

52/66 Salamander Street, Edinburgh

Sustainability and Energy Statement

EDINBURGH GLASGOW INVERNESS



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Executive Summary

This Sustainability and Energy Statement is prepared on behalf of Stephen G Dalton & Son ('the Applicant') who is seeking detailed planning permission for the following description of development:

Demolition of the existing building, and the erection of mixed use development including: residential development (build to rent) and purpose-built student accommodation development with commercial/retail floorspace (Class A1) at street level with associated amenity space, landscaping and cycle parking at 52-66 Salamander Street, Leith, Edinburgh EH6 7LA ('the Application').

This Sustainability and Energy Statement is part of a suite of documents submitted with the Application, as outlined below. These supporting documents are in addition to the formal application documents comprising the accompanying plans, sections, and elevations.

- Planning Statement
- Pre-application Consultation Report
- Design and Access Statement (Inc. Waste Management Plan, Building Adaptability and Amenity Breakdown)
 - Landscape Statement
 - Noise Impact Assessment
 - Air Quality Impact Assessment
 - Transport Statement
 - Flood Risk and Drainage Strategy
 - Geo-environmental Report
 - Sunlight and Daylight Assessment
 - Ecological Assessment
 - **Statement of Energy**
 - Archaeological Assessment

The purpose of this Sustainability Statement is to demonstrate that the development is highly sustainable and is compliant with the City of Edinburgh Council's Local Development Plan (LDP) 2016.

The LDP's 'Design Principles for New Development' outlines a series of sustainable design measures, that should be adopted by the design. This will ensure the development:

- is of the highest design quality and respects, safeguards and enhances the special character of the city;
- assists the city in developing in an integrated and sustainable manner; and
- creates new and distinctive places which support and enhance the special character of the city and meet the needs of residents and other users.

The energy features within the development will ensure that future occupiers will be occupying a building with inherently low energy demands.

This Sustainability Statement demonstrates that approach, describing the measures taken by the design team to create a sustainable and efficient development, whilst considering the contextual environment of the site, project constraints and the nature of a new build mixed-use residential development (build to rent) and purpose-built student accommodation development (PBSA) with commercial/retail floorspace.

1. Introduction

52/66 Salamander Street

Description of Development

The proposed development is for the erection of mixed use development including: residential development (build to rent) and purpose-built student accommodation development with commercial/retail floorspace (Class A1) at street level with associated amenity space, landscaping and cycle parking at 52-66 Salamander Street, Leith, Edinburgh.

Site Description and Surroundings

The proposed development will replace a metal recycling yard, which is surrounded by residential properties. Close to the proposed development site is a range of industrial units including Forth Ports and car rental companies. There is also a pub, The Bullfinch, located on Salamander Street.

2. Scottish Government’s NPF 4

2.1. Scottish Government’s National Planning Framework 4 (NPF4)

Scotland’s National Planning Framework 4 (NPF4) is a strategic document produced by the Scottish Government that sets out their spatial planning policies and priorities for the country. It provides a long-term vision and guides development decisions in Scotland. Local authorities are expected to base their Local Development Plans around the guidance within the NPF4. New developments should demonstrate how they contribute to the country’s common aspirations through this planning framework.

The national spatial strategy envisages a future where places are:

“net zero, nature-positive places that are designed to reduce emissions and adapt to the impacts of climate change, whilst protecting, recovering and restoring our environment”

A summary of policy aims relevant to this study is given below:

- **Policy 1** requires developments to strive to be zero carbon and nature positive.
- **Policy 2** will ensure that emissions from new development are minimised as far as possible and that places are resilient to climate change.
- **Policy 3** supports development that protects and enhances biodiversity and strengthens habitat connectivity.
- **Policy 4** objectives include protecting and restoring natural assets and prioritising nature-based solutions.
- **Policy 12** encourages sustainable waste management and material recovery and reuse.
- **Policy 13** facilitates a transition towards more sustainable, lower emissions travel including active travel and public transport.
- **Policy 14** sets out the qualities of a successful place as being health, pleasant, connected, distinctive, sustainable and adaptable.
- **Policy 19** helps to decarbonise heating and cooling and ensure adaptation to extreme temperatures.
- **Policy 20** supports protection of existing - and creation of new - blue and green infrastructure.



2.2. 52/66 Salamander Street – Response to NPF4

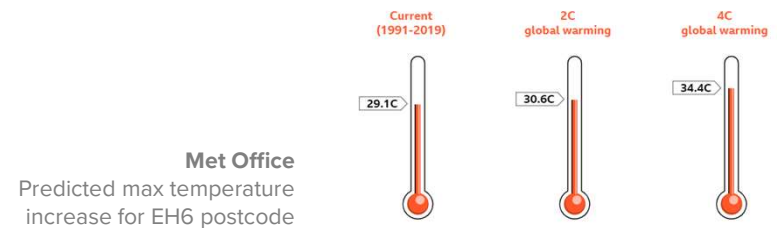
The following section provides a response on how the proposed 52/66 Salamander Street project meets the relevant objectives of Scottish Government’s National Planning Framework 4 (NPF4).

- **Policy 1 ‘Tackling the Climate and Nature Crises’** requires developments to strive to be zero carbon and nature positive.

The building will be designed to meet the latest Scottish Building Regulations standards. This will ensure that the building has a very low energy demand through the specification of low u-values and airtight construction. The energy demand that remains will be met by an all-electric solution to capitalize on the decarbonizing grid. The use of a solar PV array will reduce demand on the national grid network and will meet as much of the electrical demand as is feasible. Locally significant planting will be incorporated into the site design to contribute to local biodiversity.

- **Policy 2 ‘Climate Mitigation and Adaptation’** will ensure that emissions from new development are minimised as far as possible and that places are resilient to climate change.

The most direct climate risk for the site is expected to be an increase in outdoor air temperature (see below diagram by Met Office for EH6 postcode). Designing to meet the latest Scottish Building Regulation targets will bring two main benefits. The first is that the emissions associated with running the building will be low due to the enhanced fabric performance and passive design. The second is that the low u-values and low air permeability will ensure a steady internal temperature, meaning that heat generated in the building will be very slow to escape in the winter, and outdoor heat will be equally slow to enter the building in the summer. This reduces the risk of overheating in the building.



2. Scottish Government’s NPF 4 (cont.)

- **Policy 3 ‘Biodiversity’** supports development that protects and enhances biodiversity and strengthens habitat connectivity; AND
- **Policy 4 ‘Natural Places’** objectives include protecting and restoring natural assets and prioritising nature-based solutions.

The site does not currently feature any soft landscaping or areas of ecological benefit. The proposed development introduces an outdoor amenity space within the centre of the site, which also extends into public realm improvements. There is an intention to introduce soft landscaping into this area to improve the ecological value of the site. This should be locally-relevant planting to attract more wildlife, including birds, bees and insects to the site.

- **Policy 12 ‘Zero Waste’** encourages sustainable waste management and material recovery and reuse.

For waste management during the construction of the school, the Main Contractor will be expected to produce a Site Waste Management Plan (SWMP) which will require sorting and segregation of construction waste. It will also set targets for construction waste reduction and diversion from landfill.

For waste management during the operation of the building, a bin store that has both general and recyclable waste will be incorporated into the design. The recyclable waste area alone will be at least 10m² and will be clearly labelled to enable segregation of dry waste. An additional area within the bin store will be provided for compostable waste, with a water outlet provided for cleaning purposes. Within each dwelling, there will be three internal storage containers with a minimum total capacity of 30L (at least 7L each) which will be located in a non-obstructive position and will be in addition to general waste storage.

To address material recovery, any materials that can be recovered from the existing building will be collected by an appropriate waste contractor.

- **Policy 13 ‘Sustainable Transport’** facilitates a transition towards more sustainable, lower emissions travel including active travel and public transport.

The development will be a car-free scheme due to its proximity to the city centre and local transport routes. The site is within 350m of the Salamander Place bus stop which is served by the Lothian Bus 34 which links to the major transport links of Edinburgh City Centre. The development will feature 280no. cycle parking spaces for the PBSA and 138no. cycle parking spaces for the private build-to-rent apartments. These racks will be located within secure bike stores.

- **Policy 14 ‘Design, Quality and Place’** sets out the qualities of a successful place as being healthy, pleasant, connected, distinctive, sustainable and adaptable.

The six qualities of a ‘successful place’ noted in SP4 are addressed by the following:

- **Healthy** – rooms will be designed to be visually and thermally comfortable, analysed through modelling exercises.
- **Pleasant** – the public realm will be improved through soft landscaping and a modern aesthetic to the site.
- **Connected** – Connectivity is built into the site layout design, through provision of facilities in the ground level units overlooking the central courtyard.
- **Distinctive** – The development is designed to an appropriate height and scale relative to its surroundings.
- **Sustainable** – The building will be a low-energy, low-carbon development, considering many aspects of sustainability as described throughout this report.
- **Adaptable** - The ground floor of the PBSA contains large and open plan spaces that are designed to accommodate flexible activities, including yoga room, gym, cinema room, and large amenity spaces. Each of these could be readily adapted to meet the demands of the building users.



2. Scottish Government's NPF 4 (cont.)

- **Policy 19 'Heating and Cooling'** helps to decarbonise heating and cooling and ensure adaptation to extreme temperatures.

As addressed in the response to Policy 1 'Tackling the Climate and Nature Crisis', the building will be designed to meet the latest Scottish Building Regulation fabric performance standards. The low u-values, airtight fabric will result in a building that is thermally stable. The high-performing building fabric means that heat is slower to escape the building in the winter, and slower to enter the building in the summer which builds in some resilience for more extreme climate conditions.

Where heating is still required in colder spells, the demand will be met by all-electric, zero-direct emission heat sources. The electric energy can be sourced either from the national grid, which is set to decarbonise over the next 20 years, or from solar panels which produce no carbon emissions once operational.

- **Policy 20 'Blue and Green Infrastructure'** supports protection of existing - and creation of new - blue and green infrastructure.

Blue and green infrastructure are terms used to describe different types of natural and built systems that help manage water resources and enhance urban environments.

Green infrastructure comprises natural elements and ecosystems that provide multiple environmental, social, and economic benefits. It involves the strategic use of vegetation, soil, and natural processes to manage stormwater, improve air quality, enhance biodiversity, and create recreational spaces. In the case of this development, this will be achieved through the introduction of soft landscaping to a site that is currently entirely comprised of hard landscaping and buildings.

3. City of Edinburgh Council Policies

3.1. Local Authority Sustainability Policies

The development will be designed to address the policies outlined in the City of Edinburgh Council’s Local Development Plan (2016). This plan ensures that all new build developments address the principles of sustainable design by providing policies which embrace a holistic view on sustainable development.

The ‘Design Principles for New Development’ (Section 2) encourages innovation and well-designed developments that relate sensitively to the existing quality and character of the local and wider environment, generate distinctiveness and a sense of place, and help build stronger communities. Within this ‘Policy Des 6 – Sustainable Buildings’ specifically encourages high standards sustainable design.

This report provides response to the City of Edinburgh Council’s sustainability policies and demonstrates the principles applied to the scheme.

A description of the sustainability measures relating to City of Edinburgh Council’s Local Development Plan (LDP) policies are given below.

Policy Des 6 – Sustainable Buildings

“The current carbon dioxide emissions reduction target has been met, with at least half of this target met through the use of low and zero carbon generating technologies”.

The development will be designed to achieve the Target Emission Rate (TER) generated by the Section 6.1. analysis. To achieve this, the notional performance for building fabric and services will be met or exceeded. In addition, zero direct emission heating systems such as air source heat pumps will be used in conjunction with solar photovoltaic panels.

“Other features are incorporated that will reduce or minimise environmental resource use and impact, for example:

i. Measures to promote water conservation

Any water consuming products within the development will aim to be water-efficient. This will involve dual-flush WCs and low-flow WHB taps, showers, and kitchen taps. Washing machines and dishwashers with lower water consumption will also be selected.

In addition to reducing water consumption, measures will be introduced to limit water leakage by way of water leak detection and prevention systems to common areas.

Water meters will be provided to cover overall water usage, and where any areas of the building are likely to use more than 10% of the overall water consumption, sub-meters will be fitted to enable separate metering of that area.

Finally, the soft landscaping for the site will rely on natural irrigation only, rather than purpose-built irrigation systems.

ii. Sustainable urban drainage measures that will ensure that there will be no increase in rate of surface water run-off in peak conditions or detrimental impact on the water environment. This should include green roofs on sites where measures on the ground are not practical

The surface water management strategy will be designed in line with Pollution Prevention Guidance to mitigate any risk of pollutants entering local watercourses. Sustainable Urban Drainage Systems (SUDS) will be adopted into the drainage strategy through the specification of green roofs. The peak surface water run off rates will not exceed the pre-development run off rates.

3. City of Edinburgh Council Policies

iii. Provision of facilities for the separate collection of dry recyclable waste and food waste.

The building will include provision of a bin store that has both general and recyclable waste. The recyclable waste area alone will be at least 10m² and will be clearly labelled to enable segregation of dry waste. An additional area within the bin store will be provided for compostable waste, with a water outlet provided for cleaning purposes. Within each dwelling, there will be three internal storage containers with a minimum total capacity of 30L (at least 7L each) which will be located in a non-obstructive position and will be in addition to general waste storage.

iv. Maximum use of materials from local and/or sustainable sources

Any timber to be used in the design will be either FSC or PEFC certified, ensuring that it is from sustainably managed forest sources. Environmental Product Declarations will be sought from manufacturers for any new materials and products specified, where available.

v. Measures to support and encourage the use of sustainable transport, particularly cycling, including cycle parking and other supporting facilities such as showers.

The development will feature 418no. cycle parking spaces. These racks will be located internally so will be covered, secure to the ground, and well lit.

The site is within 350m of the Salamander Place bus stop which is served by the Lothian Bus 34 which links to the major transport links of Edinburgh City Centre.

Sustainability S1 Form

The City of Edinburgh Council have also produced a Sustainability (S1) form, which is used to highlight the various sustainability features in the development. This has been populated and provided in Appendix A.

4. Scottish Building Regulations

Section 6 – Energy

Section 6 of the Scottish Building Standards Technical Handbook (2022) relates to the energy performance of buildings and sets an overall level for maximum carbon dioxide emissions in buildings. These new regulations promote non-direct emission buildings with low energy demand.

The recommended methodology for achieving compliance incorporates a range of parameters that influence energy use. This encourages the design team to consider energy performance as a complete package rather than the constituent elements, and to adopt a ‘whole building approach’ to energy, which offers a significant degree of design flexibility.

Standard 6.1 of the regulations focuses on the reduction of carbon dioxide emissions arising specifically from “regulated energy” from the operation of heating, hot water, ventilation and lighting systems.

The Section 6 analysis involves a simulation that calculates the Building Emission Rate (BER) from the heating and cooling demand and primary energy. The emission rate informs the EPC rating, with the threshold bands for each rating given below.

Energy Rating	Performance (kgCO ₂ /m ² /yr)
A+	Net Zero Carbon or better
A	0-15
B	16-30
C	31-45
D	46-60
E	61-80
F	81-100
G	100+

The BER is also compared with the notional Target Emission Rate (TER) which takes a building of the same shape and servicing strategy and applies notionally compliant values for the building fabric, glazing areas, and building servicing efficiencies. Meeting or bettering this TER value constitutes a ‘pass’ under the Building Regulation energy compliance requirements.

Any building that has no direct emissions (e.g., all-electric buildings) will be exempt from the BER/TER calculation. However, the Building Energy Demand Rate (BEDR) will be calculated for all buildings and tests the passive performance of the building. It is compared against the equivalent Target Energy Demand Rate (TEDR).

The 52/66 Salamander Street development will be designed with very low u-values, an airtight fabric, a simplified building form and utilise an all-electric and efficient services strategy.

Section 7 – Sustainability

Where Section 6 of the Building Standards Technical Handbook outlines the strategy for achieving compliance with the benchmark CO₂ emissions associated with energy consumption, Section 7 offers a more holistic approach to sustainability. The standard is in its infancy in that most of the criteria outlined are applicable to the education sector only.

Aspect 1 is the only part of the Section 7 regulations that is applicable to non-domestic, non-education developments and is related to the emissions outcome of the Section 6 analysis. Providing a betterment over the TER, as per Section 6, would achieve a ‘Silver’ rating for Aspect 1 ‘Energy’. Providing a form of renewable energy (including heat pumps or photovoltaic array) would upgrade the overall rating to a ‘Bronze Active’.

It is expected that the proposed building will achieve a **Bronze Active** rating.

5. General Sustainability Strategy

The 52/66 Salamander Street project will aim to achieve a wide range of sustainability measures, through design and construction. A description of these measures is given through this section.

Management

- Clearly defined roles and responsibilities for the design team will ensure that all key considerations of the development are assigned to the correct individuals.
- Estimation of long-term costing implications for key design elements will be carried out in line with relevant British Standards to minimise future waste and to ensure long term affordability of maintaining the building.
- Sufficient engagement with external stakeholders and the local community will be carried out to ensure that the building is appropriate in the context of the surroundings and meets the needs of the neighbouring community.
- There will be commitment from the Contractor to a well-managed construction process, which records and minimizes all energy, waste and transport on site. The Contractor will also sign up to a certified Considerate Contractor's Scheme to limit disruption to the local neighbourhood and assure of a tidy, well-presented building site.
- Commissioning of the building will be carried out in line with relevant industry standards so that systems run correctly and efficiently.
- A Building User Guide will provide clear instructions to the end users on how the building and its systems operate.

Health and Wellbeing

- Comfort standards relating to thermal, visual, and indoor air quality will be modelled through dynamic simulation modelling. This will give predicted comfort levels throughout the year covering all seasons, as well as thermal comfort in future predicted climate scenarios.
- An acoustician will provide advice on meeting or exceeding British Standard sound insulation, indoor ambient noise and room acoustic levels.
- An architectural liaison officer representing crime prevention will be engaged with to ensure that the site is secure and safe, following the guidance of Secure by Design accreditation.
- The site will be well planned out to provide open, useful and ecologically beneficial outdoor amenity space for use by the residents.

Energy

- The development will be designed to provide a betterment over the Scottish Building Technical Standards (Section 6.1 Energy). To achieve this, the notional performance for building fabric and services will be met or exceeded. In addition, air source heat pumps will be used in conjunction with solar photovoltaic panels to enhance the renewable energy provision.
- The metering strategy will allow >90% of energy to be attributed to the main end-use categories. This will allow building managers to establish energy benchmarks and identify where energy consumption can be reduced.
- An efficient external lighting strategy with timeclock control and photocell control will be developed.
- Lifts with low energy LED lighting, standby mode, and Variable Voltage and Variable Frequency (VVVF) controls will be provided.
- Small power appliances will be energy efficient, meeting at least an 'A' energy label rating.

5. General Sustainability Strategy (cont.)

Transport

- A context-specific transport assessment has been conducted to assess current conditions of the site and where the development can improve accessibility via sustainable transport measures.
- The development will be a car-free scheme due to its proximity to the city centre and local transport routes. The site is within 350m of the Lothian Bus 34, which links to the major transport links of Edinburgh City Centre.
- The development will feature 418no. cycle parking spaces. These racks will be located within a secure bike store, secure to the ground, and well lit.

Water

- The overall water consumption performance based on product flow rates, capacities and flush volumes will be calculated. This will cover WCs, WHB taps, showers, kitchen taps, washing machines and dishwashers.
- Measures will be introduced to limit water leakage by way of water leak detection and prevention systems.
- Water meters will be provided to cover overall water usage, and where any areas of the building are likely to use more than 10% of the overall water consumption, sub-meters will be fitted to enable separate metering of that area.

Materials

- Any timber to be used in the design will be either FSC or PEFC certified, ensuring that it is from sustainably managed forest sources.
- Opportunities for recovering materials from the existing building will be considered. The condition surveys show the vacant nightclub to be in poor condition however if any materials, such as slate roof tiles, can be recovered then these will be collected by appropriate waste contractors.
- Environmental Product Declarations will be sought from product and material manufacturers where available.
- Areas of the building that will be vulnerable to damage over the life of the building, either by high usage, intentional damage or environmental degradation will be identified. Measures to mitigate this damage will be implemented in the design.
- Opportunities for minimizing the amount of material required for the construction will be identified at each of the key design stages.

Waste

- A bin store that has both general and recyclable waste will be incorporated into the design. The recyclable waste area alone will be at least 10m² and will be clearly labelled to enable segregation of dry waste. An additional area within the bin store will be provided for compostable waste, with a water outlet provided for cleaning purposes.
- Within each dwelling, there will be three internal storage containers with a minimum total capacity of 30L (at least 7L each) which will be located in a non-obstructive position and will be in addition to general waste storage.
- Construction waste generation limits will be targeted, and a target of at least 90% of waste generated during construction will be diverted from landfill.
- Potential risks to the building from a changing climate will be identified and mitigated through the design stages.

5. General Sustainability Strategy (cont.)

Land Use and Ecology

- The site will be developed on a brownfield site, currently occupied by a metal recycling yard.
- An ecologist will be appointed to identify opportunities to bring in any appropriate ecological features that can be properly maintained and managed long term.
- The outdoor amenity space will be developed with ecological benefits, and a green roof will be specified to enhance biodiversity beyond the ground level landscaping.

Pollution

- The all-electric building solution ensures that there are no direct emissions from heating the building.
- The surface water management strategy will be designed in line with Pollution Prevention Guidance to mitigate any risk of pollutants entering local watercourses. Sustainable Urban Drainage Systems (SUDS) will be adopted into the drainage strategy through the specification of green and blue roofs. The peak surface water run off rates will not exceed the pre-development run off rates.
- The plant noise emission levels will be minimized in line with recommendations and design advice given by the Acoustician.

6. Energy Statement

The development of 52/66 Salamander Street, Edinburgh will be developed in a low-energy, low-carbon manner to assist in meeting local and national goals for sustainable development. The strategy for minimizing energy consumption will follow the below hierarchy:

- (i) reducing energy demand by improved building envelope performance;
- (ii) reducing energy consumption by specification of high efficiency systems; and
- (iii) reducing carbon emissions with a low carbon technology design strategy.

The approach will ensure that the building meets the Section 6 (Energy) requirements of the Scottish Building Regulations 2022 as well as contributing to local and national targets.

- A solar photovoltaic (PV) array will be provided to further reduce the operational carbon emissions and electricity costs associated with the development.
- A simple Building Management System (BMS) will be provided that ensures building managers can operate and manage the building’s environmental systems from one location.
- Extensive energy metering will ensure that all key systems and key items of plant are able to be fully monitored.

The building, in meeting or exceeding notional targets for fabric and services performance, is expected to perform well in its overall energy consumption.

Building Fabric and Services Strategy



To ensure that the building is inherently low energy from day one, the following building fabric and services strategies will be in place:

- A well insulated building envelope with u-values that meet or exceed the notional fabric performance, low air permeability, and energy efficient glazing will be specified.
- The heating and cooling to the building will be sourced by zero-direct emission heating systems. Air-source heat pumps (ASHPs) will supply the domestic hot water.
- Energy efficient LED lighting will be specified internally and externally with appropriate control strategies to avoid excessive usage and light pollution.
- Lighting shall enable dimming and daylight control with absence or presence detection. Lighting will be appropriately zoned and will be provided with manual switching and absence detection.

Low and Zero Carbon Technologies (LZCT)



The building will be designed to achieve a low energy demand. For any energy required for heating, hot water, ventilation and small power, the feasibility of sourcing this energy from low carbon technologies was considered. The technologies that are available were considered individually, and the most appropriate options (air source heat pumps and solar PVs) were selected.

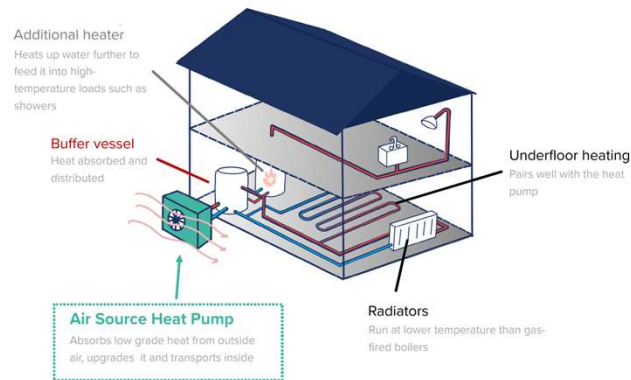
The possibility of connecting to an existing district heat network was also considered, as there is an operational boiler heat network on Sailmaker Road. An initial review indicates that it is unlikely to offer a feasible connection for the development. It does not appear to be a commercially run venture and the system appears to utilise a gas fuel source which would not support the proposed developments desire to adopt a direct emissions heat source.

A summary of the other technologies is given overleaf.

6. Energy Statement (cont.)

Biofuels and biomass heating is the use of bio-material, usually sourced from agricultural and domestic waste. The sourcing of the bio-material, if not managed sustainably and transported locally, can be environmentally damaging. Biomass boilers generally require large storage areas for the fuel, and can emit harmful NOx emissions. It has generally fallen out of favour with the industry for these reasons, unless beneficial to a specific rural site, and is not considered feasible in city locations. As such, this option has been discounted.

Air Source Heat Pumps (ASHP) extract heat from the air and use a heat pump to raise the temperature of this air. Although the pump requires electricity to run, its efficiency comes from using less electrical energy than the heat produced resulting in efficiencies greater than 100%. Air Source Heat Pumps are typically cheaper and easier to install than Ground Source Heat Pumps (GSHP) and they require a reduced level of maintenance. As this technology is energy efficient, and would support the all-electric / non-combusting design principles of the development, this option has been taken forward in the design.



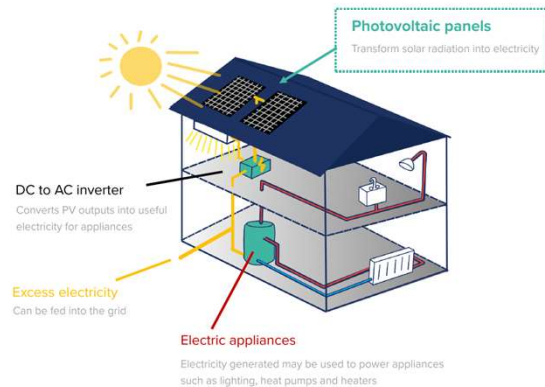
Ground source heat pumps (GSHPs) work in a similar manner to air source heat pumps, but instead interface with the steady temperature of the ground. GSHPs are generally not as efficient as ASHPs, but they do have a more consistent efficiency (whereas ASHP efficiency can be affected by external air temperatures). Installing GSHP requires either deep vertical boreholes or a large area of land for a horizontal collector. As there is not the available land to accommodate a GSHP, this option has been discounted.

Water source heat pumps (WSHP) operate similarly to the other heat pump options. Open loop WSHP systems extract water from sources such as lakes, rivers and ponds, pump it around an intermediate heat exchanger, then discharge the water back to the source. Closed loop systems require pipes or heat exchanger panels to be placed in the water source and usually submerged more than a metre deep. Water and antifreeze is then pumped through the pipes absorbing energy from the water source before returning to the heat pump. Since the return temperature from water is slightly higher than the air or ground, WSHPs generally offer higher Coefficient of Performance (COP) values than air source or ground source heat pumps. However this is not a suitable source of water close enough to this development, and this option has therefore been discounted.

Wind turbines operate most efficiently in areas of high wind speed and low turbulence. They should be positioned high up with good access to the predominant SW and NE wind directions. In an urban environment, or where trees surround the site, the airflow is turbulent which means that the turbine is not able to extract as much energy from the wind. A 'good wind' site onshore would have an average load factor of 25-35% (average power/peak power). In urban areas the load factor is lower. Wind turbines also require the 'right' amount of wind to function, and under calm and/or storm like conditions the wind turbines will not generate any electricity. As this site is located within a tight plot and surrounded by other properties, this is not considered to be an appropriate or technically feasible technology for the site and has been discounted.

6. Energy Statement (cont.)

Photovoltaics (PV) arrays generate electricity when exposed to the sun's radiation (insolation). They are normally installed on the roof of buildings, although can be ground mounted too. The optimal PV orientation is south facing at an inclination of 30°. If the generation is higher than the electricity demand of the building, then the energy can be exported back to the grid. PV systems are easy to maintain and may last around 15-20 years. As the building will be operated entirely through electricity, introducing a solar PV array is considered to be a straightforward option to reduce operational carbon associated with the development and will therefore be taken forward in the design.



Solar Thermal Collectors utilise the sun's energy to heat water. This technology can use both direct and diffuse radiation, so it does not have to rely on direct sunlight. The most common use of solar water heating is to meet hot water demand but can also be integrated into the heating system. This type of development will have a high hot water demand, and solar thermal collectors will not be able to supply enough heating to meet this demand throughout the year, especially in the winter. This would require a back-up system which would add to the capital cost. As such, this technology has not been taken forward.

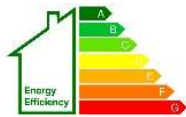
Combined heat and power (CHP) is defined as the simultaneous generation of heat and electricity from a single generator. CHP systems offer a high efficiency by utilising most of the 'waste' heat arising from electricity generation for heating. The overall efficiency can approach 95%, and the displacement of grid electricity can provide significant CO₂ savings on the site. A typical CHP system consists of a natural gas-powered internal combustion engine connected to an electricity generator. The heat generated by the engine can be utilised to provide space heating and DHW. Natural gas fired CHP systems, although efficient, are not renewable and would also result in combustion on site which is against the principles of the development's sustainability objectives. This has therefore not been taken forward in the design.

Summary

With the objective of a low carbon, all-electric (non-combusting) development, the solar PV array and the electric air source heat pumps are the most appropriate technologies for the site.

7. Low Carbon Summary

The measures outlined in this report form the strategy for achieving a low carbon development.



Target EPC 'A'

Demonstrates combination of low heating and cooling demand, low primary energy and low emissions.



Solar PV arrays

Reduces reliance on national grid and generates renewable energy.



LED Lighting

Decreases operational energy consumption without compromising performance.



MVHR

Efficient heat recovery in the mechanical ventilation systems results in less energy required for heating.



Cycle facilities

Cycle racks and changing facilities encourages fewer transport emissions.



Energy Metering

Energy Metering will ensure >90% of end-use categories can be monitored, allowing reduction targets to be set.

8. Conclusion

The proposed mixed-use development at 52/66 Salamander Street - comprising of purpose-built student accommodation and ground floor commercial uses - is designed to achieve the holistic range of sustainability measures relevant to the site.

This Sustainability Statement addressed the issues of sustainable design and construction in response to national and local planning policy guidance. This includes:

- Scottish National Planning Framework 4 (NPF4)
- City of Edinburgh Council's Local Development Plan
- City of Edinburgh Council Sustainability S1 Form
- Scottish Building Standards (2023) for Section 6 Energy and Section 7 Sustainability
- General Sustainability Strategy
- Energy Statement and LZCT analysis

The Sustainability Statement highlights the extent to which sustainable design features and strategies are applied to the project.

Appendix A
CEC Sustainability S1 Form

Sustainability Statement Form

To accompany all applications for planning permission apart from alterations and extensions to existing domestic properties. PLEASE REFER TO NOTES FOR GUIDANCE

Part A – Must be completed for all applications for new development

Part B – Major applications only

Please complete & return to planning@edinburgh.gov.uk

1	APPLICANT'S DETAILS	
	a	Full name
	b	Postal Address
	c	Contact telephone number
	d	Email address

2	AGENT'S DETAILS	
	a	Full name
	b	Postal Address
	c	Contact telephone number
	d	Email address

3	APPLICATION DETAILS	
	a	Reference number
	b	Address or location of development

4

DESCRIPTION OF PROPOSED DEVELOPMENT

SIGNATURE OF APPLICANT/AGENT

DATE

The information given by me in this form is true & accurate to the best of my knowledge.

Part A – Carbon Reduction Declaration

(all new developments apart from domestic alterations and extensions and change of use for local developments)

All new developments must comply with Section 6 (energy) of the current Building Standards **apart from domestic alterations and extensions.**

If your development proposes to meet this requirement through any externally housed low carbon equipment (such as solar panels) please ensure that this is marked clearly on plans and submitted with the planning application. Please note that if such plans are not submitted with the current planning application, a further application for planning permission may be required.

Q1: Does the proposal include any Low and Zero Carbon Equipment to meet the current requirements of Section 6 (energy) of the Building Standards?	Yes No	(if no, please explain)
Q2: Has the proposed equipment been clearly marked on plans submitted with the planning application?	Yes No	(if no, please explain)
Please describe the type of Low and Zero Carbon equipment that the application includes.		

Part B – Sustainable Development (Major Developments only)

Applications meeting or above the following thresholds should complete Part B (sections 1-5):

- All development under Schedule 1 of the EIA (Scotland) Regulations 2017.
- Housing proposals of 50 dwellings or more, or housing sites exceeding 2 hectares (ha).
- Business and general industrial, storage and distribution with a gross floorspace of 10,000m² or a site exceeding 2 ha.
- Other Development not falling wholly within one of the above classes where the gross floor space is or exceeds 5,000m² or a site area exceeding 2 ha.

Notes:

- Applicants either receive full points or zero points for each element, apart from Section 1C which is on a sliding scale.
- All developments must meet the ESSENTIAL requirements to comply with this policy. If the proposal fails to meet the essential elements planning permission may be refused.
- Extra points can be achieved through the DESIRABLE elements.

SECTION 1

Energy needs have been minimised through a combination of design for energy efficiency and the incorporation of low or zero carbon equipment

ESSENTIAL REQUIREMENTS

Principle	Notes	Points available	Evidence Submitted	Points achieved
A) Achieving carbon reduction	The proposed development must meet the requirements of Section 6 of the Building Standards.	10		
B) Developing in sustainable locations	The proposed development should be located on brownfield land, be allocated within the Local Development Plan or be covered by an approved Masterplan, development brief or framework.	10		
Total points achieved A-B				/20

DESIRABLE REQUIREMENTS				
Principle	Notes	Points available	Evidence Submitted	Points achieved
C) Working towards net zero carbon emissions	Developments that go beyond the carbon reduction requirements within the Building Standards will be rewarded for doing so on a sliding scale.	For each 10% over The Building Standards award 2 points to a maximum of 10 points		
D) Utilising low and zero carbon technologies	Developments that include low and zero carbon technologies to meet or go beyond the carbon reduction requirements with the Building Standards will be rewarded.	5		
E) Achieving sustainability accreditation/ award	Development scores very good or equivalent.	5		
F) Promoting passive design	Has the design of the site been evaluated for passive gain? Eg solar, layout, access.	5		
G) Supporting decentralised and renewable energy for excess energy generation to be supplied to the national grid	Has provision been made for excess energy generation to be supplied to the national grid? This can include making allowances for householders / occupants to install microgeneration technologies or connect to a CHP system.	5		

H) Support sustainable transport	Does the development provide city car club spaces, bus stops, contribute to public transport or provide electric car hook ups?	5		
Total points achieved C-H				/35

SECTION 2
Measures to promote water conservation

ESSENTIAL REQUIREMENTS				
Principle	Notes	Points available	Evidence Submitted	Points achieved
A) Reduce water use	100% of devices must be water saving, i.e dual flush toilets.	10		
Total points achieved A				/10

DESIRABLE REQUIREMENTS				
Principle	Notes	Points available	Evidence Submitted	Points achieved
B) Conserve and re-use water	Rainwater harvesting for use on site.	5		
Total points achieved B				/5

SECTION 3

Measures that will ensure that there will be no increase in rate of surface water run-off in peak conditions

ESSENTIAL REQUIREMENTS

Principle	Notes	Points available	Evidence Submitted	Points achieved
A) Providing attenuation of surface water	A SUDs system or a Surface Water Management Plan must be submitted.	10		
Total points achieved A				/10

DESIRABLE REQUIREMENTS

Principle	Notes	Points available	Evidence Submitted	Points achieved
B) Supporting innovation in surface run off design	Inclusion of green roofs or living walls.	5		
Total points achieved B				/5

SECTION 4
Provision of facilities to encourage recycling

ESSENTIAL REQUIREMENTS				
Principle	Notes	Points available	Evidence Submitted	Points achieved
A) Reduce, reuse, recycle	<p>a) Domestic – Provide internal dedicated storage space to accommodate at least 3 55 litre storage boxes for recycling. Consultation with Waste Services must be carried out in all cases; OR,</p> <p>b) Domestic – Provide for communal waste collection facilities, including the full range of recycling services as directed by Waste and Cleansing Services; OR,</p> <p>c) Commercial – include waste management plan or confirm commitment to recycling as directed by Waste and Cleansing Services.</p>	10		
Total points achieved A				/10

DESIRABLE REQUIREMENTS				
Principle	Notes	Points available	Evidence Submitted	Points achieved
B) Provide facilities to compost household waste	Provide facilities to home compost household waste by means of separated dedicated storage space.	5		
C) Neighbourhood Recycling	Provide one local communal recycling point per 100 properties in consultation with Waste and Cleansing Services.	5		
Total points achieved B-C				/10

SECTION 5
Maximum use of materials from local and/or sustainable sources.

ESSENTIAL REQUIREMENTS

Principle	Notes	Points available	Evidence Submitted	Points achieved
A) Use of sustainable materials	Materials selected must be sustainable and evidence provided. E.g. all timber must be FSC labelled or certified alternative.	10		
B) Reducing the use of uPVC	An alternative to uPVC must be used for all windows.	10		
C) Promoting recycled materials and reducing site waste	At least 10% of materials come from a recycled source. This can include reuse of buildings on site for construction purposes.	10		
Total points achieved A-C				/30

DESIRABLE REQUIREMENTS

Principle	Notes	Points available	Evidence Submitted	Points achieved
D) Use of sustainable timber	No tropical hardwood used on site; and/or all timber is from a local source.	5 for each		
Total points achieved D				/10

SECTION 4
Provision of facilities to encourage recycling

Total points achieved Section 1 ESSENTIAL DESIRABLE		/20
		/35
Total points achieved Section 2 ESSENTIAL DESIRABLE		/10
		/5
Total points achieved Section 3 ESSENTIAL DESIRABLE		/10
		/5
Total points achieved Section 4 ESSENTIAL DESIRABLE		/10
		/10
Total points achieved Section 5 ESSENTIAL DESIRABLE		/30
		/10
Total points achieved ESSENTIAL DESIRABLE TOTAL		/80
		/65
		/145