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CREAGH STRATEGIC HOUSING RESIDENTIAL DEVELOPMENT AT BALLOWEN/RAMSFORTPARK, GOREY, CO WEXFORD FOR AMIL PROPERTIES LTD.

BUILDING LIFECYCLE REPORT

STRUTEC
Architectural and Engineering Consultants

Contents

1. Introduction

1.1 The Sustainable Urban Housing; Design Standards for New Apartments(2018) – Guidelines for Planning Authorities were (March 2018) – 'The Apartment Guidelines'. The Apartment Guidelines introduced a requirement to include details on the management and maintenance of apartment schemes. This is outlined in Section 6.11 to 6.14 - *"Operation & Management of Apartment Developments"*, specifically Section 6.13.

1.2 Section 6.13 of the Apartment Guidelines requires that apartment applications:

"shall include a building lifecycle report, which in turn includes an assessment of long term running and maintenance costs as they would apply on a per residential unit basis at the time of application"

"demonstrate what measures have been specifically considered by the proposer to effectively manage and reduce costs for the benefit of residents."

1.3 This Building Life Cycle Report document sets out to address the requirements of Section 6.13 of the Apartment Guidelines. The report is broken into two sections as follows:

- An Assessment of Long Term Running Costs
- Measures to Reduce Costs

2. The Proposed Development

2.1 The proposed development comprises 297 dwellings, consisting of 232 two, three, four and five bedroom houses and 65 two and three bedroom apartments and duplexes. The dwellings are arranged in a wide variety of units of both two and three storeys.

2.2 The apartment buildings are small blocks of 2 or 3 units in 2.5 to 3 storeys on predominantly corner sites. They are in the format of ground floor single-storey units with duplex units above served by an external stairs to ambulant disabled criteria.

3. An Assessment of Long Term Running Costs

3.1 This section relates to an assessment of long term running and maintenance costs as they would apply on a per residential unit basis at the time of application.

3.2 A property management company will be engaged at an early stage of the development to ensure that all property management functions are dealt with for the development and that the running and maintenance costs of the common areas of the development are kept within the agreed Annual operational budget. The property management company will enter into a contract directly with the OMC for the ongoing management of the built development. Note This contract will be for a maximum period of 3 years and in the form prescribed by the PSRA.

3.3 The Property Management Company also has the following responsibilities for the apartment development once constructed:

- Timely formation of an Owners Management Company (OMC) – which will be a company limited by guarantee having no share capital. All future purchasers will be obliged to become members of this OMC
- Preparation of annual service charge budget for the development common areas
- Fair and equitable apportionment of the Annual operational charges in line with the MUD Act Engagement of independent legal representation on behalf of the OMC in keeping with the MUD Act - including completion of Developer OMC Agreement and transfer of common areas Transfer of documentation in line with Schedule 3 of the MUD Act
- Estate Management
- Third Party Contractors Procurement and management
- OMC Reporting
- Accounting Services
- Corporate Services
- Insurance Management
- After Hours Services
- Staff Administration

3.4 The property management company has a number of key responsibilities with first and foremost being the compiling of the service charge budget for the development for agreement with the OMC. The service charge budget covers items such as cleaning, landscaping, refuse management, utility bills, insurance, maintenance of mechanical/electrical lifts/ life safety systems, security, property management fee, etc, to the development common areas in accordance with the Multi Unit Developments Act 2011 (“MUD” Act).

3.5 This service charge budget also includes an allowance for a Sinking Fund and this allowance is determined following the review of the Building Investment Fund (BIF) report prepared by for the OMC. The BIF report once adopted by the OMC, determines an adequate estimated annual cost provision requirement based on the needs of the development over a 30-year cycle period. The BIF report will identify those works which are necessary to maintain, repair, and enhance the premises over the 30year life cycle period, as required by the Multi Unit Development Act 2011.

3.6 In line with the requirements of the MUD Act, the members of the OMC will determine and agree each year at a General Meeting of the members, the contribution to be made to the Sinking Fund, having regard to the BIF report produced[1].

4. Measures to Reduce Costs

4.1 The following measures were specifically considered by the proposer to effectively manage and reduce costs for the benefit of residents and can be read in conjunction with the Strutec Energy Statement, included with the SHD application:-

Energy and Carbon Emissions

Table 4.1 – Energy and Carbon Emissions

<table>
<tr><th>Measure</th><th>Description</th><th>Benefit</th></tr>
<tr><td>BER Certificates</td><td>A Building Energy Rating (BER) certificate will be provided for each dwelling in the proposed development which will provide detail of the energy performance of the dwellings. A BER is calculated through energy use for space and hot water heating, ventilation, and lighting and occupancy. It is proposed to target an A2/A3 rating for the apartments this will equate to the following emissions. A2 – 25-50 kwh/m2/yr with CO2 emissions circa 10kgCO2/m2 year A3 – 51-75 kwh/m2/yr with CO2 emissions circa 12kgCO2/m2 /year</td><td>Higher BER ratings reduce energy consumption and running costs.</td></tr>
<tr><td>Fabric Energy Efficiency</td><td>The U-values being investigated will be in line with the requirements set out by the current regulatory requirements of the Technical Guidance Documents Part L, titled “Conservation of Fuel and Energy Buildings other than Dwellings”.

Thermal bridging at junctions between construction elements and at other locations will be minimised in accordance Paragraphs 1.2.4.2 and 1.2.4.3 within the Technical Guidance Documents Part L. See below Table 1 of Part L, Building Regulations.

<table>
<tr><th>Element</th><th>U-value (W/m².K)</th></tr>
<tr><td>Pitched Roof (insulated on slope or ceiling)</td><td>0.16</td></tr>
<tr><td>Flat Roof</td><td>0.20</td></tr>
<tr><td>Walls</td><td>0.21</td></tr>
<tr><td>Ground Floor</td><td>0.21</td></tr>
<tr><td>Ground Floor with Underfloor Heating</td><td>0.15</td></tr>
<tr><td>Exposed Floor</td><td>0.21</td></tr>
<tr><td>External doors, windows and roof windows</td><td>1.60*</td></tr>
</table>
* Applies where the combined area equals 25% of the building floor area. Variations up and down are permissible under 1.3.2.4 and Table 2 of TGD L.

<table>
<tr><th>Element</th><th>U-value (W/m².K)</th></tr>
<tr><td>Walls</td><td>0.18</td></tr>
<tr><td>Ground Floor</td><td>0.18</td></tr>
<tr><td>External doors, windows and roof windows</td><td>1.40</td></tr>
</table></td><td>Lower U-values and improved air tightness is being considered to help minimise heat losses through the building fabric, lower of energy consumption and thus minimise carbon emissions to the environment</td></tr>
</table>

[1] Note: the detail associated with each element heading i.e. specification and estimate of the costs to maintain / repair or replace, can only be determined after detailed design and the procurement/ construction of the development and therefore has not been included in this document.

	In order to achieve the NZEB standards, in most cases the above standards will be exceeded in the proposed development.	
Energy Labelled White Goods	The white good package planned for provision in the apartments will be of a very high standard and have a high energy efficiency rating. It is expected that the below appliance ratings will be provided: • • Oven - A plus • • Fridge Freezer - A plus • • Dishwasher - AAA • • Washer/Dryer - B	The provision of high rated appliances in turn reduces the amount of electricity required for occupants.
External Lighting	The proposed lighting scheme within the development consists of 8m and 6m pole mounted fittings as indicated on the drawings. The luminaire selected is the CU Phusco P862 & P852 fitting, this fitting was selected for the following reasons; 15 • • Low level lighting • • Minimal upward light spill • • Low voltage LED lamps Each light fitting shall be controlled via an individual Photoelectric Control Unit (PECU). The operation of the lighting shall be on a dusk-dawn profile.	The site lighting has been designed to provide a safe environment for pedestrians, cyclists and moving vehicles, to deter anti-social behavior and to limit the environmental impact of artificial lighting on existing flora and fauna in the area. Having PECU allows for the optimum operation of lighting which minimizes costs.

Low Energy Technologies

4.2 The following are Low energy technologies that are being considered for the development and during the design stage of the development in order to meet the requirements of Part L of the Building Regulations and to meet the upcoming Near Zero Energy Building standard if required. The specific combination from the list below will be decided on and then implemented to achieve the A2/A3 BER Rating.

Table 4.2 – Low Energy Technologies

Measure	Description	Benefit
Condensing Boilers	If gas fired heating is adopted, condensing boilers will be provided as they have a higher operating efficiency, typically over 90%, than standard boilers and have the benefit of lower fuel consumption resulting from the higher operating efficiencies.	Condensing boiler have lower fuel consumption resulting from the higher operating efficiencies.

Mechanical Ventilation Heat Recovery	Centralised mechanical ventilation will be provided where required to all dwellings to ensure that the air quality within the dwellings will be adequate. The inclusion of Heat Recovery Ventilation into the centralised ventilation system will be considered and assessed in order to minimise the energy usage within the dwelling.	Mechanical Heat Recovery Ventilation provides ventilation with low energy usage. The MVHR reduces overall energy and ensures a continuous fresh clean air supply.
PV Solar Panels	PV Solar Panels will be considered in order to meet the renewable energy contribution required by Part L of the Building Regulations. These panels convert sunlight into electricity which can be used within the dwelling. The panels are typically placed on the South facing side of the building to maximise the solar exposure.	PV Solar Panels offer the benefit of reducing fossil fuel consumption and carbon emissions to the environment. They also reduce the overall requirement to purchase electricity from the grid.
Space and Water Heating	An air-to-water heat pump system is proposed for each dwelling as the optimal balance of practicality, efficiency and contribution of renewable energy. Each heat pump system shall be listed on the HARP database or have IS EN14511-2, IS EN 255-2 or EN 15879 test certificates (or otherwise as required by changes to the Regulations). The hot water storage will form part of the composite heat-pump systems, with certified loss factors. Space heat distribution will be via low-temperature radiators generally, and the space and hot water system will have full time and temperature controls.	Air source heat pumps use electrical energy from the grid to drive the refrigerant cycle but do so extremely efficiently. Modern heat pumps will typically provide 4 to 5 times more heat energy to the dwelling than the electrical energy they consume.

Materials

4.3 The practical implementation of the Design and Material principles has informed the design of internal layouts, detailing of the proposed apartment buildings, and building facades. The façade materials will consist of brick, render, glazing, zinc and pressed metal.

Buildings

4.4 Apartment Buildings are designed in accordance with the Building Regulations, in particular Part D 'Materials and Workmanship', which includes all elements of the construction. The Design Principles and Specification are applied to both the apartment units and the common parts of the building and specific measures taken include:

Description of Measure	**Benefit**
Daylighting to circulation areas	Avoids the requirement for continuous artificial lighting
Surface carparking areas	Omits the requirement for a basement which, avoids costly mechanical ventilation systems & associated maintenance.
Natural ventilation to common areas	Avoids costly mechanical ventilation systems and associated maintenance and future replacement
External paved and landscaped areas	All of these require low/minimal maintenance
Roof construction consists of traditional pitched roofs with slate coverings.	Minimises ongoing maintenance

Table 4.3 – Material Specification

Description of Measure	**Benefit**
Consideration is given to the requirements of the Building Regulations and includes reference to BS 7543:2015, 'Guide to Durability of Buildings and Building elements, Products and Components', which provides guidance on the durability, design life and predicted service life of buildings and their parts. All common parts of the proposed Apartment buildings and, the durability and performance of these are designed and specified in accordance with Figure 4; Phases of the Life Cycle of BS7543; 2015. (Please see Appendix B for this figure). The common parts are designed to incorporate the guidance, best practice principles and mitigations of Annexes of BS 7543: 2015 including: • Annex A Climatic Agents affecting Durability • Annex B Guidance on materials and durability • Annex C Examples of UK material or component failures • Annex D Design Life Data sheets	Ensures that the long-term durability and maintenance of Materials is an integral part of the Design and Specification of the proposed development.
Use of brickwork, self-finished render and zinc cladding to envelope.	Requires no on-going maintenance.
Use of factory finished and alu clad windows & doors and powder coated steel balconies	Requires no on-going maintenance.

Table 4.4 – Landscape

Measure	Description	Benefit
Hard Landscape Materials	Sustainable, robust materials, with high slip resistance to be used for paving. Durable and robust finishes to be selected for all fencing, furniture, bin and bicycle storage units	Materials selected to minimise on-going maintenance inputs
Soft Landscape Materials	Planting proposals have been formulated to complement the local setting as well as being fit for purpose in respect of private and public realm uses and spatial constraints imposed by garden sizes and the width of planting strips. Native tree species have been selected in significant numbers for planting along boundaries	Reduction in the frequency of required soft landscape maintenance
Site Layout and Design	Pedestrian and cyclist friendly hierarchy of streets and open spaces are complemented by generous and high-quality landscape treatments providing long term high quality residential environments.	Safe, high quality residential environments reduce vandalism and antisocial behaviour issues
Maintenance & Management	Maintenance and management requirements have been considered through the design process. Complex planting arrangements have been omitted thus avoiding onerous maintenance and management requirements	Estate maintenance costs reduced
Sustainability & Biodiversity	Sustainability aspects of the proposed development include the retention of trees and hedgerows along site boundaries and the use of native trees where possible across the site. Other species have been carefully selected for compatibility	Enhanced sustainability of long-term estate management

	with the size of available spaces which is an important factor in long term management of the housing estate. The overall objective is to enhance the biodiversity potential of the site in addition to providing seasonal interest and variety. Judiciously placed flowering shrub and groundcover planting have been included to further promote biodiversity (pollinator species attracting insects and birdlife).	

Waste Management

4.5 The following measures illustrate the intentions for the management of Waste.

Table 4.5 – Waste Management

Measure	Description	Benefit
Construction and Operational Waste Management Plan	The application is accompanied by a Construction and Operational Waste Management Plan prepared by Strutec Ltd.	The report demonstrates how the scheme has been designed to comply with best practice.
Storage of Non-Recyclable Waste and Recyclable Household Waste	Domestic waste management strategy: • Grey, Brown and Green bin distinction. • Competitive tender for waste management collection.	Easily accessible by all residents and minimises potential littering of the scheme Helps reduce potential waste charges
Composting	Organic waste bins to be provided throughout.	Helps reduce potential waste charges

Table 4.6 – Health and Well Being

Measure	Description	Benefit
Natural / Day Light	The buildings have been favorably orientated. The design, separation distances and layout of the apartment blocks have been designed to optimize the ingress of natural daylight/sunlight to the proposed dwellings to provide good levels of natural light.	Reduces reliance on artificial lighting thereby reducing costs.
Accessibility	All units will comply with the requirements of Part M/K.	Reduces the level of adaptation, and associated costs, potentially necessitated by residents' future circumstances
Natural Amenity	Public open space at the centre of the scheme, also located near Town Parks to the south west and Ramsfort Park to the east.	Facilitates community interaction, socialising and play – resulting in improved wellbeing Proximity and use of parks promote a healthy lifestyle

Table 4.7 – Management

Measure	Description	Benefit
Home User Guide	Once a purchaser completes their sale, a homeowner box will be provided which will include: • **Homeowner manual** – this will provide important information for the purchaser on details of their new property. It typically includes details of the property such as MPRN and GPRN, information in relation to utility connections/communication providers, contact details for all relevant suppliers, and user instructions for appliances and devices in the property. • **A Residents Pack** prepared by the OMC which will typically provide	Residents are as informed as possible so that any issues can be addressed in a timely and efficient manner.

	information on contact details for the managing agent, emergency contact information, transport links in the area, and a clear set of rules and regulations.	

Transport

Table 4.8 – Public Transport

Measure	**Description**	**Benefit**
Access to Public Transport (Rail)	The proposed development is located c. 1.4 km to the Gorey train station, which provides access to Bray, Dun Laoghaire and Dublin City Centre as well as Wexford.	The availability, proximity to public transport services contributes to reducing the reliance on the private motor vehicle for all journey types.
Access to Public Transport (Bus Services)	There are a number of bus routes located on Gorey Main Street c. 900m, and Gorey Train Station (routes 740, 879 - local) Wexford bus also provides services to Dublin city and Wexford.	These bus services provide access locally and also to Dublin City to the north and Wexford to the south providing a viable and practical sustainable alternative to journeys undertaken by the private motor car.
Permeable Connections	The proposal includes for permeability to the north and to the south, which will facilitate and encourage walking and cycling to the town centre which is c. 700m to 1,000m to the south, where there is a wide rage of shopping, and amenities.	Ensure the long-term attractiveness of walking and cycling to a range of local education, retail and community facilities and services.
Bicycle Storage	The provision of high-quality secure & covered bicycle parking facilities, for both short term and long-term parking requirements.	Accommodates the uptake of cycling and reducing the reliance on the private motor vehicle.

Appendix 1 ITEMS INCLUDED IN A TYPICAL BIF

The BIF table below illustrates what would be incorporated for the calculation of a Sinking Fund.

Ref	Item	Typical Life Expectancy
1.00	**Roofs**	
1.01	Replacement felt roof covering incl. insulation to small sections of flat roof	**18**
1.02	Replacement parapet details	18
1.03	Replacement/ repairs to facias	18
1.04	Replace roof access hatches	25
1.05	Specialist Roof Systems - Fall arrest	25
1.06	Overhaul waterproofing details to paved areas	12
2.00	**Elevations**	
2.01	Recoat metal panels to penthouse apartments	25
2.02	Minor repairs and preparation for decorations of rendered areas	18
2.03	Replace exit/ entrance doors	25
2.04	Replace rainwater goods	25
2.05	Recoat powder coated finishes to balconies	20
2.06	Periodic replacement and overhauling of external fixings	5
2.07	Replace balcony floor finishes	25

Ref	Item	Typical Life Expectancy
3.00	**Staircores & lobbies**	
3.01	Decorate Ceilings	7
3.02	Decorate Walls	7
3.03	Decorate Joinery	7
3.04	Replace fire doors	25
3.05	Replace carpets (stairwells & lobbies)	12
3.06	Replace entrance mats	10
3.07	Replace nosings	12
3.08	Replace ceramic floors tiles Entrance lobbies	20
3.09	Fixed Furniture & Equipment - Provisional Sum	18
4.00	**M&E Services**	
4.01	General - Internal relamping	7
4.02	Replace Internal light fittings	18
4.03	Replace External light fittings (lights at entrance lobbies)	18
4.04	Replace smoke detector heads	18
4.05	Replace manual break glass units/ disabled refuge call points	18
4.06	Replace Fire alarm panel	18
4.07	Replace lift car and controls	25
4.08	Replace AOV's	25

Ref	Item	Typical Life Expectancy
4.08	Replace security access control installation	15
4.09	Sump pumps replacement	15
4.10	External Mains Water connection	20
4.12	Electrical Mains and Sub Mains distribution	20
4.13	Emergency Lighting	20
4.14	Overhaul and/or replace Waste Pipes, Stacks & Vents	20
5.00	**Exterior**	
5.01	External boundary treatments - Recoat powder coated Finishes to railings	60
5.02	Replace external signage	18
5.03	Replace cobblelock areas	18
5.04	15-year cutback & thinning of trees. Overhaul landscaping generally	20
5.05	Replace CCTV provision	12
5.06	External Handrails and balustrade	18