TWINLITE

Project Ironborn, Stepaside

Building Life Cycle Report

For proposed residential development at Sector 3,

Aikens Village, Stepaside, Dublin 18

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On behalf of:

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INTRODUCTION

6.11 to 6.14 of the newly published Sustainable Urban Housing; Design Standards for New Apartments – Guidelines for Planning Authorities relates to the "Operation & Management of Apartment Developments"

Section 6.13 of the Apartment Guidelines 2018 requires that apartment applications shall:

"***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."*

This Building Life Cycle Report document sets out to address the requirements of the Sustainable Urban Housing: Design Standards for New Apartments (Guidelines for Planning Authorities) 2020

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SECTION 01

AN ASSESSMENT OF LONG TERM RUNNING AND MAINTENANCE COSTS AS THEY WOULD APPLY ON A PER RESIDENTIAL UNIT BASIS AT THE TIME OF APPLICATION

Property Management Company and Owners Management Company (OMC)

1.1 Property management of the Common Areas of the development

A property management company (PMC) 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 PMC 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.

The developer (Ironborn Real Estate Limited) has the following responsibilities for the project 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 an initial 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

Once the project is constructed, the OMC administration will be handed over to the PMC which will carry out the following duties:

- Estate Management
- Third Party Contractors Procurement and management
- OMC Reporting
- Accounting Services
- Corporate Services
- Insurance Management
- After Hours Services
- Staff Administration

1.2 Service Charge/Operational Expenditure Budget

The PMC has a number of key responsibilities with first and foremost being the compiling of the service charge/OpEx budget for the development for agreement with the OMC. The 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).

This 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.

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.

A sample format of the typical BIF report is set out in Appendix A.

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.

SECTION 02

MEASURES SPECIFICALLY CONSIDERED BY THE PROPOSER TO EFFECTIVELY MANAGE AND REDUCE COSTS FOR THE BENEFIT OF RESIDENTS.

2.1 Energy and Carbon Emissions

The following are an illustration of the energy measures that are planned for the units to assist in reducing costs for the occupants.

<table>
<tr><th>Measure</th><th>Description</th><th>Benefit</th></tr>
<tr><td>BER Certificates</td><td colspan="2">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.</td><td>
<table>
<tr><th colspan="3">Table 1 Maximum elemental U-value (W/m²K)[1, 2]</th></tr>
<tr><th>Column 1
Fabric Elements</th><th>Column 2
Area-weighted Average Elemental U-Value (Um)</th><th>Column 3
Average Elemental U-value – individual element or section of element</th></tr>
<tr><td>Roofs

Pitched roof
- Insulation at ceiling
- Insulation on slope

Flat roof</td><td>

0.16
0.16

0.20</td><td>

0.3</td></tr>
<tr><td>Walls</td><td>0.21</td><td>0.6</td></tr>
<tr><td>Ground floors[3]</td><td>0.21</td><td>0.6</td></tr>
<tr><td>Other exposed floors</td><td>0.21</td><td>0.6</td></tr>
<tr><td>External doors, windows and rooflights</td><td>1.6[4]</td><td>3.0</td></tr>
<tr><td colspan="3">Notes:
1. The U-value includes the effect of unheated voids or other spaces.
2. For alternative method of showing compliance see paragraph 1.3.2.3.
3. For insulation of ground floors and exposed floors incorporating underfloor heating, see paragraph 1.3.2.2.
4. Windows, doors and rooflights should have a maximum U-value of 1.6 W/m²K when their combined area is 25% of floor area. However areas and U-values may be varied as set out in Table 2.</td></tr>
</table>
</td><td>Lower U-values and improved air tightness will help minimise heat losses through the building fabric, lower of energy consumption and thus minimise carbon emissions to the environment.</td></tr>
</table>

Measure	Description	Benefit
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 will have the following characteristics; • Low level lighting • Minimal upward light spill • Low voltage LED lamps • Pre-approved by Dun Laoghaire Rathdown County Council 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 behaviour 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.

The following are low energy technologies that are being proposed for the development. During the design stage the specific combination from the list below will be decided on and then implemented to achieve the A2/A3 BER Rating.

Measure	Description	Benefit
Exhaust Air source heat pumps	Exhaust Air source heat pumps are proposed for all apartments to provide hot water.	Air source heat pumps are amongst the most energy efficient methods of heating water and will reduce the environmental impact of the project.
Electric radiators	Electric radiators are proposed due to the very high levels of air tightness proposed for the project.	Electric radiators are more thermally efficient than water based base radiators they convert 100% of the energy input to heat, unlike water based radiators. Electric radiators are carbon neutral at the point of use. There is no burning of fossil fuels and no release of Carbon Dioxide (CO2) to atmosphere. They also have very accurate electronic thermostatic controls for optimum energy use.
Mechanical Ventilation Heat Recovery	Mechanical heat recovery ventilation will be used to provide ventilation with low energy usage.	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 are being considered which converts the electricity produced by the PV system (which is DC) into AC electricity The panels are typically placed on the South facing side of the building for maximum solar gain. They will be used to help meet the renewable energy requirement (RER) of the development	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.
Electric vehicle charging Points	Ducting shall be provided from a local landlord distribution board to designated car park spaces. This will enable the management company the option to install a number of charging points within the basement carpark to cater for future needs. This system operates on a single charge point access card.	Future proofing the building for the continued growth in the number electric vehicles.

2.2 Materials

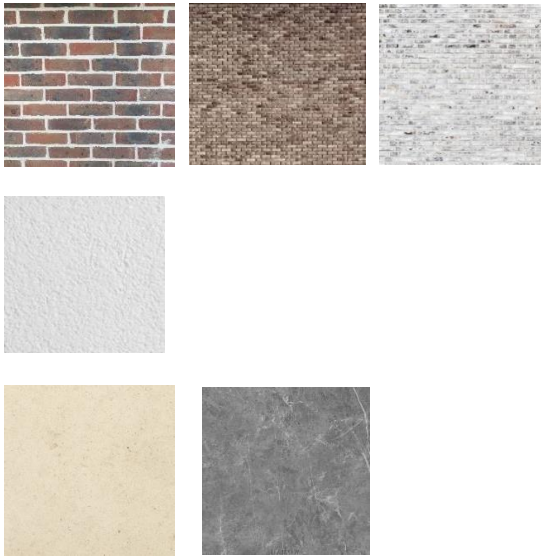
The practical implementation of the Design and Material principles has informed design of building facades, internal layouts and detailing of the proposed apartment buildings.

2.2.1 Buildings

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:

Measure Description	Benefit
Daylighting to circulation areas	Avoids the requirement for continuous artificial lighting
Natural/Passive ventilation system to circulation areas	Avoids costly mechanical ventilation systems and associated maintenance and future replacement
Natural ventilation to carpark (and other common areas)	Avoids costly mechanical ventilation systems and associated maintenance and future replacement
Secure ground level cycle and refuse storage areas	Avoids access lifts /ramps and any handling/moving equipment.
External paved and landscaped areas	All of these require low/minimal maintenance

2.2.2 Material Specification

Measure Description		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, stone and metalwork systems to envelope *Proposed Brick & Mortar Colours* *Proposed Stone Colour* *Window System (will be double-glazed)* *Large Format Sliding System_* (will be double-glazed)		Requires no on-going maintenance.
Use of factory finished and alu clad windows and doors, and powder coated steel balconies		Requires no on-going maintenance.

2.3 Landscape

	Measure Description		Benefit
Green Roofs	Use of green/blue roofs and traditional roof coverings with robust and proven detailing to roof elements.		Attenuation reduces the burden on vulnerable rainwater goods, resulting in fewer elements that could require replacement or repair.
Paving and Decking Materials	Use of robust, high quality paving and decking materials, with robust and proven details		Require minimal on-going maintenance.
Materials	Sustainable, robust materials, with high slip resistance to be used for paving. Durable and robust equipment (e.g. play, exercise, fencing etc.) to be used throughout.		Robust materials and elements reduce the frequency of required repair and maintenance.

2.4 Waste Management

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

Measure	Description	Benefit
Operational Waste Management Plan	The application is accompanied by an Operational Waste Management Plan prepared by AWN Consulting.	The report demonstrates how the scheme has been designed to comply with best practice.
Construction and Demolition Waste Management Plan	The application is accompanied by a Construction and Demolition Waste Management Plan prepared by AWN Consulting.	This report is to ensure that both hazardous and non-hazardous waste generated on site is disposal of in a safe and compliant manner.
Storage of Non-Recyclable Waste and Recyclable Household Waste	Domestic waste management strategy: 1) Grey, Brown and Green bin distinction 2) Competitive tender for waste management collection	Helps reduce potential waste charges.
Composting	Organic waste bins to be provided throughout.	Helps reduce potential waste charges.

2.5 Health & Well being

The following are illustrations of how the health and well-being of future residents are considered.

Measure	Description	Benefit
Natural / Day Light	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.
Security	The scheme is designed to incorporate passive surveillance with the following security strategies likely to be adopted: • CCTV monitoring details • Secure bicycle stands – covered by CCTV • Routine access fob audits	Help to reduce potential security/management costs.

2.6 Management

Consideration has been given to the ensuring the residents have a clear understanding of their property

Measure	Description	Benefit
Resident Guide	Once an occupier moves into the development, the following assistance will be provided: • **Residents 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 connect with utilities and 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 information on contact details for the Managing agent, emergency contact information, transport links in the area and a clear set of rules and regulations.	Residents are informed as best as possible so that any issues can be addressed in a timely and efficient manner.

2.7 Transport

Measure	Measure Description	Benefit
Access to Public Transport (LUAS)	There are two LUAS stations within walking distance of the site. The Glencairn Stop at 9 minutes and The Gallops Stop at 12 minutes.	The availability, proximity and ease of access to high quality public transport services contributes to reducing the reliance on the private motor vehicle for all journey types.
Access to Public Transport (Bus Services)	A total of five local Bus services operate near the subject development site. Local Bus Stops for Dublin Bus Routes include 44, 44b, 47, 114, 118.	These bus services provide access to a range of additional destinations above. The proximity, frequency and range of additional destinations served by these local bus services enhance the accessibility levels of the proposed residential development in addition to providing a viable and practical sustainable alternative to journeys undertaken by the private motor car.
Permeable Connections	Provision and subsequent maintenance of dedicated pedestrian and cycle infrastructure on- site, and their connectivity with adjoining third party lands and the off-site networks.	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 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.
Motorcycle Parking	The implementation of secure, attractive, best practice motorcycle parking facilities for residents.	Reduces the reliance on the private motor vehicle in parallel with reducing oil dependency.

Appendix A:

ITEMS INCLUDED IN A TYPICAL BIF

The BIF table below illustrates what would be incorporated for the calculation of a Sinking Fund. It encompasses the current design of 101 apartments on a range of heights up to 4 storeys. The final specification will inform the precise budget for the BIF.

	Building Investment Fund (Sinking Fund)		
Ref	**Element**	**Life Expectancy**	**Yearly estimate of costs year 1 to year 30**
1.00	**Roofs**		
1.01	Replacement felt roof covering incl. insulation to main roofs	18	
1.02	Replacement parapet details	18	
1.03	Replace roof access hatches	25	
1.04	Specialist Roof Systems - Fall arrest	25	
2.00	**Elevations**		
2.01	Decorate rendered panels to apartments	18	
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	

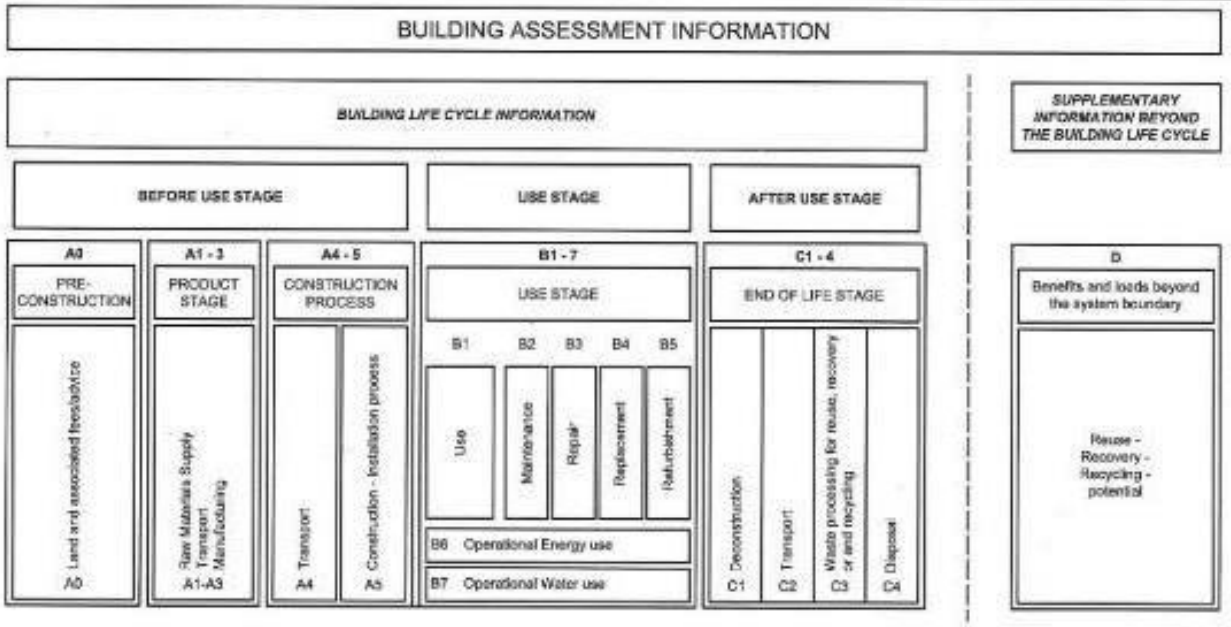
2.07	Replace Balcony floor finishes	25	
3.00	**Stair cores & lobbies**		
3.01	Decorate Ceilings	7	
3.02	Decorate Walls	7	
3.03	Decorate Joinery	7	
3.04	Replace fire doors	25	
3.05	Replace carpets (stairwells & lobbies)	12	
3.06	Replace entrance mats	10	
3.07	Replace nosings	12	
3.08	Replace ceramic floors tiles	20	
3.09	Fixed Furniture & Equipment - Provisional Sum	18	
4.00	**Basement Car Park**		
4.01	Remove/ Replace ceiling insulation	25	
4.02	Repaint parking spaces & Numbering	7	
5.00	**M&E Services**		
5.01	General - Internal relamping	7	
5.02	Replace Internal light fittings	18	
5.03	Replace External light fittings (lights at entrance lobbies)	18	
5.04	Replace smoke detector heads	18	

5.05	Replace manual break glass units	18	
5.06	Replace Fire alarm panel	18	
5.07	Replace lift car and controls	25	
5.08	Replace AOV's	25	
5.08	Replace security access control installation	15	
5.09	Sump pumps replacement	15	
5.10	External Mains Water connection	20	
5.12	Electrical Mains and Sub Mains distribution	20	
5.13	Emergency Lighting	20	
6.00	**Exterior**		
6.01	Entrance Gate - motor renewal	12	
6.02	Entrance Gate & pedestrian gate - redecoration	60	
6.03	External boundary treatments - Recoat powder coated Finishes to railings	60	
6.04	Replace cobbleblock areas	18	
6.05	15-year cutback & thinning of trees. Overhaul landscaping generally	20	
6.06	Replace CCTV provision	12	
6.07	External Handrails and balustrade	18	

Appendix B:

Phases of the Life Cycle of BS7543; 2015

Figure 4 Phases of the life cycle



Key
1 Highest severity of consequence of failure
2 Anticipated severity of consequence of failure
3 Lowest severity of consequence of failure
4 Minimum service life
5 Most likely service life
6 Maximum service life