PROJECT TITLE:	**ST KEVIN'S STRATEGIC HOUSING DEVELOPMENT** At the former St. Kevin's Hospital and Grounds, Shanakiel, Cork
CLIENT:	LDA
DOCUMENT TITLE:	ENERGY STATEMENT
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TABLE OF CONTENTS

1. SUMMARY

This energy statement outlines the proposed energy conservation strategy for the residential properties at the proposed new development at the St. Kevin's Hospital development, Rose hill Upper, Sunday's Well, Cork City.

A review of the current Irish Building Regulations for Conservation of Fuel and Energy for Dwellings, (Part L 2019), 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 St. Kevin's Hospital 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 development at St. Kevin's Hospital aims to satisfy the local planning requirements and national building regulations.

The proposed passive and active design 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:

- To achieve full compliance with TGD Part L for Dwellings (2019), and the Cork City Development Plan 2015-2021
- The BER rating achieved will be a minimum of A3.
- To achieve compliance with NZEB.

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

4. ENERGY STRATEGY FOR THE 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 to enter the buildings to areas with high thermal mass such as exposed concrete.

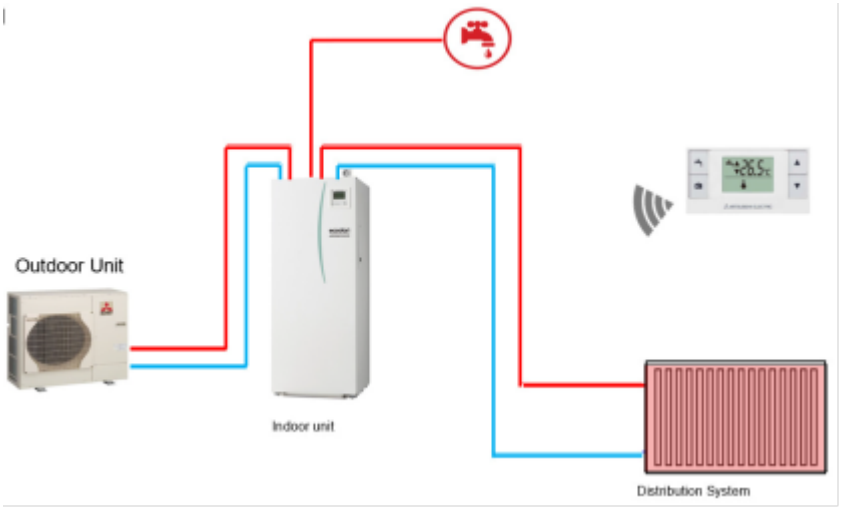
4.4 NATURAL DAYLIGHT

The design will seek to maximise the use of natural daylight through the development in order to reduce energy consumption from artificial lighting.

4.5 SPACE HEATING & DOMESTIC HOT WATER

Space heating and domestic hot water to each dwelling will be provided by either Air to Water Heat Pumps (AWHP) for the townhouses and duplexes or Exhaust Air Heap Pumps (EAHP) for the apartments in order to meet the NZEB requirements.

4.5.1 Air to Water Heat Pumps (AWHP)



- ErP A++ Energy Label; entire Ecodan heat pump range has been rated at the highest rating of A++

- Energy efficient unit boasting a domestic hot water and space heating efficiency above 300% and 450% respectively.
- Higher efficiencies: gas or oil boilers don't have the ability to compare with the efficiencies of space and water heating of the AWHP.
- Energy Monitoring: Energy monitoring comes as standard on all Ecodan FTC5 models.
- Pre-plumbed and wired for quick installation
- SD Card Commissioning and Logging; All settings can be pre-loaded on to the SD card and then simply inserted on site during commissioning. The SD card then logs performance data to help with fault finding. This is a benefit for the construction stage as it ensures programme certainty but is also a benefit during the Services period as faults can be easily identified and trends can be analysed, with the tenant's permission, to improve efficiency of use.
- MELCloud Wi-Fi Control; MELCloud is a new product from Mitsubishi Electric to allow fast and easy mobile control and monitoring of the Ecodan system from anywhere in the world. This system allows the tenant to remotely control and monitor the system.
- Quiet Mark; A unique accolade from the Noise Abatement Society given to technologies with best in class noise levels.
- MELSmart; Engineers on the phone and on-site helping you to design systems, fault find and service systems.
- Ecodan FTC5 Cylinder Range; Improved cylinder performance and faster heat up times through the use of plate heat exchanger technology
- Improves energy use leading to lower running costs and CO2 emissions. This is a direct benefit to the tenant, reducing their overall energy costs.
- No gas supply or flues required; poses no carbon monoxide risk and results in a single utilities bill for the tenant.
- Renewable and NZEB contribution

4.5.2 Exhaust Air Heat Pump (EAHP)

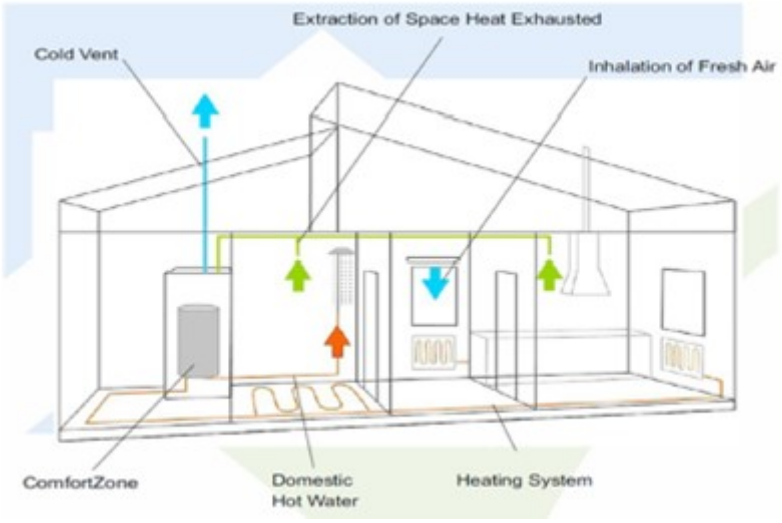
- All in one system; the unit provides space and domestic hot water, as well as ventilation
- Renewable contribution to Part L and NZEB compliance
- No gas requirement on site

- Reduced plant space requirement that could be utilised for further dwellings or retail units
- One bill for the tenant
- Quicker construction as minimum onsite M&E services distribution to each apartment, when compared to central plant options

The basic principle of an exhaust air heat pump is that the energy in the warm indoor air is recycled and sent back to the house via underfloor or radiator heat. The EAHP fan extracts heat from the air from all the wet rooms in the house.

Exhaust Air Heat Pump Unit

The air then passes through the heat pump, where the heat is recycled, is exchanged in temperature and sent back to the house as water-based heat. A by-product of the process is cooled ventilation of -15 degrees which is expelled through a cold vent to outside, and fresh indoor air taken into the house via wall or window vents.



The user simply sets the desired temperature, and the heat pump will handle the rest, regardless of outdoor temperature.

4.6 MECHANICAL VENTILATION

Mechanical ventilation to each apartment will be provided by Exhaust Air Heat Pumps.

Mechanical ventilation to each townhouse / duplex will be provided by either Mechanical Heat Recovery Ventilation (MVHR) Units or Demand Control Ventilation (DCV) systems.

4.7 UTILITY METERING SYSTEM

Water and electricity will be metered by the respective utility suppliers.

4.8 RENEWABLE ENERGY REQUIREMENTS

We have considered all the available LZC technologies, as listed below:

- Photo voltaic system for on–site electricity use
- Solar thermal for domestic hot water and/or space heating
- 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 Air Sourced Heat Pumps would be the most practical option for meeting compliance with the regulations.