ARMSTRONG
FENTON
ASSOCIATES

PROJECT: **SANTRY AVENUE STRATEGIC HOUSING DEVELOPMENT**

REPORT: **BUILDING LIFE CYCLE REPORT**

CLIENT: **DWYER NOLAN DEVELOPMENTS LTD.**

DATE: **16|07|21**

Planning &
Development
Consultants

1.0 Introduction

This Building Life Cycle report has been prepared in support of a Strategic Housing Development proposed by Dwyer Nolan Developments Ltd. (the applicant) for a new residential development, on lands measuring approximately 1.5ha, located on a site at the junction of Santry Avenue and Swords Road, Santry, Dublin 9.

The proposed development provides for 350 no. dwellings comprised of 1, 2 & 3 bed apartments, accommodated in 4 no. buildings, subdivided into 7 no. blocks (Blocks A-G), all on a site area of 1.5ha.

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")* and they introduced a requirement to include details on the management and maintenance of apartment schemes. This is set out in Sections 6.11 to 6.14 under "*Operation & Management of Apartment Developments*".

Specifically, Section 6.13. of the Apartment Guidelines 2018 requires that applications for apartment developments 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, as well as demonstrating 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 A: 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 B: Measures specifically considered by the proposer to effectively manage and reduce costs for the benefit of residents.

2.0 Proposed Development

The proposed development is as follows:

Dwyer Nolan Developments Ltd. intend to apply to An Bord Pleanála for permission for a strategic housing development, on a site of c. 1.5 hectares, located at the junction of Santry Avenue and Swords Road, Santry, Dublin 9. The development site is bounded to the north by Santry Avenue, to the east by Swords Road, to the west by Santry Avenue Industrial Estate, and to the south by the permitted Santry Place development (granted under Dublin City Council Ref's. 2713/17 & 2737/19).

The proposed development provides for 350 no. apartments, comprised of 113 no. 1 bed, 218 no. 2 bed, & 19 no. 3 bed dwellings, in 4 no. seven to fourteen storey buildings, over basement level, with 5 no. retail / commercial units and a community use unit located at ground floor level facing onto Santry Avenue and Swords Road. A one storey residential amenity unit, facing onto Santry Avenue, is also provided for between Blocks A & D.

The development consists of the following:

(1) Demolition of the existing building on site i.e. the existing Chadwicks Builders Merchants (c. 4,196.8m^2).

(2) Construction of 350 no. 1, 2, & 3 bed apartments, retail / commercial and community uses in 4 no. buildings that are subdivided into Blocks A-G as follows:

- **Block A is a 7 to 14 storey block consisting of 59 no. apartments comprised of 26 no. 1 bed & 33 no. 2 bed dwellings, with 2 no. commercial/retail units located on the ground floor (c. 132.4m^2 & 173m^2 respectively). Adjoining same is Block B, which is a 7 storey block consisting of 38 no. apartments comprised of 6 no. 1 bed, 20 no. 2 bed, & 12 no. 3 bed dwellings, with 2 no. commercial/retail units located on the ground floor (c. 162.3m^2 & 130.4m^2 respectively). Refuse storage areas are also provided for at ground floor level.**

- **Block C is a 7 storey block consisting of 55 no. apartments comprised of 13 no. 1 bed & 42 no. 2 bed dwellings. Refuse storage areas are provided for at ground floor level. Adjoining same is Block D which is a 7 to 10 storey block consisting of 51 no. apartments comprised of 25 no. 1 bed, 19 no. 2 bed, & 7 no. 3 bed dwellings, with 1 no. commercial unit / café located on the ground floor (c. 163.3m^2). A refuse storage area is also provided for at ground floor level.**

- **Block E is a 7 to 10 storey block consisting of 58 no. apartments comprised of 10 no. 1 bed & 48 no. 2 bed dwellings, with 1 no. community use unit located on the ground floor (c. 188.1m^2). A refuse storage area, substation, & switchroom are also provided for at ground floor level. Adjoining same is Block F which is a 7 storey block consisting of 55 no. apartments comprised of 13 no. 1 bed & 42 no. 2 bed dwellings. A refuse storage area & bicycle storage area are also provided for at ground floor level.**

- **Block G is a 7 storey block consisting of 34 no. apartments comprised of 20 no. 1 bed & 14 no. 2 bed dwellings. A refuse storage area & bicycle storage area are also provided for at ground floor level.**

(3) Construction of a 1 storey residential amenity unit (c. 187.9m^2) located between Blocks A & D.

(4) Construction of basement level car parking (c.5,470.8m^2) accommodating 173 no. car parking spaces & 719 no. bicycle parking spaces. Internal access to the basement level is provided from the cores of

Blocks A, B, C, D, E, & F. External vehicular access to the basement level is from the south, between Blocks B & C. 36 no. car parking spaces & 58 no. bicycle parking spaces are also provided for within the site at surface level.

(5) Public open space of c. 1,915m^2 is provided for between Blocks C, D, E, & F. Communal open space of c. 3,122m^2 provided for between (i) Blocks E, F, & G, (ii) Blocks A, B, C, & D, and (iii) in the form of roof gardens located on Blocks A, C, & F and the proposed residential amenity use unit. The development includes for hard and soft landscaping & boundary treatments. Private open spaces are provided as terraces at ground floor level of each block and balconies at all upper levels.

(6) Vehicular access to the development will be via 2 no. existing / permitted access points: (i) on Santry Avenue in the north-west of the site (ii) off Swords Road in the south-east of the site, as permitted under the adjoining Santry Place development (Ref. 2713/17).

(7) The development includes for all associated site development works above and below ground, bin & bicycle storage, plant (M&E), sub-stations, public lighting, servicing, signage, surface water attenuation facilities etc.

The application contains a statement setting out how the proposal is consistent with the objectives of the Dublin City Development Plan 2016-2022, and also contains a statement indicating why permission should be granted for the proposed development, having regard to a consideration specified in section 37(2)(b) of the Planning and Development Act, 2000, as amended, notwithstanding that the proposed development materially contravenes a relevant development plan or local area plan other than in relation to the zoning of the land.

An Environmental Impact Assessment Report (EIAR) has been prepared in respect of the development proposal and accompanies the application. The application, together with the Environmental Impact Assessment Report, may be inspected, or purchased at a fee not exceeding the reasonable cost of making a copy, during public opening hours at the offices of An Bord Pleanála and Dublin City Council. The application may also be inspected online at the following website set up by the applicant: www.santryavenueshd.ie.

2.1 Design Concept

Due to the prominent location of the site addressing two main roads, at an important node in the local environs, the proposed development has been designed to become a focal point in the local neighbourhood and an essential way-finding gateway. The design and positing of the proposed buildings opens up this enclosed site to create a strong urban form providing good street frontage. In light of the orientation of the site and having regard to both permitted developments and the changing nature of the immediate environs, the proposed development forges a new connection between Santry Village and Santry Demesne, creates a high quality park-side residential development and neighbourhood centre with a strong sense of place and community and provides a focal point / landmark on this key gateway site which announces a new contemporary village of Santry with its high quality amenities and residential accommodation.

3.0 Section A

An Assessment of Long Term Running and Maintenance Costs as they would Apply on a Per Residential Unit Basis at the Time of Application

Property Management Company and Owner's Management Company (OMC)

3.1 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 running and maintenance costs of the common areas of the development are kept within the annual operational budget.

The property management company will enter into a contract directly with the Owner's Management Company (OMC) for the ongoing management of the built development. It is intended that this is a contract for a maximum of 5 years and in the form prescribed by the PSRA.

The property management will also have the following responsibilities for the apartment development once completed:

- Timely formation of an Owner's 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.
- Estate management.
- Third Party Contractors procurement and management.
- OMC Reporting.
- Accounting Services.
- Corporate Services.
- Insurance Management.
- After Hours Services.
- Staff Administration.

3.2.1 Service Charge Budget

The property management company has a number of key responsibilities, most notably, 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 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.

Notwithstanding the above, it should be noted that 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.

4.0 Section B

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

4.1 Energy and Carbon Emissions

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

Measure	Description	Benefit
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, lighting and occupancy. A Nearly Zero-Energy Building (NZEB) rating will be achieved in accordance with Part L 2019 (Housing) and Part L 2020 (Other than Housing) which set building fabric and energy performance requirements.	Higher BER ratings reduce energy consumption and running costs
Fabric Energy Efficiency	The U Values being investigated will be in line with the requirements set out by the current regulatory requirements of Technical Guidance Document Part L, "Conservation of Fuel and Energy Buildings other than dwellings". Thermal bridging at junctions between construction elements and at other locations will be minimised in accordance with Appendix D within the Technical Guidance Documents Part L. See below Table 1 of Part L, Building Regulations. All windows shall be triple glazed windows with a combined thermal transmittance not greater than 1.0W/m2K. All windows shall comply with BS EN ISO 10077-1: 2006 - 'Thermal performance of windows, doors and shutters. Calculation of thermal transmittance'. Building fabric will include insulation levels, sufficient to meet the Part L 2019 U-values.	Lower U-values and improved air tightness is being considered to help minimize heat losses through the building fabric, lower energy consumption and thus minimize carbon emissions to the environment.
Energy Labelled White Goods	The white good package planned for provision in the apartments will be of a very high standard and have a high energy efficiency rating. It is expected that the below appliance ratings will be provided: • Oven - A plus • Fridge Freezer - A plus • Dishwasher - AAA • Washer/Dryer – B	The provision of high rated appliances in turn reduces the amount of electricity required for occupants.

Internal Common Areas **&** **External lighting**	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. Public / external lighting will be provided to ensure a safe environment for pedestrians, cyclists and moving vehicles, to deter anti-social behaviour and to limit the environmental impact of artificial lighting on existing flora and fauna in the area. The proposed lighting scheme within the development consists of 6m pole mounted fittings as indicated on the drawings. The luminaires selected are from C U Phosco, Historic Lanterns & Ubis Schreder, range chosen for the following reasons: ▪ Low Level lighting ▪ Minimal upward light spill ▪ Low voltage LED lamps	Low energy lamps and automatic controls improve energy efficiency. The site lighting has been designed to provide a safe environment for pedestrians, cyclists and moving vehicles, to deter anti-social behaviour and to limit the environmental impact of artificial lighting on existing fauna and flora in the area.
Air Source Heat Pumps	The thermal energy from the outside air is absorbed and transferred to the space heating and domestic hot water generation systems. This is included in the design put forward for permission.	▪ Reduced carbon emissions ▪ Low fuel costs ▪ No fossil fuel requirement

The following are the **low energy technologies** that are being considered for the development and during the design stage of the development in order to meet the requirements of Part L of the Building Regulations and to meet the Near Zero Energy Building standard, if required. The specific combination from the list below will be decided upon and then implemented to achieve an NZEB rating. All apartment units have been oversized to allow for in-unit plant, such as air source heat pump to be installed without affecting development standards.

Measure	Description	Benefit
Condensing 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.	Higher BER ratings reduce energy consumption and running costs 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 a ventilation strategy to minimize energy usage and noise levels	The main advantages of natural ventilation are- • Low noise impact for occupants and adjacent units • Completely passive therefore no energy required. • Minimal maintenance required. • Reduced environmental impact as minimal equipment disposal over life cycle. • Full fresh air resulting in healthier indoor environment
Mechanical Ventilation Heat Recovery	Centralised mechanical ventilation will be provided to dwellings to ensure that the air quality within the dwellings will be adequate. The inclusion of Heat Recovery Ventilation into the centralised ventilation system will be considered and assessed in order to minimise the energy usage within the dwelling.	Mechanical Heat Recovery Ventilation provides ventilation with low energy usage. The MVHR reduces overall energy and ensures a continuous fresh air supply.
PV Solar Panels	PV solar panels are being considered which converts the electricity produced by the PV system (which is DC) into AC electricity, and in order to meet the renewable energy contribution required by Part L of the Building Regulations. 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.	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.
Combined Heat and Power	Combined heat and power (CHP) is not suitable for this type of development	N/A
Air Source Heat Pump	As part of the overall energy strategy for the development, the use of Air Source Heat Pumps will be assessed to determine their technical and commercial feasibility. These systems extract heat energy from the outside air and, using a refrigerant cycle, raise the temperature of the heat energy using a refrigerant vapour 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 2.5 to 4 times more heat energy to the dwelling than the electrical energy they consume.

E-CAR charging points	Charging shall be provided from a local landlord distribution board to designated E-car charging car parking spaces. This will enable the management company the option to install a number of E-car charging points within the car parking spaces to cater for E-car demand of the 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.

4.2 Materials

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

4.2.1 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 and openable windows to areas of regular use and circulation	Avoids the requirement for continuous artificial lighting
Natural/Passive ventilation system to and openable windows to areas of regular use and circulation	Avoids costly mechanical ventilation systems and associated maintenance and future replacement
External paved and landscaped areas	All of these require low/minimal maintenance
Plant is located at basement floor level for ease for access, except for any PV/ solar panels which may be located on the roof	Allows for easier maintenance and replacements as necessary

4.2.2 Material Specification

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.

Implementation of the Design and Material principles to the design of the building envelope, internal layouts, facades and detailing has informed the materiality of the proposed development.

The proposed envelope of the building is a mix of brick and durable metal cladding, with high-performance double-glazed aluminium windows. High quality metal cladding, brick, louvered screens and glazing are the primary materials proposed, giving a character of strength and robustness befitting the industrial context. The choice of materials also has a strong durability with minimal maintenance and upkeep requirements. The anodized metal finish, with its rich copper and gold colour, will mimic and complement the colours in the foliage of Santry Demesne especially in Autumn. Cantilevering and recessed balconies provide relief and shadow to the metallic and contrasting pale brickwork facades. Based on comparison with similar schemes developed, the proposed materials are considered durable and would not require regular replacement or maintenance.

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 areas of the scheme, and their durability and performance are designed and specified in accordance with Figure 4: Phases of Life Cycle BS 7543:2015. The common parts are designed to incorporate the guidance, best practice, principles and mitigations of Annexes of BS 7543:2015 including: Annex A - Climatic Agents affecting durability Annex B- Guidance on materials and durability Annex C Examples of UK material or component failures Annex D Design Life Data sheets	Ensures that the long term durability and maintenance of materials is an integral part of the design and specification of the proposed development.
Use of brickwork and pigmented render systems to envelope	Requires minimal maintenance and does not require regular replacement
Factory finished and aluminium (or similar) windows and doors and powder coated steel balconies	Requires minimal maintenance and does not require regular replacement

Measure	Description	Benefit
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, lighting and occupancy. It is proposed to achieve NZEB rating in accordance with current standards/guidance.	Higher BER ratings reduce energy consumption and running costs

4.3 Landscaping

Element	Measure Description	Benefit
Site Layout and Design	Generous and high-quality mature landscaping, with landscape and pedestrian parks between residential blocks are proposed. The open spaces are substantial and have a mixture of soft and hard landscaping. Significant tree planting and soft landscaping within public spaces	SUDs drainage system and landscape maintenance preferable Attenuation reduces the burden on vulnerable rainwater goods. Fewer elements would require replacement or repair.
Paving Materials	Use of 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. High quality landscaping both hard surface (for the cycle /car parking and pavements) and soft landscaping with planting and trees. The landscaping will be fully compliant with the requirements for Part M / K of the Technical Guidance Documents and will provide level access and crossings for wheelchair users and pedestrians with limited mobility. Designated car parking including accessible car parking reduces the travel distances for visitors with reduced mobility.	Required ongoing maintenance significantly reduced through use of robust materials installed with proven details. Plenty of room for cycles and pedestrians along with car spaces provide a good balance between pedestrians and car users. Wheelchair user-friendly
Planting Details	Proven trees staking details. Shrub, hedging, herbaceous and lawn installation planting details provided.	Correctly installed planting will develop into well established and robust soft landscape reducing

		future maintenance.
Balcony & Decking Materials	Use of robust high-quality materials and detailing to be durable for bikes, play, etc.	Ensures the longevity
Materials	Sustainable, robust materials, with high slip resistance to be used for paving. Durable and robust equipment (e.g. play, exercise, fencing etc.) to be used throughout.	Robust materials and elements reduce the frequency of required repair and maintenance

4.4 Waste Management

Measure	Description	Benefit
Construction and Operational Waste Management Plan	The application is accompanied by an and Operational Waste Management Plan	The report demonstrates how the scheme complies with best practice.
Storage of Non-Recyclable Waste and Recyclable Household Waste	Domestic waste management strategy: grey, brown and green bin distinction. Centralized bin storage areas are provided at grade within the apartment buildings / basement. Competitive tender for waste management collection	Helps reduce potential waste charges Easily accessible by all residents and minimises potential littering of the scheme.
Composting	Organic waste bins to be provided throughout	Helps reduce potential waste charges

4.5 Human Health and Wellbeing

Measure	Description	Benefit
Natural / day light	The design, separation distances and layout of the apartment blocks have been designed to optimise 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 Building Regulations, Technical Guidance Documents Parts K and 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 / storage ▪ Overlooked communal open spaces	Helps to reduce potential security/ management cost
Natural Amenity	Public & communal open spaces dispersed throughout the development..	Facilitates community interaction, socialising and play - resulting in improved wellbeing

4.6. Management

Consideration has been given to ensuring that 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 the property. Typically it 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. 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.

4.7 Transport

Measure	Description	Benefit
Access to Public Transport	The subject site benefits from excellent public transport accessibility levels. Dublin Bus operates route numbers 16, 33, 41, 41a, 41b and 41c along the R132 Swords Road corridor, travelling in both	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

	directions providing links to Dublin City Centre and Ballinteer to the south and Swords to the north.	
Permeable Connections	The development facilitates potential future interconnections by pedestrian and cycling routes to adjoining lands / environs	Ensures the long term attractiveness of walking and cycling to a range of local education, retail and community facilities and services .
Bicycle Storage	Secure high quality secure bicycle parking both for short and longer term parking requirements	Accommodates the uptake of cycling and reducing the reliance on the private motor vehicle.
ECAR facilities	Ducting provided from a local landlord distribution board to designated e-car charging car spaces	To accommodate the growing demand for e-cars which assist in decarbonising society and reducing oil dependency

Appendix A

Figure 1- TGD Part L 2019, Table 1

Table 1 Maximum elemental U-value (W/m^2K)[1, 2]		
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 - Insulation on slope Flat roof	 0.16 0.16 0.20	 0.3
Walls	0.18	0.6
Ground floors[3]	0.18	0.6
Other exposed floors	0.18	0.6
External doors, windows and rooflights	1.4[4,5]	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 1.4 W/m^2K.*
5 *The NSAI Window Energy Performance Scheme (WEPS) provides a rating for windows combining heat loss and solar transmittance. The solar transmittance value g_{perp} measures the solar energy through the window.*

Appendix B

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**		
1.02	Replacement parapet details	20	
1.03	Replacement/ repairs to facias	20	
1.04	Replace roof access hatches	25	
1.05	Specialist Roof Systems - Fall arrest	25	
2.00	**Elevations**		
2.02	Minor repairs and preparation for decorations of rendered areas	15	
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	
2.07	Replace Balcony floor finishes	25	
	Creche		
3.00	**Stair cores & lobbies**		
3.01	Decorate Ceilings	7	

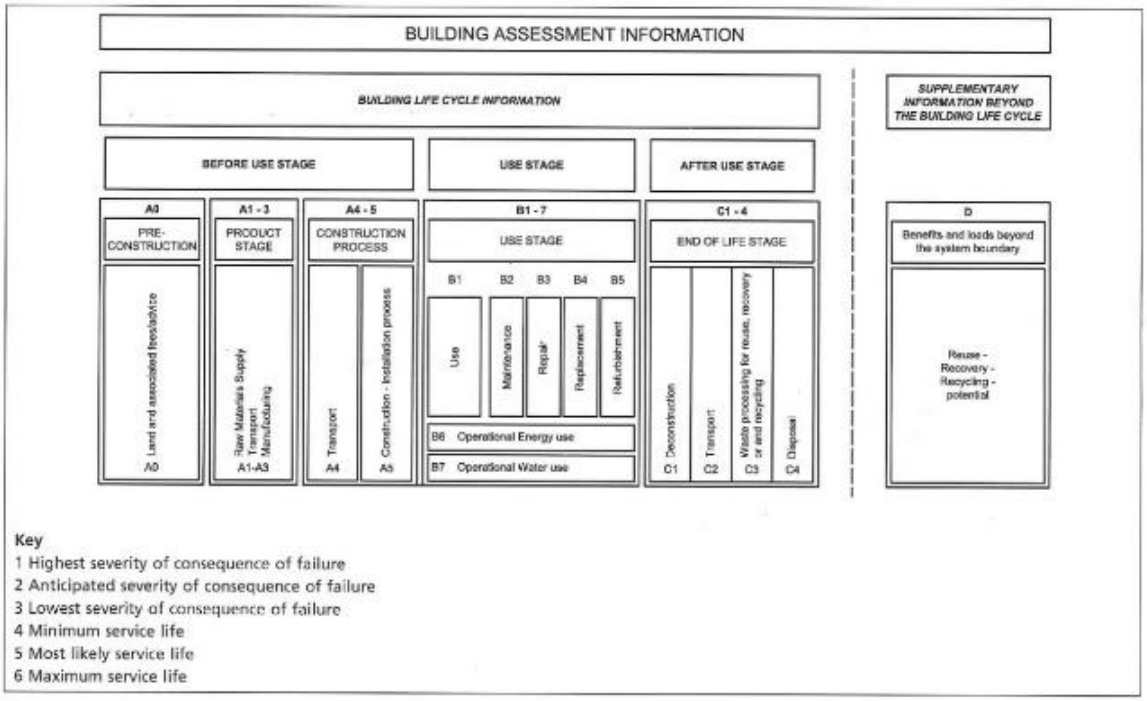
3.02	Decorate Walls	7	
3.03	Decorate Joinery	7	
3.04	Replace fire doors	25	
3.05	Replace carpets (stairwells & lobbies)	12	
3.06	Replace entrance mats	10	
3.07	Replace nosing's	12	
3.08	Replace ceramic floors tiles Entrance lobbies	20	
3.09	Fixed Furniture & Equipment - Provisional Sum	18	
4.00	**Shared surface Car & Bike Parking**		
4.01	Remove/ Replace ceiling insulation	25	
4.02	Repaint parking spaces & Numbering	7	
4.03	Replace store doors, ironmongery & digi-locks to bike parking	15	
4.04	Replace Bike stands to bike parking	25	
4.05	Replace basement access control at entrance & core entrances	12	
5.00	**M&E Services**		
5.01	General - Internal re-lamping	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 cutback & thinning of trees. Overhaul landscaping generally	20	
6.05	Replace CCTV provision	12	
6.06	External Handrails and balustrade	18	

Appendix C

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

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