





SUSTAINABILITY STATEMENT

Client: WORKSHOP DESIGN STUDIO

Building address:

Silletts, Kelsil,
Spring Lane,
Radcliffe,
Bury,
Manchester,
M26 2TQ

Carbon, Energy & Sustainability Statement

Document Version:

Table 1 Document Version

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Carbon reduction

1.Executive Summary

1.1 Introduction

This energy strategy has been prepared on behalf of Workshop Design Studio, hereafter referred to as the Applicant, in support of a full planning application for the development known as Silletts, Kelsil, Spring Lane, Radcliffe, Bury, Manchester, M26 2TQ, hereafter referred to as the Development.

1.2 Policies and Requirements

National Policies

Below outlines the national policies this energy statement has been developed in accordance with,

- **National Planning Policy Framework**

The National Planning Policy Framework sets out the Government's planning policies for England and how these should be applied¹. It provides a framework within which locally-prepared plans for housing and other development can be produced.

- **Building Regulations Approved Document Part L**

Part L of Building Regulations covers the conservation of fuel and power, Notional specifications have been designed as a benchmarking tool to assess against. The DER (Dwelling Emission Rate) can therefore be assessed against the notional specification TER (Target Emission Rate).

Local Policies

Below outlines the local policies this energy statement has been developed in accordance with,

- **PLACES FOR EVERYONE JOINT DEVELOPMENT PLAN DOCUMENT**

Policy JP-S2: Carbon and Energy

The aim of delivering a carbon neutral Greater Manchester no later than 2038, with a dramatic reduction in greenhouse gas emissions, will be supported through a range of measures including:

Promoting the retrofitting of existing buildings with measures to improve energy efficiency and generate renewable and low carbon energy, heating and cooling;

Promoting the use of life cycle cost and carbon assessment tools to ensure the long-term impacts from development can be captured;

Taking a positive approach to renewable and low carbon energy schemes, particularly schemes that are led by, or meet the needs of local communities;

Increasing the range of nature-based solutions including carbon sequestration through the restoration of peat-based habitats, woodland management, tree-planting and natural flood management techniques;

An expectation that new development will, unless it can be demonstrated that it is not practicable or financially viable;

a. Be net zero carbon⁽²⁹⁾ which applies:

from adoption – to regulated operational carbon emissions;

from 2028 – to all emissions 'in construction'.

From 2025 development should also calculate and minimise carbon emissions from unregulated emissions alongside regulated emissions.

Development proposals should set out how this has been achieved in an energy statement in accordance with the energy hierarchy, which in order of importance seeks to:

- i. Minimise energy demand;
- ii. Maximise energy efficiency;
- iii. Use renewable energy;
- iv. Use low carbon energy; and
- v. Utilise other energy sources.

From 2025 any residual carbon emissions that cannot be fully mitigated on-site should be offset, in agreement with the relevant local planning authority through a financial contribution to a carbon offset fund.

As an interim measure, development should be consistent with the 2022 Part L Building Regulations unless superseded by changes to building regulations and/or national or local planning policies.

b. Incorporate adequate electric vehicle charging points, in line with Part S of the Building Regulations, unless superseded by relevant Local Plan policies, to future proof for the likely long-term demand, taking account of the potential maximum energy demand for the site;

c. Where practicable, prioritise connection to a renewable energy/heating/cooling network in the first instance or a low carbon energy/heating/cooling network that is adaptable to non-fossil fuels at a later date;

d. In residential developments, achieve energy demand reductions in terms of space heat demand; hot water energy demand and the delivery of on-site renewable energy generation, in accordance with Table 5.1.

For renewable energy generation priority should be given to PV installation where technically feasible, alternative technologies will be appropriate where the equivalent generation is evidenced.

e. For non-residential developments, achieve at least BREEAM excellent standard (or equivalent) for the 'Ene 01 – reduction of energy use and carbon emissions' category rising to 'BREEAM outstanding' equivalent for ENE 01 from 2028.

f. Include a detailed energy statement to demonstrate via site relevant evidence how the development has sought to maximize reductions in carbon emissions in line with relevant policy targets, including the minimization of overheating risks and appropriate measures for post occupancy evaluation. Whole life cycle emissions should be considered wherever possible.

Heat and Energy Networks

5.25 Around two-thirds of Greater Manchester's carbon emissions come from domestic and commercial buildings. Government analysis³⁰ identifies heat/energy networks as a cost-effective solution to this issue within areas of high heat density, with modelling suggesting that heat networks could be an important part of the least-cost mix of technologies needed to achieve UK-wide decarbonisation targets by 2050. Figure 5.1 shows the broad 'Heat and Energy Network Opportunity Areas' across the nine districts and these areas will be further refined by the districts when more local evidence becomes available.

5.26 Heat and energy networks have the potential to achieve significant emissions reductions and have significant potential for promoting regional growth in the Low Carbon sector. The shift to a low carbon economy creates the emergence of new sectors and technologies, which in turn requires new occupations, skills and expertise to be developed in the labour market. This Plan seeks to ensure that its residents will be ready for these new opportunities.

5.27 Further analysis³¹ has identified heat networks as among the technologies/systems offering the highest technical potential to contribute to the reduction in carbon emissions. The dense urban nature of some parts of Greater Manchester and the scale of development proposed in the Plan allocations means that there are opportunities for significant growth of heat networks aligned with, and building out from, strategic development sites. Analysis by Government³² suggests a threshold of around 26 kWh/m²/year above which heat networks are likely to be viable (noting that this figure is one of several factors that may affect viability and is commonly used to inform early-stage analysis only). National Heat Map data suggests many of our urban areas are above this viability threshold.

5.28 The UK Clean Growth Strategy (CGS)³³ sets out possible pathways to decarbonise the UK's economy by 2050 if the requirement of at least 100% for the reduction in greenhouse gas emissions³⁴ is to be achieved.

5.29 To comply with policy JP-S3, heat and energy network assessments will be required as part of an energy statement to support planning applications for new developments within the identified “Heat and Energy Network Opportunity Areas” to demonstrate compliance with PfE energy policies. To ensure consistency of approach and to aid the decision-making process, decentralised heat/energy network assessments are required to demonstrate consideration and analysis of:

- a. Identification of existing and proposed heat/energy loads;
- b. Identification of heat/energy supply sources;
- c. Identification of opportunities to utilise renewable and low carbon energy sources;
- d. Identification of opportunities to utilise waste and secondary heat sources;
- e. Impact of proposals and technology choices on local air quality;
- f. Design according to national best practice in relation to efficient heat network design (e.g. CIBSE CP1 Heat Networks: Code of Practice for the UK³⁵, or equivalent); and
- g. Adopting appropriate consumer protection standards (e.g. Heat Trust³⁶ or equivalent).

Assessment Methodology

As per the above national and local criteria, the below strategy has been adopted for the site

- To better reflect the emissions associated with the production of electricity, update fuel factors will be used as part of the assessment.
- The energy hierarchy and a fabric first approach will be utilised.
- The development contains change of use/refurbishment elements and therefore a notional set of calculations in accordance with Part L of the Building Regulations.
- The proposed extension area exceeds 100m² and therefore the extension area has been assessed both as a standalone element, and as part of the wider site. To ensure compliance with Part L, the extension area meets new build standards when assessed as a standalone building.

1.3 Energy Efficiency Measures

The proposed development incorporates several energy efficiency measure and designs to ensure compliance & CO₂ reduction including:

- Fabric Insulation improvements on Building Regulations Part L minimum standards,
- Air permeability targets implemented as part of the project to minimise heat loss,
- Improved glazing U & G Values for the development,
- Low Energy lighting scheme adopted on site.

1.4 Low Carbon Energy Supply

In accordance with Policy JP-S3 of the Places for Everyone Joint Development Plan, a heat network feasibility review has been undertaken for the proposed development at Spring Lane, Radcliffe. The site was screened against BEIS and Greater Manchester Combined Authority (GMCA) datasets, including the National Heat Map and published Heat Network Opportunity Areas (HNOAs).

The location lies outside any designated HNOA and is not in proximity to existing or proposed district energy infrastructure. The surrounding area is predominantly low-rise commercial and residential use, with no nearby high-density anchors or public sector buildings that would justify clustering or load balancing. The nature and scale of the development do not present a viable heat load for decentralised energy infrastructure, and there is currently no local network operator engaged in delivery.

Given these constraints, the development is not considered suitable for immediate connection to a heat network. However, the scheme will be future-proofed in line with good practice, should district infrastructure be brought forward locally.

1.5 On-site renewable technologies

The proposed design of the development incorporates the use of **Split/Multi System (Heat Pump)** to meet the requirements of the local authority. Further options have been reviewed to provide further carbon reductions; the use of on-site renewable technologies has been reviewed in further details within this statement.

1.6 Site Description

The proposed works involve the refurbishment and extension of the existing commercial building located at Silletts Funeral Service, Kelsil, Spring Lane, Radcliffe. The development includes the construction of a single-storey side extension to the right-hand (east) elevation, which will provide additional internal floorspace to support the operational needs of the premises.

Externally, the works will involve minor alterations to the building's façade to accommodate new access arrangements and window configurations, as well as associated hard landscaping adjustments. Internally, the layout will be reconfigured to improve functionality, with upgraded finishes and internal partitions throughout. No changes are proposed to the overall building height or primary roof structure.

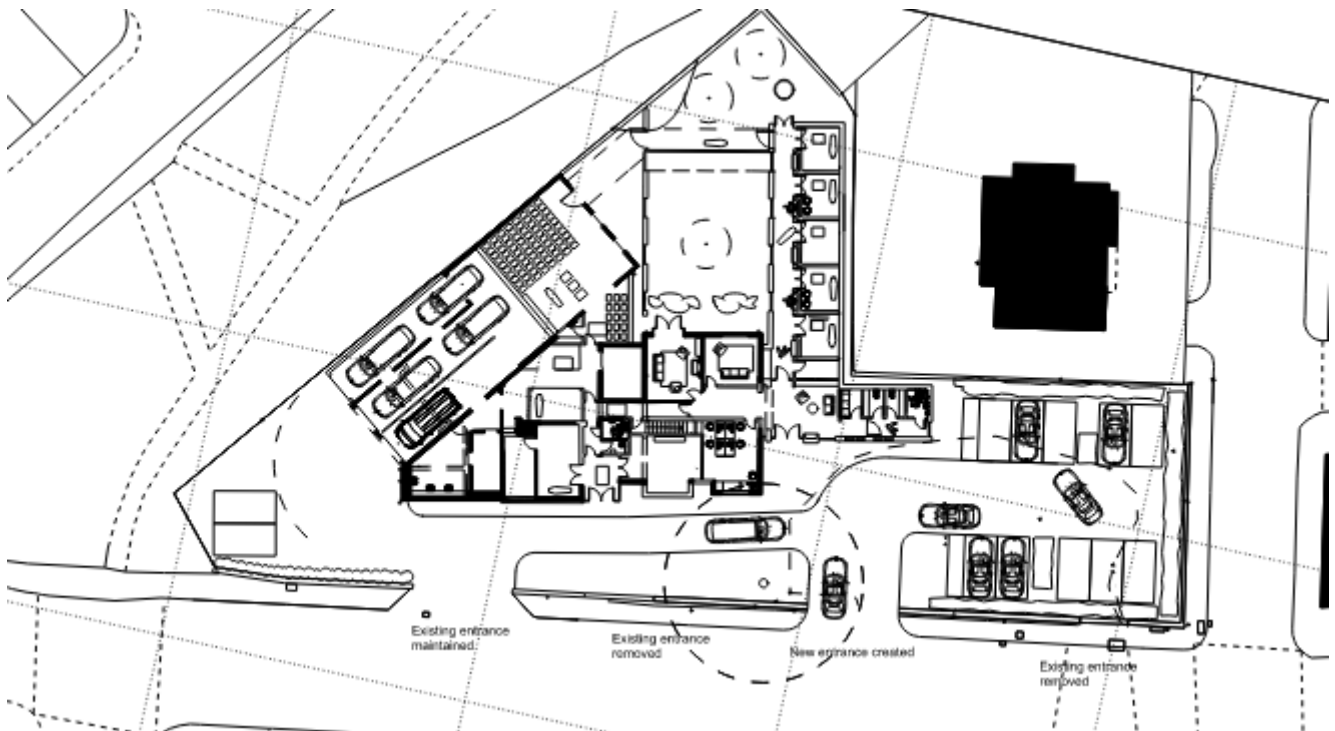


Fig.1 Proposed Development Floor Plans



Fig.2 Proposed Development Elevations

1.7 Renewable and Low Carbon Energy

The Energy hierarchy has been utilised to determine the carbon reductions at each stage, the BER/DER figures have been calculated in accordance with Building Regulations Approved Documents. As the development is change of use, Notional baseline calculations have been created to reflect the baseline and be lean stages in the energy hierarchy.

	Regulated domestic carbon dioxide savings	
	(Tonnes CO ₂ per annum)	(%)
Be lean: Savings from energy demand reduction	3.64	17.36%
Be clean: Savings from heat network	0.0	0%
Be green: Savings from renewable energy	4.92	23.42%
Cumulative on site savings	8.56	40.78%
Annual savings from off-set payment	0	

	Regulated domestic carbon dioxide	
	(Tonnes CO ₂ per annum)	
Baseline Carbon Emissions (Part L2021 standards)	20.97	
After Be Lean Measures	17.33	
After Be Green Measures	12.41	

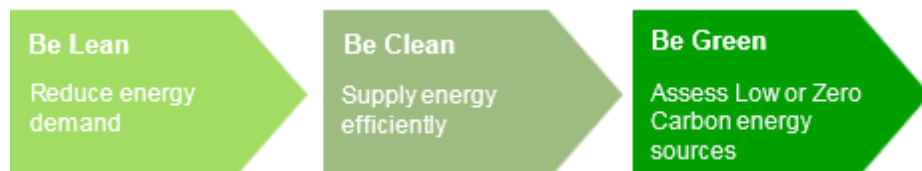
2. Methodology

2.1 Limitations

The calculations and figures utilised within this energy statement are based on Building regulations Part L methodology and should not be understood as a predictive assessment of likely future energy requirements. Other external factors will be present such as occupant system operation patterns and weather patterns.

2.2 Energy Hierarchy

The assessment has been carried out in accordance to the energy hierarchy method in line with GLA policy/s. The energy hierarchy method has been utilised to ensure the design of the development has reduced the demand for energy as far as reasonably practicable prior to the consideration of integrating Low or Zero Carbon technologies.



2.3 Carbon Factors

The below emissions factors have been used within the calculations based on SAP10 emission factors.

Fuel	Emission Factor (kgCO ₂ /KWh)
Gas	0.210
Electricity	0.213

3. Be Lean Measures

The following sections details the design measures that have been considered/to be implemented at the development.

3.1 Thermal insulation

In order to reduce the overall heating and cooling requirements for the development it is imperative that the development incorporates an efficient thermal envelope. The below elements have been considered for the development.

- Fabric Insulation improvements on Building Regulations Part L minimum standards,
- Air permeability targets implemented as part of the project to minimise heat loss,
- Improved glazing U & G Values for the development,
- Low Energy lighting scheme adopted on site.

The table below outlines the u-value targets for the development in comparison to the limiting factor set out in Building regulations Part L.

Element	U-Value (W/m ² k)
Ground Floor (Extension)	0.17
Ground Floor (Existing)	0.9 (assumed concrete slab)
External Façade (Existing)	0.60
External Façade (Extension)	0.16
Roof (Flat)	0.15
Roof (Sloped)	0.15
Glazing (New)	U= 1.4 / G =0.63
Glazing (Upgraded)	U= 1.4 / G =0.63
Door (New)	U = 1.0
Air Permeability	7
Low Energy Lighting	120 lm/W

3.2 Fabric Air Permeability

Fabric air permeability is a measure of the volume of air that can penetrate through the fabric of a building leading to ventilation heat loss and gain. An improved air permeability rate has been included within the development to reduce the heat loss and gain and therefore reduce the heating and cooling requirements. The improved air permeability rate has been applied across the whole development to reduce the existing and proposed heat loss.

3.3 Improved Glazing Elements

Improvement measures have been made to the glazed elements of the development, the u-values for the glazing whole units are to achieve 1.4 W/m²k. Additional attention should be taken to the solar (G) values for the glazing to control solar gains and overheating.

4. Be Clean Measures

1.4 Low Carbon Energy Supply

In accordance with Policy JP-S3 of the Places for Everyone Joint Development Plan, a heat network feasibility review has been undertaken for the proposed development at Spring Lane, Radcliffe. The site was screened against BEIS and Greater Manchester Combined Authority (GMCA) datasets, including the National Heat Map and published Heat Network Opportunity Areas (HNOAs).

The location lies outside any designated HNOA and is not in proximity to existing or proposed district energy infrastructure. The surrounding area is predominantly low-rise commercial and residential use, with no nearby high-density anchors or public sector buildings that would justify clustering or load balancing. The nature and scale of the development do not present a viable heat load for decentralised energy infrastructure, and there is currently no local network operator engaged in delivery.

Given these constraints, the development is not considered suitable for immediate connection to a heat network. However, the scheme will be future-proofed in line with good practice, should district infrastructure be brought forward locally.

5. Be Green Measures

The following sections discuss the renewable energy generation measures that have been considered, and those which will be implemented at the Development.

Renewable technologies harness energy from the environment and convert this to a useful form. Many renewable technologies are available. However, not all these are commercially viable, suitable for city-centre locations or appropriate for the Development.

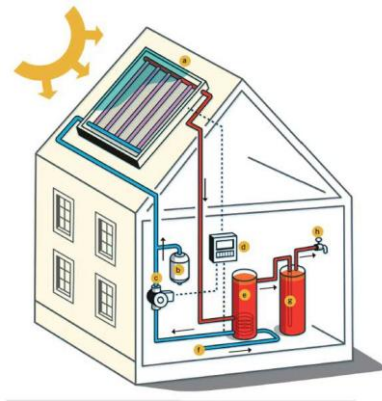
Technologies considered for the Development include:

- Solar Hot Water Panels (Solar Thermal)
- Photovoltaic (PV) Cells
- Combined Heat and Power (CHP) and Micro-CHP (mCHP)
- Ground Source Heat Pumps (GSHP)
- Air Source Heat Pumps (ASHP)
- Wind Turbines

5.1 Solar Hot Water Panels

Solar Hot Water Panels or, Solar Panels as they are commonly known, are used to supplement the energy required for the domestic hot water requirement. The system will collect and absorb solar radiation and transfer the heat directly to the storage tank. The circulation may then be either 'passive' thus relying on the natural convection or 'active' using a pump which increases a system's efficiency but has additional costs for the controls and energy requirement.

There are two main types of solar panel collector available to the UK market. The first is Flat Plate Collectors which consist of a dark absorber sheet with pipes built into the sheet encased in a weatherproof box. This will pump the collected solar radiation to the storage device to heat the water for use. The second main system is Evacuated Tube Collectors. These devices are more efficient and are effective under a "...wider range of conditions..." (TM38:2006) due to the energy being drawn from "...light rather than outside temperature..." This therefore allows this type of system to adapt to cooler climates.



Solar thermal technology has not been adopted for this development due to a combination of operational and integration limitations. While roof space is available, the building's hot water demand profile is not well-matched to the continuous generation characteristics of a solar thermal system. This mismatch would require oversizing of thermal storage to capture and retain unused heat, leading to inefficiencies and increased plant space requirements.

Additionally, solar thermal systems provide no benefit to space heating or electrical demand, making them less versatile than photovoltaic panels, which have been prioritised for their simplicity, cost-effectiveness, and ability to offset a broader range of building energy loads. For these reasons, solar thermal is not considered an appropriate or proportionate technology for this development.

5.2 Photovoltaic (PV) Cells

Solar panel electricity systems, also known as solar Photovoltaics' (PV), capture the sun's energy using photovoltaic cells. These cells do not need direct sunlight to work - they can still generate some electricity on a cloudy day. The cells convert the sunlight into electricity, which can be used to run household appliances and lighting.

PV cells are made from layers of semi-conducting material, usually silicon. When light shines on the cell it creates an electric field across the layers. The stronger the sunshine, the more electricity is produced. Groups of cells are mounted together in panels or modules that can be mounted on your roof.

The power of a PV cell is measured in kilowatts peak (kWp). That is the rate at which it generates energy at peak performance in full direct sunlight during the summer. PV cells come in a variety of shapes and sizes. Most PV systems are made up of panels that fit on top of an existing roof, but you can also fit solar tiles.



The site has been assessed as suitable for future installation of rooftop solar photovoltaic (PV) panels, with sufficient unshaded roof space available to accommodate a system if required. However, the proposed development has already achieved compliance with Building Regulations Part L through the use of high-efficiency mechanical systems, including a split/multi system providing heating and cooling to the newly extended area.

As such, on-site renewable generation has not been relied upon to meet carbon targets at this stage. Nonetheless, passive provision for PV has been considered within the electrical design, and the building remains technically capable of supporting a rooftop array in the future, should the site owner elect to pursue additional carbon reduction or energy offset measures post-occupation.

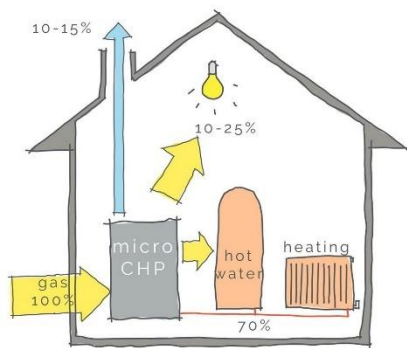
5.3 Combined Heat and Power (CHP) and Micro-CHP (mCHP)

Micro-CHP' stands for micro combined heat and power. This technology generates heat and electricity simultaneously, from the same energy source, in individual homes or buildings. The main output of a micro-CHP system is heat, with some electricity generation, at a typical ratio of about 6:1 for domestic appliances.

A typical domestic system will generate up to 1kW of electricity once warmed up: the amount of electricity generated over a year depends on how long the system is able to run. Any electricity you generate and don't use can be sold back to the grid.

Domestic micro-CHP systems are currently powered by mains gas or LPG; in the future there may be models powered by oil or bio-liquids. Although gas and LPG are fossil fuels rather than renewable energy sources, the technology is still considered to be a 'low carbon technology' because it can be more efficient than just burning a fossil fuel for heat and getting electricity from the national grid. Micro-CHP systems are similar in size and shape to ordinary, domestic boilers and like them can be wall hung or floor standing. The only difference to a standard boiler is that they are able to generate electricity while they are heating water.

For the householder, there is little difference between a micro-CHP installation and a standard boiler. If the dwelling already has a conventional boiler then a micro-CHP unit should be able to replace it as it's roughly the same size. However, the installer must be approved under the Micro generation Certification Scheme. Servicing costs and maintenance are estimated to be similar to a standard boiler – although a specialist will be required.



Combined Heat and Power (CHP) has not been specified for this development due to the building's low and intermittent heat demand, which does not support the continuous load profile required for CHP to operate efficiently. The scale and usage pattern of the premises would result in underutilisation of the system, leading to poor efficiency and extended payback periods.

In addition, gas-fired CHP is no longer supported as a low-carbon solution under current policy direction, due to the decarbonisation of the national electricity grid and local air quality concerns. Introducing CHP would also increase system complexity and maintenance requirements without delivering meaningful carbon savings compared to the proposed high-efficiency heat pump solution. For these reasons, CHP is not considered an appropriate or proportionate technology for this site.

5.4 Ground Source Heat Pumps (GSHP)

Ground source heat pumps use pipes which are buried in the garden to extract heat from the ground. This heat can then be used to heat radiators, underfloor or warm air heating systems and hot water in the home.

A ground source heat pump circulates a mixture of water and antifreeze around a loop of pipe - called a ground loop - which is buried in the garden. Heat from the ground is absorbed into the fluid and then passes through a heat exchanger into the heat pump. The ground stays at a constant temperature under the surface, so the heat pump can be used throughout the year - even in the middle of winter.

The length of the ground loop depends on the size of the home and the amount of heat needed. Longer loops can draw more heat from the ground, but need more space to be buried in. If space is limited, a vertical borehole can be drilled instead. Running costs will depend on several factors - including the size of the dwelling and how well insulated it is.

Ground Source Heat Pumps (GSHP) have been assessed and deemed unsuitable for this development due to the physical and technical limitations of the site. The building footprint occupies the majority of the plot, with no available soft ground or external area suitable for horizontal loop installation. The urban location also limits the feasibility of vertical boreholes, which would require specialist drilling equipment, access, and significant capital investment that is not proportionate to the building's heat demand.

Internally, the space required for plant and buffer storage would present integration challenges within the layout of the refurbished and extended building. Given these constraints, and the availability of air source and split system technologies which offer a more practical and cost-effective low-carbon solution, GSHP has not been considered viable for this site.

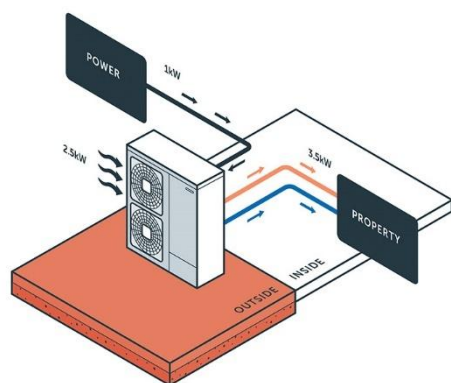
5.5 Air Source Heat Pumps (ASHP)

Air source heat pumps absorb heat from the outside air. This heat can then be used to heat radiators, underfloor heating systems, or warm air convectors and hot water in dwellings.

An air source heat pump extracts heat from the outside air in the same way that a fridge extracts heat from its inside. It can get heat from the air even when the temperature is as low as -15° C. Heat pumps have some impact on the environment as they need electricity to run, but the heat they extract from the ground, air, or water is constantly being renewed naturally.

Running costs will vary depending on several factors - including the size of the home, and how well insulated it is, and what room temperatures are achieved.

Metric	Value
Total cost	£31,250 (£125/m2 estimate used)
Grant	£0
Net cost to Owner	£6000
Annual savings	£4,297 (vs electric heating)
Simple payback	7.3 years
Lifespan	12-15 years



the proposed development will utilise a high-efficiency split/multi system for heating and cooling within the newly extended commercial floor area. This system offers a flexible, zone-based approach to space conditioning and operates with a seasonal coefficient of performance (SCOP) well above 3.0, significantly reducing electricity consumption when compared to direct electric resistance heating or legacy fossil-fuel systems.

The installation of this system has contributed to the development achieving a cumulative on-site carbon reduction of 40.78% against the Part L 2021 baseline. Of this, 3.64 tonnes CO₂ per annum (17.36%) is attributed to energy demand reduction measures under the “Be Lean” strategy, with a further 4.92 tonnes CO₂ per annum (23.42%) delivered through on-site renewable generation.

5.6 Wind Turbines

Wind turbines harness the power of the wind and use it to generate electricity. Forty percent of all the wind energy in Europe blows over the UK, making it an ideal country for domestic turbines (known as 'microwind' or 'small-wind' turbines). A typical system in an exposed site could easily generate more power than a dwelling's lights and electrical appliances use.

Wind turbines use large blades to catch the wind. When the wind blows, the blades are forced round, driving a turbine which generates electricity. The stronger the wind, the more electricity produced. There are two types of domestic-sized wind turbine:

Pole mounted: these are free standing and are erected in a suitably exposed position, often around 5kW to 6Kw

Building mounted: these are smaller than mast mounted systems and can be installed on the roof of a home where there is a suitable wind resource. Often these are around 1kW to 2kW in size. Wind turbines are eligible for the UK government's Feed-in-Tariffs which means money can be earned from the electricity generated by the turbine. Payments for the electricity not use and export to the local grid are available as well. To be eligible, the installer and wind turbine product must be certified under the Microgeneration Certification Scheme (MCS). If the turbine is not connected to the local electricity grid (known as off grid), unused electricity can be stored in a battery for use when there is no wind. Please note that the Feed-in Tariffs scheme is not available in Northern Ireland.

Wind turbine technology has been assessed and deemed unsuitable for this development. The site is located within a built-up urban area, surrounded by neighbouring structures that limit consistent wind exposure and create significant turbulence. These conditions are not conducive to effective small-scale wind generation, which relies on unobstructed wind flow to operate efficiently.

In addition, the available roof space is better suited to solar photovoltaic installation, which offers more predictable energy generation and fewer planning and structural implications. The installation of a wind turbine in this context would introduce elevated noise, visual impact, and potential planning concerns that outweigh its limited generation potential.

As such, wind generation is not considered a viable or proportionate solution for this development, and carbon reductions will instead be delivered through high-efficiency systems and on-site solar technologies.

5.7 Biomass

Energy from Biomass is produced by burning organic matter. Biomass fuel sources include trees, crops or animal dung are "...harvested and processed to create energy in the form of Electricity, Heat and Steam." (TM38:2006) Biomass is carbon based and when used as a fuel, produces carbon emissions. However, the carbon emitted during the combustion process is "...equivalent to the amount absorbed during growth..." (TM38:2006) The only carbon emissions associated with this energy source is treatment and transportation costs of the fuel to the end user.

Carbon savings that can be attributed to this technology type are significant. Biomass boiler installation can "...deliver all of the heating requirements for a building...using an almost carbon neutral fuel source." (TM38:2005) Biomass can be cost effective when directly compared to convention as oil and electricity heating sources. The benefit can be increased when the biomass source, for example wood chips, is diverted from the waste stream. However, maintenance requirements of a biomass system are higher and should be taken into account when installing one. Additionally, the UK introduced the Clean Air Act (1993) (www.uksmokecontrolareas.co.uk) to control the smoke pollution in areas caused by burning of smoky fuels.

Biomass heating has been assessed and deemed unsuitable for this development due to a range of practical and environmental constraints. The site's limited footprint and urban context do not allow for the safe or efficient storage and delivery of biomass fuel, which typically requires dedicated, secure space with controlled access.

Additionally, the combustion of biomass contributes to local air quality concerns, a key planning consideration in urban and suburban areas, particularly within Greater Manchester. This makes biomass systems increasingly incompatible with both national decarbonisation targets and regional air quality management objectives.

Given these spatial, operational, and environmental limitations, biomass is not considered a feasible or policy-aligned heating solution for this development. Low-carbon electric systems have instead been specified to ensure compliance with Part L and local sustainability priorities.

5.8 Summary of Be Green Measures

Technology	Deemed Viable	Adopted on site
Solar Hot Water Panels (Solar Thermal)	✓	✗
Photovoltaic (PV) Cells	✓	PV suitability to be reviewed further by client but not mandatory to meet local requirements
Combined Heat and Power (CHP) and Micro-CHP (mCHP)	✗	✗
Ground Source Heat Pumps (GSHP)	✗	✗
Air Source Heat Pumps (ASHP)	✓	✓
Wind Turbines	✗	✗
Biomass	✗	✗

	Regulated domestic carbon dioxide savings	
	(Tonnes CO ₂ per annum)	(%)
Be lean: Savings from energy demand reduction	3.64	17.36%
Be clean: Savings from heat network	0.0	0%
Be green: Savings from renewable energy	4.92	23.42%
Cumulative on site savings	8.56	40.78%
Annual savings from off-set payment	0	

	Regulated domestic carbon dioxide	
	(Tonnes CO ₂ per annum)	
Baseline Carbon Emissions (Part L2021 standards)	20.97	
After Be Lean Measures	17.33	
After Be Green Measures	12.41	

7. Conclusion

The proposed development at Spring Lane, Radcliffe, has been designed to deliver a high standard of energy performance in accordance with national building regulations and local planning policy, including the Places for Everyone Policies JP-S2 and JP-S3. The scheme includes the refurbishment of the existing building along with a new single-storey side extension. Energy efficiency has been prioritised through fabric improvements and the installation of a high-efficiency split/multi system within the extension area. While the development achieves compliance without reliance on renewable technologies, the site has been assessed as suitable for future integration of rooftop solar PV to further reduce operational carbon emissions if pursued post-completion.

Low-carbon and renewable technologies have been selected based on technical viability, site constraints, and operational suitability. Where options such as biomass, wind, solar thermal, CHP, or ground source heat pumps have been reviewed and discounted, appropriate justification has been provided. The development has also been future-proofed for connection to a potential district heat network, in accordance with emerging regional strategy.

7.1 Summary of energy efficient measures

Element	U-Value (W/m ² k)
Ground Floor (Extension)	0.17
Ground Floor (Existing)	0.9 (assumed concrete slab)
External Façade (Existing)	0.60
External Façade (Extension)	0.16
Roof (Flat)	0.15
Roof (Sloped)	0.15
Glazing (New)	U= 1.4 / G =0.63
Glazing (Upgraded)	U= 1.4 / G =0.63
Door (New)	U = 1.0
Air Permeability	7
Low Energy Lighting	120 lm/W

7.2 Summary of renewable or Low Carbon measures

Element	
Main Heating System	Split System SCOP 3.5+ for Extension Areas Retention of Gas main heating for existing areas.
Hot Water System	Fed from main heating system for existing areas and electric stand alone water heaters for extension areas.
Renewable Technologies	N/A
Mechanical Ventilation Heat Recovery System	N/A

7.3 Extension Only Assessment

As the extension area exceeds 100m², the extension has been assessed as standalone building and has been designed to ensure compliance with Part L new build standards. The BER/TER and BPER/TPER standards have been met and the BRUKL attached to this report for reference.

8.1 Retrofitting of Existing Buildings (JP-S2)

The proposed development at Spring Lane, Radcliffe includes the refurbishment and extension of an existing commercial building. In line with Policy JP-S2 of the Places for Everyone plan, the scheme incorporates targeted retrofit measures to improve the operational performance of the retained building fabric and services, while balancing practical and structural constraints.

As part of the refurbishment, the existing roof will be fully replaced with a new insulated construction designed to improve thermal performance in line with current Building Regulations. All windows within the retained building are being replaced with modern, high-performance double-glazed units, improving thermal efficiency and reducing air leakage. The existing external walls and floor structures are being retained without additional insulation due to buildability constraints and structural considerations.

The existing heating system serving the retained building will remain in place, having been assessed as fit for purpose given the limited internal alterations and the improved thermal performance resulting from the roof and glazing upgrades. The newly constructed side extension will operate independently, served by a high-efficiency split/multi system delivering heating and cooling via electric heat pump technology.

This approach ensures the development delivers a proportionate and fabric-first retrofit that improves energy performance of the existing structure while introducing efficient, low-carbon systems in new-build elements. Material retention has been prioritised to minimise embodied carbon and disruption, while selective upgrades target the most impactful and achievable performance gains within the existing envelope.

8.2 Water Efficiency

In alignment with the sustainability objectives of Policies JP-S2 and JP-S3 of the Places for Everyone Plan, the proposed commercial development at Spring Lane, Radcliffe will adopt a water-efficient specification strategy across all new plumbing and sanitary installations.

Within the newly constructed extension, all water-consuming components will be specified to meet enhanced efficiency standards. This includes the use of:

- Low-flow, sensor-activated or aerated taps
- Dual-flush WCs ($\leq 6/4$ litres per flush or better)
- Low-flow showers (where provided)
- Flow restrictors and non-concussive controls in staff or visitor facilities

These measures are intended to reduce potable water consumption in line with best practice for non-domestic buildings and are fully compliant with the requirements of Part G of the Building Regulations. Specification of sanitaryware and fittings will be confirmed at detailed design stage but will aim to reduce overall water use without compromising user comfort or hygiene standards.

Given the modest scale of the development and absence of high water demand processes, rainwater or greywater recycling systems have not been proposed. However, the scheme has been designed to allow for their future consideration, subject to operational or regulatory drivers.

8.3 Life Cycle Cost and Carbon Assessment (JP-S2)

The proposed development at Spring Lane, Radcliffe has been designed to minimise both operational and embodied carbon over its expected service life. While a full Whole Life Carbon Assessment (WLCA) is not mandated for this scale of commercial refurbishment and extension, the design approach is informed by whole life principles, prioritising retention of the existing structure, avoiding unnecessary demolition, and specifying durable, low maintenance materials with long term performance value.

The extension will be constructed using a high-performance timber frame system, offering a modern method of construction that delivers excellent thermal efficiency, reduced construction waste, and accelerated on-site assembly. A fabric-first approach has been prioritised to minimise energy demand through low thermal bridging, enhanced airtightness, and durable construction detailing. The chosen system allows for flexibility in build-up while maintaining a low-carbon structure with minimal lifecycle maintenance requirements.

To further strengthen compliance with JP S2, the project team commits to:

- Prioritising materials with Environmental Product Declarations (EPDs), where available, during the detailed design and specification process
- Documenting a long term maintenance and replacement plan for key building components, including HVAC equipment and SIP envelope elements

Through these measures, the development takes a proportionate and practical approach to minimising whole life carbon and operational risk, in support of Greater Manchester's transition to low carbon, climate ready commercial buildings.

8.4 Electric Vehicle Charging Provision

In accordance with Policy JP-S2 and the intent of Part S of the Building Regulations, the proposed development at Spring Lane, Radcliffe includes electric vehicle (EV) charging infrastructure designed to meet both operational and long-term sustainability needs. While the total number of visitor parking spaces on site does not exceed the 10-space threshold that triggers mandatory provision under Part S, the development will deliver active EV charging points to support the site's fleet of electric funeral vehicles.

To futureproof the remainder of the site and support wider adoption of electric vehicles, passive provision (e.g. cable containment and spare capacity within the electrical distribution board) will be included to enable the straightforward future installation of EV chargers to the visitor bays, should demand increase.

This strategy balances compliance with national regulations and regional sustainability policy, while responding proportionately to the current scale and use of the development. It ensures the site is electrification-ready without over-specifying infrastructure in advance of demand, in line with Greater Manchester's ambitions for low-carbon transport.

Project name

Silletts Funeral Services - Notional**As designed****Date:** Wed Jul 23 09:21:43 2025**Administrative information****Building Details****Address:** Silletts Funeral Services, Radcliffe, Bury,
Manchester, M26 2TQ**Certifier details****Name:** David Barsted**Telephone number:** 01625 315040**Address:** Suite F6.3b, Adelphi Mill, Grimshaw Lane,,
Bollington, SK10 5JB**Certification tool****Calculation engine:** SBEM**Calculation engine version:** v6.1.e.2**Interface to calculation engine:** Virtual Environment**Interface to calculation engine version:** v7.0.28**BRUKL compliance module version:** v6.1.e.1**Foundation area [m²]:** 360.6**The CO₂ emission and primary energy rates of the building must not exceed the targets****The building does not comply with England Building Regulations Part L 2021**

Target CO ₂ emission rate (TER), kgCO ₂ /m ² annum	11.43
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	29.08
Target primary energy rate (TPER), kWh _{PE} /m ² annum	57.46
Building primary energy rate (BPER), kWh _{PE} /m ² annum	164.87
Do the building's emission and primary energy rates exceed the targets?	BER > TER BPER > TPER

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

Fabric element	U _{a-Limit}	U _{a-Calc}	U _{i-Calc}	First surface with maximum value
Walls*	0.26	0.39	0.6	FF000002_W-1
Floors	0.18	0.67	0.9	FF000002_F
Pitched roofs	0.16	0.15	0.15	FF00000D_C
Flat roofs	0.18	0.15	0.15	FF000002_C
Windows** and roof windows	1.6	1.4	1.4	FF000003_W-1_O0
Rooflights***	2.2	2.21	2.21	FF00000B_C_O0
Personnel doors^	1.6	1.4	1.4	FF000009_W4_O0
Vehicle access & similar large doors	1.3	-	-	No external vehicle access doors
High usage entrance doors	3	-	-	No external high usage entrance doors

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

* Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.

** Display windows and similar glazing are excluded from the U-value check.

*** Values for rooflights refer to the horizontal position.

^ For fire doors, limiting U-value is 1.8 W/m²K

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

Air permeability	Limiting standard	This building
m³/(h.m²) at 50 Pa	8	13

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- Existing Gas Boiler

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.89	-	-	-	-
Standard value	0.93*	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 and overall for multi-boiler systems. For single boiler systems >2 MW or any individual boiler in a multi-boiler system, limiting efficiency is 0.88.					

1- SYST0000-DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	Hot water provided by HVAC system	0.006
Standard value	N/A	N/A

"No zones in project where local mechanical ventilation, exhaust, or terminal unit is applicable"

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m²]
	Standard value	95	80	0.3
GF: Mortuary		120	-	-
GF: Cold Store 1		120	-	-
GF: Chapel 1		120	-	-
GF: WC		120	-	-
GF: Cold Store 2		120	-	-
GF: Lounge Consult 1		120	-	-
GF: Lounge Consult 2		120	-	-
GF: Lobby		120	-	-
GF: Brew		120	-	-
GF: WC		120	-	-
GF: Circ		120	-	-
GF: Chapel 4		120	-	-
GF: Chapel 3		120	-	-
GF: Chapel 2		120	-	-
GF: Store		120	-	-
FF: Staff Room		120	-	-
FF: Staff Room		120	-	-
FF: WC		120	-	-
FF: Store		120	-	-
FF: Changing Room		120	-	-
GF: Function Room		120	-	-
GF: Office		120	-	-
GF: Reception		120	-	-
FF		120	-	-

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m ²]
	Standard value	95	80	0.3
GF: Extension Circ		120	-	-
GF: Chapel 6		120	-	-
GF: Chapel 5		120	-	-
GF: Coffin Store Workshop		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?
GF: Mortuary	N/A	N/A
GF: Cold Store 1	N/A	N/A
GF: Chapel 1	NO (-83.4%)	NO
GF: Cold Store 2	N/A	N/A
GF: Lounge Consult 1	NO (-11.2%)	NO
GF: Lounge Consult 2	NO (-72%)	NO
GF: Chapel 4	NO (-58.3%)	NO
GF: Chapel 3	NO (-58.5%)	NO
GF: Chapel 2	NO (-59.2%)	NO
FF: Staff Room	N/A	N/A
FF: Staff Room	N/A	N/A
FF: Changing Room	N/A	N/A
GF: Function Room	NO (-82.9%)	NO
GF: Office	NO (-80.1%)	NO
GF: Chapel 6	NO (-80.3%)	NO
GF: Chapel 5	NO (-59%)	NO
GF: Coffin Store Workshop	NO (-79.4%)	NO

Regulation 25A: Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m ²]	721.2	721.2
External area [m ²]	1940.3	1940.3
Weather	MAN	MAN
Infiltration [m ³ /hm ² @ 50Pa]	13	3
Average conductance [W/K]	861.24	550.14
Average U-value [W/m ² K]	0.44	0.28
Alpha value* [%]	19.01	28.51

* 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
59	Offices and Workshop Businesses
	General Industrial and Special Industrial Groups
	Storage or Distribution
	Hotels
	Residential Institutions: Hospitals and Care Homes
	Residential Institutions: Residential Schools
	Residential Institutions: Universities and Colleges
	Secure Residential Institutions
	Residential Spaces
	Non-residential Institutions: Community/Day Centre
25	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
16	General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger Terminals
	Others: Emergency Services
	Others: Miscellaneous 24hr Activities
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	127.44	56.84
Cooling	0	0
Auxiliary	2.33	1.11
Lighting	9.3	8.25
Hot water	3.36	2.14
Equipment*	17.63	17.63
TOTAL **	142.43	68.34

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

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

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	0	15.94
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>0</i>	<i>15.94</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	387.13	210.38
Primary energy [kWh _{PE} /m ²]	164.87	57.46
Total emissions [kg/m ²]	29.08	11.43

HVAC Systems Performance

System Type	Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEFF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity									
Actual	364.3	22.9	127.4	0	2.3	0.79	0	0.89	0
Notional	176	34.4	56.8	0	1.1	0.86	0	----	----

Key to terms

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

Project name

Silletts Funeral Services - Notional**As designed****Date:** Wed Jul 23 09:19:15 2025**Administrative information****Building Details****Address:** Silletts Funeral Services, Radcliffe, Bury,
Manchester, M26 2TQ**Certifier details****Name:** David Barsted**Telephone number:** 01625 315040**Address:** Suite F6.3b, Adelphi Mill, Grimshaw Lane,,
Bollington, SK10 5JB**Certification tool****Calculation engine:** SBEM**Calculation engine version:** v6.1.e.2**Interface to calculation engine:** Virtual Environment**Interface to calculation engine version:** v7.0.28**BRUKL compliance module version:** v6.1.e.1**Foundation area [m²]:** 360.6**The CO₂ emission and primary energy rates of the building must not exceed the targets****The building does not comply with England Building Regulations Part L 2021**

Target CO ₂ emission rate (TER), kgCO ₂ /m ² annum	11.43
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	24.03
Target primary energy rate (TPER), kWh _{PE} /m ² annum	57.46
Building primary energy rate (BPER), kWh _{PE} /m ² annum	137.77
Do the building's emission and primary energy rates exceed the targets?	BER > TER BPER > TPER

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

Fabric element	U _a -Limit	U _a -Calc	U _i -Calc	First surface with maximum value
Walls*	0.26	0.38	0.6	FF000002_W-1
Floors	0.18	0.67	0.9	FF000002_F
Pitched roofs	0.16	0.15	0.15	FF00000D_C
Flat roofs	0.18	0.15	0.15	FF000002_C
Windows** and roof windows	1.6	1.4	1.4	FF000003_W-1_O0
Rooflights***	2.2	2.21	2.21	FF00000B_C_O0
Personnel doors^	1.6	1.4	1.4	FF000009_W4_O0
Vehicle access & similar large doors	1.3	-	-	No external vehicle access doors
High usage entrance doors	3	-	-	No external high usage entrance doors

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

* Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.

** Display windows and similar glazing are excluded from the U-value check.

*** Values for rooflights refer to the horizontal position.

^ For fire doors, limiting U-value is 1.8 W/m²K

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

Air permeability	Limiting standard	This building
m³/(h.m²) at 50 Pa	8	7

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- Existing Gas Boiler

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.89	-	-	-	-
Standard value	0.93*	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 and overall for multi-boiler systems. For single boiler systems >2 MW or any individual boiler in a multi-boiler system, limiting efficiency is 0.88.					

1- SYST0000-DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	Hot water provided by HVAC system	0.006
Standard value	N/A	N/A

"No zones in project where local mechanical ventilation, exhaust, or terminal unit is applicable"

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m²]
	Standard value	95	80	0.3
GF: Mortuary		120	-	-
GF: Cold Store 1		120	-	-
GF: Chapel 1		120	-	-
GF: WC		120	-	-
GF: Cold Store 2		120	-	-
GF: Lounge Consult 1		120	-	-
GF: Lounge Consult 2		120	-	-
GF: Lobby		120	-	-
GF: Brew		120	-	-
GF: WC		120	-	-
GF: Circ		120	-	-
GF: Chapel 4		120	-	-
GF: Chapel 3		120	-	-
GF: Chapel 2		120	-	-
GF: Store		120	-	-
FF: Staff Room		120	-	-
FF: Staff Room		120	-	-
FF: WC		120	-	-
FF: Store		120	-	-
FF: Changing Room		120	-	-
GF: Function Room		120	-	-
GF: Office		120	-	-
GF: Reception		120	-	-
FF		120	-	-

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m ²]
	Standard value	95	80	0.3
GF: Extension Circ		120	-	-
GF: Chapel 6		120	-	-
GF: Chapel 5		120	-	-
GF: Coffin Store Workshop		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?
GF: Mortuary	N/A	N/A
GF: Cold Store 1	N/A	N/A
GF: Chapel 1	NO (-83.4%)	NO
GF: Cold Store 2	N/A	N/A
GF: Lounge Consult 1	NO (-11.2%)	NO
GF: Lounge Consult 2	NO (-72%)	NO
GF: Chapel 4	NO (-58.4%)	NO
GF: Chapel 3	NO (-58.6%)	NO
GF: Chapel 2	NO (-59.3%)	NO
FF: Staff Room	N/A	N/A
FF: Staff Room	N/A	N/A
FF: Changing Room	N/A	N/A
GF: Function Room	NO (-82.9%)	NO
GF: Office	NO (-80.1%)	NO
GF: Chapel 6	NO (-80.3%)	NO
GF: Chapel 5	NO (-59.2%)	NO
GF: Coffin Store Workshop	NO (-79.4%)	NO

Regulation 25A: Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m ²]	721.2	721.2
External area [m ²]	1940.3	1940.3
Weather	MAN	MAN
Infiltration [m ³ /hm ² @ 50Pa]	7	3
Average conductance [W/K]	855.71	550.14
Average U-value [W/m ² K]	0.44	0.28
Alpha value* [%]	19.13	28.51

* 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
59	Offices and Workshop Businesses
	General Industrial and Special Industrial Groups
	Storage or Distribution
	Hotels
	Residential Institutions: Hospitals and Care Homes
	Residential Institutions: Residential Schools
	Residential Institutions: Universities and Colleges
	Secure Residential Institutions
	Residential Spaces
	Non-residential Institutions: Community/Day Centre
25	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
16	General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger Terminals
	Others: Emergency Services
	Others: Miscellaneous 24hr Activities
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	103.37	56.84
Cooling	0	0
Auxiliary	2.33	1.11
Lighting	9.3	8.25
Hot water	3.36	2.14
Equipment*	17.63	17.63
TOTAL **	118.35	68.34

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

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

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	0	15.94
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>0</i>	<i>15.94</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	322.36	210.38
Primary energy [kWh _{PE} /m ²]	137.76	57.46
Total emissions [kg/m ²]	24.03	11.43

HVAC Systems Performance										
System Type	Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEEF	Cool SSEER	Heat gen SEFF	Cool gen SEER	
[ST] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
	Actual	295.5	26.9	103.4	0	2.3	0.79	0	0.89	0
	Notional	176	34.4	56.8	0	1.1	0.86	0	----	----

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

Project name

Silletts Funeral Services -Whole Building**As designed****Date:** Tue Jul 22 15:50:24 2025**Administrative information****Building Details****Address:** Silletts Funeral Services, Radcliffe, Bury,
Manchester, M26 2TQ**Certifier details****Name:** David Barsted**Telephone number:** 01625 315040**Address:** Suite F6.3b, Adelphi Mill, Grimshaw Lane,,
Bollington, SK10 5JB**Certification tool****Calculation engine:** SBEM**Calculation engine version:** v6.1.e.2**Interface to calculation engine:** Virtual Environment**Interface to calculation engine version:** v7.0.28**BRUKL compliance module version:** v6.1.e.1**Foundation area [m²]:** 360.6**The CO₂ emission and primary energy rates of the building must not exceed the targets****The building does not comply with England Building Regulations Part L 2021**

Target CO ₂ emission rate (TER), kgCO ₂ /m ² annum	7.68
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	17.22
Target primary energy rate (TPER), kWh _{PE} /m ² annum	49.45
Building primary energy rate (BPER), kWh _{PE} /m ² annum	107.99
Do the building's emission and primary energy rates exceed the targets?	BER > TER BPER > TPER

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

Fabric element	U _a -Limit	U _a -Calc	U _i -Calc	First surface with maximum value
Walls*	0.26	0.38	0.6	FF000002_W-1
Floors	0.18	0.67	0.9	FF000002_F
Pitched roofs	0.16	0.15	0.15	FF000018_C
Flat roofs	0.18	0.15	0.15	FF000002_C
Windows** and roof windows	1.6	1.31	1.31	FF000003_W-1_O0
Rooflights***	2.2	1.4	1.4	FF00000B_C_O0
Personnel doors^	1.6	1.1	1.1	FF000009_W4_O0
Vehicle access & similar large doors	1.3	-	-	No external vehicle access doors
High usage entrance doors	3	-	-	No external high usage entrance doors

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

* Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.

** Display windows and similar glazing are excluded from the U-value check.

*** Values for rooflights refer to the horizontal position.

^ For fire doors, limiting U-value is 1.8 W/m²K

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

Air permeability	Limiting standard	This building
m ³ /(h.m ²) at 50 Pa	8	7

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- Existing Gas Boiler

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.89	-	-	-	-
Standard value	0.93*	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 and overall for multi-boiler systems. For single boiler systems >2 MW or any individual boiler in a multi-boiler system, limiting efficiency is 0.88.					

2- Split System

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.8	5	-	-	-
Standard value	2.5*	5	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

1- SYST0000-DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	Hot water provided by HVAC system	0.008
Standard value	N/A	N/A

2- SYST0001-DHW

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

Zone-level mechanical ventilation, exhaust, and terminal units

ID	System type in the Approved Documents
A	Local supply or extract ventilation units
B	Zonal supply system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal balanced supply and extract ventilation system
E	Local balanced supply and extract ventilation units
F	Other local ventilation units
G	Fan assisted terminal variable air volume units
H	Fan coil units
I	Kitchen extract with the fan remote from the zone and a grease filter
NB: Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.	

Zone name	SFP [W/(l/s)]										HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I		Zone	Standard
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1			
GF: WC	0.3	-	-	-	-	-	-	-	-	-	-	N/A
FF: WC	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
GF: Brew	0.3	-	-	-	-	-	-	-	-	-	N/A
GF: WC	0.3	-	-	-	-	-	-	-	-	-	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
GF: Mortuary		120	-	-
GF: Cold Store 1		120	-	-
GF: Chapel 1		120	-	-
GF: WC		120	-	-
GF: Cold Store 2		120	-	-
GF: Lounge Consult 1		120	-	-
GF: Lounge Consult 2		120	-	-
GF: Lobby		120	-	-
FF: Staff Room		120	-	-
FF: Staff Room		120	-	-
FF: WC		120	-	-
FF: Store		120	-	-
FF: Changing Room		120	-	-
GF: Function Room		120	-	-
GF: Office		120	-	-
GF: Coffin Store Workshop		120	-	-
GF: Brew		120	-	-
GF: WC		120	-	-
GF: Circ		120	-	-
GF: Chapel 4		120	-	-
GF: Chapel 3		120	-	-
GF: Chapel 2		120	-	-
GF: Store		120	-	-
GF: Reception		120	-	-
FF		120	-	-
GF: Extension Circ		120	-	-
GF: Chapel 6		120	-	-
GF: Chapel 5		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?
GF: Mortuary	N/A	N/A
GF: Cold Store 1	N/A	N/A
GF: Chapel 1	NO (-83.5%)	NO
GF: Cold Store 2	N/A	N/A
GF: Lounge Consult 1	NO (-11.4%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
GF: Lounge Consult 2	NO (-72.1%)	NO
FF: Staff Room	N/A	N/A
FF: Staff Room	N/A	N/A
FF: Changing Room	N/A	N/A
GF: Function Room	NO (-83%)	NO
GF: Office	NO (-80.2%)	NO
GF: Coffin Store Workshop	NO (-79.5%)	NO
GF: Brew	N/A	N/A
GF: WC	N/A	N/A
GF: Circ	NO (-36.1%)	NO
GF: Chapel 4	NO (-58.4%)	NO
GF: Chapel 3	NO (-58.6%)	NO
GF: Chapel 2	NO (-59.3%)	NO
GF: Store	N/A	N/A
GF: Reception	NO (-70.5%)	NO
FF	NO (-43.5%)	NO
GF: Extension Circ	NO (-74.4%)	NO
GF: Chapel 6	NO (-80.3%)	NO
GF: Chapel 5	NO (-59.2%)	NO

Regulation 25A: Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m ²]	721.2	721.2
External area [m ²]	1940.3	1940.3
Weather	MAN	MAN
Infiltration [m ³ /hm ² @ 50Pa]	7	3
Average conductance [W/K]	837.37	550.14
Average U-value [W/m ² K]	0.43	0.28
Alpha value* [%]	19.55	28.51

* 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
59	Offices and Workshop Businesses
	General Industrial and Special Industrial Groups
	Storage or Distribution
	Hotels
	Residential Institutions: Hospitals and Care Homes
	Residential Institutions: Residential Schools
	Residential Institutions: Universities and Colleges
	Secure Residential Institutions
	Residential Spaces
	Non-residential Institutions: Community/Day Centre
25	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
16	General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger Terminals
	Others: Emergency Services
	Others: Miscellaneous 24hr Activities
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	73.54	37.81
Cooling	0.74	0.95
Auxiliary	1.63	0.82
Lighting	9.3	8.25
Hot water	3.28	2.14
Equipment*	17.63	17.63
TOTAL **	88.48	49.97

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

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

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	0	10.09
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>0</i>	<i>10.09</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	321.52	213.19
Primary energy [kWh _{PE} /m ²]	107.99	49.45
Total emissions [kg/m ²]	17.22	7.68

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	285.2	27.8	99.8	0	2.5	0.79	0	0.89	0
	Notional	133.8	29.7	43.2	0	1.2	0.86	0	----	----
[ST] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	310.5	27	24.4	2.1	0.1	3.54	3.55	3.8	5
	Notional	263.2	43.1	27.7	2.7	0.1	2.64	4.4	----	----

Key to terms

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

Project name

Silletts Funeral Services - Extension Only As designed

Date: Tue Jul 22 15:49:52 2025

Administrative information

Building Details

Address: Silletts Funeral Services, Radcliffe, Bury,
Manchester, M26 2TQ

Certifier details

Name: David Barsted

Telephone number: 01625 315040

Address: Suite F6.3b, Adelphi Mill, Grimshaw Lane,,
Bollington, SK10 5JB

Certification tool

Calculation engine: SBEM

Calculation engine version: v6.1.e.2

Interface to calculation engine: Virtual Environment

Interface to calculation engine version: v7.0.28

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

Foundation area [m²]: 360.6

The CO₂ emission and primary energy rates of the building must not exceed the targets

Target CO ₂ emission rate (TER), kgCO ₂ /m ² annum	5.47
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	5.04
Target primary energy rate (TPER), kWh _{PE} /m ² annum	57.3
Building primary energy rate (BPER), kWh _{PE} /m ² annum	52.76
Do the building's emission and primary energy rates exceed the targets?	BER ≤ TER BPER ≤ TPER

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

Fabric element	U _{a-Limit}	U _{a-Calc}	U _{i-Calc}	First surface with maximum value
Walls*	0.26	0.16	0.16	FF000012_W0
Floors	0.18	0.18	0.18	FF000012_F
Pitched roofs	0.16	0.15	0.15	FF00000D_C
Flat roofs	0.18	0.15	0.15	FF00001D_C
Windows** and roof windows	1.6	1.31	1.31	FF000013_W0_O0
Rooflights***	2.2	1.4	1.4	FF00000D_C_O0
Personnel doors^	1.6	1.1	1.1	FF00001D_W8_O4
Vehicle access & similar large doors	1.3	-	-	No external vehicle access doors
High usage entrance doors	3	-	-	No external high usage entrance doors

U_{a-Limit} = Limiting area-weighted average U-values [W/(m²K)]

U_{i-Calc} = Calculated maximum individual element U-values [W/(m²K)]

U_{a-Calc} = Calculated area-weighted average U-values [W/(m²K)]

* Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.

** Display windows and similar glazing are excluded from the U-value check.

*** Values for rooflights refer to the horizontal position.

^ For fire doors, limiting U-value is 1.8 W/m²K

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

Air permeability	Limiting standard	This building
m ³ /(h.m ²) at 50 Pa	8	7

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- Split System

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.8	5	-	-	-
Standard value	2.5*	5	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

1- SYST0001-DHW

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

Zone-level mechanical ventilation, exhaust, and terminal units

ID	System type in the Approved Documents
A	Local supply or extract ventilation units
B	Zonal supply system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal balanced supply and extract ventilation system
E	Local balanced supply and extract ventilation units
F	Other local ventilation units
G	Fan assisted terminal variable air volume units
H	Fan coil units
I	Kitchen extract with the fan remote from the zone and a grease filter
NB: Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.	

Zone name	SFP [W/(l/s)]										HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I		Zone	Standard
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1			
GF: Brew	0.3	-	-	-	-	-	-	-	-	-	-	N/A
GF: WC	0.3	-	-	-	-	-	-	-	-	-	-	N/A

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m ²]
Standard value		95	80	0.3
GF: Brew		120	-	-
GF: WC		120	-	-
GF: Circ		120	-	-
GF: Chapel 4		120	-	-
GF: Chapel 3		120	-	-
GF: Chapel 2		120	-	-
GF: Store		120	-	-
GF: Reception		120	-	-

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m ²]
	Standard value	95	80	0.3
FF		120	-	-
GF: Extension Circ		120	-	-
GF: Chapel 6		120	-	-
GF: Chapel 5		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?
GF: Brew	N/A	N/A
GF: WC	N/A	N/A
GF: Circ	NO (-36.1%)	NO
GF: Chapel 4	NO (-58.4%)	NO
GF: Chapel 3	NO (-58.6%)	NO
GF: Chapel 2	NO (-59.3%)	NO
GF: Store	N/A	N/A
GF: Reception	NO (-70.5%)	NO
FF	NO (-43.5%)	NO
GF: Extension Circ	NO (-74.4%)	NO
GF: Chapel 6	NO (-80.3%)	NO
GF: Chapel 5	NO (-59.2%)	NO

Regulation 25A: Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m ²]	250.9	250.9
External area [m ²]	776.1	776.1
Weather	MAN	MAN
Infiltration [m ³ /hm ² @ 50Pa]	7	3
Average conductance [W/K]	179.99	243.78
Average U-value [W/m ² K]	0.23	0.31
Alpha value* [%]	47.15	30.84

* 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
64	Offices and Workshop Businesses
	General Industrial and Special Industrial Groups
	Storage or Distribution
	Hotels
	Residential Institutions: Hospitals and Care Homes
	Residential Institutions: Residential Schools
	Residential Institutions: Universities and Colleges
	Secure Residential Institutions
	Residential Spaces
	Non-residential Institutions: Community/Day Centre
6	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
30	General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger Terminals
	Others: Emergency Services
	Others: Miscellaneous 24hr Activities
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	24.48	27.79
Cooling	2.1	2.72
Auxiliary	0.08	0.12
Lighting	6.18	6.08
Hot water	1.28	1.28
Equipment*	7.18	7.18
TOTAL **	34.13	38

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

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

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	0	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>0</i>	<i>0</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	338.99	307.21
Primary energy [kWh _{PE} /m ²]	52.76	57.3
Total emissions [kg/m ²]	5.04	5.47

HVAC Systems Performance										
System Type	Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEFF	Cool SSEER	Heat gen SEFF	Cool gen SEER	
[ST] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	312.1	26.9	24.5	2.1	0.1	3.54	3.55	3.8	5
	Notional	264.2	43.1	27.8	2.7	0.1	2.64	4.4	----	----

Key to terms

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