Development at

Darndale, Dublin 17, Co Dublin

Climate Action, Sustainability & Part L Compliance Report

www.semplemckillop.com

Belfast
T +44 (0)28 9033 1700
E admin@semplemckillop.com

Monaghan
T +353 (0)42 974 9570

Glasgow
T +44 (0)141 433 0219

London
T +44 (0)20 3328 5088
info@semplemckillop.com

Document History

Version	Issued	Comments
V1	16th December 2025	Pre-Planning Documentation
V2	16th March 2026	Pre-Planning Documentation
V3	14th July 2026	Planning Update

Contents

1 INTRODUCTION 2
2 STRUCTURE AND BUILDING ELEMENTS 4
3 SOLAR PV 5
4 VENTILATION 8
5 EV (ELECTRIC VEHICLE) CHARGING COMPLIANCE 10
6 RESULTS AND PROPOSAL 11
7 CLIMATE CHANGE SUSTAINABLE STRATEGY 12

1 INTRODUCTION

This Climate Action, Sustainability & Part L Compliance Report was prepared on behalf of our client, Respond Housing on behalf of Dublin City Council, to accompany a Part 8 Planning Proposal.

The proposed development includes:

i. 84 no. social and affordable residential units including 34 no. houses and 50 no. own door apartments, comprising 45 no. one bed units; 19 no. two bed units; 19 no. three bed units; and 1 no. four bed units, with a future potential for renewable energy design measures (which may be provided externally) for each housing unit.
ii. Landscaping works will include no provision of public open space in order to prevent antisocial behaviour. The design will intentionally focus on private outdoor amenity spaces for housing, ensuring security and passive surveillance of the surrounding public areas.
iii. Associated site and infrastructural works including provision for (a) 1 no. ESB substation; (b) car and bicycle parking; (d) public lighting; (e) estate signage; and (f) varied site boundary treatment comprising walls and fencing; and
iv. all associated site development works.

The EU Directive on the Energy Performance of Buildings (EPBD) contains a range of provisions aimed at improving energy performance of residential and non-residential buildings, both new-build and existing. This Directive was adopted into Irish law as Regulation in 2006.

The EPBD obliges specific forms of information and advice on energy performance to be provided to building purchasers, tenants and users. This information and advice provide consumers with information regarding the energy performance of a building and enables them to take this into consideration in any decisions on property transactions.

As part of the Directive, a Building Energy Rating (BER) certificate, which is effectively an energy label, will be required at the point of sale or rental of a building, or on completion of a new building. As such the Dwellings Energy Assessment Procedure (DEAP) was created a base procedure in which the BER can be calculated. The Dwelling Energy Assessment Procedure (DEAP), which is the Irish official procedure for calculating and assessing the energy performance of dwellings. The procedure takes account of the energy required for space heating, ventilation, water heating and lighting, less savings from energy generation technologies. For standardised occupancy, it calculates annual values of delivered energy consumption, primary energy consumption, carbon dioxide emissions and costs, both totals and per square meter of total floor area of the dwelling.

The report sets out to discuss options of methodologies in Energy Efficiency, Conservation and Renewable Technologies that will be employed in part or in combination with each other. The proposed techniques to be employed to achieve compliance with both the building regulations Part L (NZEB) and the local Strategic Environmental Plan are provided.

We have also reviewed the "Energy Efficiency and Climate Change Adaptation Design Statement" and have addressed the relevant objectives.

Climate change is expected to have a wide-ranging impact on Ireland's environment. This document is intended to outline the energy strategy design approach and building regulation compliance criteria at planning stage for this residential development.

This sustainability report outlines the schemes Climate Change Adaptation Design along with detailed energy efficiency approaches. This approach seeks to ensure that the development meets the principles of the Government's 'National Climate Change Policy', Dublin Co. Council Development Plan 2022-2028 with regard to Climate Change and Energy Efficiency and that it exceeds the requirements of the Building Regulations Part L and maximises the reduction in Carbon Dioxide (CO2) emissions thus demonstrating the Client's commitment to Climate Change.

The sustainable design strategy will be to use robust, passive, cost-effective measures to create a more efficient and healthy environment within the planned spaces. By utilising an integrated approach to design, planning, construction, and operation, the development provides an opportunity to create environmentally sound and energy efficient housing.

Sustainable development encourages the conservation of our precious natural resources. A whole life cycle approach to development management and planning will be used, as well as energy efficiency with a specific focus on reducing the carbon footprint, improving the environmental quality of the building spaces, material selection and use, waste management, water management and conservation, and enhancing the ecological value of the site.

2 STRUCTURE AND BUILDING ELEMENTS

While the construction works will incur an initial investment, the lifetime running cost of the units must be considered to reduce water, fuel and electrical energy consumption. To that end methods will be explored to further improve the building's energy rating and reduce the carbon emissions. This includes decreasing the thermal conductivity (heat losses) of the building fabric, take advantage of passive solar gain to reduce the heating demand in the space and increase day lighting to reduce artificial lighting.

2.1 FABRIC 'U' VALUES EMPLOYED

Fabric U values and thermal bridging factors shall meet or exceed, as necessary, the minimum backstops required to comply with Part L of the Building Regulations, to achieve a minimum Building Energy Rating (BER) A2 and shall also achieve the performance requirements to meet the Nearly Zero Energy Building (NZEB) Maximum Energy Performance Coefficient (MPEPC) of 0.3 and the Maximum Carbon Performance Coefficient of 0.35

2.2 AIR PERMEABILITY (AIR TIGHTNESS AGAINST INFILTRATION)

One of the most significant heat loss factors in any building is through controlled and uncontrolled ventilation through the introduction of ambient/outside air into the heated space. The dwellings are to be constructed with a high degree of air tightness to a possible value of **3 m3/m2/hr**. with a permeability test conducted post construction to demonstrate this level.

3 SOLAR PV

Figure 1: Typical Photovoltaic Arrangement

Use of energy efficient technologies Heat pumps, solar thermal panels, energy efficient boiler plant, photovoltaics (PV) and Mechanical heat recovery ventilation or Demand control ventilation have been considered. In addition, temperature and zone controls will be used to reduce fuel and electricity demand.

Once the energy consumption has been reduced, a portion of the remaining electrical and thermal (hot water + heating) demand will be met by renewable sources. Not all renewables may be suitable to employ but it is intended to evaluate effectiveness of technologies such as heat pumps, solar panels and onsite generation from photovoltaic panels.

Solar and Photovoltaic panels are suitable due to the unobstructed southerly and south easterly elevations. PV is particularly suitable due to a simultaneous requirement for heating, hot water and electrical demand. The on-site generation of electricity will supplement the electrical requirement for lighting, motors, etc & reduce the electrical demand from the grid.

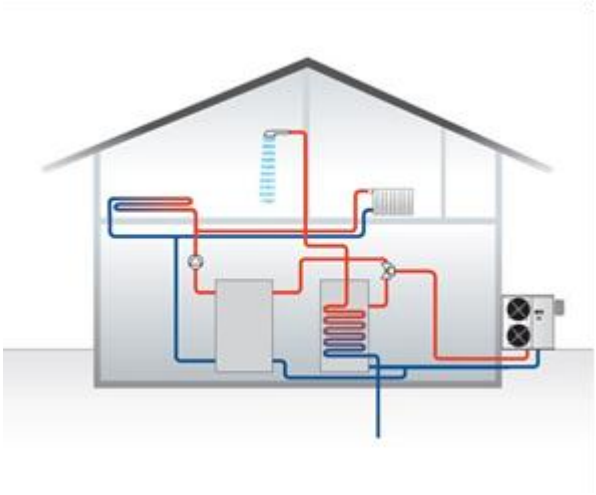
Applying this to each dwelling would considerably reduce the demand from the grid and consequently reduce losses and emissions from power stations. Such is the benefit of on site or distributed generation, the DEAP model determines that each kWh offset from PV equates to 2.5 times the thermal equivalent.

Where there is little demand, excess electricity can be diverted via an immersion in the Hot water cylinder. It is our intention that, should this technology be employed, the housing will be 'future proofed' for this eventuality and that the design will incorporate this facility without the requirement to revisit the installation in the future. If required to achieve BER or SBEM compliance, solar PV can be integrated into the design without significant alterations.

3.1 HOUSES

The recommended heating strategy for the individual housing units that have a dedicated outside space is the utilisation of an air-to-water heat pump to provide heating through a radiator system and hot water via a hot water storage cylinder. This system's operation features are similar to that of a traditional gas or oil boiler in terms of user comfort and control, but by utilising heat pump technology, energy is transferred from the outside air to provide heating and hot water rather than by burning fossil fuels. Unlike fossil fuel technologies, where efficiencies of around 90% are typical, a heat pump system will typically run at 400-500% efficiency.

The heat pump's temperature output is automatically adjusted based on the outside temperature using weather compensation controls to achieve maximum efficiency. Internal temperature control is set via a room thermostat, and time schedules are set for heating and hot water through the unit interface, much like a traditional heating time clock.



Typical Air Source Heat Pump system

3.2 APARTMENTS

The recommended heating strategy for the apartment units where outside space limited is the utilisation of an exhaust air heat pump to provide heating through a radiator system and hot water via a hot water storage cylinder. This system's operation features are similar to the abovementioned heat pump system. However, rather than the condenser unit being located outside, the unit is located internally with ducts transferring outside air to and from the unit as well as extracting air from the internal wet spaces. This system can achieve similar efficiencies to a standard heat pump, but it is more limited in output and, therefore, only suitable for smaller properties.

As with the standard air-to-water heat pump, the exhaust air heat pump's temperature output is automatically adjusted based on the outside temperature using weather compensation controls to achieve maximum efficiency. Internal temperature control is set via a room thermostat, and time schedules are set for heating and hot water through the unit interface, much like a traditional heating time clock.

4 VENTILATION

The use of Demand Controlled Ventilation (DCV) is recommended in all houses and apartments.

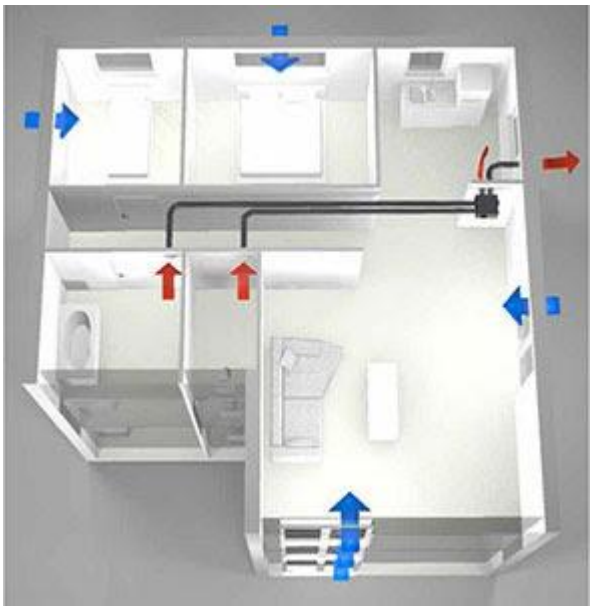
The concept of demand-controlled ventilation rests on the principle of providing occupants with the right amount of fresh air when they need it, where this is useful. With intelligent airflow management, the demand ventilation system adjusts the building ventilation rate based on occupancy and humidity.

The DCV system optimises airflow by directing the greatest volume of air to rooms with the highest demand, using humidity-sensitive air inlets to regulate distribution. This limits heat losses in unoccupied rooms and provides good ventilation where it is needed. The same principle is used at the exhaust through demand-controlled exhaust units.

Unlike a heat recovery ventilation system, a DCV system has no user controls, so tenants are less likely to interfere with or switch off the system, resulting in poor air quality, dampness, and mould. The DCV system has no filters, so maintenance is minimal, requiring only cleaning the inlets and outlets.

The DCV extract unit should be located within the building's insulated envelope, usually at a high level in a storage cupboard with access to an outside wall. The extract ductwork from the wet spaces is generally 204x60mm, with the main run from the unit to the external being 220x90mm.

Air inlets are located at window head height in all habitable rooms, usually diagonally opposite the internal room door to maximise air movement.



Typical DCV system

5 LIGHTING

All lighting to be energy efficient with provision made for low energy lamps such as LED which use 80% less electricity and last up to 10 times longer than ordinary lightbulbs in the dwellings.

	Traditional Incandescent	Eco-Halogen	CFL	LED
Power Consumption	60W	42W	13W	6W
Brightness	700 lumens= 60W	625 lumens= 54W	741 lumens= 60W	500 lumens= 60W
Energy Efficiency*	E	D	A	A+
Lifespan	1,000hrs = 1 year	2,000hrs = 2 year	10,000hrs = 10 year	30,000hrs = 30 year
Cost per Bulb	1	3	3.5	9.45
Yearly Running Cost	10.8	7.56	2.34	1.08
15 year Lifetime Cost	Yearly Running Cost + 15 Bulbs = €177	Yearly Running Cost + 7.5 Bulbs = €135.90	Yearly Running Cost + 1.5 Bulbs = €40.35	Yearly Running Cost + 1 Bulb = €25.65

* All calculations are based on 1,000 hours per year at €0.18 per kWh
* A+ = Most Efficient, G = Least Efficient

Table 1: Home Bulb Options

As detailed in Table 1 LED lighting consumes the least amount of power to achieve the required lighting levels. Combined with a long lifespan this minimises whole life costs and reduces the carbon footprint of each home.

6 EV (ELECTRIC VEHICLE) CHARGING COMPLIANCE

6.1 REGULATIONS

In accordance with Building Regulations Technical Guidance Document L 2022 Conservation of Fuel and Energy – Dwellings Part L2A, the current policy on EV charging stations in regulation 5 Part (F).

(a) A multi-unit building containing one, or more than one, dwelling that is new shall have installed ducting infrastructure (consisting of conduits for electrical cables) for each car parking space, to enable the subsequent installation of recharging points for electric vehicles where the parking space is:

(i) located inside the building concerned, or

(ii) is within the curtilage of the building concerned.

(c) A new building that is a dwelling, other than where the dwelling forms part of a multi-unit building, where a parking space is located within the curtilage of the dwelling, shall have installed appropriate electric vehicle recharging infrastructure to enable the subsequent installation of recharging points for electric vehicles.

In terms of this development this would mean ducting to ALL CARPARK SPACES for future EV charging connections in line with the development plan.

7 RESULTS AND PROPOSAL

We are proposing for the development the following means of heating, hot water, lighting and potential renewable energy.

1. U-Values as stated in section 2.1 and Air tightness as per section 2.2
2. Housing Units to have individual air sourced heat pump for heating and hot water.
3. Apartment units to have individual exhaust air sourced heat pump for heating and hot water.
4. Demand control ventilation.
5. LED lighting throughout.
6. All public spaces to have ducting for future EV charging point in accordance with Part L.
7. Potential Solar PV panels for on-site generation for some units.

8 CLIMATE CHANGE SUSTAINABLE STRATEGY

The sustainable strategy will try to include economic and environmental measures that are appropriate. In this regard, the following factors will be taken into account:

- Using the principles of Energy Efficient Design (EED) to reduce the amount of energy used by buildings during their operational phase.
- Making the most of passive design features like the building facade to take advantage of the constraints and orientation of the site. Using fabric u-values that are higher than Part L 2019 and provide a high air permeability rate.
- Energy efficiency will be incorporated into each part of the design including;
  - Construction: Applying considerate construction principles to control energy, water, and other resource use during the on-site phase.
  - Utilising the extensive metering and controls equipment designed to meet the principles of CIBSE TM 39 – Building Energy Metering, the commissioning phase establishes the appropriate targets for the operational phase based on the energy and water consumption. Utilisation of a Commissioning Manager to coordinate and guarantee the installation and operation of all energy-related systems are in accordance with the design.
  - Operation – Confirmation that EED's guiding principles have been adhered to.
- Façade studies with the architect using computer modelling techniques to get the most out of daylight, natural ventilation, and solar benefits that are unique to the site. This will make sure that the buildings have the best air quality and daylight.
- Implementing reuse and recycling throughout the design, construction, and operation phases of the project to ensure the reduction of waste sent to a landfill.
- An integrated Water Management and Conservation Plan that includes efficient sanitary appliances (such as low-water WC cisterns & taps) and equipment with low water consumption to ensure minimal use of potable water.
- Utilising Dynamic Thermal and Energy Simulation methods to validate a low-energy and low-carbon building design. Natural ventilation principles, and compliance with Part L of the Building Regulations regarding the effects of overheating will be implemented and checked. Using the 2020 CIBSE-accredited weather file, the spaces will also be examined for the effects of climate change, and compliance with the requirements will be confirmed.
- Plants and M&E systems that use less energy, like energy-efficient LED lighting fixtures, heating plants, Triple E-registered products that reduces energy use to a minimum.
- Focusing on natural daylighting factors that meet BRE and CIBSE recommendations. The presence of sufficient natural light contributes to the well-being of the occupants and creates a positive living environment. The use of natural light will be maximized by acceptable levels of glazing on the elevations, which will improve the comfort of the building occupants. High-performance glazing will allow building occupants to take advantage of the benefits of the glazed views while preserving the buildings' thermal performance.
- Using renewable technologies in accordance with Sustainable Design and Climate Action based on optimal technical and financial considerations that will offset primary energy consumption and reduce carbon footprint. Incorporating the aforementioned design measures to achieve a target of an "A" rating for the buildings and maximize

the building energy ratings (BER). This will demonstrate that the buildings were built to be energy efficient and give users a sense of certainty about how much energy they use and how much carbon they produce.

- A sustainable approach will be extended from the building to the site throughout the construction and handover process.
- Reviewing the building's materials throughout their entire life cycle, paying particular attention to how they affect carbon emissions.
- Utilising the principles of environmental assessment methodologies during the design and construction phases to guarantee that the buildings are developed holistically.