



**BUILDING LIFE-CYCLE REPORT
MIXED USE DEVELOPMENT
KILBRIDE, ARKLOW**

on behalf of:

**Certain Assets of Dawnhill
and Windhill Limited**

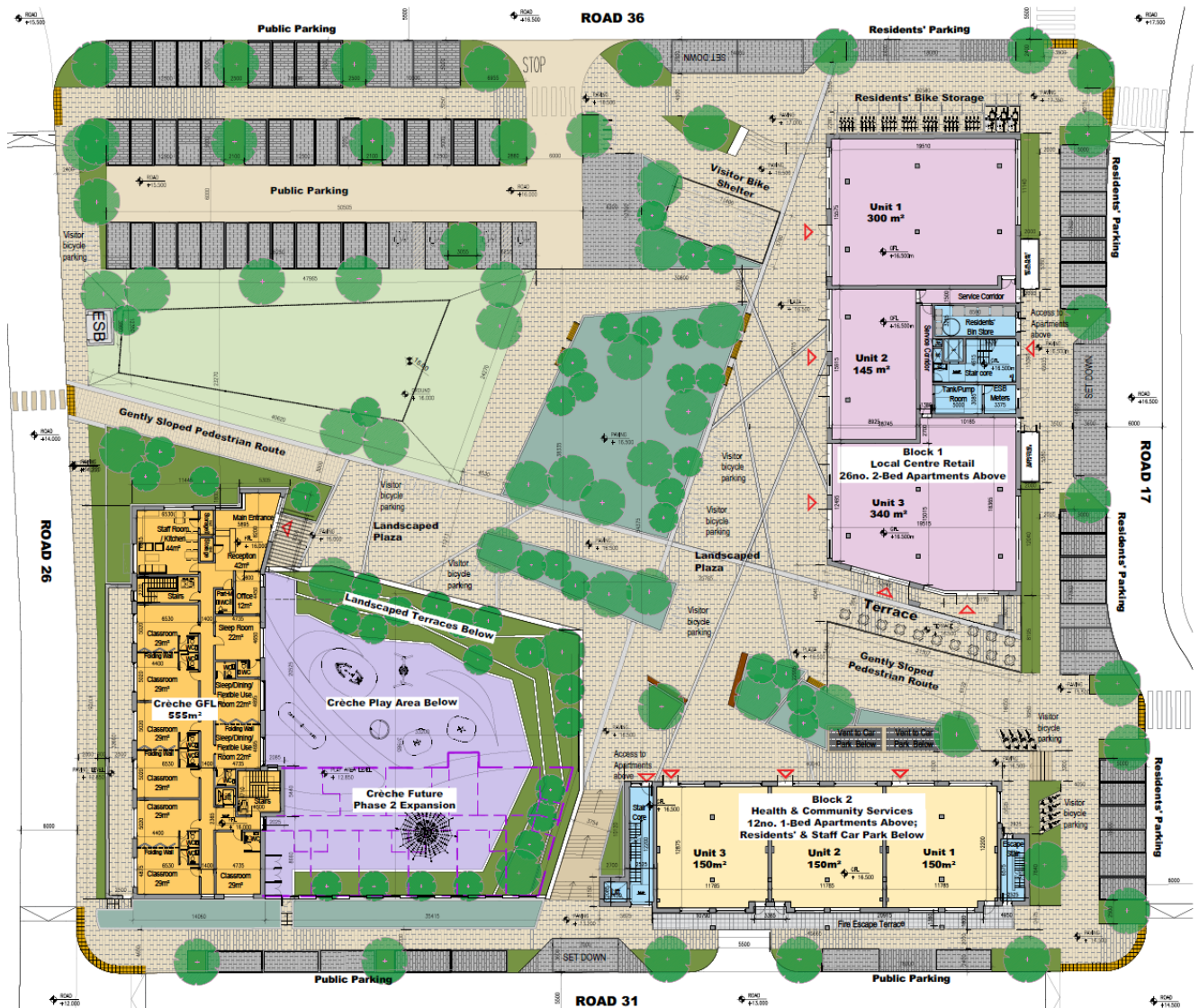
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Report Prepared By;

Burke-Kennedy Doyle Architects,
2nd Floor Europa House, Harcourt Centre, Harcourt St, Dublin 2.
Tel. 01 618 2400
architecture@bkd.ie

KEY PLAN:



INTRODUCTION

The Sustainable Urban Housing; Design Standards for New Apartments – Guidelines for Planning Authorities were updated in 2023 (hereafter referred to as the Apartment Guidelines). The Apartment Guidelines specifies the requirements to carry out a life-cycle assessment & to include details on the management and maintenance of apartment schemes as part of any proposed planning application which includes apartment units.

This Building Life Cycle Report document sets out to address these requirements. 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 proposed Local Centre includes 38 no. one and two bedroom apartments arranged in two blocks. The northern block is five storeys high reducing to four storeys at the northern end. The apartments within this building are situated at levels 01 – 04 – with retail and plant spaces located at level 0 (plaza level).

The second building – located to the south-east of the local centre plaza is four storeys high on its eastern side – but due to level differences within the plaza is only 3 storeys high on its western side. This building has car park and plant accommodation at the lowest level, Medical/Community use units at Level 0 (Plaza level) and apartments located at levels 01 & 02.

The buildings on site are linked together by a generous landscaped public plaza and enjoy views across the site, towards the town centre and to the coast. Residential entrances and circulation spaces have been separated from the other proposed uses within these buildings and privacy and amenity of the residents has been carefully considered. Each of the apartment units are provided with double the minimum area of required private open space – in lieu of private + communal open space.

“On grade” dedicated car parking is provided to the majority of residential units within the local centre – with a limited number of spaces located within a covered and secure car park located underneath the medical / community use building. The spaces underneath this building are dedicated to the apartment units located at levels 01 & 02 of this same building. Bicycle parking and plant areas have been provided separately for both buildings – in location convenient to the residents. The locations of external bicycle stores have been carefully considered to ensure passive surveillance and overlooking to mitigate any potential issues for these areas.

In addition to the local centre apartments, the proposed scheme includes 50 no. duplex units in four blocks, comprising a mix of one, two, & three bedroom units, to be built to the same standards as the local centre.

The remainder of the scheme consists of a range of two storey semi-detached & terraced houses in a mix of two, three, & four bedroom units. These houses will be built in line with best practice and will achieve BER A3, however they will be managed in the long-term by the owners of the houses and therefore they are not included in this life-cycle report.

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, including communal areas of open space and public areas, 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 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 02

MEASURES SPECIFICALLY CONSIDERED BY THE PROPOSER TO EFFECTIVELY MANAGE AND REDUCE COSTS FOR THE BENEFIT OF RESIDENTS.

2.1. ENERGY AND CARBON EMISSIONS

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

Measure	Description	Benefit
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.</p> <p>A BER is calculated through energy use for space and hot water heating, ventilation, and lighting and occupancy. It is proposed to target an A2/A3 rating for the apartments this will equate to the following emissions:</p> <p>A2 – 25-50 kwh/m2/yr with CO2 emissions circa 10kgCO2/m2/year</p> <p>A3 – 51-75 kwh/m2/yr with CO2 emissions circa 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 with Appendix D within the Technical Guidance Documents Part L. See below Table 1 of Part L, Building Regulations.</p> <p>The building will be designed to ensure it is in compliant with the building regulation and achieving air tightness less than 3m³/hr/m².</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.
Energy Labelled White Goods	<p>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:</p> <ul style="list-style-type: none"> • 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.
External Lighting	<p>The proposed lighting scheme within the development consists of mixture of 20/15 (X1/X2) Watt LED luminaires mounted on 6 metre columns and 7.25Watt LED bollards (X3) as indicated on the drawings.</p> <p>These Thorn luminaires were chosen for the following reasons:</p> <p>4000K CCT LED High efficiency 141lm/W (X1) & 137 lm/W (X2) Minimum colour rendering: 70 Zero Upward Light Output Ratio (ULOR) LM80 >15 years using TM21-11 test results</p>	The site lighting will be 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

	Minimum IK08 impact resistance At least IP65 ingress protection Meets or exceeds all other DCC Specification criteria. 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.	lighting on existing flora and fauna in the area.
Exhaust Air Heat Pumps	The thermal energy is extracted from the exhaust air and transferred to the supply air, space heating and domestic hot water systems.	<ul style="list-style-type: none"> • Reduced carbon emissions • Low fuel costs • No external condensing unit required No fossil fuel requirement

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 one ventilation strategy to minimise energy usage and noise levels.	The main advantages of natural ventilation are: <ul style="list-style-type: none"> • Completely passive therefore no energy required. • Reduced environmental impact as minimal equipment disposal over life cycle.
Mechanical Ventilation Heat Recovery	Mechanical heat recovery ventilation (MVHR) will be considered to provide ventilation with low energy usage.	<ul style="list-style-type: none"> • 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
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	<ul style="list-style-type: none"> • 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.
ECAR Charging Points	E-Car chargers will be provided to 20% designated E-car charging car park spaces. Ducting will be provided to all remaining car parking spaces. 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 a number of E-car charging	Providing the option of E-car charging points will futureproof the development

	points within the carpark zones 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. Furthermore, all houses with on-curtilage parking will be wired to allow future installation of EV charging points by residential unit purchasers.	
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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 buildings.

2.2.1 BUILDINGS


All proposed 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:

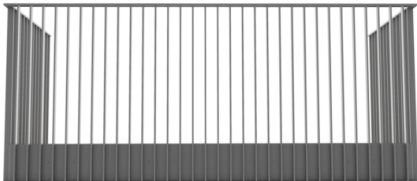
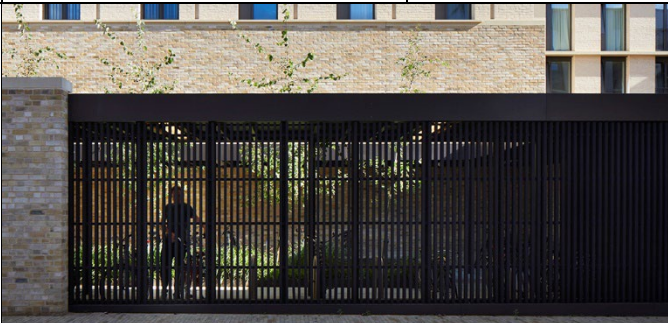
Measure	Description
Openable window sections are provided to all habitable rooms within the development providing natural daylight to areas of regular use and circulation.	Avoids the requirement for continuous artificial lighting
Openable window sections are provided to all habitable rooms within the development providing Natural/Passive ventilation to common circulation areas.	Avoids costly mechanical ventilation systems and associated maintenance and future replacement.
Natural ventilation through grills and louvres are proposed to provide fresh air to under deck parking 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

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 render finish, with high-performance double-glazed aluminium windows. Based on comparison with similar schemes developed, the proposed materials are considered durable and would not require regular replacement or maintenance.

Measure	Description	Benefit
Implementation of the Design and Material principles to the design of the proposed development.	Materials have been selected with a view to longevity, durability and low maintenance with Consideration given to Building Regulations and include reference to BS 7543:2015 'Guide to Durability of Buildings and Building elements, Products and Components'	Longevity, durability and low maintenance of materials
Rendered Blockwork and Brickwork to the building envelope	Materials have been selected with a view to longevity, durability and low maintenance with Consideration given to Building Regulations and include reference to BS 7543:2015 'Guide to Durability of Buildings and Building elements, Products and Components'	Requires minimal maintenance and does not require regular replacement
	 	
Installation of factory finished double glazed aluminium/upvc windows and doors	Materials have been selected with a view to longevity, durability and low maintenance with Consideration given to Building Regulations and include reference to BS 7543:2015 'Guide to Durability of Buildings and Building elements, Products and Components'	Requires minimal maintenance and does not require regular replacement
		

Measure	Description	Benefit
Installation of factory finished steel balconies	Materials have been selected with a view to longevity, durability and low maintenance with Consideration given to Building Regulations and include reference to BS 7543:2015 'Guide to Durability of Buildings and Building elements, Products and Components'	Requires minimal maintenance and does not require regular replacement
		
Installation of factory finished steel louvres / railings	Materials have been selected with a view to longevity, durability and low maintenance with Consideration given to Building Regulations and include reference to BS 7543:2015 'Guide to Durability of Buildings and Building elements, Products and Components'	Requires minimal maintenance and does not require regular replacement
		

2.3 LANDSCAPE

Measure	Description	Benefit
Site Planning	Generous and high-quality landscape with ecological corridors designed within the proposed development. Pedestrian priority over vehicular traffic where possible. Significant tree planting and soft landscaping within courtyards and public spaces.	Natural attenuation and landscape maintenance preferable
Hard Landscaping	<p>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.</p> <p>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.</p> <p>Designated car parking including accessible & visitor car parking reduces the travel distances for visitors with reduced mobility.</p>	<p>Required ongoing maintenance significantly reduced through use of robust materials installed with proven details.</p> <p>Plenty of room for cycles and pedestrians along with car spaces provide a good balance between pedestrians and car users.</p> <p>Wheelchair user-friendly.</p>
Soft Landscaping	The use of native and strategically located non-native plants will provide optimum biodiversity and aesthetic values. This varied profile is designed to provide a diverse landscape	<p>Low-cost, availability, ease of establishment and reduced requirements for maintenance.</p> <p>Ecological contribution in an urban setting.</p>
Planting Details	Proven tree 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 and Decking Materials	Use of robust high-quality materials and detailing to ensure sustainability.	Ensures the longevity
Sustainable Drainage	A range of SUDS measures proposed within site (permeable paving, attenuation) along with significant soft landscape areas which will cater for natural infiltration.	Reduces the volume of irrigation required

2.4 WASTE MANAGEMENT

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

Measure	Description	Benefit
Operational Waste Management Plan	This application is accompanied by an Operational Waste Management Plan prepared by the Waste Consultant	The report demonstrates how the scheme has been designed to comply with local, regional, and national waste legislation along with best practice
Storage of Non-Recyclable Waste and Recyclable Household Waste	Inclusion of centralised waste storage areas, with enough space to accommodate a weekly collection of bins	Easily accessible by all residents, minimises potential littering of the scheme, reduce potential waste charges and not limit waste contractor selection
	Domestic waste management strategy: General waste, mixed recyclable, glass recycling and organic bin distinction	Helps reduce potential waste charges and not limit waste contractor selection
	Security restricted waste storage rooms	Reduce potential for fly tipping by residents and non-residents
	Well signed waste storage rooms and bins	Help reduce potential cross contamination of waste and reduce waste charges.
Composting	Organic waste bins 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	Public Open Space to Local Centre Plaza	Proximity and use of open space promotes a healthy lifestyle & sense of community
	Generous private open space areas dedicated to each unit – directly accessible from living / kitchen / dining areas	Facilitates community interaction, socialising & improved wellbeing. Proximity and use of external spaces promote a healthy lifestyle.
Accessibility	All units will comply with the requirements of Part M/K and a universal access statement is provided within the design statement of this submission.	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: <ul style="list-style-type: none"> • CCTV monitoring details • Secure bicycle stands – covered by CCTV 	Help to reduce potential security/management costs.

2.6 MANAGEMENT

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

Measure	Description	Benefit
Home User Guide	<p>Once a purchaser completes their sale, a homeowner box will be provided which will include:</p> <ul style="list-style-type: none"> 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 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 subject site and surrounding lands are serviced by public transport serving the local town. Refer to the traffic consultant reports for more detail. Pedestrian and cycle links to the town centre where the highest frequency of local transport connections are located is central to the masterplan design. Roads within the masterplan and subject application area have been considered with future potential bus routes in mind.	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	<p>Within the masterplan and subject application proposals an elevated boardwalk is proposed to provide a direct connection over the wetlands and Avoca river to the town centre. The location & design of this connection provides the shortest route between the proposed development and the town.</p> <p>Key services (such as the Local centre shops/medical/community units/creche and schools) & area of public open space have been carefully located within the subject site to be both central to the local community they serve – while remaining linked to the proposed pedestrian and cycle network.</p>	Ensure the long-term attractiveness of walking and cycling to a range of local education, retail and community facilities and services.

Measure	Description	Benefit
Bicycle Storage	The provision of high quality secure and sheltered bicycle parking facilities, for both short term and long-term parking requirements.	Accommodates the uptake of cycling and reducing the reliance on the private motor vehicle.
E-car Facilities	E-Car chargers will be provided to 20% designated E-car charging car park spaces. Ducting will be provided to all remaining car parking spaces.	To accommodate the growing demand for E- car which assist in decarbonising society and reducing oil dependency.

APPENDIX A:

Figure 1- TGD Part L 2022 (Dwellings), Table 1

Table 1 Maximum elemental U-value (W/m ² K) ^{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	0.16	0.3
- Insulation on slope	0.16	
Flat roof	0.20	
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 ² K. 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		
1.01	Replacement felt roof covering incl. insulation to main roofs/ overhaul to flat roofs.	18	

1.02	Replacement parapet details	18	
1.03	Replacement/ repairs to facias	18	
1.04	Replace roof access hatches	25	
1.05	Specialist Roof Systems - Fall arrest	25	
1.06	Overhaul waterproofing details to penthouse paved areas	12	
2.00	Elevations		
2.01	Minor repairs and preparation for decorations of rendered areas	18	
2.02	Replace exit/ entrance doors	25	
2.03	Replace Rainwater goods	25	
2.04	Recoat powder coated Finishes to balconies / Grills to Basement vents	20	
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	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	Deck Covered Car Parking		
4.01	Repaint parking spaces & Numbering	7	
4.02	Replace store doors, ironmongery & digi-locks	15	
4.03	Replace Bike stands	25	
4.04	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

