BUILDING LIFE CYCLE REPORT

Residential

Development at:

Hacketstown,

County Dublin

On behalf of:

The Land Development Agency

19020A-OMP-BUILDING LIFE CYCLE REPORT
Date: April 2022

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INTRODUCTION

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

Section 6.13 of the Apartment Guidelines 2018 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."*

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:

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.

Section 02:

Measures specifically considered by the proposer to effectively manage and reduce costs for the benefit of residents.

PROPOSED DEVELOPMENT

The overall development will consist of 345 no. residential units including 152 no. apartment units, 154 no. duplex units, 39 no. houses & a creche facility. The apartments are contained in a mix of duplex, triplex and 3 storey walk-up configurations. The triplexes are the tallest structures proposed at four storeys in height.

The apartment mix consists of 84 no. (27%) one bed units, 104no. (34%) two bed units and 118 no. (39%) three bed units. All houses, duplexes and triplex units have private entrances. Corner Apartments (Type 2F) are serviced by a communal stair core as are 10no. 1 Bed apartments in Block E.

A total of 414no. carparking spaces are to be provided at a ratio of 1.2 spaces per unit including visitor/creche spaces. 107 of these car spaces are located in a podium structure at Block E, remaining spaces are all located on curtilage and in banked off-street arrangements. The proposal includes 802 no. bicycle spaces including 670no. Private, 120 no. Visitor and 12 no. Creche spaces.

Over 28% of the site is available as public open space in addition to two communal gardens serving Blocks E and F. The communal garden in Block E is located on a podium deck above a naturally ventilated car park and is accessed via 4no. stair cores and 2no. elevators.

All units within the scheme have access to private amenity spaces arranged with either gardens, terraces or balconies. Private Amenity in all instances meets or exceeds the required provision within S.28 guidelines.

The works also include the construction of drainage works, and all associated site, road upgrade and landscaping works. This building life cycle report relates to the proposed buildings only.

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

1.1. Property Management of the Common Areas of the development

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. It is proposed that all of the lands which are not sold into private ownership will be transferred to a management company.

The property management company will enter into a contract directly with the Owners Management Company (OMC) for the ongoing management of the built development. This contract will be for a maximum period of 15 years and in the form prescribed by the PSRA.

All lands not sold privately or taken in charge by Fingal County Council will be transferred to the property management company.

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 ofthis 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 Multi Units Development Act 2011 (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.

1.2. Service Charge Budget

The property management company has a number of key responsibilities, primarily 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., related to the development common areas in accordance with the Multi Unit Developments Act 2011 ("MUD" Act).

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 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 30-year 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 items are an illustration of the energy measures that are planned for the units to assist in reducing impact on the environment through reducing emissions and additionally operational costs for the occupants.

The strategy to energy efficiency and reduction of energy use and emissions considers the following energy conservation measure in aiming to achieving best energy performance as possible as following;

- Passive
    - High-performance construction envelope including low u-value and g-value
    - Air tightness in construction
    - Minimise Thermal Bridging
- Active
    - Mechanical ventilation with Heat Recovery
    - Low Energy LED Lighting
    - Efficient Controls
- Renewable
    - Air Source heat Pumps
    - Exhaust Air Heat Pumps

The tables below illustrate the benefits of this approach

Measure	Description	Benefit
Overall Measure BER Certificates	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 Note proposed Part L revisions will increase the energy efficiency standard required for residential units.	Higher BER ratings reduce energy consumption and running costs.

<table>
<tr>
<td>Passive Measure 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 minimized 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 1 Maximum elemental U-value (W/m^2K)[1,2]
<table>
<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>
</table>
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/m^2K when their combined area is 25% of floor area. However areas and U-values may be varied as set out in Table 2.
</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>
<tr>
<td>Active Measure Energy Labelled White Goods</td>
<td colspan="2">The white goods package (where provided) 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</td>
<td>The provision of high rated appliances in turnreduces the amount of electricity required for occupants.</td>
</tr>
<tr>
<td>Active Measure Internal Common Areas & External Lighting</td>
<td colspan="2">Low energy luminaires and automatic controls such as motion sensors are to be provided for electric lighting to maximize efficiency in use. LED lamps will be preferred as far as is practical. Lighting will be provided to ensure 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.</td>
<td>Low energy lamps and automatic controls improve energy efficiency. Adequate lighting levels ensure safe environments.</td>
</tr>
</table>

The following are **Low energy renewable technologies** that are being considered for the development and during thedesign stage of the development in order to meet the requirements of Part L.

The specific combination from the list below will be decided on and then implemented to achieve the A2/A3 BER Rating.

Measure	Description	Benefit
Air Source Heat Pump – Houses	As part of the overall energy strategy for the apartments and duplexes, the use of Air Source Heat Pumps is proposed. These systems extract heat energy from the outside air and, using a refrigerant cycle, raise the temperature of the heat energy using a refrigerant vapor compression cycle.	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 up to 4.5 times more heat energy to the dwelling than the electrical energy they consume.
Exhaust Air HeatPump – Apartments	As part of the overall energy strategy for houses, the use of Exhaust Air Source Heat Pumps is proposed. These systems extract heat energy within the dwelling from the air exhausted from wet areas and kitchen and, using a refrigerant cycle, raise the temperature of the heat energy using a refrigerant vapor compression cycle.	Exhaust 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 up to 5 times more heat energy to the dwelling than the electrical energy they consume.
E-car Charging Points	Ducting and on street infrastructure shall be provided from a local landlord distribution board to parking spaces identified. This will allow management company the option to install a numberof E-car charging points to cater for E-car demands ofthe residences. This system operates on a single charge point access card. A full re-charge can take from one to eight hours using a standard charge point.	Providing the option of E-car charging points will allow occupants to avail of the ever-improving efficient electric car technologies.

2.2. Materials

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.

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
Daylight is provided to all circulation cores (corner apartments) within the scheme.	Reduces the requirement for artificial lighting
Natural/Passive ventilation system to circulation areas. The requirements for AOV shafts adjoining circulation areas have been minimized as much as possible.	Avoids costly mechanical ventilation systems and associated maintenance and future replacement.
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. 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 material or component failures • Annex D Design Life Data sheets	Ensures that the long-term durability and maintenanceof Materials is an integral part of the Design and Specification of the proposed development.
Use of brickwork, rendered panels, and profiled metal cladding to envelope.	Requires minimal on-going maintenance.
Use of factory finished and alu or uPVC windows and doors, and powder coated steel balconies	Requires minimal on-going maintenance.

2.3. Landscape

Measure	Description	Benefit
Site Layout andDesign	All parking spaces which are provided with permeable paving in line with SuDS strategy. The central open space is substantial and contains largely soft landscaping with an attenuation tank below. Several other open spaces with a mix of hard and soft landscaping have been proposed.	SUDs drainage system and landscape maintenance preferable. Attenuation reduces the burden on vulnerable rainwater goods. Fewer elements would require replacement or repair.
Hard Landscaping Materials	Sustainable, robust materials, with high slip resistance to be used for paving. Durable and robust equipment with emphasis on 'natural play' (e.g. play, exercise, fencing etc.) to be used throughout.	Robust materials and elements reduce the frequency of required repair and maintenance.
Soft Landscaping	A selection including native and retention of existing mature trees and planting is proposed. Hard and soft landscaped areas are balanced to ensure a quality public environment.	High quality soft landscaping improves the general quality of the environment for residents.

2.4. Waste Management

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

Measure	Description	Benefit
Storage of Non-Recyclable Waste and Recyclable Household Waste	Access to centralized bin storage areas is provided at grade adjacent to the apartments / duplex blocks and in near mid terraced housing where necessary	Easily accessible by all residents and minimizes potential littering of the scheme
Storage of Non-Recyclable Waste and Recyclable Household Waste Composting	Domestic waste management strategy: • Grey, Brown and Green bin distinction. • Competitive tender for waste management collection.	Helps reduce potential waste charges.
	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 buildings have been favorably orientated. The design, separation distances and layout of the 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.	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 • Routine access fob audits	Help to reduce potential security/management costs.
Natural Amenity	Public open space is provided at various locations throughout the scheme. Communal amenity areas are also proposed within Blocks E/F, while all duplexes avail of private amenity space in the form of balconies, terraces and rear garden areas. Existing viable tree stock and hedgerows to be retained.	Facilitates community interaction, socializingand play – resulting in improved wellbeing

2.6. Management

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

Measure	Description	Benefit
Home User Guide	Once a purchaser completes their sale, a homeowner boxwill 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 connect with utilities and communication providers, Contact details for all relevant suppliers and User Instructions forappliances 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 as informed 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	The site is located close to Skerries (800m to bus interchange) which is served by the five bus routes namely 33, 33e, 33n, the 33x and the 533 *Fingal Express*. These bus routes serve a range of destinations including Dublin City Centre, Dublin Airport and UCD Belfield Campus. In addition Skerries Railway station is only a 830m walk distance from the site and is served by regular trains to Dublin City Centre (31 services per weekday) to the south and both Drogheda and Dundalk to the north.	The availability, proximity, and ease of access to public transport services contributes to reducing the reliance on the private motor vehicle for all journey types.
Permeable Connections	Provision and subsequent maintenance of dedicated pedestrian and cycle infrastructure on-site,and their connectivity with existing adjoining / off-site pedestrian and cycle infrastructure which is linked with amenities, educational, retail, leisure and service centers across surrounding area within convenient active travel based journey times.	Ensure the long-term attractiveness ofwalking and cycling to a range of localeducation, retail and community facilities and public tansport services.
Bicycle Storage	The provision of secure bicycle parking facilities at grade level for both residents (long term) and visitors (short term) across the entire site within convenient walking distance of each dwelling unit.	Accommodates the uptake of cycling thereby reducing the reliance on the private motor vehicle.
E-car Facilities	Over 10% of all on-site car parking will benefit from the provision of an EV charge unit. Furthermore the provision of dedicated EV ducting to additional car parking spaces provides the opportunity to easily retro fit additional charge units as and when the demand arises.	To accommodate the growing demand for E-car which assist in decarbonizing society and 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.

	BUILDING INVESTMENT FUND (SINKING FUND) CALCULATIONS		
Ref	**Element**	**Life Expectancy**	**Amount**
1.00	**Roofs**		
1.01	Replacement felt roof covering incl. insulation to main roofs/ overhaul to green roofs.	18	
1.02	Replacement parapet details	18	
1.03	Replacement/ repairs to facias	18	
1.04	Replace roof access hatches / roof lights	25	
1.05	Specialist Roof Systems - Fall arrest	25	
1.06	Overhaul waterproofing details to terraces / balconies	12	
2.00	**Elevations**		
2.01	Recoat zinc / metal panels	25	
2.02	Minor repairs and preparation for decorations ofrendered areas	18	
2.03	Replace exit/ entrance doors	25	
2.04	Replace Rainwater goods	25	
2.05	Recoat powder coated Finishes to balconies / Grills to Basement vents	20	
2.06	Periodic replacement and overhauling of externalfixings	5	
2.07	Replace Balcony floor finishes	25	
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	

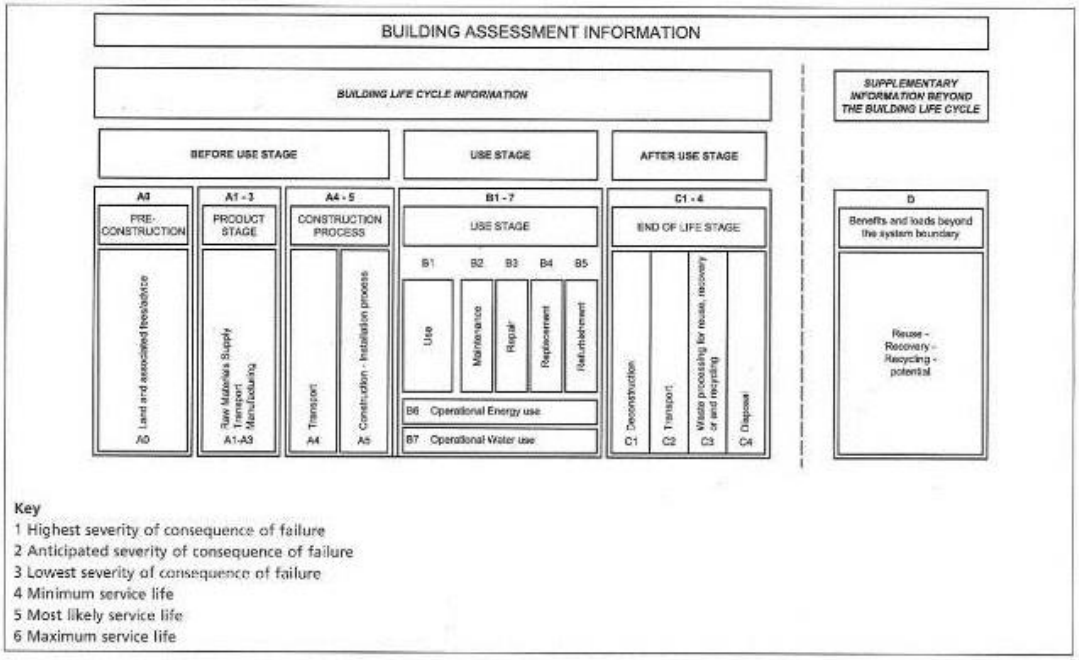
3.06	Replace entrance mats	10	
3.07	Replace nosings	12	
3.08	Replace ceramic floors tiles Entrance lobbies	20	
3.09	Fixed Furniture & Equipment - Provisional Sum	18	
4.00	**Car Parking**		
4.01	Remove/ Replace ceiling insulation	25	
4.02	Repaint parking spaces & Numbering	7	
4.03	Replace store doors, ironmongery & digi-locks	15	
4.04	Replace Bike stands	25	
4.05	Replace basement access control at entrance & core entrances	12	
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/ disabled refuge call points	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	
5.14	Overhaul and/or replace Waste Pipes, Stacks & Vents	20	
6.00	**Exterior**		
6.01	External boundary treatments - Recoat powder coated Finishes to railings	60	
6.02	Replace external signage	18	

6.03	Replace cobblelock areas	18	
6.04	15-year overhaul of soft landscaping generally	15	
6.05	Replace CCTV provision	12	
6.06	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