

Building Lifecycle Report

Castlelake SHD, Carrigtwohill, Co.
Cork
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1.0 INTRODUCTION

BAM FM (on behalf of BAM Property Ltd.) were instructed to provide a Building Lifecycle Report for the proposed Castl lake SHD, Carrigtwohill, 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 consist of the construction of a strategic housing development of 716 no. units and a 2 no. storey creche. The proposed development comprises 224 no. houses, 284 no. duplex units and 208 no. apartments. The two storey houses comprise 48 no. detached, 126 no. semi-detached and 50 no. terraced Houses containing 60 no. two bed units, 139 no. three bed units and 25 no. four bed units. The part-one to part-three storey duplex units are contained in 122 no. buildings providing 82 no. one bed units, 142 no. two bed units and 60 no. three bed units. There are 7 no. apartments blocks ranging in height from part-1 to part- 5 no. storeys.

- Block 1 is 4 no. storeys and contains 34 no. units (7 no. one bed units, 19 no. two bed units and 8 no. three bed units).
- Block 2 is part-1 to part-5 no. storeys and contains 42 no. units (15 no. one bed units, 20 no. two bed units and 7 no. three bed units).
- Block 3 is 5 no. storeys and contains 17 no. units (8 no. one bed units and 9 no. two bed units).
- Block 4 is 4 no. storeys and contains 13 no. units (6 no. one bed units and 7 no. two bed units).
- Block 5 is 4 no. storeys and contains 13 no. units (6 no. one bed units and 7 no. two bed units).
- Block 6 is 4 no. storeys and contains 13 no. units (6 no. one bed units and 7 no. two bed units).
- Block 7 is 5 no. storeys over basement and contains 76 no. units (23 no. one bed units, 41 no. two bed units and 12 no. three bed units).
- All blocks contain ancillary internal and external resident amenity space.

The proposed development also provides for: hard and soft landscaping; boundary treatments; public realm works; car parking; bicycle stores and shelters; bin stores; lighting; plant rooms; and all ancillary site development works above and below ground. The application site is positioned to the north-west of the centre of Carrigwohill comprised of a series of land parcels with a combined area of 18.3 hectares.

The site lies north of the N25 motorway corridor and has both road frontage and main vehicular access road connections onto Station Road with two underpasses constructed along the northern boundary of the site to accommodate future development lands. Access to the development will be via the existing main distributor road system in Castl lake to the south-west, Station Road to the east and the planned connector roads between these and the underpass to the north. To the south of the application site are Castl lake Park. To the west is existing Castl lake housing adjoining the western boundary of this application.

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 Strategic Housing Development (SHD) at Carrigtwohill, 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 Wilson Architects planning drawings and Materials & Finishes Report.

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 Roof – (Manufacturer / Supplier TBC)

Roofing(manufacturer /supplier TBC)

Location	Selected flat roof areas (maintenance access only)
<i>Description</i>	Kingspan Thermaroom built up roof to engineers specification
<i>Lifecycle</i>	Average lifecycle 15-25 years on most membrane roofs. Lifecycle will be extended with robust proven detailing to adjoining roof elements and appropriate and regular maintenance.
<i>Required Maintenance</i>	Every 6 months – visual inspection and removal of any build ups
<i>Year</i>	Every 6 months
<i>Priority</i>	Medium
<i>Selection Process</i>	System roof that provides durability, material availability, warranty and can be maintained easily.

Location	Duplex and Houses
<i>Description</i>	Concrete tiled roof
<i>Lifecycle</i>	Lifecycle of 80 years for concrete tiled roofs.
<i>Required Maintenance</i>	Every 6 months – visual inspection and removal of any build ups
<i>Year</i>	Every 6 month – 12 months
<i>Priority</i>	Low
<i>Selection Process</i>	High aesthetic qualities, durable, tried and tested solution

Location	Selected flat roof areas
<i>Description</i>	Roof cowls with weathering apron
<i>Lifecycle</i>	25-35 years
<i>Required Maintenance</i>	Check annually as part of roof inspection – check fixings
<i>Year</i>	Once every year
<i>Priority</i>	Low
<i>Selection Process</i>	Industry standard cowl, tried and tested

Location	Flat Roof Balconies
<i>Description</i>	Concrete Paving Slabs on proprietary pedestals on polymer Modified Bitumen Waterproofing Membranes
<i>Lifecycle</i>	15-25 years
<i>Required Maintenance</i>	Check annually
<i>Year</i>	Once every year
<i>Priority</i>	Low
<i>Selection Process</i>	Long life expectancy, finish can take paving over

Location	All
<i>Description</i>	Lead to be used for flashings to roofs
<i>Lifecycle</i>	Typical life expectancy of 75 years once regularly inspected for cracks/repairs
<i>Required Maintenance</i>	Check joints for any visible cracks. Ground level survey yearly.
<i>Year</i>	Once every year
<i>Priority</i>	Low
<i>Selection Process</i>	Lead has a proven life expectancy for flashings at junctions and excellent weathering qualities.

Location	Flat Roof (Extensive Green Roof)
<i>Description</i>	Green Roof System with Polymer Modified Bitumen Waterproofing Membranes and selected Planting
<i>Lifecycle</i>	Average lifecycle 15-25 years on most membrane roofs. Lifecycle will be extended with robust proven detailing to adjoining roof elements and appropriate and regular maintenance. Ensure outlets are free.
<i>Required Maintenance</i>	Every 6 months – visual inspection and removal of any build ups
<i>Year</i>	Every 6 months
<i>Priority</i>	Medium
<i>Selection Process</i>	System roof that provides durability, material availability, warranty and can be maintained easily

<i>Location</i>	All
<i>Description</i>	Rainwater Drainage – outlets & pipework – mix of cast aluminium and Upvc elements
<i>Lifecycle</i>	Outlets to flat roofs need to be inspected and cleared of debris every 6 months. External gutters and outlets need to be inspected and cleared of debris every 12 months
<i>Required Maintenance</i>	As above
<i>Year</i>	As above
<i>Priority</i>	Medium
<i>Selection Process</i>	To suit roof type using tried and tested systems for each application.

4.2 External Walls

4.2.1 Brick (Manufacturer / Supplier TBC)

All Buildings

Location	External Walls - Brick
<i>Description</i>	Contrasting light & 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.

4.2.2 Render ((Manufacturer / Supplier TBC)

Location	External Walls - Render
<i>Description</i>	Contrasting Natural Render Finish
<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>	Annual
<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.

4.2.3 Metal Cladding (Manufacturer / Supplier TBC)

Location	External Walls
<i>Description</i>	<p>Powder Coated Aluminium Standing Seam Cladding –</p> <ul style="list-style-type: none"> Selected colour PPC aluminium cladding system to wall and canopy projection feature (Townhouse Entrances). PPC aluminium capping on galvanised metal straps (Parapet and Balcony).
<i>Lifecycle</i>	Lifespan expectancy generally in excess of 40 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>	Selected cladding and material require 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.

4.7 External Windows & Doors (Manufacturer / Supplier TBC)

All Buildings

Location	Façades
<i>Description</i>	<ul style="list-style-type: none"> Selected uPVC and aluminium window and door frames to approved colour. All units to be double-glazed with thermally efficient framework. All opening sections in windows to be fitted with suitable restrictors. <p>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.</p>
<i>Lifecycle</i>	uPVC 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. Aluminium windows have a similar lifespan.

<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>	uPVC and aluminium are durable, energy efficient, sound-proof, resistant to corrosion and require low maintenance.

4.8 Balconies

Location	All buildings
<i>Description</i>	<ul style="list-style-type: none"> • Cantilevered and recessed precast concrete balcony system to engineer's details. • Concrete to concrete connectors' to main structure of building to engineer's detail.
<i>Lifecycle</i>	Precast concrete structures have a high embodied energy; however, it is an extremely durable material. Concrete frame has a typical life expectancy of 80 years. 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.
<i>Required Maintenance</i>	Relatively low maintenance required. Check balcony system as per manufacturer's specifications. 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.

4.9 Balustrades and Handrails (Manufacturer / Supplier TBC)

All Buildings

Location	All Buildings
<i>Description</i>	Painted Galvanised Steel Balustrade with Galvanised Steel Handrails.
<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).

Section 5: Internal Building Fabric Schedule

Apartments

5.1 Floor

Common Areas / Communal Amenity Spaces

Location	Apartment – 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. 10–15year 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.

Location	Apartment – Stairwells, landings / half landings
<i>Description</i>	Selected carpet covering. Approved anodised aluminium nosing's 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 nosing's.
<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.

Location	Communal Amenity Spaces Entrance Areas
<i>Description</i>	Entrance Matting
<i>Lifecycle</i>	10-15 year lifespan for entrance matting. Likely requirement to replace for modernisation within this period also.
<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>	Robust, Durable & Aesthetically Pleasing.
<i>Location</i>	Communal Amenity Spaces Entrance Areas
<i>Description</i>	Anti-Slip loose lay vinyl floor covering
<i>Lifecycle</i>	10-15 year lifespan for flooring. Likely requirement to replace for modernisation within this period also.
<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>	Robust, Durable & Aesthetically Pleasing.

5.2 Walls

Common Areas / Communal Amenity Spaces

Location	Apartment – 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.

Location	Apartment – 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.

5.3 Ceilings

Common Areas / Communal Amenity Spaces

Location	Apartment – 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

5.4 Internal Handrails & Balustrades

Common Areas

Location	Apartment – 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

5.6 Internal Doors and Frames

Common Areas & Communal Amenity Spaces

Location	Apartment – 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

5.7 Skirting & Architrave

Common Areas & Communal Amenity Spaces

Location	Apartment
<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

5.8 Window Boards

Common Areas & Communal Amenity Spaces

Location	Apartment
<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

