

ARDAROSTIG SHD – PROPOSED RESIDENTIAL DEVELOPMENT

Ardarostig, Waterfall Road, Bishopstown, Co. Cork

BUILDING LIFE CYCLE REPORT



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1.0. INTRODUCTION

Aramark Property were instructed by Ardstone Homes Limited, to provide a Building Lifecycle Report for their proposed residential scheme at Ardarostig, located at Waterfall Road, Bishopstown, Co. Cork.

The purpose of this report is to provide an initial 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 to effectively manage and reduce costs for the benefit of the residents. This is achieved by producing a Building Lifecycle Report.

This Building Lifecycle Report has been developed on foot of the revised guidelines for Sustainable Urban Housing: Design Standards for New Apartments - Guidelines for Planning Authorities issued under Section 28 of the Planning and Development Act 2000 (as amended) December 2020. Within the new guidelines, new guidance is being provided on residential schemes.

Section 6.13 of the Operation and Management of Apartment Development Guidelines (December 2020) requires that:

“planning applications for apartment development 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.”

2.0. DESCRIPTION OF DEVELOPMENT

The development will principally consist of:

The construction of a mixed-use residential development of 276 no. residential units with ancillary single storey crèche (271 sq. m), café (147 sq. m), landscaping, road improvements, pedestrian / cycleway and associated site development works.

The proposed development makes provision for 137 houses comprising of 40 no. 2-storey 3-bedroom semi-detached, 12 no. 2-storey 3-bedroom detached, 56 no. 2-storey 3-bedroom terraced, 14 no. 2-storey 4-bedroom semi-detached and 15 no. 3-storey 4-bedroom terraced. The proposed development includes 139 no. apartments / duplexes to be provided as follows:

- Block 1 (11 no. 1-bedroom & 7 no. 2-bedroom over 4 storeys),
- Block 2 (11 no. 1-bedroom & 7 no. 2-bedroom over 4-storeys),
- Block 3 (10 no. 1-bedroom & 8 no. 2-bedroom over 4-storeys),
- Block 4 (10 no. 1-bedroom & 8 no. 2-bedroom over 4-storeys),
- Block 5 (12 no. 1-bedroom & 15 no. 2-bedroom over 5 storeys),
- Block F (16 no. 2-bedroom duplex apartments & 16 no. 3-bedroom duplex apartments over a 4-storey split level building)
- Block G (4 no. 2-bedroom duplex apartments, 4 no. 3-bedroom duplex apartments over 3 storeys).
- Apartment Block No. 5 makes provision for a café fronting Waterfall Road at ground floor level.

The proposed development will provide for a new vehicular access and pedestrian entrances onto Waterfall Road, a two-way cycle track and pedestrian footpath along the site frontage to Waterfall Road which will continue via the site, and to the rear of properties fronting onto Waterfall Road, to link to an existing shared surface pathway south of the N40, upgrades to this shared surface path to provide two-way cycle track and pedestrian footpath, upgrades to Waterfall Road to extend the existing pedestrian pathway to the subject lands, pelican crossing on Waterfall Road opposite The Rise/Halldene Villas junction (approximately 445 metres north east of the main development site), uncontrolled pedestrian crossing at the Audi Cork/Heiton Buckley entrance junction adjacent to N40 (approximately 370 metres north east of the main development site), infrastructure development works comprising the relocation/undergrounding of ESB powerlines, wastewater infrastructure upgrades, surface water attenuation, water utility services, public lighting, CCTV and all ancillary site development works.

3.0. EXECUTIVE SUMMARY – BUILDING LIFE CYCLE REPORT

Measures to effectively manage and reduce costs for the benefit of residents

The following document reviews the outline specification set out for the proposed residential scheme at Ardarostig, located at Waterfall Road, Bishopstown, Co. Cork and explores the practical implementation of the design and material principles which has informed design of building roofs, façades, internal layouts and detailing of the proposed development.

Building materials proposed for use on elevations and in the public realm achieve a durable standard of quality that will not need regular fabric replacement or maintenance outside general day to day care. The choice of high quality and long-lasting materials, as well as both soft and hardscape in the public, semi-public and private realm will contribute to lower maintenance costs for future residents and occupiers.

Please note that detailed specifications of building fabric and services have not been provided at this stage. This report reflects the outline material descriptions contained within John Fleming Architects' planning drawing pack.

For any elements where information was not available, typical examples have been provided of building materials and services used for schemes of this nature and their associated lifespans and maintenance requirements. All information is therefore indicative subject to further information at detailed design stage.

As the building design develops this document will be updated and a schedule will be generated from the items below detailing maintenance and replacement costs over the lifespan of the materials and development constituent parts in a summary document. This will enable a robust schedule of building component repair and replacement costs which will be available to the property management company so that running, and maintenance costs of the development are kept within the agreed Annual operational budget, this will take the form of a Planned Preventative Maintenance Schedule (PPM)* at operational commencement of the development.

**PPM under separate instruction*

4.0. EXTERNAL BUILDING FABRIC SCHEDULE

4.1. Roofing

4.1.1. Green Roofs (Manufacturer / Supplier TBC)

<i>Location</i>	Blocks 1 – 5 Selected Flat Roof Areas (maintenance access only)
<i>Description</i>	Extensive green roof system to engineer's specification.
<i>Lifecycle</i>	As used across the industry nationally and in the UK, long lifecycle typically achieved by robust detailing to adjoining roof elements, regular inspection and maintenance regime to ensure the upkeep of roofing product / materials.
<i>Required maintenance</i>	Quarterly maintenance visits to include inspection of drainage layer and outlets and removal of any blockages to prevent ponding. Inspection of vegetation layer for fungus and decay. Carry out weeding as necessary. No irrigation necessary with sedum blankets.
<i>Year</i>	Quarterly
<i>Priority</i>	Medium
<i>Selection process</i>	A green roof will add to the character of the overall scheme, as well as providing attenuation to storm water run-off and less burden on rainwater goods, increased thermal and sound insulation to the building and increased biodiversity. Natural soft finishes can provide visual amenity for residents where roof areas are visible or accessible from within areas of the scheme. Sedum roofs are a popular and varied choice for green roofs requiring minimal maintenance.
<i>Reference</i>	John Fleming Architects' planning drawings & Design Statement.

4.1.2. Roof Terraces (Manufacturer / Supplier TBC)

<i>Location</i>	Blocks 1 – 5 Selected Communal Terraces
<i>Description</i>	<ul style="list-style-type: none"> • Paving with light weight slabs on; • Patent pads on; • Cushion layer on; • Roof deck build up to architects' and engineers' instructions. As used across the industry nationally and the UK, typically longer lifecycle is achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Lifecycle</i>	Average lifecycle of 30 years. As used across the industry nationally and the UK, typically longer lifecycle is achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	Regular maintenance visits to include inspection of drainage outlets under decking and removal of any blockages. General repair works, watching out for displacement of slabs, mortar decay and removal of organic matter.
<i>Year</i>	Quarterly
<i>Priority</i>	Medium
<i>Selection process</i>	Paving slabs provide a robust and long-lasting roof terrace surface, requiring considerably less maintenance.
<i>Reference</i>	John Fleming Architects' planning drawings & Design Statement.

4.1.3. Pitched Roofs (Manufacturer / Supplier TBC)

<i>Location</i>	Type E & F Duplex Apartments Type A – E Houses
<i>Description</i>	Duplex – Selected Blue/Black Tiled Roof. House – Black Concrete Roof Tiles.
<i>Lifecycle</i>	Lifecycle of 80 -100 years for clay and concrete tiled roofs. As used across the industry nationally and in the UK, long lifecycle typically achieved by regular inspection and maintenance regime to ensure the upkeep of roofing tiles.
<i>Required maintenance</i>	Annual inspection internally and externally for slipped/cracked tiles, slates and flashings, leaks etc. Carry out localised repairs as required.
<i>Year</i>	Annual
<i>Priority</i>	Medium
<i>Selection process</i>	Clay and concrete tiles are chosen for its aesthetic qualities and are durable and long-lasting materials which few other roofing materials can achieve. Pitched roofs by design ensure run-off of rainwater and therefore, less deterioration to roofing materials.
<i>Reference</i>	John Fleming Architects' planning drawings & Design Statement.

4.1.4. Fall Arrest System for Roof Maintenance Access (Manufacturer / Supplier TBC)

<i>Location</i>	Blocks 1 – 5 Flat Roof Areas (maintenance access only)
<i>Description</i>	<ul style="list-style-type: none"> • Fall Protection System on approved anchorage device. • Installation in accordance with BS 7883 by the system manufacturer or a contractor approved by the system manufacturer.
<i>Lifecycle</i>	25-30 years dependent on quality of materials. Generally, steel finishes to skyward facing elements can be expected to maintain this life expectancy. As used across the industry nationally and the UK, long lifecycle is typically achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	Check and reset tension on the line as per manufacturer's specifications. Check all hardware components for wear (shackles, eye bolts, turn buckles). Check elements for signs of wear and/or weathering. Lubricate all moving parts. Check for structural damage or modifications.
<i>Year</i>	Annually
<i>Priority</i>	High
<i>Selection process</i>	Fall protection systems are a standard life safety system, provided for safe maintenance of roofs and balconies where there is not adequate parapet protection. Fall protection systems must comply with relevant quality standards.
<i>Reference</i>	N/A

4.1.5. Roof Cowls (Manufacturer / Supplier TBC)

<i>Location</i>	Blocks 1 – 5 Selected Flat Roof Areas
<i>Description</i>	Roof Cowl System to be supplied with weather apron for flat roofs.
<i>Lifecycle</i>	25-35 years. As used across the industry nationally and the UK, typically longer lifecycle is achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	Check fixings annually, inspect for onset of leading-edge corrosion if epoxy powder coat finish and treat.
<i>Year</i>	Annually
<i>Priority</i>	Low
<i>Selection process</i>	Standard fitting for roof termination of mechanical ventilation system.
<i>Reference</i>	N/A

4.1.6. Flashings (Manufacturer / Supplier TBC)

<i>Location</i>	All flashing locations
<i>Description</i>	Lead to be used for all flashing and counter flashings.
<i>Lifecycle</i>	Typical life expectancy of 70 years recorded for lead flashings. Recessed joint sealing will require regular inspections. Longer lifecycle achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	Check joint fixings for lead flashing, ground survey annually and close-up inspection every 5 years. Re-secure as necessary.
<i>Year</i>	Ground level inspection annually and close-up inspection every 5 years
<i>Priority</i>	Medium
<i>Selection process</i>	Lead has longest life expectancy of comparable materials such as copper (60 years) and zinc (50 years). Lead is easily formed into the required shapes for effective weathering of building junctions according to Lead Sheet Association details.
<i>Reference</i>	N/A

4.2. Rainwater Drainage (Manufacturer / Supplier TBC)

<i>Location</i>	All buildings
<i>Description</i>	<ul style="list-style-type: none"> • Rainwater outlets: Wade or equally approved suitable for specified roof membranes. • Pipework: Mixture of new cast aluminium and new uPVC to Engineer's design and specification. • Below ground drainage: To M&E/Civil Engineers design and specification. • Disposal: To surface water drainage to Civil Engineers design. • Controls: To M&E/Civil Engineers design and specification. • <i>Accessories</i>: allow for outlet gradings, spigots, downspout nozzle, hopper heads, balcony and main roof outlets.
<i>Lifecycle</i>	Metal gutters and downpipes have an expected life expectancy of 40 years in rural and suburban conditions (25 years in industrial and marine conditions), this is comparable to cast iron of 50 years and plastic, less so at 30 years. As used across the industry nationally and

	the UK, typically longer lifecycle is achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	As with roofing systems routine inspection is key to preserving the lifecycle of rainwater systems. Regular cleaning and rainwater heads and gutters, checking joints and fixings and regularly cleaning polyester coated surfaces (no caustic or abrasive materials).
<i>Year</i>	Annually, cleaning bi-annually
<i>Priority</i>	High
<i>Selection process</i>	As above, metal fittings compare well against cast iron (in terms of cost) and plastic (in terms of lifespan and aesthetic).
<i>Reference</i>	N/A

4.3. External Walls

4.3.1. Brick (Manufacturer / Supplier TBC)

<i>Location</i>	Façades – All Buildings
<i>Description</i>	Contrasting light and dark tone brickwork.
<i>Lifecycle</i>	Selected colour bricks have a high embodied energy, they are an extremely durable material. Brickwork in this application is expected to have a lifespan of 50-80 years. The mortar pointing however has a shorter lifespan of 25-50 years. Longer lifecycle achieved by regular inspection and maintenance regime.
<i>Required maintenance</i>	In general, given their durability, brickwork finishes require little maintenance. Most maintenance is preventative: checking for hairline cracks, deterioration of mortar, plant growth on walls, or other factors that could signal problems or lead to eventual damage.
<i>Year</i>	Annual
<i>Priority</i>	Low
<i>Selection process</i>	Aesthetic, lightweight, cost-efficient and low maintenance cladding option, indistinguishable from traditional brick construction.
<i>Reference</i>	John Fleming Architects' planning drawings & Design Statement.

4.3.2. Metal Cladding (Manufacturer / Supplier TBC)

<i>Location</i>	Blocks 1 – 5 Façades
<i>Description</i>	Slim vertical coloured metal panels and profiles between windows.
<i>Lifecycle</i>	Lifespan expectancy generally in excess of 50 years. As used across the industry nationally and the UK, typically longer lifecycle is achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	Metal cladding requires little maintenance and is resistant to corrosion. It can contribute to lower ongoing maintenance costs in comparison to exposed porous materials which may be liable to faster deterioration. Long term cleaning requirements should be taken into consideration.
<i>Year</i>	Inspection annually; cleaning 5 yearly
<i>Priority</i>	Low
<i>Selection process</i>	Selected cladding protects the building's structure from rainwater and weathering. Metal cladding systems are also chosen for their aesthetic impact, durability and weathering properties.
<i>Reference</i>	John Fleming Architects' planning drawings

4.3.3. Render

<i>Location</i>	Façades – All Buildings
<i>Description</i>	<ul style="list-style-type: none"> Selected Natural Render Finish (Blocks 1-5 and Duplexes). Painted Nap Plaster finish (Type A-E Houses).
<i>Lifecycle</i>	Renders in general are expected to have a lifecycle of circa 25 years. Longer lifecycle achieved by regular inspection and maintenance regime.
<i>Required maintenance</i>	Regular inspections to check for cracking and de-bonding. Most maintenance is preventative. Coloured render requires less maintenance than traditional renders.
<i>Year</i>	Annually
<i>Priority</i>	Medium
<i>Selection process</i>	Appropriate detailing will contribute to a long lifespan for this installation. Insulated render is a durable and low-maintenance finish with the added benefit of this product being BBA certified against other render systems.
<i>Reference</i>	John Fleming Architects' planning drawings & Design Statement.

4.4. External Windows & Doors

<i>Location</i>	Façades
<i>Description</i>	<ul style="list-style-type: none"> Selected coloured aluminium powder coated window frames. All units to be double/triple-glazed with thermally broken frames. All opening sections in windows to be fitted with suitable restrictors. Include for all necessary ironmongery; include for all pointing and mastic sealant as necessary; fixed using stainless steel metal straps screwed to masonry reveals; include for all bends, drips, flashings, thermal breaks etc.
<i>Lifecycle</i>	Aluminium has a typical lifespan of 45-60 years in comparison to uPVC which has a typical lifespan of 30-40 years. As used nationwide and in the UK, typically longer lifecycle is achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	Check surface of windows and doors regularly so that damage can be detected. Vertical mouldings can become worn and require more maintenance than other surface areas. Lubricate at least once a year. Ensure regular cleaning regime. Check for condensation on frame from window and ensure ventilation.
<i>Year</i>	Annual
<i>Priority</i>	Medium
<i>Selection process</i>	Aluminium is durable and low maintenance with an average lifespan of 45-60 years, exceeding uPVC (30-40 years).
<i>Reference</i>	John Fleming Architects' planning drawings & Design Statement.

4.5. Balconies

4.5.1. Structure

<i>Location</i>	Blocks 1 – 5 Façades
<i>Description</i>	<ul style="list-style-type: none"> Powder-coated steel frame balcony system to engineer's detail Thermally broken farrat plate connections to main structure of building.

<i>Lifecycle</i>	<ul style="list-style-type: none"> • Metal structure has a typical life expectancy of 70 years dependent on maintenance of components. <p>As used across the industry nationally and the UK, longer lifecycle is achieved by regular inspection and maintenance regime to ensure the upkeep of materials.</p>
<i>Required maintenance</i>	Relatively low maintenance required. Check balcony system as per manufacturer's specifications. Check all hardware components for wear. Check elements for signs of wear and/or weathering. Check for structural damage or modifications.
<i>Year</i>	Annual
<i>Priority</i>	High
<i>Selection process</i>	Engineered detail; designed for strength and safety.
<i>Reference</i>	N/A

4.5.2. Balustrades and Handrails

<i>Location</i>	Blocks 1 – 5 Balconies
<i>Description</i>	<ul style="list-style-type: none"> • Anthracite-Grey vertical balustrades and railings • Fixings in accordance with manufacturer's details.
<i>Lifecycle</i>	Generally metal items have a lifespan of 25-45 years. Longer lifecycle is achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	Annual visual inspection of connection pieces for impact damage or alterations.
<i>Year</i>	Annual
<i>Priority</i>	High
<i>Selection process</i>	Metal option will have a longer lifespan and require less maintenance than timber options (10-20 years).
<i>Reference</i>	N/A

5.0. INTERNAL BUILDING FABRIC SCHEDULE

5.1. Floors

5.1.1. Common Areas

<i>Location</i>	Entrance lobbies / Common corridors
<i>Description</i>	<ul style="list-style-type: none"> Selected anti-slip porcelain or ceramic floor tile complete with inset matwell. Selected loop pile carpet tiles.
<i>Lifecycle</i>	<ul style="list-style-type: none"> Lifespan expectation of 20-25 years in heavy wear areas, likely requirement to replace for modernisation within this period also. 10-15 year lifespan for carpet. Likely requirement to replace for modernisation within this period also.
<i>Required maintenance</i>	Visual inspection, intermittent replacement of chipped / loose tiles
<i>Year</i>	Annual
<i>Priority</i>	Low
<i>Selection process</i>	Durable, low maintenance floor finish. Slip rating required at entrance lobby, few materials provide this and are as hard wearing.
<i>Reference</i>	N/A

<i>Location</i>	Stairwells, landings / half landings
<i>Description</i>	Selected carpet covering. Approved anodised aluminium nosings to stairs.
<i>Lifecycle</i>	<ul style="list-style-type: none"> 10-15 year lifespan for carpet. Likely requirement to replace for modernisation within this period also. 20-year lifespan for aluminium nosings.
<i>Required maintenance</i>	Visual inspection with regular cleaning.
<i>Year</i>	Quarterly inspection and cleaning as necessary.
<i>Priority</i>	Low
<i>Selection process</i>	Using carpet allows flexibility to alter and change as fashions alter and change providing enhanced flexibility.
<i>Reference</i>	N/A

<i>Location</i>	Lift Lobbies
<i>Description</i>	Carpet/vinyl and porcelain tiles to match adjacent apartment and lobbies.
<i>Lifecycle</i>	<ul style="list-style-type: none"> Lifespan expectation of 20-30 years in heavy wear areas, likely requirement to replace for modernisation within this period also. 10-15 year lifespan for carpet. Likely requirement to replace for modernisation within this period also.
<i>Required maintenance</i>	Visual inspection, intermittent replacement of chipped / loose tiles.
<i>Year</i>	Annual
<i>Priority</i>	Low
<i>Selection process</i>	Slip rating required for lifts, few materials provide this and are as hard wearing.
<i>Reference</i>	N/A

5.2. Walls

5.2.1. Common Areas

<i>Location</i>	Entrance lobbies / Common Corridors
<i>Description</i>	Selected paint finish with primer to skimmed plasterboard
<i>Lifecycle</i>	2-10 years for finishes; 40 years for plasterboard. Longer lifecycle achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	Regular maintenance required and replacement when damaged.
<i>Year</i>	Bi-annually
<i>Priority</i>	Low
<i>Selection process</i>	Decorative and durable finish.
<i>Reference</i>	N/A

<i>Location</i>	Lobbies / corridors / stairs
<i>Description</i>	Selected paint finish with primer to skimmed plasterboard
<i>Lifecycle</i>	2-10 years for finishes; 40 years for plasterboard. Longer lifecycle achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	Regular maintenance required and replacement when damaged.
<i>Year</i>	Bi-annually
<i>Priority</i>	Low
<i>Selection process</i>	Decorative and durable finish.
<i>Reference</i>	N/A

5.3. Ceilings

<i>Location</i>	Common areas
<i>Description</i>	Selected paint finish with primer to skimmed plasterboard ceiling on M/F frame. Acoustic ceiling to lift core and apartment lobbies. Moisture board to wet areas.
<i>Lifecycle</i>	2-10 years for finishes; 40 years for plasterboard. Longer lifecycle achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	Regular maintenance required and replacement when damaged
<i>Year</i>	Bi-annually
<i>Priority</i>	Low
<i>Selection process</i>	Decorative and durable finish
<i>Reference</i>	N/A

5.4. Internal Handrails & Balustrades

<i>Location</i>	Stairs & landings
<i>Description</i>	Metal balustrade option
<i>Lifecycle</i>	25-30 years typical lifecycle. Longer lifecycle achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	Regular inspections of holding down bolts and joints
<i>Year</i>	Annually
<i>Priority</i>	High
<i>Selection process</i>	Hard-wearing long-life materials against timber options
<i>Reference</i>	N/A

5.5. Carpentry & Joinery

5.5.1. Internal Doors and Frames

<i>Location</i>	Common Areas
<i>Description</i>	<ul style="list-style-type: none"> Selected white primed and painted/varnished solid internal doors, or hardwood veneered internal doors All fire rated doors and joinery items to be manufactured in accordance with B.S. 476. Timber saddle boards. Brushed aluminium door ironmongery or similar
<i>Lifecycle</i>	30 years average expected lifespan. Longer lifecycle achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	General maintenance in relation to impact damage and general wear and tear
<i>Year</i>	Annual
<i>Priority</i>	Low, unless fire door High
<i>Selection process</i>	Industry standard
<i>Reference</i>	N/A

5.5.2. Skirtings & Architraves

<i>Location</i>	All buildings
<i>Description</i>	Painted timber/MDF skirtings and architraves
<i>Lifecycle</i>	30 years average expected lifespan. Longer lifecycle achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	General maintenance in relation to impact damage and general wear and tear
<i>Year</i>	Annual
<i>Priority</i>	Low
<i>Selection process</i>	Industry standard
<i>Reference</i>	N/A

5.5.3. Window Boards

<i>Location</i>	All buildings
<i>Description</i>	Painted timber/MDF window boards
<i>Lifecycle</i>	30 years average expected lifespan. Longer lifecycle achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	General maintenance in relation to impact damage and general wear and tear
<i>Year</i>	Annual
<i>Priority</i>	Low
<i>Selection process</i>	Industry standard
<i>Reference</i>	N/A

BUILDING SERVICES

5.6. Mechanical Systems

5.6.1. Mechanical Plant Apartments

<i>Location</i>	Apartment Plant Area
<i>Description</i>	Water Heating plant is proposed to consist primarily of Exhaust Air Heat Pumps with back up heater. Full specification to be further details to be provided by the M&E Consultant at detailed design stage.
<i>Lifecycle</i>	<ul style="list-style-type: none"> • Annual Maintenance Exhaust Air Heat Pumps, Hot Water Heat Pump • Annual Maintenance / Inspection to Pumps. • Annual Maintenance / Inspection to Water Tanks. • Annual Maintenance / Inspection to Water Booster - sets. • Annual Maintenance / Inspection to DHS Tanks. • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage. • Replacement of equipment at (End of Life) EOL to be determined at detailed design stage.
<i>Required maintenance</i>	Annual Service Inspections to be included as part of Development Planned Preventative Maintenance Programme
<i>Year</i>	Annually
<i>Priority</i>	Medium
<i>Selection process</i>	All equipment to be detailed as part of the detailed design section of the development. This equipment will be selected in conjunction with the design and management team to meet and exceed the CIBSE recommended lifecycles.
<i>Reference</i>	N/A

5.6.2. Mechanical Plant Duplexes

<i>Location</i>	Duplex Plant Area
<i>Description</i>	Water Heating plant is proposed to consist primarily of Exhaust Air Heat Pumps with back up heater. Full specification to be further details to be provided by the M&E Consultant at detailed design stage.
<i>Lifecycle</i>	<ul style="list-style-type: none"> • Annual Maintenance Exhaust Air Heat Pumps, Hot Water Heat Pump • Annual Maintenance / Inspection to Pumps. • Annual Maintenance / Inspection to Water Tanks. • Annual Maintenance / Inspection to Water Booster - sets. • Annual Maintenance / Inspection to DHS Tanks. • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage. • Replacement of equipment at (End of Life) EOL to be determined at detailed design stage.

<i>Required maintenance</i>	Annual Service Inspections to be included as part of Development Planned Preventative Maintenance Programme
<i>Year</i>	Annually
<i>Priority</i>	Medium
<i>Selection process</i>	All equipment to be detailed as part of the detailed design section of the development. This equipment will be selected in conjunction with the design and management team to meet and exceed the CIBSE recommended lifecycles.
<i>Reference</i>	N/A

5.6.3. Soils and Wastes

<i>Location</i>	All Areas
<i>Description</i>	PVC Soils and Wastes Pipework
<i>Lifecycle</i>	<ul style="list-style-type: none"> • Annual inspections required for all pipework within landlord areas. • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Required maintenance</i>	Annual Service Inspections to be included as part of Development Planned Preventative Maintenance Programme
<i>Year</i>	Annually
<i>Priority</i>	Medium
<i>Selection process</i>	All equipment to be detailed as part of the detailed design section of the development. This equipment will be selected in conjunction with the design and management team to meet and exceed the CIBSE recommended lifecycles.
<i>Reference</i>	N/A

5.6.4. Water Services

<i>Location</i>	All Areas
<i>Description</i>	EAHP for domestic Hot Water Copper Water Services Pipework and associated fittings and accessories.
<i>Lifecycle</i>	<ul style="list-style-type: none"> • Annual Inspection of EAHP and Cylinder • Annual inspections required for all pipework within landlord areas. • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Required maintenance</i>	Annual Inspections, including legionella testing to be included as part of Development Planned Preventative Maintenance Programme
<i>Year</i>	Annually
<i>Priority</i>	High
<i>Selection process</i>	All equipment to be detailed as part of the detailed design section of the development. This equipment will be selected in conjunction with the design and management team to meet and exceed the CIBSE recommended lifecycles.
<i>Reference</i>	N/A

5.6.5. Ventilation Services

<i>Location</i>	All Areas
<i>Description</i>	Centralised Mechanical Extract Ventilation System (MEV) Ducting & Grilles
<i>Lifecycle</i>	<ul style="list-style-type: none"> • Annual inspection of MEV and grilles • Annual Inspection of operation of fan and boost / setback facility. • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Required maintenance</i>	Annual Service Inspections to be included as part of Development Planned Preventative Maintenance Programme
<i>Year</i>	Annually
<i>Priority</i>	Medium
<i>Selection process</i>	All equipment to be detailed as part of the detailed design section of the development. This equipment will be selected in conjunction with the design and management team to meet and exceed the CIBSE recommended lifecycles.
<i>Reference</i>	N/A

5.7. Electrical / Protective Services

5.7.1. Electrical Infrastructure

<i>Location</i>	Switch Rooms / Risers
<i>Description</i>	Maintenance of Electrical Switchgear
<i>Lifecycle</i>	<ul style="list-style-type: none"> Annual Inspection of Electrical Switchgear and switchboards. Thermographic imaging of switchgear 50% of MV Switchgear Annually and LV switchgear every 3 years. Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Required maintenance</i>	Annual / Every three years to be included as part of Development Planned Preventative Maintenance Programme
<i>Year</i>	Annually
<i>Priority</i>	High
<i>Selection process</i>	All equipment to meet and exceed ESB, ETCl, CIBSE recommendations and be code compliant in all cases.
<i>Reference</i>	N/A

5.7.2. Lighting Services Internal

<i>Location</i>	All Areas – Internal
<i>Description</i>	Lighting – LED throughout with Presence detection in circulation areas and locally controlled in apartments.
<i>Lifecycle</i>	<ul style="list-style-type: none"> Annual Inspection of All Luminaires Quarterly Inspection of Emergency Lighting. Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Required maintenance</i>	Annual / Quarterly Inspections certification as required per above remedial works.
<i>Year</i>	Annually / Quarterly
<i>Priority</i>	High
<i>Selection process</i>	All equipment to meet requirements and be in accordance with the current IS3217, Part M and DAC Requirements.
<i>Reference</i>	N/A

5.7.3. Lighting Services External

<i>Location</i>	All Areas – External
<i>Description</i>	Lighting – All LED with Vandal Resistant Diffusers where exposed.
<i>Lifecycle</i>	<ul style="list-style-type: none"> Annual Inspection of All Luminaires Quarterly Inspection of Emergency Lighting Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Required maintenance</i>	Annual / Quarterly Inspections certification as required as per the PPM schedule.
<i>Year</i>	Annually / Quarterly
<i>Priority</i>	High
<i>Selection process</i>	All equipment to meet requirements and be in accordance with the current IS3217, Part M and DAC Requirements.
<i>Reference</i>	N/A

5.7.4. Protective Services – Fire Alarm – Apartments Only

<i>Location</i>	All Areas – Internal
<i>Description</i>	Fire alarm
<i>Lifecycle</i>	<ul style="list-style-type: none"> Quarterly Inspection of panels and 25% testing of devices as per IS3218 requirements. Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Required maintenance</i>	Annual / Quarterly Inspections certification as required as per the PPM schedule.
<i>Year</i>	Annually / Quarterly
<i>Priority</i>	High
<i>Selection process</i>	All equipment to meet requirements and be in accordance with the current IS3218 and the Fire Cert
<i>Reference</i>	N/A

5.7.5. Protective Services – Fire Extinguishers – Apartment Only

<i>Location</i>	All Areas – Internal
<i>Description</i>	Fire Extinguishers and Fire Blankets
<i>Lifecycle</i>	Annual Inspection
<i>Required maintenance</i>	Annual with Replacement of all extinguishers at year 10
<i>Year</i>	Annually
<i>Priority</i>	Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Selection process</i>	All fire extinguishers must meet the requirements of I.S 291:2015 Selection, commissioning, installation, inspection and maintenance of portable fire extinguishers.
<i>Reference</i>	N/A

5.7.6. Protective Services – Apartment Sprinkler System

<i>Location</i>	Apartment
<i>Description</i>	Apartment Sprinkler System
<i>Lifecycle</i>	Weekly / Annual Inspection
<i>Required maintenance</i>	Weekly Check of Sprinkler Pumps and plant and annual testing and certification of plant by specialist.
<i>Year</i>	All
<i>Priority</i>	Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Selection process</i>	The Apartment sprinkler system shall be installed in accordance with BS 9251:2005 – Sprinkler Systems for Residential and Domestic Occupancies – Code of Practice
<i>Reference</i>	N/A

5.7.7. Protective Services – Dry Risers - Apartment Only

<i>Location</i>	Common Area Cores
<i>Description</i>	Dry Risers
<i>Lifecycle</i>	Weekly / Annual Inspection
<i>Required maintenance</i>	Visual Weekly Checks of Pipework and Landing Valves with Annual testing and certification by specialist.
<i>Year</i>	
<i>Priority</i>	Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Selection process</i>	The system shall be installed in accordance with BS 5041 & BS 9999
<i>Reference</i>	N/A

5.7.8. Fire Fighting Lobby Ventilation (To Fire Consultants Design and Specification)

<i>Location</i>	Common Area Lobbies
<i>Description</i>	Smoke Extract / Exhaust Systems
<i>Lifecycle</i>	<ul style="list-style-type: none"> • Regular Tests of the system • Annual inspection of Fans • Annual inspection of automatic doors and AVOs • All systems to be backed up by life safety systems.
<i>Required maintenance</i>	Annual Service Inspections to be included as part of Development Planned Preventative Maintenance Programme
<i>Year</i>	Weekly / Annually
<i>Priority</i>	Medium
<i>Selection process</i>	All equipment to be detailed as part of the detailed design section of the development. This equipment will be selected in conjunction with the design and management team to meet and exceed the CIBSE recommended lifecycles.
<i>Reference</i>	N/A