



Building Lifecycle Report
Stradbrook Road SHD, Blackrock, Co. Dublin
July 2022

01 675 0850
info@reneng.ie
<https://www.renaissanceengineering.ie>
Bond House, 9-10 Lower Bridge Street, Dublin 8, Ireland
Renaissance Engineering | Company No: 515676 | VAT No: IE9842456U



This page is intentionally left blank

Apartment Complex
consisting of
108 No. Dwellings
at
Stradbroke Road SHD

Building Lifecycle Report

Rev 3

July 2022

Contents

Contents	IV
1 Introduction	1
2 Proposed Development	2
SECTION 1:	3
1.1 Long-Term Running Costs	3
SECTION 2:	4
2.1 Building Design	4
2.2 Landscape	6
2.3 Energy & Carbon Emissions	9
2.4 Low-Energy Technologies under Consideration	11
2.5 Materials / Material Specification.	15
2.6 Waste Management	17
2.7 Human Health and Well Being.....	19
2.8 Transport and Accessibility.....	20
2.9 Management	22
APPENDIX A – SITE PLAN AND GROUND FLOOR LAYOUT:	23
APPENDIX C – LANDLORD MAINTENANCE ITEMS	25
APPENDIX C – FABRIC REQUIREMENTS – BUILDING REGULATIONS PART L.....	27
APPENDIX D – PHASES OF THE LIFE CYCLE BS7543:2015	28

Horan Rainsford Architects
36 Main Street.
Blackrock.

1 Introduction

The Sustainable Urban Housing Design Standards for New Apartments – Guidelines for Planning Authorities (published in March 2018), introduced a requirement to include details on the management and maintenance of any residential units that may be contained within housing developments.

The Guidelines state that consideration of the long-term running costs and manner of compliance of the proposal with the Multi-Unit Developments Act, 2011 are matters which should now be considered as part of any assessment of a proposed apartment development.

Section 6.13 of the guidelines 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 above.

It is broken into two sections as follows:

Section 1: 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 2: Measures specifically considered by the proposer to effectively manage and reduce costs for the benefit of residents.

2 Proposed Development

This report relates to the various elements of the proposed Residential Development at Stradbroom Road SHD.

The proposed mixed-use development at a site of some 0.4813a on Stradbroom Road, Mountashton, Blackrock, Co. Dublin will comprise: the demolition of existing buildings and surface car park, and the construction of: 108 No. Build-to-Rent residential senior living apartments (83 No. 1-bed apartments and 25 No. 2-bed apartments), with balconies / winter gardens at all elevations, across 2 No. blocks ranging between 3 to 7-storeys with set back at sixth-floor level and additional basement storey.

The proposal also includes for 148 No. secure bicycle parking spaces, 55 No. underground car parking spaces, a two-way vehicular entrance ramp and bin storage, circulation areas and associated plant at basement level; a self-contained office unit, a residential staff management suite, resident's facilities, residents' communal amenity rooms, and residents' communal open space, as well as 13 No. surface car parking spaces (incl. 1 No. accessible commercial car parking space and 12 No. car parking spaces for use by the adjoining creche (incl. 1 No. accessible)), 24 No. secure cycle spaces within separate bike store, separate bin store for office use, 30 No. short-term bicycle parking spaces, and 3 No. ESB substations at ground floor level; additional communal amenity rooms at first, second, third, fourth and fifth-floor levels; roof gardens / terraces at third, fourth and sixth-floor levels; green roofs; and PV panels on third, fourth and sixth-floor roof-level; amendments to existing boundary wall to provide new vehicular and pedestrian entrances; provision of security gates; and associated site landscaping, lighting and servicing, and all associated works above and below ground.

SECTION 1:

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 Long-Term Running Costs

The aim of the developer is to manage and minimise potential unnecessarily high running costs on a per residential unit basis. Tetrarch Residential Ltd have applied their experience to ensure the provision of a product which will be well managed and easily maintained. The scheme is a build-to-rent and management of common landlord areas will be undertaken by the client, who will retain ownership.

SECTION 2:

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

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

2.1 Building Design

Measure	Description	Benefit
Daylighting to apartments & circulation areas	A daylight and sunlight analysis will be carried out in accordance with the BRE 'Site Layout Planning for Daylight and Sunlight' Design Guide (2 nd edition), ' <i>Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities</i> ' and <i>BS 8206-2: 2008 – 'Lighting for Buildings – Part 2: Code of Practice for Daylighting'</i> .	Reduces the requirement, and therefore expense, for continuous artificial lighting.
External Lighting	The proposed lighting scheme within the development consists of LED public lighting pole mounted fittings on 5m and 6m high poles. 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 will be designed to achieve the required standards, provide a safe environment for pedestrians, cyclists, and vehicular traffic, provide surveillance, and limit the impact of the artificial lighting on surrounding existing flora and fauna. Having PECU allows for the optimum operation of lighting which minimizes

Ventilation	Natural/Passive ventilation system to circulation areas.	Avoids costly mechanical ventilation systems and associated maintenance and future replacement. This occurs in the vertical circulation space and connecting enclosed corridors.
Landscape	External paved and landscaped areas with suitable planting and landscape selection.	All of these require low/minimal maintenance.
Roof Construction	Areas of flat roof construction will either be green roof or single-ply membrane finish. External roof terraced areas will also be located on some of the flat roof, consisting of paved areas and planting.	Minimises on-going maintenance, creates a pleasing aesthetic and green roof adds to biodiversity.

2.2 Landscape

Measure	Description	Benefit
Paving and Decking Materials	Sustainable, robust materials with high slip resistance and permeability, e.g. precast reconstituted stone pavers, to be used for paving. Durable and hardwearing equipment (e.g. for exercise, fencing etc.) to be used throughout.	Robust materials and elements reduce the frequency of required repair and maintenance.
Soft Landscape	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 and plant species have been prioritised for planting while non-native species have also been selected for diversity, aesthetics and for their value as pollinator plants which attract and encourage insects and wildlife. Plant species have been selected so that irrigation will be not required for the soft landscape in normal circumstances.	Ecological enhancement of the local area and contributing to the wider environmental quality of the area. Reduction in the frequency of required soft landscape maintenance.
Site Layout	High quality landscape spaces - both hard surface (for cycle /car parking and pedestrian areas / pavements) and soft landscaping with grass, 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 & visitor car parking reduces the travel distances for visitors with reduced mobility.	Plenty of room for cyclists and pedestrians along with car spaces provides a good balance between pedestrians and car users. Wheelchair user-friendly. High amenity value for the residents, with options to exercise, relax, play and simply 'be' outdoors in contact with nature and

		<p>greenery, which is proven to enhance mental health and wellbeing.</p> <p>Social opportunities to meet and get to know neighbours.</p>
Maintenance & Management	<p>Maintenance and management requirements have been considered through the design process and efforts made to avoid onerous maintenance and management requirements, where possible.</p> <p>Maintenance and management operations will follow sustainable practices, encouraging natural growth habits, and minimizing chemical inputs.</p> <p>Bark mulch / weed membrane used to suppress weeds, displacing chemical input. Good quality soil reduces need for additional chemical fertiliser.</p>	Estate maintenance costs reduced.
Balconies & openable windows	Use of balconies & openable windows allow individuals to clean windows themselves.	Reduces the cost and reliance on 3rd party contractors for cleaning & maintenance.

<p>Sustainability & Biodiversity</p>	<p>Sustainability aspects of the proposed development include the use of native species where possible across the site. The landscape spaces will be planted with a variety of species suited and adapted to the Irish climate, including a substantial proportion of native plants. Pollinator-friendly plants will also be included to enhance insect populations. By encouraging wildlife, this will improve local biodiversity and animate the amenity spaces and wider landscape.</p> <p>Planting will also provide a contact with nature in the urban environment for the residents, and will have strong aesthetic characteristics, including tactile and aromatic qualities.</p> <p>Other species have been carefully selected for compatibility with the use and size of available spaces which is an important factor in long term management. The overall objective is to enhance the biodiversity potential of the site in addition to providing seasonal interest and variety.</p> <p>Judiciously placed flowering shrub and groundcover planting have been included to further promote biodiversity (pollinator species attracting insects and birdlife) and interest, at both ground and roof levels, with green roofs and roof gardens also proposed.</p> <p>Materials are robust and will be sourced sustainably where feasible, with low-carbon products preferred.</p>	<p>Enhanced sustainability and biodiversity of long-term estate management.</p>
--	---	---

2.3 Energy & Carbon Emissions

Measure	Description	Benefit
<p>BER Certificates</p>	<p>A Building Energy Rating (BER) certificate will be provided for each dwelling in the proposed development when complete 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.</p> <p>It is proposed to target an NZEB rating for the apartments, equating to emissions of 8-10 kWh/m²/yr of CO₂.</p> <p>An A2 property can be expected to require 25-50 kWh/m²/yr. For a 75m² 2-bed apartment, the running costs for space and water heating (based on typical occupancy and heating the entire dwelling to a comfortable level) would be in the region of €280/year (Source: SEAI "Guide to Building Energy for Homeowners").</p>	<p>Achieving a high BER rating means a reduction in energy consumption and running costs.</p>

<p>Fabric Energy Efficiency.</p>	<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, '<i>Conservation of Fuel and Energy Buildings other than Dwellings</i>'. See below Table 1 of Part L, Building Regulations.</p> <table border="1" data-bbox="459 551 1031 1518"> <thead> <tr> <th colspan="3">Table 1 Maximum elemental U-value (W/m²K)^{1, 2}</th> </tr> <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> </thead> <tbody> <tr> <td>Roofs</td> <td></td> <td></td> </tr> <tr> <td>Pitched roof</td> <td></td> <td></td> </tr> <tr> <td>- Insulation at ceiling</td> <td>0.16</td> <td rowspan="2">0.3</td> </tr> <tr> <td>- Insulation on slope</td> <td>0.16</td> </tr> <tr> <td>Flat roof</td> <td>0.20</td> <td></td> </tr> <tr> <td>Walls</td> <td>0.18</td> <td>0.6</td> </tr> <tr> <td>Ground floors³</td> <td>0.18</td> <td>0.6</td> </tr> <tr> <td>Other exposed floors</td> <td>0.18</td> <td>0.6</td> </tr> <tr> <td>External doors, windows and rooflights</td> <td>1.4^{4,5}</td> <td>3.0</td> </tr> <tr> <td colspan="3"> <p>Notes:</p> <ol style="list-style-type: none"> The U-value includes the effect of unheated voids or other spaces. For alternative method of showing compliance see paragraph 1.3.2.3. For insulation of ground floors and exposed floors incorporating underfloor heating, see paragraph 1.3.2.2. Windows, doors and rooflights should have a maximum U-value of 1.4 W/m²K. 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. </td> </tr> </tbody> </table> <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.</p>	Table 1 Maximum elemental U-value (W/m²K)^{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	<p>Notes:</p> <ol style="list-style-type: none"> The U-value includes the effect of unheated voids or other spaces. For alternative method of showing compliance see paragraph 1.3.2.3. For insulation of ground floors and exposed floors incorporating underfloor heating, see paragraph 1.3.2.2. Windows, doors and rooflights should have a maximum U-value of 1.4 W/m²K. 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. 			<p>Lower U-values and improved air tightness is being considered to help minimise heat losses through the building fabric, lower energy consumption and thus minimise carbon emissions to the environment.</p>
Table 1 Maximum elemental U-value (W/m²K)^{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																																			
<p>Notes:</p> <ol style="list-style-type: none"> The U-value includes the effect of unheated voids or other spaces. For alternative method of showing compliance see paragraph 1.3.2.3. For insulation of ground floors and exposed floors incorporating underfloor heating, see paragraph 1.3.2.2. Windows, doors and rooflights should have a maximum U-value of 1.4 W/m²K. 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. 																																					

2.4 Low-Energy Technologies under Consideration

A variety of low-energy technologies are being considered during the design stage of the development in order to meet the requirements of Part L of the Building Regulations and to achieve a Near Zero Energy Building (NZEB) rating. These technologies

The specific combination from the list below will be decided on and then implemented to achieve the A2/A3 BER Rating.

Measure	Description	Benefit
Exhaust air heat pump	An exhaust air heat pump system is under consideration for heating, hot water and ventilation of the apartment units.	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>Monobloc or bi-bloc (split) air-source heat pump</p>	<p>Outdoor air-to-water heat pumps function on the same principle as exhaust air devices, but require an outdoor unit mounted in a garden or on a roof or balcony to provide a source of low-temperature heat. Multiple heat pumps are being considered for this projects, including systems which provide hot water only and are used in combination with other technologies for space heating and other heat pumps which provide both water and space heating from a single device.</p>	<p>Outdoor air-to-water heat pumps offer many of the benefits of exhaust air heat pumps, with comparable coefficients of performance (CoP) of over 300%, thereby offering low-cost heating and hot water to tenants throughout their lifespan.</p>
<p>Mechanical ventilation heat recovery (MVHR) system with integrated air-to-water heat pump (2-stage MVHR + EAHP)</p>	<p>This system provides space heating primarily through recovery of heat from exhaust air. Continuous ventilation of the apartment provides a significant source of low-temperature heat and the system's built-in heat pump uses this to provide hot water or increase further the provision of warm air as required in an efficient manner.</p>	<p>Ventilation systems without heat recovery place a substantial extra load on the heating system, as warm room air is replaced by fresh cool air which needs to be reheated to maintain a comfortable temperature. MVHR systems eliminate this issue by transfer of heat from outgoing to incoming air without direct mixing or contamination of the incoming airstream. This further reduces energy bills and costs for tenants.</p>

Electric Heating	Electric radiators made with high thermal ceramic heating elements with digital thermostat controls.	<p>100% efficient, i.e. all the electricity used is converted into heat.</p> <p>Low running / maintenance costs.</p> <p>No requirement for expensive equipment such as boilers, pumps, etc.</p> <p>Thermostatic controls allow the radiator to quickly adapt to changes in the room temperature.</p>
Low-energy LED Lighting	Shall be designed and specified in accordance with the BER requirements in each unit and in the landlord areas in accordance with Part L.	Lower consumption of energy and therefore lower carbon emissions.
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>

<p>E-CAR 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>
<p>Combined Heat and Power</p>	<p>Combined Heat and Power, (CHP), is a technology being evaluated in the event a number of apartments remain in a single ownership. This technology generates electricity and captures the waste heat from the generation unit that can be used within the development. This works very well when used in conjunction with a central plant based system.</p>	<p>CHP can achieve energy efficiencies by reusing waste heat from the unit to generate heat required for space heating & domestic hot water services in the apartment developments.</p>
<p>Solar Photovoltaic Panels</p>	<p>Solar PV panels will be considered for installation on rooftops, to convert solar radiation into usable electricity for residents.</p>	<p>Provides free electricity to residents, who are of an age profile to make particular use of daytime peak generation, as opposed to younger or working-age residents who are less likely to be at home during the day.</p>
<p>Battery Energy Storage Systems</p>	<p>Allowance in the design has been made for electric battery systems, designed to store energy generated onsite via solar PV as well as energy purchased at night rate tariffs. This overcomes the main disadvantage of solar technology, namely that generation peaks do not necessarily coincide with demand peaks.</p>	<p>Battery storage systems have dual benefits to consumers and to the national grid, allowing residents avail of free solar and cheap night-rate electricity, while balancing demand from the grid.</p>

2.5 Materials / Material Specification.

The practical implementation of the Design and Material principles has informed design of building facades, internal layouts and detailing of the proposed apartment buildings. The proposed envelope of the building is a mix of selected brickwork of varying tones, with high-performance Upvc joinery windows and doorsets, and powder coated metal balconies. Facades that meet the public realm are animated and carefully considered. All the considered materials will help create a building that resists deterioration, and which is easily maintained and managed.

The 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
Material Selection	<p>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.</p> <p>All common parts of the proposed apartment building 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:</p>	Ensures that the long-term durability and maintenance of Materials is an integral part of the Design and Specification of the proposed development.

	<ul style="list-style-type: none"> • 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 	
Brickwork to the envelope	Selected brick of varying tones, in accordance with Architects selection and specification. NOTE: all out windows and doors will be aluminium glazing systems	Requires minimal maintenance and does not require regular replacement
Installation of factory finished UPVC joinery windows and doorsets	Selected window and door units, in accordance with Architects selection and specification	Requires minimal maintenance and does not require regular replacement
Installation of factory finished Precast steel balcony/balustrade	Selected vertical steel balustrade with steel and glass panels, in accordance with Architects selection and specification	Requires minimal maintenance and does not require regular replacement

2.6 Waste Management

Measure	Description	Benefit
Construction & Demolition Waste Management Plan	<p>A Construction and Demolition Waste Management Plan shall be submitted to Dun Laoighire-Rathdown County Council (DLRCC) prior to commencement of the development.</p> <p>The waste management plan will be developed in line with the Waste Management Act (1996), the Eastern Midlands Waste Management Plan (2015-2021) and the Department of Environment and National Construction and Demolition Waste Council policy statements.</p> <p>Excavated material from the site will be disposed off site to a licensed facility.</p> <p>Excavated topsoil will be retained in a stock-pile for re-use in the landscaping of the site.</p>	The report will demonstrate how the scheme has been designed to comply with best practice.
Operational Waste & Recycling Management Plan	<p>This application will be accompanied by an Operational Waste & Recycling Management Plan (OWRMP).</p> <p>The OWRMP will be developed in line with Dun Laoighire-Rathdown County Council requirements for waste minimization, recycling and re-use.</p>	The report will demonstrate how the development will take into account sustainable methods for waste and recycling management during its operation.
Storage of non-recyclable waste and recyclable household waste	<p>Inclusion of a number of covered & locked bin storage areas for each apartment within the basement.</p> <p>Domestic waste management strategy: Black, Brown and Green bin distinction. Competitive tender for waste management collection.</p>	Easily accessible by all residents and minimises potential littering of the scheme.

Composting	Addition of organic waste bins to be provided throughout the development	Helps to reduce waste charges and the amount of waste going to landfill.
------------	--	--

2.7 Human Health and Well Being.

Measure	Description	Benefit
Natural Daylight	The design, separation distances and layout of the apartments have been optimised for 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, including access and egress, will comply with the requirements of Part M/K	Reduces the level of adaptation, and associated costs, potentially necessitated by residents' future circumstances.
Open Green Space	Provision of open green space. Soft and hard landscaped areas at ground floor areas. External roof terraced areas will also be located on some of the flat roof, consisting of paved areas and planting. in accordance with Landscape Architect's selection and specification.	Facilitates interaction with outdoors, increasing health benefits.
Security	The scheme is designed to incorporate good passive surveillance with the following security strategies likely to be adopted: <ul style="list-style-type: none"> Secure bicycle storage areas for each apartment in the basement at grade in sheds plus visitor bicycle stands within the open space; CCTV for common areas; Routine access fob audits. 	Access to all residents to reduce the risk of crime, littering within the scheme and reduction of potential waste charges.
Natural Amenity	A number of permeable play and open spaces edged with rich planting schemes are proposed throughout the development, connecting pedestrian desire lines.	Facilitates community interaction, socializing and play – resulting in improved wellbeing.

2.8 Transport and Accessibility

Measure	Description	Benefit
<p>Access to Public Transport.</p>	<p>The project is situated adjacent to regional road R828, which is a two-way three-lane road with footpaths on both sides of the road.</p> <p>Two new site entrances are proposed to serve the development from the R828. A new entrance shall be constructed to the North to replace the existing access route to the adjacent buildings; this will also facilitate vehicular access to the new onsite ESB substation. A second new entrance from R828 shall provide access to the basement and onsite car parking, as per the architectural site plan.</p> <p>The development will be well served by public transport, with Dublin Bus Routes 4, 63 and 63A stopping on nearby Monkstown Road, 350m from the development. Stops for bus routes 7B and 7D are located approximately 550m from the development at Grange grove/Rockford Park.</p> <p>Blackrock rail station is located approximately 2km from the site entrance.</p>	<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.</p>

<p>Permeable Connections</p>	<p>There is provision of dedicated pedestrian and cycle infrastructure within the site. The R828 is subject to a speed limit of 50kph with street lighting available along the route. The route includes pedestrian facilities along its length.</p> <p>Entrances and exits from the development will connect with existing paths to provide convenient access to local services and amenities in the Blackrock area.</p>	<p>Ensures long-term attractiveness of walking and cycling to a range of local facilities.</p> <p>This strong infrastructure ensures that there will be a balance of transport modes used by future residents of the proposed development.</p>
<p>Bicycle Storage</p>	<p>The provision of private secure & covered bicycle parking facilities for the apartments, together with abundant parking within the public open space.</p>	<p>Accommodates the uptake of cycling and reducing the reliance on the private motor vehicle.</p>

2.9 Management

Measure	Description	Benefit
Residents Manual	<p>Resident instructions will be provided which will include:</p> <ul style="list-style-type: none"> • Operation and maintenance manual – this will provide important information for the occupier on details of their rented 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 Resident’s Pack which will typically provide information on contact details such as 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.

APPENDIX A – SITE PLAN AND GROUND FLOOR LAYOUT:





APPENDIX B – LANDLORD MAINTENANCE ITEMS

Items Included Typically under Landlord Maintenance

Ref	Element	Life Expectancy (Years)	Cost
1.0	Roofs		
1.1	Replacement of flat roof covering including insulation to warm roof build ups.	20 (40 for tiled roofs)	
1.2	Replacement parapet details	20	
1.3	Replacement/ repairs to facias	20	
2.0	Elevations		
2.1	Repairs & preparation for decorations of rendered areas	20	
2.2	Replace exit/ entrance doors	25	
2.3	Replace rainwater goods	25	
2.4	Recoat powder coated finishes to balconies	15	
2.5	Periodic replacement and overhauling of external fixings	5	
2.6	Replace balcony floor finishes	25	
3.0	Stair Cores and Lobbies		
3.1	Decorate ceilings & walls (stairwells & lobbies)	2	
3.2	Decorate Joinery (stairwells & lobbies)	2	
3.3	Replace fire doors (stairwells & lobbies)	25	
3.4	Replace carpets (stairwells & lobbies)	10	
3.5	Replace entrance mats (stairwells & lobbies)	10	
3.6	Replace nosings (stairwells)	10	
3.7	Replace ceramic floors tiles (stairwells & lobbies)	20	
3.8	Fixed Furniture & Equipment (Provisional Sum)	18	

4.0	M&E Services		
4.1	General - Internal re-lamping (stairwells & lobbies)	5	
4.2	Replace Internal light fittings (stairwells & lobbies)	15	
4.3	Replace external light fittings (at entrance lobbies)	15	
4.4	Replace smoke detector heads	18	
4.5	Replace manual break glass units/ disabled refuge call points	18	
4.6	Replace fire alarm panel	18	
4.7	Replace AOV's	25	
4.8	Replace security access control installation	15	
4.9	External mains water connection	20	
4.10	Electrical mains and sub mains distribution.	20	
4.11	Emergency lighting	20	
4.12	Overhaul and/or replace waste pipes, stacks & vents	20	
4.13	Replacement of Boilers & CHP	20	
4.14	Replacement of Heat Recovery Ventilation Units	20	
4.15	Replacement of Pipework Distribution	30	
5.0	Exterior		
5.1	External boundary treatments - recoat powder coated finishes to railings	40	
5.2	Replace external signage	15	
5.3	Replace cobble-lock areas	20	
5.4	15-year cutback & thinning of trees & general overhaul of the landscaping	15	
5.5	Replace CCTV provision	10	
5.6	External handrails and balustrade	15	
5.7	Replace Bicycle Stands	25	

APPENDIX C – FABRIC REQUIREMENTS – BUILDING REGULATIONS PART L

Fabric Elements	2018 Part L (NZEB)
Pitched Roof	0.16
Flat Roof	0.20
Walls	0.18
Ground Floors	0.18
Other Exposed Floors	0.18
External Personnel Doors, Windows and Rooflights	1.4

Table 1: Maximum elemental U-value (W/m²K) for development

APPENDIX D – PHASES OF THE LIFE CYCLE BS7543:2015

