PROJECT TITLE:	CREAMFIELDS DEVELOPMENT
CLIENT:	WATFORE LIMITED
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1. SUMMARY

This energy statement outlines the proposed development will consist of a Strategic Housing Development of 609no. dwellings (561no. apartments (of which 257no. are Build To Rent) and 48no. townhouses) in 12no. buildings of between 1-15 storeys in height over ground, to include a coffee kiosk; gym; café; retail use; creche and community hub; public square; car parking; cycle parking; and all associated site development, infrastructural, and landscaping works on the site of the former CMP Dairies site, Kinsale Road and Tramore Road, Cork.

A review of the current Irish Building Regulations for Conservation of Fuel and Energy for Dwellings, (Part L 2021), and non-domestic Part L 2021 and the Cork City Development Plan 2015-2021, have been undertaken.

By adopting a sustainable approach in design, construction and operation, the proposed new development at Creamfields aims to satisfy the requirements of the current national Regulations and local planning policy.

The energy statement focuses on energy conservation and energy efficiency, in order to maximise the overall energy performance of the proposed development.

Passive and active design measures are proposed including high insulation and air tightness standards for the building envelope, and energy-efficient mechanical, electrical and plumbing systems.

2. INTRODUCTION

The proposed Creamfields development on the Kinsale Roads/Tramore Road aims to satisfy the local planning requirements and national building regulations.

The proposed passive and active deign measures as outlined below, tackle the key environmental issues: energy conservation and CO2 emissions reduction.

3. ENERGY PERFORMANCE OBJECTIVES

The development has the following energy performance objectives:

3.1 Apartments/Townhouses/Community Facilities

- To achieve full compliance with TGD (Technical Guidance Documents) Part L for Dwellings (2021), Part L Buildings Other than Dwellings (2021) and the Cork City Development Plan 2015-2021
- The BER rating achieved will be a minimum of A3 dependent on NZEB (Nearly Zero Energy Building).
- To achieve compliance with NZEB.

The objectives will be met by implementing the energy strategy summarised below.

4. ENERGY STRATEGY FOR THE HOUSING DEVELOPMENT

4.1 LIMITING OF HEAT LOSS

Best practice fabric U-values and air tightness standards will be implemented in order to minimise heat flow/loss through the building envelope. Detailed calculations will be undertaken to assist in determining the appropriate envelope build-up, including the type, thickness and location of thermal insulation. The amount, type and location of glazing will be optimised to achieve an optimal balance between daylight quality and heat gains and losses.

4.2 PASSIVE SOLAR SHADING

To ensure that the buildings do not overheat, particularly in areas where there are higher levels of glazing and internal gains, adequate means of limiting summertime temperatures will be implemented. External shading in the form of window reveals and overhangs, and solar performance glazing will be incorporated into the façade design to assist in the reduction of overheating.

4.3 DIRECT AND PASSIVE SOLAR HEAT GAIN

Sunlight will be used where possible to reduce the need for heating on cold days, such as in winter when the sun cast is lower. This resource will be harnessed by allowing sunlight enter the buildings to areas with high thermal mass such as exposed concrete.

4.4 NATURAL DAYLIGHT

The design will seek to maximise the use of natural daylight through the development in order to reduce energy consumption from artificial lighting. This will be achieved through an integrated approach utilising a combination of building form, light wells, glazing systems and day-light responsive control systems.

4.5 SPACE HEATING

Space heating to each apartment/townhouses will be provided by Exhaust Air Heat Pumps (EAHP). The proposed exhaust air heat pump supplies low temperature hot water to the apartment/townhouse radiators. The heat pump will also provide hot water to a built-in water tank. The hot water is produced by a heat exchange with the extracted warm air from the apartment/townhouse wet rooms.
An alternative approach is the use of electric radiator using the Dimplex Electric system.
Space heating to the community facilities (gym, café etc.) shall be provided by a small central LPHW (Low Pressure Hot Water) system which will comprise of a high efficiency gas boiler, district heating network and panel radiators.

4.6 MECHANICAL VENTILATION

Mechanical ventilation to each apartment/townhouse will be provided by Exhaust Air Heat Pumps.
An alternative approach is the use of a Mechanical Ventilation Heat Recovery (MVHR) unit.
High-efficiency heat recovery system will be employed on appropriate air systems in order to minimise associated energy use.
For the mechanical ventilation to the community facilities (gym, café etc.) a high-efficiency heat recovery system will be employed on appropriate air systems in order to minimise associated energy use.

4.7 ARTIFICIAL LIGHTING (INTERIOR AND EXTERIOR)

Energy-efficient lighting will be implemented throughout the development to achieve the appropriate light levels, as recommended by CIBSE (Chartered Institution of Building Services Engineers). The design of lighting systems shall ensure that lighting is only used when required, and also that only the specific area where lighting is needed.

4.8 DOMESTIC HOT WATER

Domestic hot water to each apartment/townhouse will be provided by Exhaust Air Heat Pumps.
For the community facilities and to limit heat loss resulting from extensive pipe runs and electricity use from secondary circulators, hot water production will be provided by local electric water storage heaters. All heaters will be controlled with 7 day 24 hour programmers to minimise standing losses outside of normal opening hours.

4.9 UTILITY METERING SYSTEM

Water and electricity will be metered. Gas to community facilities will also be metered.

4.10 BUILDING MODELLEING AND DYNAMIC SIMULATIONS

Detailed modelling and dynamic simulations will be carried out during the development in order to inform, optimise, and validate the proposed building designs.

Simulations will be used to perform a detailed analysis on the areas listed below, in order to determine the suitability and effectiveness of appropriate systems:

- Natural ventilation and overheating risk
- Natural daylight distribution
- Regulatory Compliance Assessments for Part L
- Building energy use
- MEP (Mechanical, Electrical & Plumbing) Plant and Equipment Selections

4.11 RENEWABLE ENERGY REQUIREMENTS

We have considered all the available LZC (Low and Zero Carbon) technologies, as listed below:

- Photo voltaic (PV) system for on–site electricity use
- Solar thermal for domestic hot water and/or space heating
- Combined heat and power (CHP) for thermal and electricity generation
- Biomass for space heating and domestic hot water production
- Wind turbines for electricity generation
- Air Sourced Heat Pumps.

The energy balance for this high density residential scheme means that Exhaust Air Heat Pumps and PV panels or the Dimplex electric system and PV panels to meet the NZEB requirements would be the most practical option for meeting compliance with the regulations.

The use of the PV can also be used to supply energy back to the grid. PV will be located on the roof of each building.