Woodbrook Phase 1

Building Life Cycle Report

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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 2018.

CONTENTS

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 development will consist of 685 No. residential units comprising 207 No. houses, 430 No. apartments and 48 No. duplexes in buildings ranging from 2 to 8 storeys in height. The proposed development also includes a creche c. 430 sq.m. in area, a vehicular entrance from the Old Dublin Road, Woodbrook Distributor Road (Woodbrook Avenue) connecting the Old Dublin Road to the planned DART Station, a temporary car park to serve the DART Station, provision of public open space including two linear parks which connect the proposed development to Shanganagh Public Park and all associated works including car parking, bicycle parking, bin stores, sub-stations and site services.

This Building Lifecycle Report relates to the Apartment Block elements of the proposed development. These comprise of the following Blocks A-E:

Block A is located at the eastern edge of the site and comprises of 69 No. dwellings in two adjacent buildings with the private building 5-8 storeys in height containing 10 No. 1-Bed Apartments, 34 No. 2-Bed Apartments and 3 No. 2-Bed Duplexes. The social building is 5-storeys in height containing 4 No. 1-Bed Apartments and 18 No. 2-Bed Apartments. The private building is served by a mix of podium and surface car parking and a communal landscaped deck. The social block is served by surface car parking and an at-grade communal open space. All upper floor apartments are served by lift and staircore.

Block B is located at the eastern edge of the site to the north of Block A and comprises of 151 No. apartments in a C-Shaped courtyard block 5-7 storeys in height. It consists of 47 No. 1-Bed Apartments and 104 No. 2-Bed Apartments. It is served by a mix of podium and surface car parking and a communal landscaped deck. All upper floor apartments are served by lift and staircore.

Block C is located at the eastern edge of the site to the north of Block B and comprises of 151 No. apartments in a C-Shaped courtyard block 5-7 storeys in height. It consists of 47 No. 1-Bed Apartments and 104 No. 2-Bed Apartments. It is served by a mix of podium and surface car parking and a communal landscaped deck. All upper floor apartments are served by lift and staircore.

Block D is located along the Old Dublin Road frontage, on the northern side of Woodbrook Avenue. It is a 4-5 storey social block of 36 No. apartments comprising 13 No. 1-Bed Apartments, 18 No. 2-Bed Apartments and 5 No. 3-Bed Apartments. It is served by a mix of podium and surface car parking and a communal landscaped deck. All upper floor apartments are served by lift and staircore.

Block E is a small point block of apartments within the Southern Housing Area. It is a 4-Storey block of 21 No. apartments comprising 7 No. 1-Bed Apartment, 13 No. 2-Bed Apartments and 1 No. 3-Bed Apartment. It is served by surface car parking and an at-grade communal open space. All upper floor apartments are served by lift and staircore.

There are 48 No. duplexes also proposed on-site. These are own-door interlocking duplexes in most cases but there is one L-Shaped block fronting onto the Old Dublin Road, on the southern side of Woodbrook Avenue that is 4-storeys in height with 11 No. 2-Bed duplexes over 3-Bed duplexes. There are 3 No. 1-Bed apartments in this block. The upper level units are served by lift as well as staircore. Car parking is provided at surface level and there is an at-grade communal open space area.

SECTION 1

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

1.1 Long Term Running Costs

At all stages during design development the Applicant and their design team has sought to ensure that long-term running costs for residents and maintenance costs for the operators are reasonable. Aeval is an associated company of Castlethorn Construction who have a proven track record in the delivery of high-quality homes including apartment schemes of scale, both private and social. This is evidenced in the current scheme design which provides an excellent end product which will be easily managed and maintained for the foreseeable future.

1.2 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, refuse management, utility bills, insurance, landscaping, 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 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,

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>A Building Energy Rating (BER) Certificate highlighting the BER shall be provided for each dwelling within the development. These ratings are calculated based on the energy performance of each dwelling taking into account factors which include but are not limited to lighting, heating and hot water, buildings fabrics, occupancy and renewable energy installations; a photovoltaic system in this case. The BER that is proposed for the apartments in this development is an A2/A3 rating. These ratings will provide annual energy consumption and CO² emissions figure of:

A2 – 25-50 kWh/m²/yr with CO² emissions of 10 kgCO²/m²/yr
A3 – 51-75 kWh/m²/yr with CO² emissions of 10 kgCO²/m²/yr</td><td>A high BER rating results in reduced energy consumption and running costs.</td></tr>
<tr><td>Fabric Energy Efficiency</td><td>This development has been designed to comply with all current regulatory requirements set out in Technical Guidance Document Part L, ‘Conservation of Fuel and Energy’.

The U-Values of the proposed building fabrics have been chosen to not only ensure compliance with current building regulations but to also assist with the aim of reducing energy consumption and achieving the desired BER as stated above.

Thermal bridging at junctions between construction elements and at other locations shall be minimised in accordance with Paragraph 1.2.4.2 and 1.2.4.3 within the Technical Guidance Document Part L. See Table 1 of TGD Part L.</td><td>
Table 1 Maximum elemental U-value (W/m²K)[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/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><td>Lower U-Values and improved air tightness will be achieved to reduce the amount of heat loss throughout the building fabric and lower the consumption of energy and therefore carbon emissions.</td></tr>
</table>

Measure	Description	Benefit
Energy Labelled White Goods	All white goods to be installed within the development shall be of high quality with high energy efficiency ratings. It is expected that the white goods package will include the following equipment and energy efficiency ratings: • Oven – A • Fridge Freezer – A+ • Dishwasher – A+ • Washer/Dryer – B	The provision of highly rated energy efficient appliances will result in an overall reduction in energy consumption for all tenants.
External Lighting	The proposed lighting scheme within the development consists of four different lamp standards ranging between 5m and 8m in height as indicated on the drawings. The lighting scheme will be designed in accordance with Dun Laoghaire Rathdown County Council Taking In Charge standards. The design will incorporate the following: • Minimal light pollution • Low voltage LED lamp standards • Adequate provision for illumination to pedestrian and traffic flow areas will be provided in accordance with BS standards and Disabled Access Certificate. Every 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 any flora and fauna within the area. Individual PECU control allows for the optimum and efficient operation of light fittings to ensure that the energy efficiency of the site lighting within the development is maximised.

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
Condensing Natural Gas Boilers	Condensing boilers are being investigated as they have a higher operating efficiency, typically over 90%, than standard boilers and have the benefit of lower fuel consumption resulting from the higher operating efficiencies.	Condensing boilers use the heat losses from the boiler flue to preheat the circulating heating water. By preheating the heating water, the boiler can achieve efficiencies in excess of 90%
Natural Ventilation	Natural ventilation is being evaluated as one ventilation strategy to minimise energy usage and noise levels.	The main advantages of natural ventilation are: • Completely passive therefore no energy required. • Reduced environmental impact as minimal equipment disposal over life cycle.
Mechanical Ventilation Heat Recovery (MVHR)	Mechanical heat recovery ventilation (MVHR) will be considered to provide ventilation with low energy usage.	MVHR provides tempered fresh air to occupied spaces. Heat is removed from exhaust air stream and transferred into the fresh air supply stream negating the need to use energy to heat the air. MVHR also reduces the heating load on the boiler plant by eliminating cold air infiltration.
Photovoltaic (PV) Solar Panels	PV Solar Panels are being considered for the development to offer a secondary source of electrical energy. The panels are typically placed on the South facing side of the building for maximum electricity generation	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.
Air Source Heat Pump (ASHP)	Air source heat pumps are being investigated as part of the overall energy strategy for the apartments and houses. The air source heat pump utilises inverter compressors adjusted to suit heating demand. Modern heat pumps will typically provide 4 to 5 times more heat energy to the dwelling than the electrical energy they consume.	Heat pumps offer lower consumption of energy and therefore lower carbon emissions.
ECAR Charging Points	Ducting shall be provided from local landlord 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 to the future E-car demand of the residents.	Providing the option of E-car charging points will futureproof the development and facilitate residents and tenants move to EV motoring,

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
Use of brick, self-coloured render and pre-cast concrete panels systems	All of these require low/minimal maintenance
Daylighting to circulation areas as far as possible	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 podium/undercroft carpark (and other common areas)	Avoids costly mechanical ventilation systems and associated maintenance and future replacement
External paved and landscaped areas	All of these require low/minimal maintenance

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.	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 and self-coloured render / pre-cast concrete panel systems on external facades.	Requires no on-going maintenance.
Use of factory finished uPVC or aluminium windows and doors and installation of factory finished precast concrete and steel composite balcony systems.	Requires no on-going maintenance.

2.3 Landscape

	Measure Description	Benefit
Paving and Decking Materials	Use of robust, high quality paving and decking materials, with robust and proven details.	Required on-going maintenance significantly reduced.
Materials	Material specification obtained in advance of procurement for review of petrographic data (where applicable on natural stone products), ethical sourcing as well as technical compliance with flexural strength and slip resistant surfacing.	Compliance with minimum standards for use of materials in external spaces mitigates potential hazards and frequency of replacement/maintenance.
Site Layout and Design	The retention of existing large species mature trees combined with a generous provision of newly formed public open spaces and communal private spaces including landscaped podium spaces with bespoke seating, mounding, informal play opportunities and a range of high quality tree, shrub and herbaceous planting. Attractive tree lined boulevard forming primary entrance and distributor route. The open spaces are designed with robust, universally accessible materials, striking the balance between low maintenance and aesthetic quality commensurate with the development.	Inclusive spaces, SUDS, low maintenance

2.4 Waste Management

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

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

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 daylight	The design, separation distances and layout of the apartment blocks have been designed to optimize the availability 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 • Car registration recognition at entrance gate • Secure bicycle stands – covered by CCTV • Routine access fob audits.	Help to reduce potential security/management costs.
Natural Amenity	Well landscaped communal open space areas for all apartment residents and convenient access to public open space linear parks and pocket parks.	Facilitates community interaction, socialising and play – resulting in improved wellbeing

Measure	Description	Benefit
	Dedicated green link connections north to Shanganagh Park Regional Park and future East Coast Cycle Route.	Proximity to other local amenities and parks promotes a healthy lifestyle.

2.6 Management

Consideration has been given to ensuring the homeowners have a clear understanding of their 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 connection 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 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 (Bus Services) **Access to Public Transport (DART Services)**	The site is located immediately adjacent to the Old Dublin Road which forms an important bus corridor with frequent bus services to Blackrock, the City Centre and beyond. The development will be served by its own planned DART Station – Woodbrook DART Station – with the NTA and IE committed to its delivery envisaged by the middle of 2022	The availability, proximity and ease of access to high quality public bus transport services contributes to reducing the reliance on the private motor vehicle for all journey types. The DART provides an alternative high frequency public transport option to the bus for commuting to the city centre. 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.
Permeable Connections	Provision and subsequent maintenance of dedicated pedestrian and cycle infrastructure on-site including dedicated green links north to Shanganagh Park Regional Park and Shankill beyond and potential future links directly south to Bray and along the existing Old Dublin Road to Bray provides access to the full range of retail, commercial, community and educational facilities.	Ensure the long-term attractiveness of walking and cycling to a range of local education, retail and community facilities and services.
Bicycle Storage	1,305 No. bicycle parking spaces are provided internally within the scheme for the apartments and duplexes in excess of the new apartment guideline requirements and promotes sustainable transport modes. These are provided in the form of secure sheltered resident and sheltered visitor spaces.	Accommodates the uptake of cycling and reduces the reliance on the private motor vehicle.
Motorcycle Parking	13 no. dedicated motorcycle parking spots.	Reduces the reliance on the private motor vehicle in parallel with reducing oil dependency.
ECAR Facilities	Ducting will be provided from a local landlord distribution board to designated E-car charging car parking spaces.	Facilitates the move to EV motoring which assists in decarbonising society and reducing oil dependency.
Car Sharing	The scheme will include 4 No. designated car sharing spaces for the use of residents.	Reduces the reliance on the private motor vehicle and reduces 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.

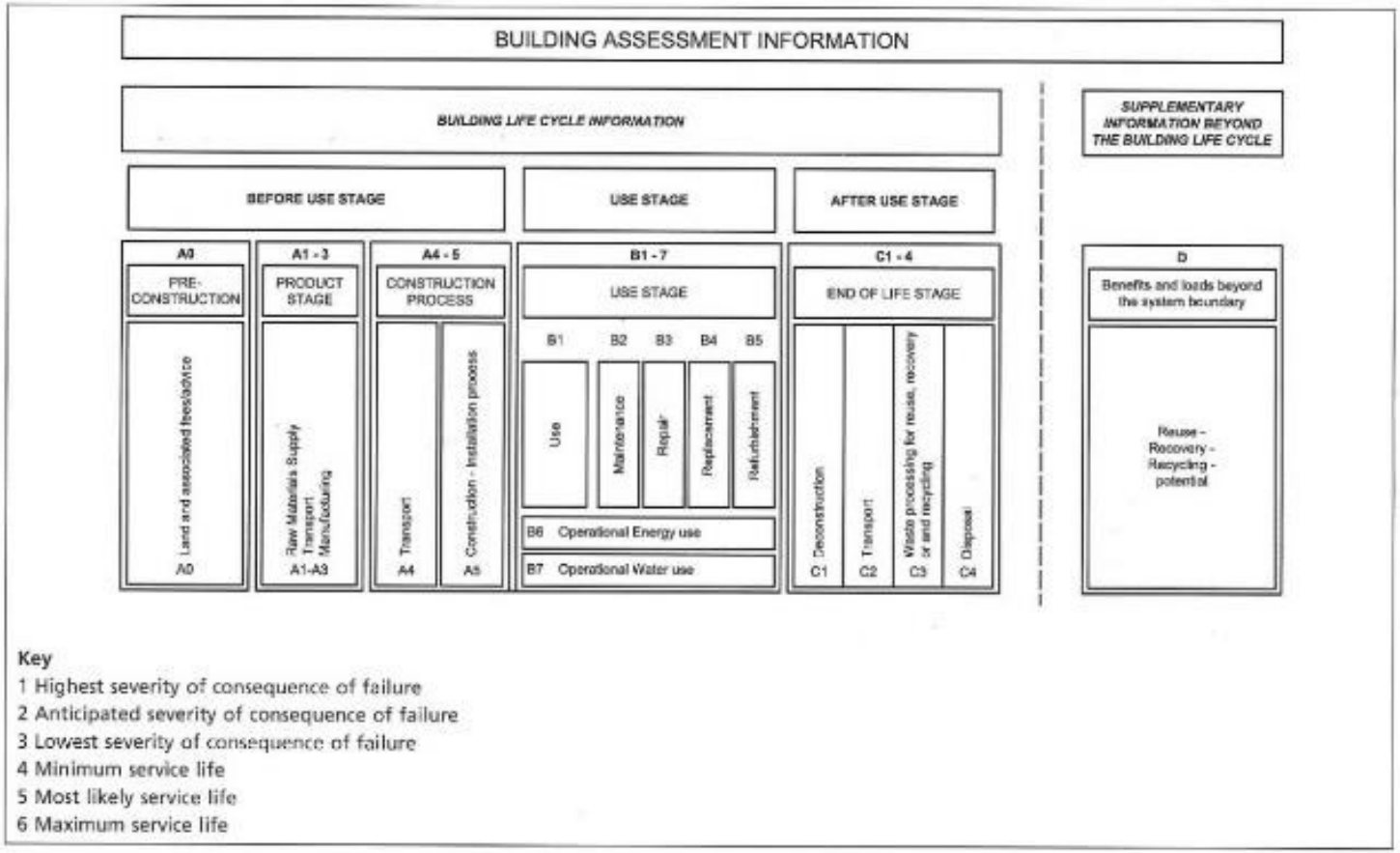
	BUILDING INVESTMENT FUND (SINKING FUND) CALCULATIONS		
Ref	**Element**	**Life Expectancy**	**Amount**
1.00	**Roofs**		
1.01	Replacement roof covering incl. insulation to main roofs/ overhaul to roofs.	25	
1.02	Replacement parapet details Replacement/repairs to facias	25	
1.03	Replace roof access hatches	25	
1.04	Specialist Roof Systems - Fall arrest	25	
1.05	Overhaul waterproofing details to roof paved areas	18	
2.00	**Elevations**		
2.01	Decorate rendered panels to apartments	25	
2.02	Minor repairs and preparation for decorations of rendered areas	20	
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 external fixings	5	
2.07	Replace Balcony floor finishes	20	
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	

	BUILDING INVESTMENT FUND (SINKING FUND) CALCULATIONS		
Ref	**Element**	**Life Expectancy**	**Amount**
3.07	Replace nosings	12	
3.08	Replace ceramic floors tiles Entrance lobbies	20	
3.09	Fixed Furniture & Equipment - Provisional Sum	18	
4.00	**Undercroft/Basement Car Park**		
4.01	Remove/ Replace ceiling insulation	25	
4.02	Repaint parking spaces & Numbering	7	
4.03	Replace bin store doors, ironmongery & digi-locks	15	
4.04	Replace Bike stands	20	
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	20	
5.03	Replace External light fittings (lights at entrance lobbies)	15	
5.04	Replace smoke detector heads	20	
5.05	Replace manual break glass units/ disabled refuge call points	15	
5.06	Replace Fire alarm panel	15	
5.07	Replace lift car and controls	25	
5.08	Replace AOV's	25	
5.09	Replace security access control installation	15	
5.10	Sump pumps replacement	15	
5.11	External Mains Water connection	25	
5.12	Electrical Mains and Sub Mains distribution	25	
5.13	Emergency Lighting	25	
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	25	
6.02	Replace external signage	18	
6.03	Replace paving areas.	18	
6.04	Replace CCTV provision	12	
6.05	Overhaul landscaping generally incl. cutback and thinning of trees	18	
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