

RMBA

Sustainability Report/ Energy Statement

For

Gerry Teague

At

**Ball Alley House, Lower Main Street
Lucan.**

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EXECUTIVE SUMMARY.

This Sustainability report / Energy Statement was completed by RM Breen Associates in June 2021 on behalf of our clients Gerry Teague and under instruction of CDP Architects, as part of the planning application for the proposed development at Ball Alley House, Lower Main Street, Lucan.

It is intended to apply for planning permission for a residential development scheme consisting of construction of 4 storey apartment building containing 14 no. apartments comprising of 3 no. one-bedroom, 9 no. two-bedroom and 2 no. 3-bedroom apartments.

Our client and the design team recognize the importance of creating a sustainable development which interplays between good urban design, and the most efficient use of energy and natural resources. This report demonstrates how construction and future management of the proposed development will be achieved and how overall energy considerations have been addressed.

The design will follow the requirements of the EPBD (Energy Performance of Buildings Directive), Building Regulations Technical Guidance Document (TGD) Part L and County Council Development Plan.

The design team intend to achieve building and HVAC performance that is an improvement on the statutory requirements contained in the Irish Building Regulations. The design will achieve TGD Part L 2017-2018 Nearly Zero Energy Buildings (NZEB) for the proposed development.

A preliminary DEAP analysis has been completed to inform the design strategy, to demonstrate compliance with domestic building regulations Part L and to ensure that targeted building energy ratings (BER) of A2/A3 will be achieved.

RESIDENTIAL UNITS.

Summary of the proposed Sustainability target;

Residential Energy Rating (BER) using SEAI's DEAP Software	A2/A3
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Summary of the energy performance quality assurance checks carried out

TGD Part L 2017 section 1.3.2.2 compliance check will be carried out to ensure that the average U-Value complies with the maximum permitted by the TGD standard	x
TGD Part L 2017 section 1.3.2.3 – Maximum elemental U-Value check will be carried out using SEAI approved software (DEAP)	x
The energy performance coefficient (EPC) for the proposed dwellings will be calculated to ensure it is less than 0.3	x
TGD Part L 2017 section 1.2.1 – minimum level of renewable energy technology to be provided check will be carried out	x

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TGD Part L 2018 section 1.3.5 – TM 59 overheating analyses carried out on apartments	x
TGD Part L 2018 section 1.4.5.2 – Airtightness to be under 3m ² /m ² /hr @50PA where mechanical ventilation is installed.	x

SECTION 1 INTRODUCTION

This Sustainability report / Energy Statement was completed by RM Breen Associates in June 2021 on behalf of our clients Gerry Teague and under instruction of CDP Architects, as part of the planning application for the proposed development at Ball Alley House, Lower Main Street, Lucan.

It is intended to apply for planning permission for a residential development scheme consisting of construction of 4 storey apartment building containing 14 no. apartments comprising of 3 no. one-bedroom, 9 no. two-bedroom and 2 no. 3-bedroom apartments.

It is now a requirement for all new domestic buildings to meet the NZEB (Near Zero Energy Building) standard. Our design will incorporate the requirements of this standard into the building.

The building services design strategy for the proposed development utilizes as many sustainable design options and energy efficient systems that are technically, environmentally and economically viable for this project to achieve a low energy and environmentally friendly development, while also providing suitable dwellings to meet current market demands.

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SECTION 2 SITE AND DEVELOPMENT SUMMARY

Our client is proposing to develop a new residential development scheme consisting of construction of 4 storey apartment building containing 14 no. apartments comprising of 3 no. one-bedroom, 9 no. two-bedroom and 2 no. 3-bedroom apartments. These works will be undertaken in an environmentally friendly way.

SECTION 3 COCO POLICY

Our client and design team recognize Co Co planning policy and the importance of creating a sustainable development that contributes towards Irelands commitment to a range of renewable energy and efficiency.

For this project, the design team will pay close attention to the requirements of the EPBD, the CoCo development plan and the building regulations TGD.

The intent is to ensure that the building services Mechanical and Electrical design strategy is to utilize as many sustainable design options as possible and energy efficient features that are technically, environmentally, and economically feasible for this project.

In accordance with planning policy the following low and zero carbon technologies shall be considered in terms of their application for this development.

SECTION 4 ENERGY PERFORMANCE STRATEGY

The design intent is to incorporate the following passive design measures for the proposed residential units where it is both technically and economically practical. These design parameters are the current targets and are subject to amendment during design development. As a minimum, all U-Values will comply with TGD Part L 2017-2018 dwellings

Element	Performance Target
Flat Roof U-Value	0.16 W/m ² K (target value)
Wall U-Value	0.16 W/m ² K (target value)
Floor U-Value	0.15 W/m ² K (target value)
Window U-Value	1.2 W/M ² K (target value including frame)
Building Air Permeability	Less than or equal to 3.0 m ³ h ⁻¹ m ⁻² @50Pa (target value) A full appraisal of the building envelope will be carried out during the design development stage to clarify if this target is achievable
Thermal Bridging	0.08 W/m ² k (Acceptable construction details to be specified and followed on site)

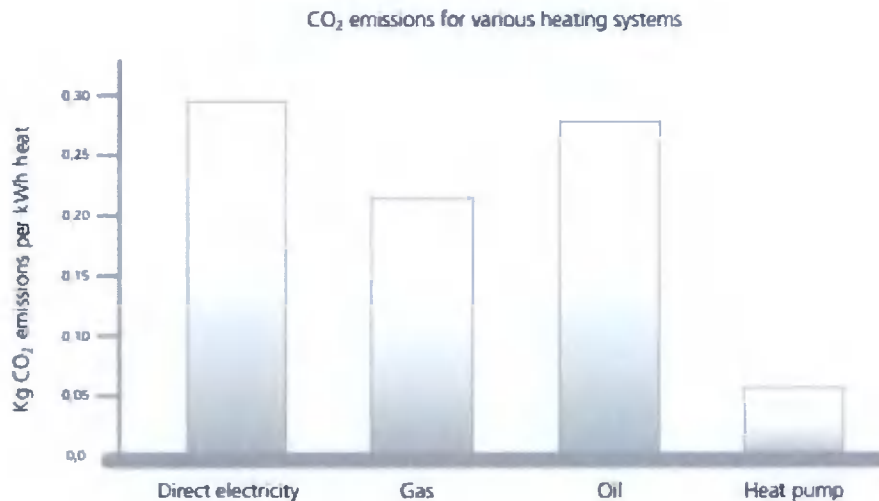
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SECTION 5 PROPOSED DESIGN

The design team has considered active energy measures which include the following technologies.

Proposed Heating System.

The design intent is that the heating will consist of low temperature exhaust air heat pump, the heat pump uses heat from the outside air to heat the water circuit for space heating and domestic hot water. Exhaust air heat pump immediately starts to deliver an environmental payback in the form of reduced energy consumption and emissions.



Typical exhaust air heat pump.

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Exhaust Air Heat Pumps extract energy from the indoor air which can heat, ventilate, and supply hot water to the development. Space heating efficiency of the systems 35deg C / 55deg C are A+++.

Lighting

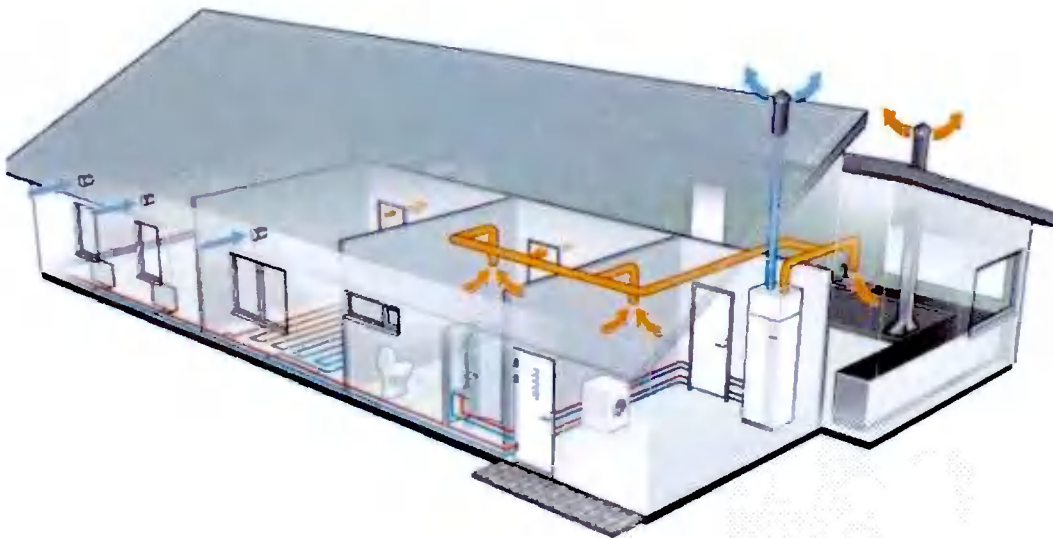
A variety of high efficiency LED lights will be provided to each apartment from recessed, pendant and surface luminaires. Also, the architectural design of the building has been such that to allow natural light be maximized into occupied spaces, this will help to reduce the reliance on artificial light and therefore reduce energy consumption.

Ventilation

Ventilation is through all-in-one unit exhaust air heat pump, Air is drawn through the exhaust air heat pump from the bathroom, utility and kitchen areas. The cold waste air is discharged to outside through a separate duct, and condensation to a drain, also the additional heat generated internally from lighting, people and domestic appliances is also utilized through heat recovery.

Natural Ventilation,

Design and specification of all-natural ventilation services requirements including specifying required equivalent area opening sizes for passive ventilation, sizing capacity of wall vents to comply with Part F requirements and to meet Part L energy conservation requirements in coordination with the expected building air tightness.



Typical Exhaust Air Heat Pump arrangement c/w passive vents.

Design and specification of the mechanical ventilation system distribution ductwork throughout the development to include material specification, installation details, dampers, fire dampers, roof cowl, wall louvre and connection arrangements, duct sizes and insulation thicknesses.

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Incoming foul connection

Liaising with the Civils Engineer to coordinate the location of the interconnection between above ground drainage and the below ground drainage systems.

Soils & wastes distribution pipework

Design and specification of the above ground soils and wastes distribution pipework throughout the development to include material specification, installation details, valve and connection arrangements, pipe sizes and venting requirements to comply with Part H of the building regulations.

Incoming water supply

Establishing the availability and condition of the supply by liaising with the Civils Engineer and with Irish Water and to coordinate the location of the incoming supply and water company stopcocks.

Water distribution pipework

Design and specification of the water distribution pipework throughout the development to include material specification, installation details, valve and connection arrangements, pipe sizes and insulation thicknesses.

Water distribution storage & plant

Design and specification of all water services plant requirements including sizing capacity of cold water storage and mains water break tank storage to comply with Irish Water and local authority requirements, hot water storage cylinders including insulation and standing loss requirements to meet Part L energy conservation requirements and booster pump specification for water distribution.

Green and Blue Roof

A green and blue roof will be considered for roof areas where feasible. Consideration will be given to the structural viability, uniformity, and local character. A green roof is a purposely fitted or cultivated roof with vegetation.

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Green roofs have been shown to impact positively on a buildings energy consumption by improving its thermal performance, although the amount of difference this makes varies depending on daily and seasonal weather.