

## Appendix 3. Building Life Cycle Report

# Introduction

## INTRODUCTION

6.11 to 6.14 of the newly published *Sustainable Urban Housing; Design Standards for New Apartments – Guidelines for Planning Authorities (2018)* 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 Section 6.13 of Apartment Guidelines 2018

# Section 01

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

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.

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

## 1.2 SERVICE CHARGE BUDGET

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).

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.

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 3.2.

**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.

Measure	Description	Benefit
<b>BER Certificates</b>	<p>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.</p> <p>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</p>	Higher BER ratings reduce energy consumption and running costs.
<b>Fabric Energy Efficiency</b>	<p>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”.</p> <p>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 right: Table 1 of Part L, Building Regulations.</p>	<p>Lower U-values and improved air tightness is being considered to help minimise heat losses through the building fabric, lower energy consumption and thus minimise carbon emissions to the environment.</p>

**Table 1 Maximum elemental U-value (W/m<sup>2</sup>K)<sup>1, 2</sup>**

Column 1 Fabric Elements	Column 2 Area-weighted Average Elemental U-Value (Um)	Column 3 Average Elemental U-value – individual element or section of element
Roofs		
Pitched roof		
- Insulation at ceiling	0.16	0.3
- Insulation on slope	0.16	
Flat roof	0.20	
Walls	0.21	0.6
Ground floors <sup>3</sup>	0.21	0.6
Other exposed floors	0.21	0.6
External doors, windows and rooflights	1.6 <sup>4</sup>	3.0

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<sup>2</sup>K when their combined area is 25% of floor area. However areas and U-values may be varied as set out in Table 2.

Measure	Description	Benefit
<b>Energy Labelled White Goods</b>	The white good package planned for provision in the apartments will be of a very high standard and have a high energy efficiency rating.	The provision of high rated appliances in turn reduces the amount of electricity required for occupants.
<b>External Lighting</b>	<p>The proposed lighting scheme within the development consists of 6m and 2.5m pole mounted fittings as indicated on the drawings. The luminaires selected are the Micro Luma DM11 and the Pacific WT470C or alternatives of same performance. These fittings were selected for the following reasons;</p> <ul style="list-style-type: none"> <li>• Low level lighting</li> <li>• Minimal upward light spill</li> <li>• Low voltage LED lamps</li> </ul> <p>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.</p>	<p>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.</p> <p>Having PECU allows for the optimum operation of lighting which minimizes costs.</p>

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

Measure	Description	Benefit
<b>Natural Ventilation</b>	Natural ventilation is being evaluated as a ventilation strategy to minimise energy usage and noise levels.	<p>The main advantages of natural ventilation are:</p> <ul style="list-style-type: none"> <li>• Low noise impact for occupants and adjacent units.</li> <li>• Completely passive therefore no energy required with associated.</li> <li>• Minimal maintenance required.</li> <li>• Reduced environmental impact as minimal equipment disposal over life cycle.</li> <li>• Full fresh air resulting in healthier indoor environment.</li> </ul>
<b>Mechanical Ventilation Heat Recovery</b>	Mechanical heat recovery ventilation will be considered 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.

Measure	Description	Benefit
<b>Air to Water Heat Pump</b>	An air to water heat pump is being considered to provide space heating and domestic hot water. An air source heat pump is a system which transfers heat from outside to inside a building.	The air to water heat pump can absorb heat from outside air and release it inside the building, via radiators, underfloor heating and/or domestic hot water supply.
<b>PV Solar Panels</b>	<p>PV Solar Panels are being considered which convert the electricity produced by the PV system (which is DC) into AC electricity.</p> <p>The panels are typically placed on the South facing side of the building for maximum heat gain and in some instances, can also be used to assist the heating system.</p>	<p>PV Solar Panels offer the benefit of reducing fossil fuel consumption and carbon emissions to the environment.</p> <p>They also reduce the overall requirement to purchase electricity from the grid.</p>
<b>Combined Heat and Power</b>	Combined Heat and Power, (CHP), is a technology being evaluated. This technology generates electricity and captures the waste heat from the generation unit that can be used within the development.	<p>CHP can achieve energy efficiencies by reusing waste heat from the unit to generate heat required for space heating and domestic hot water services in the apartment developments.</p> <p>As electricity from CHP is both generated and consumed on-site, this also eliminates energy losses from transmission of the electricity.</p>
<b>ECAR Charging Points</b>	Provision for the installation of a fully functional electric vehicle charging point will be provided in the apartment blocks as agreed with the management company	Providing the option of E-car charging points will allow occupants to avail of the ever-improving efficient electric car technologies.

## 2.2 MATERIALS

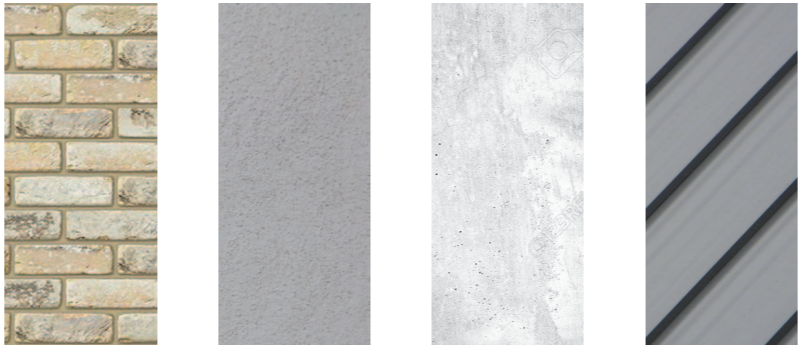
The practical implementation of the Design and Material principles has informed design of building facades, internal layouts and detailing of the proposed apartment buildings.

### 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
External paved and landscaped areas	All of these require low/minimal maintenance
Trocal construction to flat roofs on Block B and pitched slate roof to all other apartment blocks	Requires low maintenance

## 2.2.2 MATERIAL SPECIFICATIONS

Measure/Description	Benefit	
<p>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.</p> <p>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:</p> <ul style="list-style-type: none"> <li>Annex A Climatic Agents affecting Durability</li> <li>Annex B Guidance on materials and durability</li> <li>Annex C Examples of UK material or component failures</li> <li>Annex D Design Life Data sheets</li> </ul>	<p>Ensures that the long-term durability and maintenance of Materials is an integral part of the Design and Specification of the proposed development.</p>	
<p>Use of three finishes of brick work (buff, purple, red), two finishes of a pigmented render system (rough, smooth), aluminium cladding &amp; exposed precast concrete to building envelope.</p>		<p>Requires no on-going maintenance</p>
<p>Use of factory finished aluminum and PVC windows and doors</p>	<p>Requires no on-going maintenance</p>	



## 2.3 LANDSCAPE

Measure	Description	Benefit
<b>Paving and Decking Materials</b>	Use of robust, high quality paving and decking materials, with robust and proven details	Require no on-going maintenance.
<b>Materials</b>	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.
<b>Site Layout and Design</b>	Generous and high quality mature landscaping, with ecological corridors with landscape and pedestrians prioritized over the car – increase in soft landscaping.	Natural attenuation and landscape maintenance preferable.

## 2.4 WASTE MANAGEMENT

Measure	Description	Benefit
<b>Storage of Non-Recyclable Waste and Recyclable Household Waster</b>	Inclusion of a secure bin storage area within the curtilage of the site, located in close proximity to each apartment block entrance, and located for easy collection.	Easily accessible by all residents and minimises potential littering of the scheme and conceals unsightly bins from public amenity areas.
	Domestic waste management strategy: - Grey, Brown and Green bin distinction. - Competitive tender for waste management collection.	Helps reduce potential waste charges.
<b>Composting</b>	Organic waste bins to be provided throughout	Helps reduce potential waste charges.

## 2.5 HEALTH & WELL BEING

Measure	Description	Benefit
<b>Natural Daylight</b>	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.
<b>Accessibility</b>	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.
<b>Security</b>	The scheme is designed to incorporate passive surveillance with all public spaces overlooked by dwellings, CCTV monitoring and secure resident access to basement car park and bike store	Help to reduce potential security/management costs.
<b>Natural Amenity</b>	Open landscaped areas in various locations across the site	Facilitates community interaction, socialising and play – resulting in improved wellbeing

## 2.6 MANAGEMENT

Measure	Description	Benefit
<b>Home User Guide</b>	<p>Once a purchaser completes their sale, a homeowner box will be provided which will include:</p> <ul style="list-style-type: none"> <li>• <b>Homeowner manual</b> – 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 connecting with utilities and communication providers, Contact details for all relevant suppliers and User Instructions for appliances and devices in the property.</li> <li>• <b>A Residents Pack</b> 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.</li> </ul>	Residents are as informed as possible so that any issues can be addressed in a timely and efficient manner.

## 2.7 TRANSPORT

Measure	Description	Benefit
<b>Access to Public Transport (Rail)</b>	Drogheda Railway Station is located within a convenient cycling distance of the proposed development (approx. 15 minute cycle from site access point).	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.
<b>Access to Public Transport (Bus)</b>	Three Bus Eireann routes (100X, 173, 901) operate in close proximity to the site. The nearest pick-up/drop-off point is located within a convenient walking distance of the proposed development (approx 15 minute walk from site access point).	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.
<b>Permeable Connections</b>	Provision and subsequent maintenance of dedicated pedestrian infrastructure on-site, and their connectivity with the off-site networks, providing connectivity with existing paths within existing the surrounding area, subsequently providing convenient access to public transport and local services.	Ensure the long-term attractiveness of walking and cycling to a range of local services and public transport.
<b>Bicycle Storage</b>	The provision of high quality secure bicycle parking facilities, for both short stay and long-term parking requirements.	Accommodates the uptake of cycling and reducing the reliance on the private motor vehicle.

## Apendix 3.2

### ITEMS INCLUDED IN A TYPICAL BUILDING INVESTMENT FUND

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

BUILDING INVESTMENT FUND (SINKING FUND) CALCULATIONS Residential Development at Louisa Park, Station Road, Leixlip			
Ref.	Description	Life Expectancy	Amount
<b>1.00</b>	<b>Roofs</b>		
1.01	Trocal Roof - Review and repairs	20	
1.02	Trocal Roof - 5 year inspection	5	
1.03	Replacement parapet details	20	
1.04	Replacement/repairs to facias	20	
1.05	Replace roof access hatches	25	
1.06	Overhaul waterproofing details to flat roof service areas	20	
1.07	Specialist roof systems - fall arrest	25	
<b>2.00</b>	<b>Elevations</b>		
2.01	Minor repairs & preparation for decorations of rendered areas	25	
2.02	Replace exit/entrance doors	25	

2.03	Replace rainwater goods	25	
2.04	Recoat powder coated finishes to cills and fenestration	25	
2.05	Periodic replacement and overhauling of external fixings	5	
2.06	Replace balcony floor finishes	25	
<b>3.00</b>	<b>Stair Cores &amp; Lobbies (2 No. Cores)</b>		
3.01	Decorate ceilings	5	
3.02	Decorate walls	5	
3.03	Decorate joinery	5	
3.04	Replace fire doors	25	
3.05	Replace carpets	10	
3.06	Replace entrance mats	10	
3.07	Replace nosings	10	
3.08	Replace ceramic floor tiles (Entrance lobbies)	20	
3.09	Fixed furniture & equipment (Provisional sum)	18	
<b>4.00</b>	<b>M&amp;E Services</b>		
4.01	General - Internal relamping	7	

4.02	Replace internal light fittings	18	
4.03	Replace external light fittings	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 AOVs	25	
4.09	Replace security access control installation	15	
4.10	Sump pumps replacement	15	
4.11	Overhaul 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 waster pipes, stacks & vents System designed for 60 year life with maintenance Connections/seals only require review periodically and replacement in event of failure	20	

<b>6.00</b>	<b>Exterior</b>		
6.01	External boundary treatments - recoat powder coated finishes to railings	60	
6.02	Replace/relay paved areas to courtyard	20	
6.03	15-year cutback & thinning of trees, and general overhaul of the landscaping	15	
6.04	Replace CCTV provision	10	
6.05	External handrails and balustrade	18	
6.06	Replace visitor bicycle stands	25	

# Apendix 3.3

## PHASES OF THE LIFE CYCLE OF BS7543; 2015

Figure 4 Phases of the life cycle

