



STOCKING LANE SHD 2

Energy Statement

Ref: 2183
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1.0 Background

The following report will set out Part L compliance for the proposed residential development of 131 homes, Creche and Shop at Stocking Lane Dublin 16. This energy efficiency report is prepared in accordance with the Guidelines from South Dublin County Council.

This report addresses the Energy Efficiency and Climate Change adaptation measures in accordance with the Energy Performance of Building Regulations 2021.

The report has regard to Criteria 9 of the DoEHLG " Urban Design Manual, A Best Practice Guide (2009), which relates to adaptability:

09 ADAPTABILITY How will the buildings cope with change?

- Designs exploit good practice lessons, such as the knowl certain house types are proven to be ideal for adaptati
- The homes are energy-efficient and equipped for challen pated from a changing climate
- Homes can be extended without ruining the character of layout and outdoor space
- The structure of the home and its loose fit design allows tation and subdivision, such as the creation of an annexe office

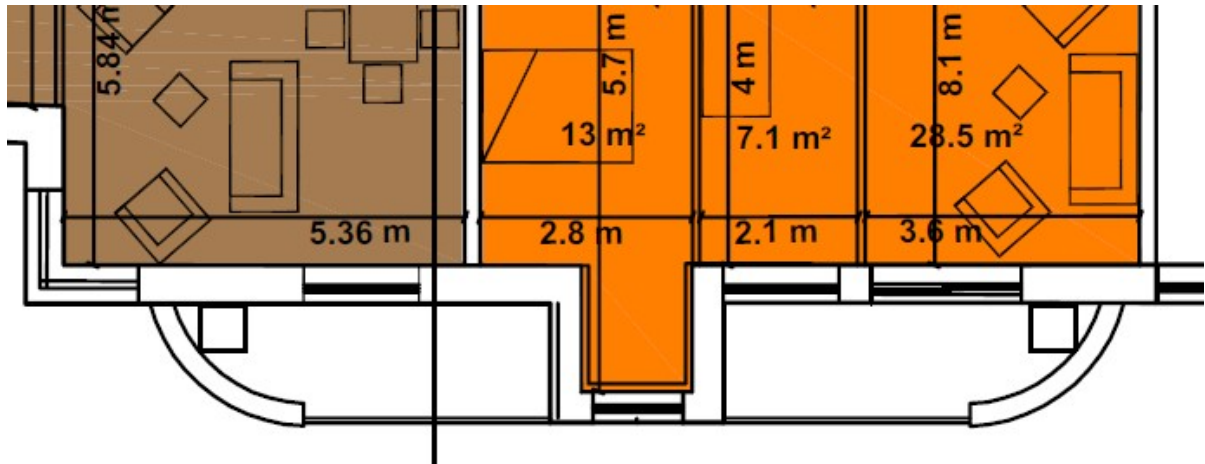
2. Apartments

Exhaust Air Heat Pump (EAHP) & Mechanical Extract Ventilation (MEV)

The following heating and hot water strategy shall be used for the apartment elements of the development in accordance with Part L of the building regulations.

2.1 Heating Centre

The installation of an Exhaust Air Heat Pump within each apartment will achieve BER of A2 and meet the Part L renewable requirements. The units on the balconies are visually shielded behind the wing walls of the balconies.



The Exhaust Air Heat Pump (EAHP), can be considered to be an energy recycling system. It collects energy from the warm air as it leaves your homes via the ventilation system and re-uses it to heat your radiators and Domestic Hot water (DHW).

The installation of an EAHP is self-contained within each apartment and only requires an ESB connection and standard mains water connection.

An exhaust air heat pump can provide for the heating requirements of a well-insulated apartment in some of the coldest conditions. When working efficiently, it can reduce consumption for heating by up to 50% when compared to conventional heating systems.

If there is an extended period of cold weather the heat pump can call on a suitably sized back up heater to assist in meeting the apartments requirements.

The extracted, old air from the wet rooms are passed through the selected ducting into the heat pump. At the point, if there is a heat or hot water demand, the air passes through the heat pumps evaporator, which transfers the heat into the heat pump's refrigerant circuit.

The cooled air is then discharged from the unit and exhausted outside. Meanwhile, the vapour compression cycle of the heat pump raises the temperature of the refrigerant and transfers the extracted heat into a water-based system that can heat the building via heating radiators.

The EAHP is controlled with a touchscreen wall controller in each apartment with a phone app function as standard.

2.2 Photovoltaic Panels

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There are two forms of PV panels, roof based and balcony based integrated Photovoltaic glazed panels.

The photovoltaic panels are easily replaced by the Management Company after the 25 year lifetime. These PV panels provide additional energy over and above the nearly Zero Energy Building requirements.

2.3 Space Heating

The apartments will be heated with steel, horizontal panel radiators in each room and designed for the operating temperature of the exhaust air heat pump.

Each unit shall have two heating zones, the first zone will be the main open plan kitchen / living room and the second zone will be the bedrooms.

Heating control in the kitchen / living room will be with a 2-port valve and the room thermostat. Heating control in the master bedroom will be with a 2-port valve and thermostat. TRV's (thermostatic Radiator Valves) will control the space temperature in all the other bedrooms.

2.4 Ventilation

The ventilation for the apartments shall be provided by the EAHP and be classified as mechanically ventilated. The central extract shall operate on the principle of mechanical extract ventilation (MEV).

MEV will be commissioned with two dedicated extract flow rates for the unit, one for background ventilation and one for boost ventilation.

The background ventilation rate will be maintained 24/7 in order to ventilate the unit and maintain the heat pump operation volume flow rate.

The boost ventilation will be activated by a drop in air or water temperature and raise the volume flow rate to a maximum pre-set value.

Passive wall inlet vents are required in all habitable rooms to make-up the air extracted by the EAHP.

3. Duplex and House units

Air Source Heat Pump & Demand Control Ventilation (DCV)

The following heating and hot water strategy shall be used for the apartment elements of the development in accordance with Part L of the building regulations. Each floor level will be provided with a separate mechanical and electrical system to enable future subdivision.

3.1 Heating Centre

The proposed heating solution for the houses shall be air source heat pumps with their superior high efficiency hot water capacity.

Outdoor units shall be located discreetly on the balconies and patios. As the outdoor units are fan assisted units, sensitivity in locating them is required so as not to disrupt any patio area with the cold air stream.

The indoor all-in-one units shall generally be located in a ground floor utility room with ducted underground access to the outdoor unit for pipework and power.

3.2 Photovoltaic (PV) Panels

The PV panels are roof based. These PV panels provide additional energy over and above the nearly Zero Energy Building requirements.

3.4 Ventilation

The ventilation for the duplex units and houses shall be provided by a central extract and operating on the principle of Demand Control Ventilation (DCV). DCV monitors humidity and adjusts to control the movement and volume of air exchange in a building based on air quality. Along with humidity DCV uses presence detection for WC's.

The system shall have a centrally located extract unit located within the unit c/w power supply and maintenance access. All air inlets shall be the 100mm diameter humidity controlled wall ventilators and fire grilles to maintain the fire integrity of the ceiling.

4 Electrical Services

Mains Distribution

A new ESB electrical supply will be brought to each apartment in accordance with ETCI and ESB standards. A centrally located meter enclosure shall be provided with direct access from the public road.

Lighting Services

Low energy LED lighting shall be designed and specified in accordance with the BER requirements in each unit and in the landlord areas in accordance with Part L.

Low energy LED public lighting shall be designed in accordance with CIBSE lighting guide.

5 Electrical Vehicle (EV)

General Services

The proposed development complies with the *Energy Performance of Buildings Regulations 2021 Technical Guidance Documents (Energy Performance of Buildings Directive Articles 8)3), 14(4), and 15(4) – Electric Vehicle Recharging Points and Building Automation and Control)*

The following allowance will be included in the development for EV charging.

Houses:

Each house shall be pre-wired for EV to allow the home owner to install a car charging point to the front side of the house easily. The 6.0 mm² cable and location shall be suitably selected and positioned relevant to their private car parking spaces.

Where the parking is located on the surface in property management areas a system of ducting will be provided linking all the car parking spaces for future installation of charging points.

Apartments:

The basement shall have 4 EV pillars with 8 no Electrical EV points and shall allow the residents of the apartments charge their electric cars. The supply will be designed for the EV points that they can be extended as required in the future.

Public Spaces:

The surface parking on the site shall have 8 EV pillars with 16 no Electrical designated EV public access charging points as per drawing no 2183-16.

6 Proposed Building Fabric Summary

6.1 Construction Method

The proposed construction method for the building shall be in accordance with the working drawings. The following shall outline the back-stop thermal performance achieved as part of the detailed design stage in accordance with the current Part L requirement.

Floor	0.15 W/m ² K
Wall	0.18 W/m ² K
Roof	0.14 W/m ² K
Main door:	1.2 W/m ² K
Windows	1.4 W/m ² K

6.2 Air Tightness

Air tightness target	< 3m ³ /hr/m ² at 50 pascals
Air tightness method	Air tight membrane with internal plaster

6.3 Thermal Bridging:

Thermal Bridging Factor	0.08W/m ² K
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Key Junctions details will meet ACD standards. The relevant construction drawings will be signed off by the developer, builder, site engineer & project manager in compliance with the requirements of B(C)AR

6.4 Energy Efficient Design

The design development and construction detailing shall adopt an Energy Efficient Design Strategy to ensure compliance with Part L and achieve high levels of performance in the dwellings.