Building Life Cycle Report

RE: **St Kevin's Strategic Housing Development**
At the former St. Kevin's Hospital and Grounds, Shanakiel, Cork

APPLICANT: **THE LAND DEVELOPMENT AGENCY**

November 2020

Contents

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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 the residents.

DESCRIPTION OF THE PROPOSED DEVELOPMENT

The proposed development will consist of a mixed-use development on a site located at the Former St. Kevin's Hospital and grounds, Shanakiel, Cork. The project consists of 266 no. dwellings on the former Institutional lands of St. Kevin's Hospital. The development consists of 46 no. three and four bed townhouses, 54 no. two bed duplex apartments, 54 no. three and four bed duplex townhouses, 52 no. one and two bed "walk up" apartments.

The development also includes the conversion and renovation of the existing St Kevin's Hospital to provide 60 no. one and two bed apartments and a crèche. The development also includes an Enterprise Office Centre in the St Kevin's Chapel and 241 no. on street parking spaces located throughout the development in a new landscaped environment.

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. 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.

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 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., 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 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

MEASURE SPECIALLY CONSIDERED BY THE PROPOSED TO EFFECTIVELY MANAGE AND REDUCE COSTS FOR THE BENEFIT OF RESIDENTS

2.1. Energy Performance and Carbon Emissions

A Building energy Rating (BER) certificate will be provided for each apartment, duplex apartment and Duplex townhouse, which will provide detail of the energy performance and carbon emissions associated with each of the dwellings. It is proposed to target a BER Rating for each apartment of a minimum A3 rating. This will equate to the following emissions:

A3 – 51-75 kWh/m2/yr. with CO2 emissions approx. 10 kgCO2/m2/yr.

The following table outlines the proposed passive and active, energy and carbon emission reduction measures which will directly benefit occupants in terms of reducing operational costs.

<table>
<tr><th>Measure</th><th>Description</th><th>Benefit</th></tr>
<tr>
<td>Building Fabric Efficiency</td>
<td>The U-Value of a building element is a measure of the amount of heat energy that will pass through the constituent element of the building envelope. Increasing the insulation levels in each element will reduce the heat lost during the heating season

It is possible to exceed the requirements of the current building regulations. The current target U-Values are identified below:

<table>
<tr><th>Element</th><th>Part L Backstop [W/m²k]</th><th>Proposed for this development [W/m²k]</th><th>Percentage Improvement</th></tr>
<tr><td>Walls</td><td>0.18</td><td>0.18</td><td>0%</td></tr>
<tr><td>Floors</td><td>0.18</td><td>0.15</td><td>17%</td></tr>
<tr><td>Windows</td><td>1.40</td><td>1.40</td><td>0%</td></tr>
<tr><td>Roofs (Pitched / Flat)</td><td>0.16 / 0.20</td><td>0.15</td><td>6% / 25%</td></tr>
</table>

A major consideration in reducing the heat losses in a building is the air infiltration. This essentially relates to the ingress of cold outdoor air into the building and the corresponding displacement of the heated internal air. This incoming cold air must be heated if comfort conditions are to be maintained. In a traditionally constructed building, infiltration can account for 30 to 40 percent of the total heat loss; however, construction standards continue to improve in this area.

With good design and strict on-site control of building techniques, infiltration losses can be significantly reduced.

In order to ensure that a sufficient level of air tightness is achieved, air permeability testing will be specified, with the responsibility being placed on the main contractor to carry out testing and achieve the targets identified in the tender documents.

A design air permeability target of 3 m3/m2/hr has been identified

Air testing specification will require testing to be carried out in accordance with:
BS EN 13829:2001 'Determination of air permeability of buildings, fan pressurisation method' CIBSE TM23: 2000 'Testing buildings for air leakage'</td>
<td>Reduction in the consumption of fuel and the associated carbon emissions and operating costs.</td>
</tr>
</table>

Lighting Efficiency	It is proposed to provide 100% of lighting outlets to be low energy (LED)	Reduction in the consumption of electricity and the associated carbon emissions and operating costs.
Sanitary ware	Showers are proposed with a max flow rate at 3 Bar to be no greater than 6 litres per minute. Bath volume to be no greater than 150 litres	Reduction in the consumption of potable water and energy associated with domestic hot water heating
Energy Labelled White Goods	White goods provider by the developer will be have a high energy rating.	Reduction in the consumption of electricity and the associated carbon emissions and operating costs.

The following Low Energy / Carbon & Renewable Energy Solutions that are being considered for the development.

Measure	Description	Benefit
Heat Pumps	The general principal of heat pump technology is the use of electrical energy to drive a refrigerant cycle capable of extracting heat energy from one medium at one temperature and delivering this heat energy to a second medium at the desired temperature. The efficiency of any heat pump system is measured by its coefficient of performance (CoP). This is a comparison between the electrical energy required to run the heat pump and the useful heat output of the heat pump, e.g. a heat pump requiring 1kW of electrical power in order to deliver 3kW of heat energy has a CoP of 3.0. This operating principle can be applied to different situations, making use of the most readily available renewable heat source on any given site. The most common types are. • Ground Source • Water Source • Air Source Air to Water (AWHP) and Exhaust Air (EAHP) heat pumps are being considered.	Reduction in the consumption of fuel and the associated carbon emissions and operating costs.
Mechanical Ventilation Heat Recovery	Mechanical heat recovery ventilation (MVHR) will provide ventilation to each apartment. MVHR provides tempered external fresh air to occupied spaces and extract ventilation from rooms with "Bad Air" such as Bathrooms, utility stores etc. Heat is recovered from exhaust air streams and transferred to the fresh air stream negating the requirements to use heating energy to heat incoming cold external fresh air.	Reduction in the consumption of fuel and the associated carbon emissions and operating costs. Increases comfort conditions for occupants Prevents mould growth.
ECAR Charging Points	Ducting shall be provided from local distribution boards to designated E-Car charging car park spaces. This will enable the management company the option to install a number of E-Car charging points to cater future E-Car demand of residents	Providing the option for E-Car charging points will futureproof the development.

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

The 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, commercial spaces and the common parts of the building and specific measures taken include:

Measure Description	Benefit
Daylighting to residential circulation areas where possible	Avoids the requirement for continuous artificial lighting
Natural/Passive ventilation system to residential circulation areas where possible	Avoids costly mechanical ventilation systems and associated maintenance and future replacement.
External paved and hard 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 A 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 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 , render, reconstituted & natural slate roofs   	Requires no on-going maintenance.
Use of factory finished pvc windows and hardwood external doors. Hardwood timber windows & doors to St. Kevin's and the Chapel Building, both protected structures.	Requires no on-going maintenance.

Use of Galvanised Steel balconies with Powder coated finish where used (rear façade of St.Kevins). Composite self finished board for deck of the balcony including recessed balconies to other blocks.	Requires no on-going maintenance.

2.3 Landscape

Measure	Description	Benefit
Site Layout & Landscape design	Generous and high-quality landscaping utilising semi-mature to mature tree species, shrub planting and dense groundcovers. Species are chosen for compatibility with available root and canopy space, aspect is also a guiding consideration. The objective is to enhance biodiversity whilst providing year-round visual interest and high-quality residential environment and utilise natural/native species in line the all-Ireland pollinator plan	Natural attenuation, reduced surface water runoff from site, increased biodiversity and improved aesthetic quality throughout.
Paving and Decking materials	Use of robust, high-quality and high slip-resistance materials throughout the development.	Required ongoing maintenance significantly reduced through use of robust materials installed with proven details.
Materials	Sustainable, robust materials with high slip-resistance to be used for paving. Durable and robust street furniture used throughout.	Robust materials and elements reduce the frequency of required repair and maintenance.
Sustainable drainage	Use of a 40-60mm deep combined drainage/reservoir board across podium	Drainage board retains water for planting rootzones, negating the need of irrigation systems and reducing run-off.
Planting details	Proven tree-staking and underground guying details provided. Shrub, hedging, herbaceous and lawn installation details also provided.	Correctly installed planting will develop into well established and robust soft landscaping, reducing future maintenance and replacement of failures.

2.4 Waste Management

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

Measure	Description	Benefit
Operational Waste Management Plan	This application is accompanied by an Oultine Operational Waste Management Plan prepared by Tom Phillips + Associates Town Planning Consultants	The report demonstrates how the scheme has been designed to comply with local, regional, and national waste legislation along with current best practice.
Storage of Non-Recyclable Waste and Recyclable Household Waste	Inclusion of a centralised waste storage area for St Kevin's apartments & crèche , along with a waste storage area for the Chapel Enterprise office. Both with sufficient space to accommodate a weekly/biweekly collection of waste containers. All other bin storage privately contained within curtilage of each dwelling within individual bin storage areas at front entrances or within rear gardens of houses.	Easily accessible by all residents, minimises potential littering of the development, reduces potential waste charges and does not restrict waste contractor selection.
	Domestic waste management strategy: General waste, mixed recyclable, glass and organic bin separation.	Helps reduce potential waste charges and does not restrict waste contractor selection.
	Waste storage areas with controlled access.	Reduces potential for fly tipping by residents and non-residents.
	Well signed waste storage rooms and containers.	Help reduce potential cross contamination of waste and reduces waste charges.
Composting	Organic waste containers to be provided in waste storage areas.	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, layout and separation distances of the building 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 running costs.
Accessibility	All units will comply with the requirements of Building regulations Parts M and 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 available for adaptation into the design: • CCTV monitoring details • Secure bicycle stands – covered by CCTV • Controlled Access to individual circulation cores • Controlled access between Public Spaces and Residents Communal Spaces • Routine access fob audits • Appropriately lit external spaces.	Aids in reducing potential security/management costs. Enhances safety for residents and visitors.
Natural Amenity	The proposed scheme has High Quality Public Open Space throughout the site for the residents shared internal services and amenities.	Facilitates community interaction and socialising resulting in improved wellbeing. Proximity and use of external green spaces promotes a healthy lifestyle. External spaces being provided separately for residents (communal courtyards & private balcony's & gardens) and public (Quality Public open Space)

2.6 Management

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

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 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 kept as informed as possible so that any issues can be addressed in a timely and efficient manner.

2.7 Transport

Measure	Description	Benefit
Access to Public Transport (Bus Services)	The site is well served by bus services and the closest bus stops are located on Shankiel Road and Blarney Road The proposed development is serviced by a variety of bus routes which serve a range of employment, retail, educational and other key destinations including centre and Kent Station	These bus services provide access to a range of destinations nearby, to Cork city centre and to transport hubs at the Bus Eireann Bus Station and Kent Station . The proximity and range of 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 private motor car.
Access to Public Transport (Rail)	Bus Eireann Bus Station and Kent Station to the east of Cork city centre has high frequency high public transport connectivity services. These provide, inter-urban rail connections linking Cork to Dublin Limerick, Tralee and Galway as well as local rail services to Midleton and Cobh. The wide variety of interurban bus services also provide bus links to large number of destination.	The availability, of bus access to high quality bus and rail public transport services contributes to reducing the reliance on the private motor vehicle for all journey types.
Permeable Connections	The proposed development is designed to include good cycle and pedestrian facilities within the development. Provision is also included for future cycle and pedestrian linkages to adjacent lands. There cycle and pedestrian routes link to existing and planned cycle and pedestrian networks in the area.	Ensures the long-term attractiveness of walking and cycling to local shopping districts and employment locations within the area and also provides for future accessibility to adjacent lands by walk and cycle modes.
Bicycle Storage	The provision of high-quality secure bicycle parking facilities, for both short term and long-term parking requirements. Cycle parking spaces are provided in accordance with the "Standards for Cycle Parking and Associated Cycling Facilities for New Developments, January 2018".	Accommodates the uptake of cycling and reduces the reliance on the private motor vehicle for both residents and guests.
ECAR Facilities	Car parking spaces will include the recommended number of electrical charging points as well as provision for addition EV charge points in the future.	To accommodate the growing demand for ECARS which assist in decarbonising society and reducing oil dependency.
Car Sharing	The scheme will include designated Car Club &/or GoCar shared spaces for the exclusive use of the residents.	Reduces the reliance on the private motor Vehicle.

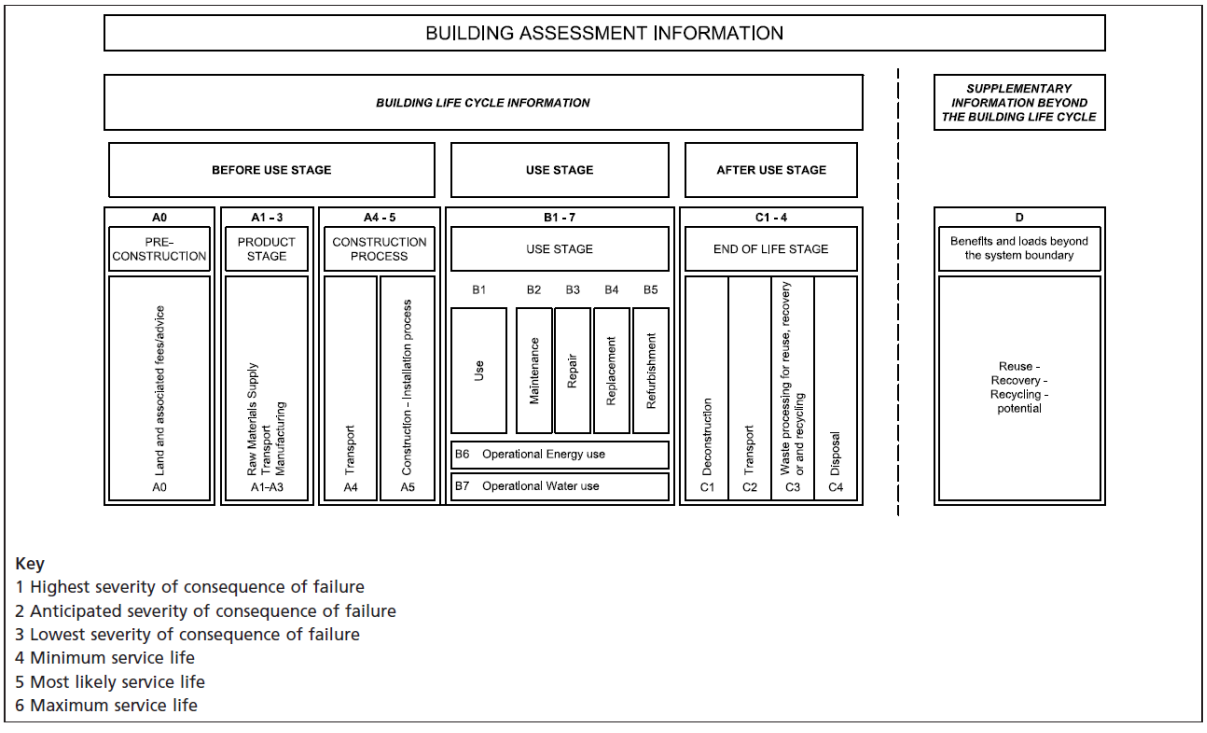
APEENDIX A

BS 7543:2015

BSI Standards Publication

Guide to durability of buildings and building elements, products and components

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