooling systems have been selected in accordance with the following heating and cooling hierarchy;

- 1.Connection to existing (C)CHP distribution networks
- 2.Site wide renewable (C)CHP
- 3.Site wide gas-fired (C)CHP
- 4.Site wide renewable community heating/cooling
- 5.Site wide gas-fired community heating/cooling
- 6.Individual building renewable heating
- 7.Individual building heating, with the exception of electric heating

Policy 37 Sustainable Construction, requires the development to be designed and constructed in a manner that minimises environmental impacts throughout the life of the development. The following energy measures should be incorporated when feasible:

1. Maximise energy efficiency and integrate the use of decentralised, renewable and low carbon energy;
2. Be designed to encourage the use of natural lighting and ventilation

2.2.2 Horsham Blueprint Business Neighbourhood Plan 2019-2036

This plan was adopted in December 2022, and promotes sustainable development, climate resilience, environmental quality, sustainable transport and high-quality design. Although it does not contain specific energy performance targets, the proposed

development supports the Local Plan's sustainability objectives through the reduction of energy demand, the incorporation of low-carbon technologies, and the delivery of a building that is adaptable and resilient to future climate change.

Policy HB5 Energy efficiency and design, in specific encourages to achieve the highest level of sustainable design to reduce energy consumption and climate effects. This includes:

i. Siting and orientation to optimise passive solar gain.

ii. The use of high quality, thermally efficient building materials.

iii. Installation of energy efficiency measures such as loft and wall insulation and double glazing.

iv. Incorporating on-site energy generation from renewable sources such as solar panels.

v. Providing low carbon sustainable design and avoid or mitigate all regulated emissions using a combination of on-site energy efficiency measures (such as insulation and low energy heating systems), on-site zero carbon technologies (such as solar panels) and only where necessary off-site measures to deal with any remaining emissions.

vi. Reducing fuel poverty levels, such as replacement of lighting by lower wattage light sources.

3.0 BASELINE ASSESSMENT

IES Virtual Environment VE Compliance software has been used to determine Compliance with Building Regulations Part L 2021. This determines the Building Emission Rate (BER) and Target Emission Rates (TER).

The TER forms the baseline against which the proposed development is compared. The baseline CO_2 emissions for Ashtonleigh Nursing Home are shown in Table 1.

	Carbon Dioxide Emissions ($KgCO_2/m^2/yr$)
Part L 2021 Baseline (TER)	8.40

Table 1 Baseline CO_2 emissions

4.0 BE LEAN

The first step of the Energy Hierarchy methodology is to improve the design of the building fabric and services to maximise the energy efficiency and minimise the energy requirements.

4.1 Building fabric

The heat loss from the buildings has been reduced significantly by minimising the U-values which in turn shall minimise energy consumption and CO_2 emissions associated with the heating.

The proposed U-values for the development are shown in Table 2 and are an average 29% improvement over the Part L2 (2021) limiting fabric parameters. The air tightness shall be improved to 5.0m^3hr/m^2 at 50Pa, improving on the Part L2A (2021) performance standards by 38%.

Building Element	U-values (W/m^2K)		% improvement over Part L
	Part L 2021 maximum U-value or air permeability	Proposed Building	
External Wall (Type 1)	0.26	0.14	46%
Basement Wall (Type 2)	0.26	0.18	31%
Dormer Cheek Wall (Type 3)	0.26	0.13	50%
Roof (flat)	0.18	0.11	39%
Roof (pitched)	0.16	0.10	38%
Ground Floor	0.18	0.14	22%
External Windows & glazed doors	1.6	1.2 (g-value 0.45)	25%
Rooflights	2.2	2.2 (g-value 0.42)	0%
Personnel door	1.6	1.4	13%
Air Permeability	8.0	5.0	38%

Table 2 U-values of proposed Ashtonleigh Nursing Home building fabric

4.2 Building services

The services strategy for the scheme has also been significantly improved over the baseline building to further reduce energy demand, as requested by Policy 35. These measures are outlined in Table 3. Please note – the Lean strategy does include a 'green' technology with the specification of an air source heat pump with notional values, required to achieve Part L 2021

compliance. Therefore, the CO_2 saving from the ASHP will not be considered in the Green section but included within the Lean analysis.

Type	Settings	Spaces applied
Underfloor heating/ Radiators	Heating (ASHP) SCoP: 3.57	Hydrotherapy pool, commercial kitchen, bedrooms, corridors, WC and stairs
Underfloor heating/ Radiators	Heating (ASHP) SCoP: 3.57 Ventilation 75% heat recovery SFP 1.5 W/l/s	Hydrotherapy pool, Kitchen, corridors
VRF + AHU	Heating (ASHP) SCoP: 3.5 Cooling SEER: 5.87 Ventilation 75% heat recovery SFP 1.5 W/l/s	Cinema, gym, director's office, board, med store, communal lounges, nurse bases
DHW	From ASHP: SCoP: 3.88 Total storage volume: 965L Storage losses: 0.0035 kWh/l/day Secondary circulation: Circulation losses: 5W/m Loop length: 88m Pump power: 0.1kW Constant speed pump	All
Extract only	SFP 0.3 W/l/s No control	WC and bathrooms, including assisted ones
Lighting	LED 120 lm/W	Throughout
	Manual controls	Bedrooms, lifts, voids
	Manual On-Auto-Off	Reception, Kitchen
	Daylight dimming	Cinema, gym, board, director office, communal lounges
	PIR controls	Bathrooms, WCs, Circulation areas, Store areas

Table 3 Building services proposed Ashtonleigh Nursing Home

5.0 BE CLEAN

A review of the Government's Heat Networks and Heat Network Zones Interactive Map has been undertaken for the area surrounding Ashtonleigh Nursing Home. In accordance with Policy 36 of the Horsham District Local Plan, consideration has been given to the use of decentralised energy infrastructure and the heating hierarchy. At the time of assessment, no existing district heating network suitable for direct connection was identified within the vicinity of the site. As a result, connection to a heat network is not currently considered feasible, and an on-site low-carbon heating solution has been proposed.

The development has been designed in accordance with the heating and cooling hierarchy set out in Policy 36 and will retain the ability to review future connection opportunities should district heat network infrastructure become available in the area.

6.0 BE GREEN

An overview of the available low and zero carbon (LZC) technologies is discussed on the following pages.

6.1 Solar hot water

Solar hot water heating is a technology that is proven to be reliable, cost effective and provide low to medium CO_2 savings. Panels are positioned on roofs and use the sun's energy to provide domestic hot water. Panels provide an optimum performance when mounted facing due south and inclined at an angle of 30-40˚. During periods where the solar intensity is not high enough to provide the required amount of domestic hot water, the LTHW heating system will provide the shortfall. Systems which use larger volume cylinders to store the hot water operate more efficiently, as this allows for more solar hot water to be generated during periods of low domestic hot water use.

As this is a nursing home block, the hot water demand will be very high due to residents' baths and cleaning areas. As this technology relies on sun intensity, it will still be necessary to get an additional heating system. Therefore, this is not considered to be an appropriate technology for the scheme.

6.2 Photovoltaics

Solar photovoltaic (PV) technology is a semi-conductor-based technology that converts the energy in sunlight into electricity. Monocrystalline PV systems are considered to be the most appropriate, as they are the most cost effective. The use of PV systems on this scheme would be practical given the area of roof that is not shaded throughout the year. The optimum incline and orientation for maximum performance is 30 degrees incline from the horizontal facing south. PV arrays will interface with the LV distribution system and an export facility to the grid could be established.

The current model does not include PV because the passive design measures such as efficient building fabric have achieved the required targets maximising energy efficiency as requested by policy 35. However, the inclusion of PV panels will be considered in Stage 4.

As an example, for future evaluation at Stage 4 the viable quantity of PV the scheme is capable of providing is presented in Table 4 along with the electricity generated and CO_2 reductions that could be achieved.

Quantity of PV (kWp)	**Electricity Generated** kWh/yr	**Reduction Carbon Emissions** ($kgCO_2$/year)	**Capital Cost** (based on £1,132/kW[1])	**Saving £/yr** (based on 17.74p/kWh[2])	**Payback** years
22	17,978	2,260	£20,351	£3,189	6

Table 4 PV energy, CO_2 and payback analysis

Providing 22kWp (~110m^2) of PV panels could generate over 17,000 kWh/yr of electricity reducing CO_2 emissions by 2,260$kgCO_2$ per year. This means an improvement of 28% over the Part L 2021 compliance.

An initial estimate suggests a payback period of around 6 years would be achievable for the PV installation.

Please note – the number of PV panels provided could be increased and/or decreased dependent upon the output of PV panel selected and panel efficiency.

6.3 Wind Turbines

The site is not considered suitable for wind as it is an urban area. There would be significant turbulent flow which is not suitable for wind technology.

6.4 Biomass Boilers

Biomass boilers use either wood chips or wood pellets as the fuel. The use of biomass as an energy source has become more widespread in recent years. Biomass offers CO_2 savings, with a high reliability of plant. Though biomass plant is more expensive than gas fired plant, it has the potential to provide the majority of the heating load almost CO_2 free.

Storage and delivery of biomass fuel must be carefully considered to ensure that sufficient fuel is available all year round and the site is accessible to delivery vehicles even in the depths of winter.

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[1] https://www.gov.uk/government/statistics/solar-pv-cost-data

[2] https://www.gov.uk/government/statistical-data-sets/gas-and-electricity-prices-in-the-non-domestic-sector

Whilst biomass boilers provide a low carbon solution, biomass boilers are much less efficient than alternatives, requiring greater quantities of fuel to meet the required output. Although biomass is carbon neutral because it has absorbed all the carbon it is releasing, the carbon release is intensive and increases air quality issues. Furthermore, the pollution associated with deliveries of the biomass should also be taken into account.

Given the storage requirements and air quality impacts of a biomass system, this has been discounted from consideration for the scheme.

6.5 Ground Source Heat Pumps

Ground source heat pumps use the earth as a thermal sink and provide a source of cooling as well as heating. Ground source heat pumps use either vertical boreholes or horizontal pipework systems as the source of heating and cooling and have extremely good efficiencies, generally converting 1kW of electrical energy into 5-6 kW of heating and cooling. These efficiencies mean that ground source heat pumps provide a medium CO_2 benefit.

The capital costs associated with this technology are higher than other options due to the boreholes and the ground conditions need to be established before viability can be confirmed. Therefore this technology has been discounted.

6.6 Air Source Heat Pumps

Air source heat pumps operate in a similar manner to ground source heat pumps but use ambient air as the heat sink. Air source heat pumps are much cheaper than ground source, though provide lower operating efficiencies.

Air source heat pumps are considered to be a viable technology for the scheme to provide both heating and domestic hot water.

The air source heat pumps are required for inclusion in the scheme to achieve Part L compliance. Therefore the CO_2 reductions have not been analysed for the scheme as they form part of the base case.

7.0 GRANTS

Currently there are no grants available for LZC technologies for the type of building.

There is the potential to sell the PV generated electricity to the grid. The Smart Export Guarantee (SEG) launched on 1 January 2020 and is a government-backed initiative. The SEG requires some electricity suppliers (SEG Licensees) to pay small-scale generators (SEG Generators) for low-carbon electricity which they export back to the National Grid, providing certain criteria are met.

SEG Licensees determine the rate which they will pay SEG Generators, the contract length and other terms. Generators thinking of applying for a SEG tariff should therefore shop around to see which tariff is best for their individual circumstances.

SEG tariff rates must always be above zero. SEG payments are calculated by using export meter readings. SEG Generators are paid by their chosen SEG Licensee for the electricity which they export back to the National Grid.

For further details visit Ofgem: https://www.ofgem.gov.uk/environmental-and-social-schemes/smart-export-guarantee-seg/generators

8.0 PROPOSED STRATEGY

From a review of the viable low and zero carbon technologies it has been established the viable technologies for the scheme are:

- Air source heat pump – heating and domestic hot water

The Building Regulations Part L 2021 calculations have been carried out and policies 35, 36 and 37 of the Horsham District Council Local Plan have been followed, as well as Policy HB5 from the Horsham Blueprint Business Neighbourhood Plan. To maximise the energy efficiency, passive design measures were firstly considered, which showed an improvement of 29% against Part L values.

Additionally, renewable energy was considered via the specification of an ASHP to provide space and hot water heating. PV panels are not currently specified to achieve the required CO_2 compliance, however an example was provided which gives an improvement of 28% CO_2 emissions over Part L compliance. The results are presented in Table 4 and demonstrate the proposed strategy reduces CO_2 emissions from the building by 15% beyond Part L 2021 compliance.

	CO_2 Emissions ($kgCO_2/m^2/yr$)	**CO_2 Savings** ($kgCO_2/m^2/yr$)	**Percentage saving** (%)
Target Emission Rate (TER)	8.40		
Building Emission Rate – BE LEAN	8.47	0	0%
Building Emission Rate – BE CLEAN	8.47	0	0%
Building Emission Rate – BE GREEN (with ASHP)	7.17	1.23	15%

Building Emission Rate – BE GREEN (with ASHP and PVs)	6.08	2.32	28%

Table 5 *CO_2 reduction for proposed strategy*

9.0 CONCLUSIONS

This Energy Statement demonstrates that the proposed Ashtonleigh Nursing Home has been designed in accordance with the energy hierarchy and Policies 35, 36 and 37 of the Horsham District Council Local Plan. A fabric-first approach, incorporating enhanced building fabric performance and air source heat pumps for space heating and domestic hot water, has been adopted to minimise energy demand and reduce carbon emissions. No suitable district heating or decentralised energy networks were identified in the vicinity of the site. The proposed strategy achieves a 15% reduction in regulated CO_2 emissions compared with the Building Regulations Part L 2021 baseline and is therefore considered to comply with the relevant local planning policy requirements.

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

Ashtonleigh Nursing Home_Be Lean

As designed

Date: Tue Sep 15 13:46:20 2026

Administrative information

Building Details

Address: Horsham, West Sussex, RH12 2ED

Certifier details

Name: XDA Consulting Ltd

Telephone number: Phone

Address: Unit 2 Turner Dumbrell Workshops, Dumbrells Court Road, Ditchling, East Sussex, BN6 8GT

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.31

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.31

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

Foundation area [m^2]: 518.39

The CO_2 emission and primary energy rates of the building must not exceed the targets

The building does not comply with England Building Regulations Part L 2021

Target CO_2 emission rate (TER), $kgCO_2/m^2$.annum	8.4	
Building CO_2 emission rate (BER), $kgCO_2/m^2$.annum	8.47	
Target primary energy rate (TPER), kWh_{PE}/m^2.annum	90.73	
Building primary energy rate (BPER), kWh_{PE}/m^2.annum	91.52	
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	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	First surface with maximum value
Walls*	0.26	0.14	0.55	BS00001A:Surf[3]
Floors	0.18	0.13	0.14	02000008:Surf[1]
Pitched roofs	0.16	0.1	0.14	0000001A:Surf[0]
Flat roofs	0.18	0.11	0.11	0200000D:Surf[0]
Windows** and roof windows	1.6	1.2	1.2	00000032:Surf[0]
Rooflights***	2.2	2.2	2.2	0200001C:Surf[1]
Personnel doors^	1.6	1.4	1.4	0000001A:Surf[1]
Vehicle access & similar large doors	1.3	-	-	No vehicle access doors in building
High usage entrance doors	3	-	-	No high usage entrance doors in building

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

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

* 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/m^2K

NB: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air permeability	Limiting standard	This building
$m^3/(h.m^2)$ at 50 Pa	8	5

Building services

For details on the standard values listed below, system-specific guidance, and additional regulatory requirements, refer to the Approved Documents.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	YES
Whole building electric power factor achieved by power factor correction	<0.9

1- ASHP - Underfloor heating and radiators

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	2.64	-	0.2	-	0.75
Standard value	2.5*	N/A	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- VRF + AHU

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	2.64	5	0	1.5	0.75
Standard value	2.5*	N/A	N/A	2^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.

^ Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.

1- HWS - ASHP

	Water heating efficiency	**Storage loss factor [kWh/litre per day]**
This building	2.86	0.004
Standard value	2*	N/A

* Standard shown is for all types except absorption and gas engine heat pumps.

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**
01 Bath bed22	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed21	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed20	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed19	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed18	-	-	0.3	-	-	-	-	-	-	-	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	2.3	2	0.5	0.5	0.4	1	Zone	Standard
01 Bath bed17	-	-	0.3	-	-	-	-	-	-	-	N/A
01 WC 2.4 m	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed29	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed28	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed27	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed26	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed25	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Assit WC	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed24	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed23	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed16	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed15	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed7	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed 6	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed5	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed4	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed3	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed2	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed1	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Visitors WC	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Circulation	-	1.5	-	-	-	-	-	-	-	-	N/A
00 WC 2.4 m	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed14	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed13	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed12	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed11	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed10	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Assit WC	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed9	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed8	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Corridor	-	1.5	-	-	-	-	-	-	-	-	N/A
02 Bath Bed35	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath Bed34	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath Bed33	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath Bed32	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath Bed31	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Assi WC	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath Bed30	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath Bed39	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath bed38	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath bed37	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Assis WC	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath bed36	-	-	0.3	-	-	-	-	-	-	-	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	2.3	2	0.5	0.5	0.4	1	Zone	Standard
02 Circulation	-	1.5	-	-	-	-	-	-	-	-	N/A
01 Assisted bath	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Corridor	-	1.5	-	-	-	-	-	-	-	-	N/A
BS Pool	-	1.5	-	-	-	-	-	-	-	-	N/A
BS WC 2.4 m	-	-	0.3	-	-	-	-	-	-	-	N/A
BS Ass WC 4.2 m	-	-	0.3	-	-	-	-	-	-	-	N/A
BS Dir WC	-	-	0.3	-	-	-	-	-	-	-	N/A
BS Laudry	-	-	0.3	-	-	-	-	-	-	-	N/A
BS Potwash	-	1.5	-	-	-	-	-	-	-	-	N/A
BS Kitchen	-	1.5	-	-	-	-	-	-	-	-	N/A
BS Fridge	-	1.5	-	-	-	-	-	-	-	-	N/A

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
01 Stairs South	120	-	-
01 Sluice	120	-	-
01 Bedroom 22	120	-	-
01 Bath bed22	120	-	-
01 Bath bed21	120	-	-
01 Bedroom 21	120	-	-
01 Bath bed20	120	-	-
01 Bedroom 20	120	-	-
01 Bedroom 19	120	-	-
01 Bath bed19	120	-	-
01 Bedroom 18	120	-	-
01 Bath bed18	120	-	-
01 Bath bed17	120	-	-
01 Bedroom 17	120	-	-
01 WC 2.4 m	120	-	-
01 Bath bed29	120	-	-
01 Bath bed28	120	-	-
01 Bath bed27	120	-	-
01 Bedroom 27	120	-	-
01 Bath bed26	120	-	-
01 Store	120	-	-
01 Bedroom 26	120	-	-
01 Bath bed25	120	-	-
01 Assit WC	120	-	-
01 Bedroom 25	120	-	-
01 Bath bed24	120	-	-
01 Bath bed23	120	-	-
01 Bedroom 24	120	-	-

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
01 Bedroom 23	120	-	-
01 Drug store	120	-	-
01 Nurse store	120	-	-
01 Link to Wimblehurst	120	-	-
01 Bath bed16	120	-	-
01 Bath bed15	120	-	-
01 Bedroom 16	120	-	-
01 Bedroom 15	120	-	-
01 Stairs North	120	-	-
01 Bedroom 29	120	-	-
01 Bedroom 28	120	-	-
00 Stairs South	120	-	-
00 Assisted bath	120	-	-
00 Sluice	120	-	-
00 Bedroom 7	120	-	-
00 Bath bed7	120	-	-
00 Bath bed 6	120	-	-
00 Bedroom 6	120	-	-
00 Bath bed5	120	-	-
00 Bedroom 5	120	-	-
00 Bedroom 4	120	-	-
00 Bath bed4	120	-	-
00 Bedroom 3	120	-	-
00 Bath bed3	120	-	-
00 Bath bed2	120	-	-
00 Bedroom 2	120	-	-
00 Bedroom 1	120	-	-
00 Bath bed1	120	-	-
00 Drug store	120	-	-
00 Nurse store	120	-	-
00 Visitors WC	120	-	-
00 Salon	120	-	-
00 Reception	120	120	1.125
00 Circulation	120	-	-
00 WC 2.4 m	120	-	-
00 Admin	120	-	-
00 Stairs North	120	-	-
00 Bath bed14	120	-	-
00 Bedroom 14	120	-	-
00 Bedroom 13	120	-	-
00 Bath bed13	120	-	-
00 Bath bed12	120	-	-
00 Bedroom 12	120	-	-

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
00 Bath bed11	120	-	-
00 Store	120	-	-
00 Bedroom 11	120	-	-
00 Bath bed10	120	-	-
00 Assit WC	120	-	-
00 Bedroom 10	120	-	-
00 Bath bed9	120	-	-
00 Bath bed8	120	-	-
00 Bedroom 9	120	-	-
00 Bedroom 8	120	-	-
00 Corridor	120	-	-
00 Quiet area	120	-	-
02 Bedrrom 35	120	-	-
02 Bath Bed35	120	-	-
02 Bedroom 34	120	-	-
02 Bath Bed34	120	-	-
02 Bedroom 33	120	-	-
02 Bath Bed33	120	-	-
02 Bath Bed32	120	-	-
02 Bedroom 32	120	-	-
02 Bath Bed31	120	-	-
02 Bedroom 31	120	-	-
02 Nurse Store	120	-	-
02 Sluice	120	-	-
02 Assi WC	120	-	-
02 Bedroom 30	120	-	-
02 Bath Bed30	120	-	-
02 Bedroom 39	120	-	-
02 Bath Bed39	120	-	-
02 Bath bed38	120	-	-
02 Bedroom 38	120	-	-
02 Bedroom 37	120	-	-
02 Bath bed37	120	-	-
02 Assis WC	120	-	-
02 Bath bed36	120	-	-
02 Bedroom 36	120	-	-
02 Circulation	120	-	-
02 Stairs South	120	-	-
00 Lounge	120	-	-
02 Stairs North	120	-	-
02 Lounge	120	-	-
01 Lounge	120	-	-
01 Dinning room	120	-	-

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
01 Assisted bath	120	-	-
01 Corridor	120	-	-
BS Stairs South	120	-	-
BS Pool	120	-	-
BS Staff	120	-	-
BS Shower 2.4m	120	-	-
BS WC 2.4 m	120	-	-
BS Store 0.5	120	-	-
BS Ass WC 4.2 m	120	-	-
BS Store 3.4 m	120	-	-
BS Gym	120	-	-
BS Board training	120	-	-
BS Dir WC	120	-	-
BS Dir Office	120	-	-
BS Store laundry	120	-	-
BS Laudry	120	-	-
BS Stairs North	120	-	-
BS Potwash	120	-	-
BS Kitchen	120	-	-
BS Dry store	120	-	-
BS Fridge	120	-	-
BS Corridor	120	-	-
BS Cinema	120	-	-

The spaces in the building should have appropriate passive control measures to limit solar gains in summer

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
01 Bedroom 22	NO (-53.9%)	NO
01 Bedroom 21	NO (-55.1%)	NO
01 Bedroom 20	NO (-53.9%)	NO
01 Bedroom 19	NO (-53.9%)	NO
01 Bedroom 18	NO (-55.1%)	NO
01 Bedroom 17	NO (-53.9%)	NO
01 Bedroom 27	NO (-64.8%)	NO
01 Store	N/A	N/A
01 Bedroom 26	N/A	N/A
01 Bedroom 25	NO (-71.8%)	NO
01 Bedroom 24	NO (-65.7%)	NO
01 Bedroom 23	NO (-73.3%)	NO
01 Drug store	NO (-55.2%)	NO
01 Nurse store	N/A	N/A
01 Bedroom 16	NO (-53.9%)	NO
01 Bedroom 15	NO (-51.6%)	NO
01 Bedroom 29	NO (-64.8%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
01 Bedroom 28	NO (-62.9%)	NO
00 Bedroom 7	NO (-53.9%)	NO
00 Bedroom 6	NO (-55.1%)	NO
00 Bedroom 5	NO (-53.9%)	NO
00 Bedroom 4	NO (-53.9%)	NO
00 Bedroom 3	NO (-55.1%)	NO
00 Bedroom 2	NO (-53.9%)	NO
00 Bedroom 1	NO (-55.1%)	NO
00 Drug store	NO (-42.9%)	NO
00 Nurse store	N/A	N/A
00 Salon	NO (-49.1%)	NO
00 Reception	YES (+4.4%)	NO
00 Admin	NO (-79.6%)	NO
00 Bedroom 14	NO (-64.8%)	NO
00 Bedroom 13	NO (-62.9%)	NO
00 Bedroom 12	NO (-64.8%)	NO
00 Store	N/A	N/A
00 Bedroom 11	NO (-80.3%)	NO
00 Bedroom 10	NO (-71.8%)	NO
00 Bedroom 9	NO (-65.7%)	NO
00 Bedroom 8	NO (-73.3%)	NO
00 Quiet area	NO (-10.2%)	NO
02 Bedrrom 35	NO (-73.9%)	NO
02 Bedroom 34	NO (-73.9%)	NO
02 Bedroom 33	NO (-73.9%)	NO
02 Bedroom 32	NO (-73.9%)	NO
02 Bedroom 31	NO (-73.9%)	NO
02 Nurse Store	N/A	N/A
02 Bedroom 30	NO (-70%)	NO
02 Bedroom 39	NO (-79%)	NO
02 Bedroom 38	NO (-74%)	NO
02 Bedroom 37	NO (-74%)	NO
02 Bedroom 36	NO (-75%)	NO
00 Lounge	NO (-69.8%)	NO
02 Lounge	N/A	N/A
01 Lounge	NO (-61.9%)	NO
01 Dinning room	NO (-66.4%)	NO
BS Pool	N/A	N/A
BS Staff	N/A	N/A
BS Gym	N/A	N/A
BS Board training	N/A	N/A
BS Dir Office	N/A	N/A
BS Cinema	N/A	N/A

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]	2073.6	2073.6
External area [m^2]	3032.2	3216.9
Weather	LON	LON
Infiltration [m^3/hm^2@ 50Pa]	5	3
Average conductance [W/K]	542.43	1108.18
Average U-value [W/m^2K]	0.18	0.34
Alpha value* [%]	28.58	10

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

Building Use

% Area	Building Type
	Retail/Financial and Professional Services
	Restaurants and Cafes/Drinking Establishments/Takeaways
	Offices and Workshop Businesses
	General Industrial and Special Industrial Groups
	Storage or Distribution
	Hotels
100	**Residential Institutions: Hospitals and Care Homes**
	Residential Institutions: Residential Schools
	Residential Institutions: Universities and Colleges
	Secure Residential Institutions
	Residential Spaces
	Non-residential Institutions: Community/Day Centre
	Non-residential Institutions: Libraries, Museums, and Galleries
	Non-residential Institutions: Education
	Non-residential Institutions: Primary Health Care Building
	Non-residential Institutions: Crown and County Courts
	General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger Terminals
	Others: Emergency Services
	Others: Miscellaneous 24hr Activities
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

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

	Actual	Notional
Heating	8.5	9.41
Cooling	1.11	3.17
Auxiliary	12.58	9.9
Lighting	12.2	12.97
Hot water	25.8	25.76
Equipment*	65.8	65.8
TOTAL**	**60.19**	**61.22**

* 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/m^2]

	Actual	Notional
Photovoltaic systems	0	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	*0*	*0*

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	100.69	126.61
Primary energy [kWh_{PE}/m^2]	91.52	90.73
Total emissions [kg/m^2]	8.47	8.4

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: floor heating, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	101.8	0	10.7	0	8.9	2.64	0	2.64	0
	Notional	117.8	0	11.8	0	5.1	2.78	0	----	----
[ST] Variable refrigerant flow, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	2.8	93.8	0.3	5.2	24.1	2.64	5	2.64	5
	Notional	6.4	152.8	0.6	14.9	25	2.78	2.84	----	----
[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

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

Ashtonleigh Nursing Home_Be Green

As designed

Date: Tue Sep 15 13:41:07 2026

Administrative information

Building Details

Address: Horsham, West Sussex, RH12 2ED

Certifier details

Name: XDA Consulting Ltd

Telephone number: Phone

Address: Unit 2 Turner Dumbrell Workshops, Dumbrells Court Road, Ditchling, East Sussex, BN6 8GT

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.31

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.31

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

Foundation area [m^2]: 518.39

The CO_2 emission and primary energy rates of the building must not exceed the targets

Target CO_2 emission rate (TER), $kgCO_2/m^2.annum$	8.4	
Building CO_2 emission rate (BER), $kgCO_2/m^2.annum$	7.17	
Target primary energy rate (TPER), $kWh_{PE}/m^2.annum$	90.73	
Building primary energy rate (BPER), $kWh_{PE}/m^2.annum$	77.54	
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	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	First surface with maximum value
Walls*	0.26	0.14	0.55	BS00001A:Surf[3]
Floors	0.18	0.13	0.14	02000008:Surf[1]
Pitched roofs	0.16	0.1	0.14	0000001A:Surf[0]
Flat roofs	0.18	0.11	0.11	0200000D:Surf[0]
Windows** and roof windows	1.6	1.2	1.2	00000032:Surf[0]
Rooflights***	2.2	2.2	2.2	0200001C:Surf[1]
Personnel doors^	1.6	1.4	1.4	0000001A:Surf[1]
Vehicle access & similar large doors	1.3	-	-	No vehicle access doors in building
High usage entrance doors	3	-	-	No high usage entrance doors in building

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

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

* 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/m^2K

NB: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air permeability	Limiting standard	This building
$m^3/(h.m^2)$ at 50 Pa	8	5

Building services

For details on the standard values listed below, system-specific guidance, and additional regulatory requirements, refer to the Approved Documents.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	YES
Whole building electric power factor achieved by power factor correction	<0.9

1- ASHP - Underfloor heating and radiators

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	3.57	-	0.2	-	0.75
Standard value	2.5*	N/A	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- VRF + AHU

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	3.5	5.87	0	1.5	0.75
Standard value	2.5*	N/A	N/A	2^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.

^ Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.

1- HWS - ASHP

	Water heating efficiency	**Storage loss factor [kWh/litre per day]**
This building	3.88	0.004
Standard value	2*	N/A

* Standard shown is for all types except absorption and gas engine heat pumps.

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**
01 Bath bed22	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed21	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed20	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed19	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed18	-	-	0.3	-	-	-	-	-	-	-	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	2.3	2	0.5	0.5	0.4	1	Zone	Standard
01 Bath bed17	-	-	0.3	-	-	-	-	-	-	-	N/A
01 WC 2.4 m	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed29	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed28	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed27	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed26	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed25	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Assit WC	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed24	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed23	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed16	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed15	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed7	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed 6	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed5	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed4	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed3	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed2	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed1	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Visitors WC	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Circulation	-	1.5	-	-	-	-	-	-	-	-	N/A
00 WC 2.4 m	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed14	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed13	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed12	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed11	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed10	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Assit WC	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed9	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed8	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Corridor	-	1.5	-	-	-	-	-	-	-	-	N/A
02 Bath Bed35	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath Bed34	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath Bed33	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath Bed32	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath Bed31	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Assi WC	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath Bed30	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath Bed39	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath bed38	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath bed37	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Assis WC	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath bed36	-	-	0.3	-	-	-	-	-	-	-	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	2.3	2	0.5	0.5	0.4	1	Zone	Standard
02 Circulation	-	1.5	-	-	-	-	-	-	-	-	N/A
01 Assisted bath	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Corridor	-	1.5	-	-	-	-	-	-	-	-	N/A
BS Pool	-	1.5	-	-	-	-	-	-	-	-	N/A
BS WC 2.4 m	-	-	0.3	-	-	-	-	-	-	-	N/A
BS Ass WC 4.2 m	-	-	0.3	-	-	-	-	-	-	-	N/A
BS Dir WC	-	-	0.3	-	-	-	-	-	-	-	N/A
BS Laudry	-	-	0.3	-	-	-	-	-	-	-	N/A
BS Potwash	-	1.5	-	-	-	-	-	-	-	-	N/A
BS Kitchen	-	1.5	-	-	-	-	-	-	-	-	N/A
BS Fridge	-	1.5	-	-	-	-	-	-	-	-	N/A

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
01 Stairs South	120	-	-
01 Sluice	120	-	-
01 Bedroom 22	120	-	-
01 Bath bed22	120	-	-
01 Bath bed21	120	-	-
01 Bedroom 21	120	-	-
01 Bath bed20	120	-	-
01 Bedroom 20	120	-	-
01 Bedroom 19	120	-	-
01 Bath bed19	120	-	-
01 Bedroom 18	120	-	-
01 Bath bed18	120	-	-
01 Bath bed17	120	-	-
01 Bedroom 17	120	-	-
01 WC 2.4 m	120	-	-
01 Bath bed29	120	-	-
01 Bath bed28	120	-	-
01 Bath bed27	120	-	-
01 Bedroom 27	120	-	-
01 Bath bed26	120	-	-
01 Store	120	-	-
01 Bedroom 26	120	-	-
01 Bath bed25	120	-	-
01 Assit WC	120	-	-
01 Bedroom 25	120	-	-
01 Bath bed24	120	-	-
01 Bath bed23	120	-	-
01 Bedroom 24	120	-	-

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
01 Bedroom 23	120	-	-
01 Drug store	120	-	-
01 Nurse store	120	-	-
01 Link to Wimblehurst	120	-	-
01 Bath bed16	120	-	-
01 Bath bed15	120	-	-
01 Bedroom 16	120	-	-
01 Bedroom 15	120	-	-
01 Stairs North	120	-	-
01 Bedroom 29	120	-	-
01 Bedroom 28	120	-	-
00 Stairs South	120	-	-
00 Assisted bath	120	-	-
00 Sluice	120	-	-
00 Bedroom 7	120	-	-
00 Bath bed7	120	-	-
00 Bath bed 6	120	-	-
00 Bedroom 6	120	-	-
00 Bath bed5	120	-	-
00 Bedroom 5	120	-	-
00 Bedroom 4	120	-	-
00 Bath bed4	120	-	-
00 Bedroom 3	120	-	-
00 Bath bed3	120	-	-
00 Bath bed2	120	-	-
00 Bedroom 2	120	-	-
00 Bedroom 1	120	-	-
00 Bath bed1	120	-	-
00 Drug store	120	-	-
00 Nurse store	120	-	-
00 Visitors WC	120	-	-
00 Salon	120	-	-
00 Reception	120	120	1.125
00 Circulation	120	-	-
00 WC 2.4 m	120	-	-
00 Admin	120	-	-
00 Stairs North	120	-	-
00 Bath bed14	120	-	-
00 Bedroom 14	120	-	-
00 Bedroom 13	120	-	-
00 Bath bed13	120	-	-
00 Bath bed12	120	-	-
00 Bedroom 12	120	-	-

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
00 Bath bed11	120	-	-
00 Store	120	-	-
00 Bedroom 11	120	-	-
00 Bath bed10	120	-	-
00 Assit WC	120	-	-
00 Bedroom 10	120	-	-
00 Bath bed9	120	-	-
00 Bath bed8	120	-	-
00 Bedroom 9	120	-	-
00 Bedroom 8	120	-	-
00 Corridor	120	-	-
00 Quiet area	120	-	-
02 Bedrrom 35	120	-	-
02 Bath Bed35	120	-	-
02 Bedroom 34	120	-	-
02 Bath Bed34	120	-	-
02 Bedroom 33	120	-	-
02 Bath Bed33	120	-	-
02 Bath Bed32	120	-	-
02 Bedroom 32	120	-	-
02 Bath Bed31	120	-	-
02 Bedroom 31	120	-	-
02 Nurse Store	120	-	-
02 Sluice	120	-	-
02 Assi WC	120	-	-
02 Bedroom 30	120	-	-
02 Bath Bed30	120	-	-
02 Bedroom 39	120	-	-
02 Bath Bed39	120	-	-
02 Bath bed38	120	-	-
02 Bedroom 38	120	-	-
02 Bedroom 37	120	-	-
02 Bath bed37	120	-	-
02 Assis WC	120	-	-
02 Bath bed36	120	-	-
02 Bedroom 36	120	-	-
02 Circulation	120	-	-
02 Stairs South	120	-	-
00 Lounge	120	-	-
02 Stairs North	120	-	-
02 Lounge	120	-	-
01 Lounge	120	-	-
01 Dinning room	120	-	-

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
01 Assisted bath	120	-	-
01 Corridor	120	-	-
BS Stairs South	120	-	-
BS Pool	120	-	-
BS Staff	120	-	-
BS Shower 2.4m	120	-	-
BS WC 2.4 m	120	-	-
BS Store 0.5	120	-	-
BS Ass WC 4.2 m	120	-	-
BS Store 3.4 m	120	-	-
BS Gym	120	-	-
BS Board training	120	-	-
BS Dir WC	120	-	-
BS Dir Office	120	-	-
BS Store laundry	120	-	-
BS Laudry	120	-	-
BS Stairs North	120	-	-
BS Potwash	120	-	-
BS Kitchen	120	-	-
BS Dry store	120	-	-
BS Fridge	120	-	-
BS Corridor	120	-	-
BS Cinema	120	-	-

The spaces in the building should have appropriate passive control measures to limit solar gains in summer

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
01 Bedroom 22	NO (-53.9%)	NO
01 Bedroom 21	NO (-55.1%)	NO
01 Bedroom 20	NO (-53.9%)	NO
01 Bedroom 19	NO (-53.9%)	NO
01 Bedroom 18	NO (-55.1%)	NO
01 Bedroom 17	NO (-53.9%)	NO
01 Bedroom 27	NO (-64.8%)	NO
01 Store	N/A	N/A
01 Bedroom 26	N/A	N/A
01 Bedroom 25	NO (-71.8%)	NO
01 Bedroom 24	NO (-65.7%)	NO
01 Bedroom 23	NO (-73.3%)	NO
01 Drug store	NO (-55.2%)	NO
01 Nurse store	N/A	N/A
01 Bedroom 16	NO (-53.9%)	NO
01 Bedroom 15	NO (-51.6%)	NO
01 Bedroom 29	NO (-64.8%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
01 Bedroom 28	NO (-62.9%)	NO
00 Bedroom 7	NO (-53.9%)	NO
00 Bedroom 6	NO (-55.1%)	NO
00 Bedroom 5	NO (-53.9%)	NO
00 Bedroom 4	NO (-53.9%)	NO
00 Bedroom 3	NO (-55.1%)	NO
00 Bedroom 2	NO (-53.9%)	NO
00 Bedroom 1	NO (-55.1%)	NO
00 Drug store	NO (-42.9%)	NO
00 Nurse store	N/A	N/A
00 Salon	NO (-49.1%)	NO
00 Reception	YES (+4.4%)	NO
00 Admin	NO (-79.6%)	NO
00 Bedroom 14	NO (-64.8%)	NO
00 Bedroom 13	NO (-62.9%)	NO
00 Bedroom 12	NO (-64.8%)	NO
00 Store	N/A	N/A
00 Bedroom 11	NO (-80.3%)	NO
00 Bedroom 10	NO (-71.8%)	NO
00 Bedroom 9	NO (-65.7%)	NO
00 Bedroom 8	NO (-73.3%)	NO
00 Quiet area	NO (-10.2%)	NO
02 Bedrrom 35	NO (-73.9%)	NO
02 Bedroom 34	NO (-73.9%)	NO
02 Bedroom 33	NO (-73.9%)	NO
02 Bedroom 32	NO (-73.9%)	NO
02 Bedroom 31	NO (-73.9%)	NO
02 Nurse Store	N/A	N/A
02 Bedroom 30	NO (-70%)	NO
02 Bedroom 39	NO (-79%)	NO
02 Bedroom 38	NO (-74%)	NO
02 Bedroom 37	NO (-74%)	NO
02 Bedroom 36	NO (-75%)	NO
00 Lounge	NO (-69.8%)	NO
02 Lounge	N/A	N/A
01 Lounge	NO (-61.9%)	NO
01 Dinning room	NO (-66.4%)	NO
BS Pool	N/A	N/A
BS Staff	N/A	N/A
BS Gym	N/A	N/A
BS Board training	N/A	N/A
BS Dir Office	N/A	N/A
BS Cinema	N/A	N/A

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]	2073.6	2073.6
External area [m^2]	3032.2	3216.9
Weather	LON	LON
Infiltration [m^3/hm^2@ 50Pa]	5	3
Average conductance [W/K]	542.43	1108.18
Average U-value [W/m^2K]	0.18	0.34
Alpha value* [%]	28.58	10

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

Building Use

% Area	Building Type
	Retail/Financial and Professional Services
	Restaurants and Cafes/Drinking Establishments/Takeaways
	Offices and Workshop Businesses
	General Industrial and Special Industrial Groups
	Storage or Distribution
	Hotels
100	**Residential Institutions: Hospitals and Care Homes**
	Residential Institutions: Residential Schools
	Residential Institutions: Universities and Colleges
	Secure Residential Institutions
	Residential Spaces
	Non-residential Institutions: Community/Day Centre
	Non-residential Institutions: Libraries, Museums, and Galleries
	Non-residential Institutions: Education
	Non-residential Institutions: Primary Health Care Building
	Non-residential Institutions: Crown and County Courts
	General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger Terminals
	Others: Emergency Services
	Others: Miscellaneous 24hr Activities
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

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

	Actual	Notional
Heating	6.28	9.41
Cooling	0.94	3.17
Auxiliary	12.58	9.9
Lighting	12.2	12.97
Hot water	19.02	25.76
Equipment*	65.8	65.8
TOTAL**	**51.03**	**61.22**

* 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/m^2]

	Actual	Notional
Photovoltaic systems	0	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	*0*	*0*

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	100.69	126.61
Primary energy [kWh_{PE}/m^2]	77.54	90.73
Total emissions [kg/m^2]	7.17	8.4

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: floor heating, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	101.8	0	7.9	0	8.9	3.57	0	3.57	0
	Notional	117.8	0	11.8	0	5.1	2.78	0	----	----
[ST] Variable refrigerant flow, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	2.8	93.8	0.2	4.4	24.1	3.5	5.87	3.5	5.87
	Notional	6.4	152.8	0.6	14.9	25	2.78	2.84	----	----
[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

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

Ashtonleigh Nursing Home_PV panels

As designed

Date: Wed Sep 16 11:23:25 2026

Administrative information

Building Details

Address: Horsham, West Sussex, RH12 2ED

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.31

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.31

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

Certifier details

Name: XDA Consulting Ltd

Telephone number: Phone

Address: Unit 2 Turner Dumbrell Workshops, Dumbrells Court Road, Ditchling, East Sussex, BN6 8GT

Foundation area [m^2]: 518.39

The CO_2 emission and primary energy rates of the building must not exceed the targets

Target CO_2 emission rate (TER), $kgCO_2/m^2.annum$	8.4	
Building CO_2 emission rate (BER), $kgCO_2/m^2.annum$	6.08	
Target primary energy rate (TPER), $kWh_{PE}/m^2.annum$	90.73	
Building primary energy rate (BPER), $kWh_{PE}/m^2.annum$	64.88	
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	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	First surface with maximum value
Walls*	0.26	0.14	0.55	BS00001A:Surf[3]
Floors	0.18	0.13	0.14	02000008:Surf[1]
Pitched roofs	0.16	0.1	0.14	0000001A:Surf[0]
Flat roofs	0.18	0.11	0.11	0200000D:Surf[0]
Windows** and roof windows	1.6	1.2	1.2	00000032:Surf[0]
Rooflights***	2.2	2.2	2.2	0200001C:Surf[1]
Personnel doors^	1.6	1.4	1.4	0000001A:Surf[1]
Vehicle access & similar large doors	1.3	-	-	No vehicle access doors in building
High usage entrance doors	3	-	-	No high usage entrance doors in building

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

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

* 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/m^2K

NB: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air permeability	Limiting standard	This building
$m^3/(h.m^2)$ at 50 Pa	8	5

Building services

For details on the standard values listed below, system-specific guidance, and additional regulatory requirements, refer to the Approved Documents.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	YES
Whole building electric power factor achieved by power factor correction	<0.9

1- ASHP - Underfloor heating and radiators

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	3.57	-	0.2	-	0.75
Standard value	2.5*	N/A	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- VRF + AHU

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	3.5	5.87	0	1.5	0.75
Standard value	2.5*	N/A	N/A	2^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.

^ Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.

1- HWS - ASHP

	Water heating efficiency	**Storage loss factor [kWh/litre per day]**
This building	3.88	0.004
Standard value	2*	N/A

* Standard shown is for all types except absorption and gas engine heat pumps.

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**
01 Bath bed22	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed21	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed20	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed19	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed18	-	-	0.3	-	-	-	-	-	-	-	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	2.3	2	0.5	0.5	0.4	1	Zone	Standard
01 Bath bed17	-	-	0.3	-	-	-	-	-	-	-	N/A
01 WC 2.4 m	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed29	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed28	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed27	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed26	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed25	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Assit WC	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed24	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed23	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed16	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Bath bed15	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed7	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed 6	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed5	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed4	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed3	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed2	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed1	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Visitors WC	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Circulation	-	1.5	-	-	-	-	-	-	-	-	N/A
00 WC 2.4 m	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed14	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed13	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed12	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed11	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed10	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Assit WC	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed9	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Bath bed8	-	-	0.3	-	-	-	-	-	-	-	N/A
00 Corridor	-	1.5	-	-	-	-	-	-	-	-	N/A
02 Bath Bed35	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath Bed34	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath Bed33	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath Bed32	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath Bed31	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Assi WC	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath Bed30	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath Bed39	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath bed38	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath bed37	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Assis WC	-	-	0.3	-	-	-	-	-	-	-	N/A
02 Bath bed36	-	-	0.3	-	-	-	-	-	-	-	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	2.3	2	0.5	0.5	0.4	1	Zone	Standard
02 Circulation	-	1.5	-	-	-	-	-	-	-	-	N/A
01 Assisted bath	-	-	0.3	-	-	-	-	-	-	-	N/A
01 Corridor	-	1.5	-	-	-	-	-	-	-	-	N/A
BS Pool	-	1.5	-	-	-	-	-	-	-	-	N/A
BS WC 2.4 m	-	-	0.3	-	-	-	-	-	-	-	N/A
BS Ass WC 4.2 m	-	-	0.3	-	-	-	-	-	-	-	N/A
BS Dir WC	-	-	0.3	-	-	-	-	-	-	-	N/A
BS Laudry	-	-	0.3	-	-	-	-	-	-	-	N/A
BS Potwash	-	1.5	-	-	-	-	-	-	-	-	N/A
BS Kitchen	-	1.5	-	-	-	-	-	-	-	-	N/A
BS Fridge	-	1.5	-	-	-	-	-	-	-	-	N/A

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
01 Stairs South	120	-	-
01 Sluice	120	-	-
01 Bedroom 22	120	-	-
01 Bath bed22	120	-	-
01 Bath bed21	120	-	-
01 Bedroom 21	120	-	-
01 Bath bed20	120	-	-
01 Bedroom 20	120	-	-
01 Bedroom 19	120	-	-
01 Bath bed19	120	-	-
01 Bedroom 18	120	-	-
01 Bath bed18	120	-	-
01 Bath bed17	120	-	-
01 Bedroom 17	120	-	-
01 WC 2.4 m	120	-	-
01 Bath bed29	120	-	-
01 Bath bed28	120	-	-
01 Bath bed27	120	-	-
01 Bedroom 27	120	-	-
01 Bath bed26	120	-	-
01 Store	120	-	-
01 Bedroom 26	120	-	-
01 Bath bed25	120	-	-
01 Assit WC	120	-	-
01 Bedroom 25	120	-	-
01 Bath bed24	120	-	-
01 Bath bed23	120	-	-
01 Bedroom 24	120	-	-

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
01 Bedroom 23	120	-	-
01 Drug store	120	-	-
01 Nurse store	120	-	-
01 Link to Wimblehurst	120	-	-
01 Bath bed16	120	-	-
01 Bath bed15	120	-	-
01 Bedroom 16	120	-	-
01 Bedroom 15	120	-	-
01 Stairs North	120	-	-
01 Bedroom 29	120	-	-
01 Bedroom 28	120	-	-
00 Stairs South	120	-	-
00 Assisted bath	120	-	-
00 Sluice	120	-	-
00 Bedroom 7	120	-	-
00 Bath bed7	120	-	-
00 Bath bed 6	120	-	-
00 Bedroom 6	120	-	-
00 Bath bed5	120	-	-
00 Bedroom 5	120	-	-
00 Bedroom 4	120	-	-
00 Bath bed4	120	-	-
00 Bedroom 3	120	-	-
00 Bath bed3	120	-	-
00 Bath bed2	120	-	-
00 Bedroom 2	120	-	-
00 Bedroom 1	120	-	-
00 Bath bed1	120	-	-
00 Drug store	120	-	-
00 Nurse store	120	-	-
00 Visitors WC	120	-	-
00 Salon	120	-	-
00 Reception	120	120	1.125
00 Circulation	120	-	-
00 WC 2.4 m	120	-	-
00 Admin	120	-	-
00 Stairs North	120	-	-
00 Bath bed14	120	-	-
00 Bedroom 14	120	-	-
00 Bedroom 13	120	-	-
00 Bath bed13	120	-	-
00 Bath bed12	120	-	-
00 Bedroom 12	120	-	-

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
00 Bath bed11	120	-	-
00 Store	120	-	-
00 Bedroom 11	120	-	-
00 Bath bed10	120	-	-
00 Assit WC	120	-	-
00 Bedroom 10	120	-	-
00 Bath bed9	120	-	-
00 Bath bed8	120	-	-
00 Bedroom 9	120	-	-
00 Bedroom 8	120	-	-
00 Corridor	120	-	-
00 Quiet area	120	-	-
02 Bedrrom 35	120	-	-
02 Bath Bed35	120	-	-
02 Bedroom 34	120	-	-
02 Bath Bed34	120	-	-
02 Bedroom 33	120	-	-
02 Bath Bed33	120	-	-
02 Bath Bed32	120	-	-
02 Bedroom 32	120	-	-
02 Bath Bed31	120	-	-
02 Bedroom 31	120	-	-
02 Nurse Store	120	-	-
02 Sluice	120	-	-
02 Assi WC	120	-	-
02 Bedroom 30	120	-	-
02 Bath Bed30	120	-	-
02 Bedroom 39	120	-	-
02 Bath Bed39	120	-	-
02 Bath bed38	120	-	-
02 Bedroom 38	120	-	-
02 Bedroom 37	120	-	-
02 Bath bed37	120	-	-
02 Assis WC	120	-	-
02 Bath bed36	120	-	-
02 Bedroom 36	120	-	-
02 Circulation	120	-	-
02 Stairs South	120	-	-
00 Lounge	120	-	-
02 Stairs North	120	-	-
02 Lounge	120	-	-
01 Lounge	120	-	-
01 Dinning room	120	-	-

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
01 Assisted bath	120	-	-
01 Corridor	120	-	-
BS Stairs South	120	-	-
BS Pool	120	-	-
BS Staff	120	-	-
BS Shower 2.4m	120	-	-
BS WC 2.4 m	120	-	-
BS Store 0.5	120	-	-
BS Ass WC 4.2 m	120	-	-
BS Store 3.4 m	120	-	-
BS Gym	120	-	-
BS Board training	120	-	-
BS Dir WC	120	-	-
BS Dir Office	120	-	-
BS Store laundry	120	-	-
BS Laudry	120	-	-
BS Stairs North	120	-	-
BS Potwash	120	-	-
BS Kitchen	120	-	-
BS Dry store	120	-	-
BS Fridge	120	-	-
BS Corridor	120	-	-
BS Cinema	120	-	-

The spaces in the building should have appropriate passive control measures to limit solar gains in summer

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
01 Bedroom 22	NO (-53.9%)	NO
01 Bedroom 21	NO (-55.1%)	NO
01 Bedroom 20	NO (-53.9%)	NO
01 Bedroom 19	NO (-53.9%)	NO
01 Bedroom 18	NO (-55.1%)	NO
01 Bedroom 17	NO (-53.9%)	NO
01 Bedroom 27	NO (-64.8%)	NO
01 Store	N/A	N/A
01 Bedroom 26	N/A	N/A
01 Bedroom 25	NO (-71.8%)	NO
01 Bedroom 24	NO (-65.7%)	NO
01 Bedroom 23	NO (-73.3%)	NO
01 Drug store	NO (-55.2%)	NO
01 Nurse store	N/A	N/A
01 Bedroom 16	NO (-53.9%)	NO
01 Bedroom 15	NO (-51.6%)	NO
01 Bedroom 29	NO (-64.8%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
01 Bedroom 28	NO (-62.9%)	NO
00 Bedroom 7	NO (-53.9%)	NO
00 Bedroom 6	NO (-55.1%)	NO
00 Bedroom 5	NO (-53.9%)	NO
00 Bedroom 4	NO (-53.9%)	NO
00 Bedroom 3	NO (-55.1%)	NO
00 Bedroom 2	NO (-53.9%)	NO
00 Bedroom 1	NO (-55.1%)	NO
00 Drug store	NO (-42.9%)	NO
00 Nurse store	N/A	N/A
00 Salon	NO (-49.1%)	NO
00 Reception	YES (+4.4%)	NO
00 Admin	NO (-79.6%)	NO
00 Bedroom 14	NO (-64.8%)	NO
00 Bedroom 13	NO (-62.9%)	NO
00 Bedroom 12	NO (-64.8%)	NO
00 Store	N/A	N/A
00 Bedroom 11	NO (-80.3%)	NO
00 Bedroom 10	NO (-71.8%)	NO
00 Bedroom 9	NO (-65.7%)	NO
00 Bedroom 8	NO (-73.3%)	NO
00 Quiet area	NO (-10.2%)	NO
02 Bedrrom 35	NO (-73.9%)	NO
02 Bedroom 34	NO (-73.9%)	NO
02 Bedroom 33	NO (-73.9%)	NO
02 Bedroom 32	NO (-73.9%)	NO
02 Bedroom 31	NO (-73.9%)	NO
02 Nurse Store	N/A	N/A
02 Bedroom 30	NO (-70%)	NO
02 Bedroom 39	NO (-79%)	NO
02 Bedroom 38	NO (-74%)	NO
02 Bedroom 37	NO (-74%)	NO
02 Bedroom 36	NO (-75%)	NO
00 Lounge	NO (-69.8%)	NO
02 Lounge	N/A	N/A
01 Lounge	NO (-61.9%)	NO
01 Dinning room	NO (-66.4%)	NO
BS Pool	N/A	N/A
BS Staff	N/A	N/A
BS Gym	N/A	N/A
BS Board training	N/A	N/A
BS Dir Office	N/A	N/A
BS Cinema	N/A	N/A

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]	2073.6	2073.6
External area [m^2]	3032.2	3216.9
Weather	LON	LON
Infiltration [m^3/hm^2@ 50Pa]	5	3
Average conductance [W/K]	542.43	1108.18
Average U-value [W/m^2K]	0.18	0.34
Alpha value* [%]	28.58	10

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

Building Use

% Area	Building Type
	Retail/Financial and Professional Services
	Restaurants and Cafes/Drinking Establishments/Takeaways
	Offices and Workshop Businesses
	General Industrial and Special Industrial Groups
	Storage or Distribution
	Hotels
100	**Residential Institutions: Hospitals and Care Homes**
	Residential Institutions: Residential Schools
	Residential Institutions: Universities and Colleges
	Secure Residential Institutions
	Residential Spaces
	Non-residential Institutions: Community/Day Centre
	Non-residential Institutions: Libraries, Museums, and Galleries
	Non-residential Institutions: Education
	Non-residential Institutions: Primary Health Care Building
	Non-residential Institutions: Crown and County Courts
	General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger Terminals
	Others: Emergency Services
	Others: Miscellaneous 24hr Activities
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

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

	Actual	Notional
Heating	6.28	9.41
Cooling	0.94	3.17
Auxiliary	12.58	9.9
Lighting	12.2	12.97
Hot water	19.02	25.76
Equipment*	65.8	65.8
TOTAL**	**51.03**	**61.22**

* 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/m^2]

	Actual	Notional
Photovoltaic systems	8.67	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	*8.67*	*0*

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	100.69	126.61
Primary energy [kWh_{PE}/m^2]	64.88	90.73
Total emissions [kg/m^2]	6.08	8.4

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: floor heating, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	101.8	0	7.9	0	8.9	3.57	0	3.57	0
	Notional	117.8	0	11.8	0	5.1	2.78	0	----	----
[ST] Variable refrigerant flow, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	2.8	93.8	0.2	4.4	24.1	3.5	5.87	3.5	5.87
	Notional	6.4	152.8	0.6	14.9	25	2.78	2.84	----	----
[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