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ARCHITECTS

RESIDENTIAL DEVELOPMENT

Application Site:

Devoy Barracks, Naas, Co Kildare

Applicant Name:

Land Development Agency,

LIFE CYCLE REPORT

April 2022

Job ref: 2569

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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:

"shall include a building lifecycle report, which in turn includes an assessment of long term running and maintenance costs as they would apply on a per residential unit basis at the time of application"

"demonstrate what measures have been specifically considered by the proposer to effectively manage and reduce costs for the benefit of residents."

This Building Life Cycle Report document sets out to address the requirements of Section 6.13 of the Apartment Guidelines.

The report is broken into two sections as follows:

Section 01:

An assessment of long term running and maintenance costs as they would apply on a per residential unit basis at the time of application.

Section 02:

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

Proposed Development

The development will consist of:

i) the construction of 219 no. residential units, comprising of a mix of terraced houses (42 no. 3 bed units), and duplex / apartment units (177 no. in total; 64 no. 1 bed units; 105 no. 2 bed units and 8 no. 3 bed units)

(ii) a 411.41 sq. m. crèche facility catering for 59 no. children and 11 no. staff

(iii) landscaped public open spaces, communal open spaces, streets, car-parking, cycle-parking and all other site works required to facilitate the development

Section 1.0

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 Development Mix Tenure Proposal

The Development will consist of the following:

- Cost Rental Units
- Social and Affordable Homes Scheme
- For Sale Options

1.2 Property Management of the Common Areas of the Development

Due to the mixed nature of the development, a variety of Property Management approaches will be explored and implemented in the Development. For a successful estate, participation by all stakeholders is welcomed, whether they be commercial landlords, institutional landlords, Local Authorities or the statutorily regulated, Approved Housing Bodies.

Under the Affordable Housing Act 2021, and as detailed in the Housing for All plan, an approved housing bodies (AHB) will be chosen to deliver and manage the Cost Rental Units. The cost of the management and maintenance is covered by the rent which will be determined by the approved AHB.

Where units are sold or are part of the Local Authority Social and Affordable Homes Scheme, 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.

An option is available for the Local Authority and/or the AHB to participate in a conventional Multi Units Development Act 2011 (MUDs), nominating OMC directors and offering tenure expertise.

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 3 years and in the form prescribed by the PSRA.

The Property Management Company also has the following responsibilities for the 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.

1.3 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 once adopted by the OMC, determines an adequate estimated annual cost provision requirement based on the needs of the development over a 30-year cycle period. The BIF report will identify those works which are necessary to maintain, repair, and enhance the premises over the 30-year life cycle period, as required by the Multi Unit Development Act 2011.

In line with the requirements of the MUD Act, the members of the OMC will determine and agree each year at a General Meeting of the members, the contribution to be made to the Sinking Fund, having regard to the BIF report produced.

A sample format of the typical BIF report is set out in Appendix A.

Note: the detail associated with each element heading i.e. specification and estimate of the costs to maintain / repair or replace, can only be determined after detailed design and the procurement/ construction of the development and therefore has not been included in this document.

Section 2.0

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
BER Certificates	<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 c.10kgCO2/m2 /year A3–51-75 kwh/m2/yr with CO2 emissions c.12kgCO2/m2 /year</p>	Higher BER ratings reduce energy consumption and running costs.
Fabric Energy Efficiency	<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 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 of energy consumption and thus minimise carbon emissions to the environment.</p>
Energy Labelled White Goods	<p>Where provided, the white goods package will be of a high standard and have a high energy efficiency rating. It is expected that the below appliance ratings will be provided:</p> <p>Oven - A plus Fridge Freezer - A plus Dishwasher - AAA Washer/Dryer – B</p>	The provision of high rated appliances in turn reduces the amount of electricity required for occupants.

Table 1 Maximum elemental U-value (W/m ² K) ^{1, 2}		
Column 1 Fabric Elements	Column 2 Area-weighted Average Elemental U-Value (U _m)	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 ³	0.21	0.6
Other exposed floors	0.21	0.6
External doors, windows and rooflights	1.6 ⁴	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/m²K when their combined area is 25% of floor area. However areas and U-values may be varied as set out in Table 2.

<p>External Lighting</p>	<p>The proposed lighting scheme within the development consists of 6m pole mounted fittings as indicated on the proposed public lighting services layout drawing.</p> <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 behaviour 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>
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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
Natural Ventilation	Natural ventilation is being evaluated as a ventilation strategy to minimise energy usage and noise levels.	<p>The main advantages of natural ventilation are: Low noise impact for occupants and adjacent units.</p> <p>Completely passive therefore no energy required with associated.</p> <p>Minimal maintenance required.</p> <p>Reduced environmental impact as minimal equipment disposal over life cycle.</p> <p>Full fresh air resulting in healthier indoor environment.</p>
Exhaust air heat pump	For heating, hot water and ventilation, Exhaust Air Heat Pump system are under consideration for the apartment and duplex units. While Air Source Heat Pump system are under consideration for the houses.	<p>Heat pumps operate with efficiencies >400%. Exhaust air heat pumps utilise extract air as the air source for the heat pump. This will re-cycle the heat from the dwelling's ventilation system. These machines are ideal for apartments and more compact air-tight low energy or passive homes. Air is drawn through ducts to the heat pump from the bathrooms, utility and kitchen areas. The cold waste air is discharged to outside through another duct, and condensation to a drain. Additional heat generated internally from lighting, people and domestic appliances is also utilised through heat recovery from outgoing exhaust air.</p>
Central extract/ demand-controlled ventilation	Central extract and demand-controlled ventilation will be considered to provide ventilation with low energy usage.	<p>Central extract ventilation provides continuous ventilation with low energy usage.</p> <p>Central extract operates at a low trickle speed constantly and ramp up in response to an increase in humidity from wet areas.</p> <p>Demand control ventilation incorporates automated wall vents which open/close dependent on internal humidity conditions.</p>

PV Solar Panels	<p>PV Solar Panels are being considered which converts 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>
ECAR Charging Points	<p>10% of the parking spaces will be fitted with EV charging points.</p> <p>Ducting shall be provided from a local landlord distribution board to designated E-car charging car park spaces. This will enable the management company the option to install E-car charging points within the carpark to cater for E-car demand of the residence. 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.</p>	<p>Providing the option of E-car charging points will allow occupants to avail of the ever- improving efficient electric car technologies.</p>

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.

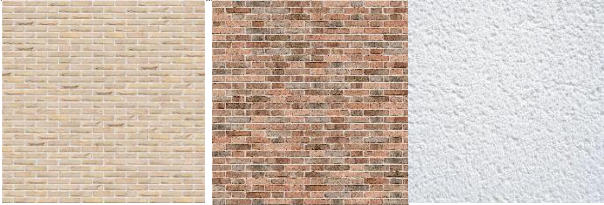
2.2.1 Buildings

All dwellings 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
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.
Daylighting to circulation areas	Avoids the requirement for continuous artificial lighting.

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	Ensures that the long-term durability and maintenance of Materials is an integral part of the Design and Specification of the proposed development.

<p>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: 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</p>	
<p>Use of brickwork and render to envelope of buildings</p>	 <p>Requires no on-going maintenance</p>
<p>Use of high performance double glazed with low E glass uPVC windows and doors.</p>	<p>Requires no on-going maintenance</p>

2.3 Landscape

Measure	Description	Benefit
Hard Landscape Materials	Sustainable, robust materials, with high slip resistance to be used for paving. Durable and robust finishes to be selected for all play elements, fencing, furniture, bin and bicycle storage units.	Materials selected to minimise on-going maintenance inputs
Soft Landscape Materials	Planting proposals have been formulated to complement the local setting as well as being fit for purpose in respect of private and public realm uses and spatial constraints imposed by garden sizes and the width of planting strips. Native tree species have been selected in significant numbers for planting along boundaries and across open spaces while non-native species have also been selected where spatial constraints are a factor. The plant selection proposed has a proven record to thrive in the Irish climate.	Reduction in the frequency of required soft landscape maintenance
Site Layout and Design	Pedestrian and cyclist friendly hierarchy of streets and open spaces are complemented by generous and high-quality landscape treatments including significant street tree planting and soft landscaping within courtyards and public spaces providing long term high quality residential environments.	Safe, high quality residential environments reduce vandalism and antisocial behaviour issues
Maintenance & Management	Maintenance and management requirements have been considered through the design process. Complex planting arrangements have been omitted thus avoiding onerous maintenance and management requirements.	Estate maintenance costs reduced
Sustainability & Biodiversity	Sustainability aspects of the proposed development include the retention of trees and hedgerows along site boundaries and the use of native trees where possible across the site. Other species have been carefully selected for compatibility with the size of available spaces which is an important factor in long term management of the housing estate. The overall objective is to enhance the biodiversity potential of the site in addition to providing seasonal interest and variety. Judiciously placed flowering shrub and groundcover planting have been included to further promote biodiversity (pollinator species attracting insects and birdlife).	Enhanced sustainability of long-term estate management

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 a Construction and Operational Waste Management Plan prepared by Enviroguide Consulting	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 a centralised, covered & locked bin storage areas	Easily accessible by all residents and minimises potential littering of the scheme
	Domestic waste management strategy: Grey, Brown and Green bin distinction. Competitive tender for waste management collection	Helps reduce potential waste charges.
Composting	Organic waste bins will be provided throughout.	Helps reduce potential waste charges.

2.5 Health & Wellbeing

The following are illustrations of how the health and wellbeing of future residents are considered.

Measure	Description	Benefit
Natural / Day Light	The design, separation distances and layout of the duplex / apartment blocks have been designed to optimize natural daylight/ sunlight and 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 and Part K.	Reduces the level of adaptation, and associated costs, potentially necessitated by residents' future circumstances.
Security	<p>The scheme is designed to incorporate passive surveillance with the following security strategies available for adaption into the design:</p> <p>CCTV monitoring details will be considered at detailed design if appropriate. Fobbed access into communal bin store and shared bicycle facilities are under consideration.</p> <p>All public areas will be well-lit.</p>	<p>Aids in reducing potential security/ management costs.</p> <p>Enhances safety for residents and visitors.</p>

Natural Amenity	Large open green spaces proposed throughout the scheme, connecting to the existing green spaces and promoting health and wellbeing.	Facilitates community interaction, socialising and play – resulting in improved wellbeing

2.6 Management

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

Measure	Description	Benefit
Home User Guide	<p>All residents/ users will be provided with a user information box prior to occupation including:</p> <p>User information manual – this will provide important information for the resident 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.</p> <p>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.</p>	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 (Train)	<p>Sallins & Naas railway station, on the Dublin to Cork/Limerick rail line, is just over 3km from the town centre.</p> <p>The railway line links Naas town to Dublin city and</p> <p>Weekday peak hour morning train frequencies to Dublin Heuston are c. 10-20 minutes between 6:30am and 9:00am, and c. every hour thereafter.</p> <p>Peak hour return afternoon / evening trains from Dublin are c. 10-20 minutes between 16:30pm and 19:00pm, and c. every hour outside of these times.</p>	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.
Access to Public Transport (Bus)	<p>There are two bus stops within 500 metres of the site on Newbridge road, and a further two more within 800 metres.</p> <p>These stops are served by routes 125, 126, 717, 726, 736, 826 and 846 which connect to the local</p>	The proximity, frequency and additional destinations served by this local bus service enhance the accessibility levels of the proposed

	<p>towns in the surrounding area to Dublin city and Dublin Airport.</p> <p>The 126 bus is timetabled every 10/20 mins between 7:30am and 9:00am on weekdays and has links to both Luas lines in Dublin City.</p> <p>3no. further bus routes serves stops within a 20-minute walk of the subject development. These stops are served by routes 130, 130a, 139 and 737 which also connect to the local towns in the surrounding area, as well as to Dublin city and Dublin Airport.</p>	<p>residential development in addition to providing a viable and practical sustainable alternative to journeys undertaken by the private motor car</p>
Permeable Connections	<p>Provision and subsequent maintenance of dedicated pedestrian infrastructure on-site, and their connectivity with the off-site networks, providing connectivity with existing paths on the adjoining wider road network, subsequently providing convenient access to local services.</p>	<p>Ensure the long-term attractiveness of walking and cycling to a range of local education, retail and community facilities and services.</p>
Bicycle Storage	<p>The provision of high-quality secure & covered bicycle parking facilities, for both short term and long-term parking requirements</p>	<p>Accommodates the uptake of cycling and reducing the reliance on the private motor vehicle. Reduces the reliance on the private motor vehicle in parallel with reducing oil dependency.</p>

APPENDIX A:**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			
Ref	Element	Life Expectancy	Amount
1.00	Roofs		
1.01	Replacement of flat roof covering	20	
1.02	Replacement parapet details	20	
1.03	Replacement/ repairs to fascias	20	
1.04	Replace roof access hatches	25	
1.05	Specialist Roof Systems	25	
2.00	Elevations		
2.01	Repairs & preparation for decorations of rendered areas	20	
2.02	Replace exit/ entrance doors	25	
2.03	Replace rainwater goods	25	
2.04	Recoat powder coated finishes to balconies	15	
2.05	Periodic replacement and overhauling of external fixings	5	
2.06	Replace balcony floor finishes	25	
3.00	Stair Cores & Lobbies		
3.01	Decorate ceilings & walls (stairwells & lobbies)	2	
3.02	Decorate Joinery (stairwells & lobbies)	2	
3.03	Replace fire doors (stairwells & lobbies)	25	
3.04	Replace carpets (stairwells & lobbies)	10	
3.05	Replace entrance mats (stairwells & lobbies)	10	
3.06	Replace nosing (stairwells)	10	
3.07	Replace ceramic floors tiles (stairwells & lobbies)	20	
3.08	Fixed Furniture & Equipment - Provisional Sum	18	

4.00	M&E Services		
4.01	General - Internal re-lamping (stairwells & lobbies)	7	
4.02	Replace Internal light fittings (stairwells & lobbies)	18	
4.03	Replace external light fittings (at entrance lobbies)	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 AOV's	25	
4.09	Replace security access control installation	15	
4.10	Sump pumps replacement	15	
4.11	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 waste pipes, stacks & vents	20	
5.00	Exterior		
5.01	External boundary treatments - recoat powder coated finishes to railings	60	
5.02	Replace external signage	18	
5.03	Replace cobble-lock areas	15	
5.04	15-year cutback & thinning of trees & general overhaul of the landscaping	15	
5.05	Replace CCTV provision	10	
5.06	External handrails and balustrade	18	
5.07	Repaint parking spaces & numbering	5	
5.08	Replace bicycle stands	25	

APPENDIX B:

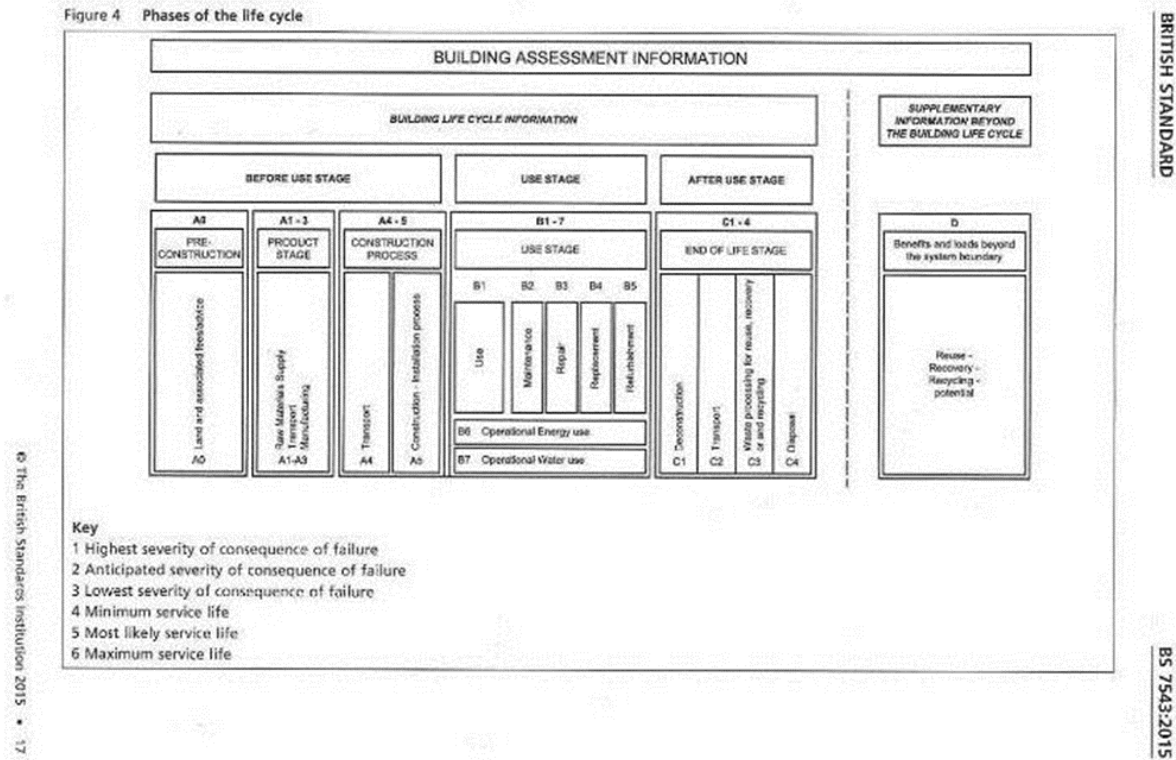
BS 7543:2015



BSI Standards Publication

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

Phases of the Life Cycle of BS7543; 2015



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