

**ENERGY EFFICIENCY AND
CLIMATE ADAPTION DESIGN
STATEMENT**

Nursing Home Extension

Sally Park Nursing Home,

Sally Park Close,

Firminville, Dublin 24

Unit 7 Block E, Nutgrove Office
Park, Rathfarnham, Dublin 14.
Tel 01 460 2000

17 South Mall,
Cork.
Tel 021 427 2000

Email: info@ceaarchitects.ie

Web: www.ceaarchitects.ie

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1. Introduction.

The Sally Park Nursing Home development is located at is located in Tallaght on the R606 regional road.

The strategy sustainable design employed at the Sally Park Nursing Home development site will be to use robust, passive, cost effective measures to create a more efficient and healthy environment within the planned spaces. The development provides an opportunity to create and environmentally sound and energy efficient nursing home accommodation by using an integrated approach to design, planning, construction and operation.

Sustainable development promotes resource conservation of our limited natural resources. The design strategies employed will include a whole life cycle approach to management and planning of the development, energy efficiency with specific focus of 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.

The development is being designed to achieve an 'A rating' BER (Building Energy Rating) for the accommodation.

There are many significant drivers for sustainable design;-

- The increasing cost required to provide services such as energy and water.
- Stricter energy targets set under the Building Regulations now and into the future with specific regard to NZEB criteria.
- Objective to take account of the impacts of climate change.
- The desire to provide energy efficient building development to demonstrate energy awareness and efficiency of use.
- South Dublin County Council's Developments Plan 2016-2022 which encompasses the Covenant of Mayors initiative to reduce carbon emissions by 20% by 2020.

2. Energy Efficiency and Climate Change Adaptation Strategy Approach.

In the development the vision for the 'Energy Efficiency and climate Change Adaptation Strategy' for the development, the incorporation of sustainable strategies into the project deliverables has encouraged the commitment to sustainable design at a very early stage with the Client and the Design team to ensure a 'best in class' development. This approach seeks to ensure that the development meets the principles of the Government's 'National Climate Change policy', SOUTH DUBLIN COUNTY COUNCIL Development Plan Objectives 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.

At the core of the design strategies three key elements have been incorporated into the design namely;

- The building is being designed to be compliant with the NZEB standard with due regard to the DECLG 'Toward nearly Zero Energy Buildings In Ireland-Planning for 2020 and Beyond' document.
- The achievement of 'A rated' BER's for the development.

thus, ensuring that the buildings will meet the requirement as set out by SOUTH DUBLIN COUNTY COUNCIL in their development plan under section 11.7.2 Energy Performance in New Buildings.

The sustainable Strategy will seek to incorporate appropriate and effective economic and environmental measures. In this respect, consideration will be given to the following:

- Utilising the principles of Energy Efficient Design (EED) to minimise the energy usage during the operational phase of the building. The incorporation the EED principles including the provision for the use of 'Triple E' registered products from the SEAI database in the selection of equipment, by creating an IES energy model of the building during the design phase that will identify the energy users by type and allow targets to be set and this design data can then be directly linked to the operational phase of the buildings via the Building Management System. Using actual energy consumption feedback, the energy model can be used to assess different energy savings options.
- The design will incorporate energy efficiency across all elements of the project from:
 - Construction – Use of the principles of considerate construction to monitor and control energy, water. Etc. use on the site during the project.
 - Commissioning-Baseline the energy and water consumption to set the appropriate targets for the operational phase using the extensive metering/controls equipment designed to meet the principles of CIBSE TM 39-Building Energy Metering.
 - Use of a Commissioning Manager to co-ordinate and ensure that all the energy related systems are installed and operate as per design.

- Operation-Confirmation that the principles of EED have been met.
- Maximising the use of passive design measures such as the building façade to take advantage of the site constraints/orientation, use of enhanced fabric u-values in excess of Part L 2017 with the delivery of an excellent air permeability rate.
- Targeting natural daylight factors that meet CIBSE recommendations. Good natural daylight creates a positive living environment and contributes to the well-being of the occupants. The provision of good glazing on the elevations will maximise the use of natural daylight that will enhance the visual comfort of the building occupants. The use of high performance glazing will ensure that the thermal performance of the buildings is not compromised, while allowing the building occupants to enjoy the benefit of the glazed views.
- Façade studies in conjunction with the Architect using computer modelling techniques to maximise the daylight factors, natural ventilation and solar benefits specific to the site thus maximising the air quality and daylight within the buildings.
- Extend the sustainable approach from the Building to the site throughout the construction and handover process.
- Reduce Reuse and Recycle throughout the design, construction and operational phases of the development to ensure that the project maximises the recycling and reuses of material while reducing the quantum of waste diverted to landfill.
- Use of Dynamic Thermal and Energy simulation techniques to confirm a low energy and carbon footprint design for the building. The design incorporates significant areas that will operate under natural ventilation principles and will be checked for compliance with Part L of the Building Regulations for the impact of overheating. Additionally, the spaces will also be checked for the impact of Climate Change using the 202/2050 CIBSE accredited weather files and that the spaces will be able to meet the compliance criteria.
- Energy Efficient M&E systems and plant- heating plant, LED Lighting, Triple R registered products, etc. that minimises the consumption of energy.
 - Efficient use of natural light to offset the use of artificial light.
 - Use of high efficiency LED Light fittings.
 - High Efficiency heating plant including a centralised plant space.
- Use of renewable technologies such as PV panels/ Heat Pumps/ CHP plant/ Etc. based on optimum technical and economic considerations which will off-set Primary Energy consumption and reduce the carbon footprint in line with SCC Energy Policy 7.
- Incorporation of the above design measures to maximise the building energy ratings (BER) to meet a target of an 'A Rating' for the building. This will demonstrate that the building has been designed to ensure energy efficiency and provide the user with a degree of certainty over their energy and carbon footprint.
- An integrated Water Management and Conservation Plan that incorporates the use of low water consumption equipment to ensure the minimal use of potable water, efficient sanitary appliances (e.g. low water WC cisterns & taps). Use of Green Roofs is also planned to assist in meeting the SUDs requirements in support of Energy Policy 2 Objective 8.
- Encouraging the use of public transport by using the principles of environmental assessment methodologies to reduce the reliance on cars and encourage a shift to more carbon lowering modes of transport. The Mobility Management Plan produced as part of this planning application will form the basis of a site-specific Travel Plan to be produced.

- Whole life cycle approach to the selection of materials used in the building with specific regard to the impact on the carbon footprint.
- During design and construction phases, using the environmental assessment methodologies principles to ensure that the buildings are developed holistically.

3. Conclusion

The additional investment required to deliver an energy efficient and climate change adaptive design in line with the South Dublin County Council Development Plan 2016-2022 will add benefit to the sustainability of the Sally Park Nursing Home and holistically forms part of an industry wide approach to reduce carbon consumption and emissions and to comply with regulations. These benefits ensure less energy, less services and therefore less resources are needed to operate and will make the building more energy and environmentally efficient and will ensure that is a more sustainable development into the future.

