

**JV TIERNEY & CO**

MECHANICAL ELECTRICAL & SUSTAINABLE ENGINEERS

# SUSTAINABILITY/ENERGY REPORT

PLANNING STAGE

EBLANA DEVELOPMENT DUN LAOGHAIRE

The Tannery  
53-56 Cork Street  
Dublin D08 P92R  
Tel: +353 1 421 4900  
Email: mail@jvtierney.ie  
Website: www.jvtierney.ie

**SUSTAINABILITY/ENERGY STATEMENT**  
**EBLANA DEVELOPMENT**  
**DUN LAOGHAIRE, CO. DUBLIN**  
**PLANNING STAGE**

Rev:	Issue Date:	Prepared By:	Checked By:
02	01-04-2019	DW	RB

L:\4048-Dublin-Eblana Ave Dun Laoghaire\Admin-Out\Reports\20190401 Finalised and Sent



Directors: T.F Ahern, J. Lee, N. Tobin, S. Walsh, R. Burke, A. Clifford, C. Saul.  
Associates: C. Kelly, D. Conaty.  
J.V. Tierney and Company (2002) Limited Trading as J.V. Tierney & Co. Registration No. 359680  
Registered Office: 4<sup>th</sup> Floor, Harmony Court, Harmony Row, Dublin 2.

 Member of the Association of Consulting Engineers of Ireland



**CONTENTS**

	<b>Page No.</b>
1. Introduction	2
2. Energy Strategy Approach	4
3. Conclusion	7



## 1. Introduction

Bartra Property (Eblana) Limited, intend to apply to An Bord Pleanála for permission for a strategic housing development at this site at the Old School House, Eblana Avenue, Dún Laoghaire, Co. Dublin.

The development will consist of the demolition all existing buildings on site (2,629 sq m) including a section of the northern boundary wall located to the western side of the site and the construction of a part four to part six storey over part basement/ part lower ground floor Shared Living Residential Development comprising 208 No. single occupancy bedspaces (including 4 No. accessible rooms) with circulation core and photovoltaic panels at roof level (6,501 sq m); and a kiosk fronting Eblana Avenue for the sale of food and beverages to the public (16.7 sq m) with associated external seating area.

The development also consists of the provision of communal kitchen/dining/living and library spaces at each floor level to serve the residents of each floor; communal resident amenity space for all residents at lower ground and ground floor levels including the provision of a lounge/games room, multi-purpose/dining space, gymnasium/fitness space and TV/cinema room; a roof garden at fifth floor level (348.8 sq m) facing north, east and west; landscaped amenity areas at lower ground/ ground floor level (206.7 sq m); resident facilities including launderette, linen room and concierge/administration management suite; bicycle parking; car parking incorporating 4 No. visitor car parking spaces, 1 No. disabled car parking space, 1 No. car share parking space and a short-term set down area; bin storage; boundary treatments; green roofs; hard and soft landscaping; provision of a pedestrian link between Eblana Avenue and Croften Square; storage areas; plant; switch room; substation; lighting; and all other associated site works above and below ground.

The strategy to sustainable design at the Eblana development site will be to use robust, passive, cost effective measures to create an efficient and healthy environment within the planned spaces. The development provides an opportunity to create environmentally sound and energy efficient community living building 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 on 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 community living building 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.
- 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.
- Dun Laoghaire-Rathdown County Council (DLRCC) Development Plan 2016 -2022 objectives with regard to Climate Change and Energy Efficiency.



## 2. Energy Strategy Approach

In developing the vision for the ‘Sustainability/Energy 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 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’, DLRC Development Plan 2016 -2022 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 (CO<sub>2</sub>) emissions thus demonstrating the Client’s commitment to Climate Change.

At the core of the design strategies two key elements have been incorporated into the design namely:

- I. The building is designed to be compliant with the NZEB standard with due regard to the *DECLG ‘Towards nearly Zero Energy Buildings in Ireland - Planning for 2020 and Beyond’* document.
- II. The achievement of ‘A Rated’ BER’s for the communal living accommodation.

thus, ensuring that the buildings will meet the requirements as set out by Dun Laoghaire-Rathdown County Council in their development plan.

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 saving 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 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 principals 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 maximize 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 building 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 Eblana site thus maximising the air quality and daylight within the communal building.
  - 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 reuse of materials 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 2020/2050 CIBSE accredited weather file and the spaces will be confirmed to meet the compliance criteria.
  - Energy efficient M&E systems and plant: Use of Heating Plant, LED Lighting, Triple E 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 supported by Heat Pumps in conjunction with PV Panels to contribute to meeting the renewable energy requirements of the Part L Regulations.
- Use of renewable technologies such as PV Panels/Heat Pumps based on optimum technical and economic considerations which will off-set Primary Energy consumption and reduce the carbon footprint in line with the DLRCC Development Plan 2016 -2022.
- 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).
- 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 DLRCC Development Plan 2016 -2022 will add benefit to the sustainability of the Eblana community development 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 buildings more energy and environmentally efficient and will ensure that it is a more sustainable development into the future.

This Report was prepared by:



Signed:

---

Rory Burke, Chartered Engineer  
Director  
J.V. Tierney & Co.

Date: 28-03-2019

