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Strategic Housing Development (Student Accommodation),
Wilton Road, Bishopstown, Cork

Bellmount Developments Ltd.

Building Life Cycle Report

19 July 2022



Quality Information

Project Title:	Strategic Housing Development (Student Accommodation), Wilton Road, Bishopstown, Cork
Project no.:	21125
Document title:	Building Lifecycle Report
Document no.:	-
Rev.:	A
Series:	Planning
Prepared by:	PB
Checked by:	LC
Date:	19 July 2022

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Butler Cammoranesi architects
6 George's Quay, Cork City, T12 Y38A
T +353 21 2417273 \ E info@butlercammoranesi.ie
butlercammoranesi.ie

Butler Cammoranesi architects Ltd.
Registered in Ireland. Reg. No.: 568136
Registered office: 6 George's Quay, Cork City
Directors: Paul Butler, Lorenzo Cammoranesi





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Disclaimer

This Building Lifecycle report provides information which is indicative and subject to change following further review when a more detailed specification of scope of works becomes available. It is intended that this study would form the basis of pre-application discussions with the planning department and other relevant authorities.



1.0 Introduction

The *Sustainable Urban Housing: Design Standards for New Apartments – Guidelines for Planning Authorities* were published in March 2018 (hereafter referred to as the Apartment Guidelines). The Apartment Guidelines introduced a requirement to include details on the management and maintenance of apartment schemes. This is set out in Section 6.11 to 6.14 – “*Operation & Management of Apartment Developments*”, specifically Section 6.13.

Section 6.13 of the Apartments Guidelines 2018 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, as well as demonstrating what measures have been specifically considered by the proposer to effectively manage and reduce costs for the benefit of residents.”

This Building Life Cycle Report document sets out to address the requirements of Section 6.13 of the Apartment Guidelines – the report is in two sections as follows:

Section 01

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

Section 02

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



2.0 Proposed Development (Description)

The proposed development for a Strategic Housing Development (Student Accommodation) at Wilton Road, Bishopstown, Cork comprising:

1. The demolition of existing structures on site; and
2. The construction of 78 no. student accommodation apartments (ranging in size from single bed studio apartments to 8-bed apartments) comprising a total of 206 no. bed spaces in 1 no. 6 storey block;
3. Student amenity facilities including a study area, games room, lounge space, laundry room and server/ICT room;
4. The provision of landscaping and amenity areas including a courtyard space (including modifications to the external amenity area of the student accommodation scheme permitted under An Bord Pleanála Ref. 19/38385), 1 no. rooftop terrace and a riverfront amenity incorporating a pedestrian and cycle path accessing onto Ashbrook Heights and Orchard Road;
5. The provision of a set down area, 1 no. access point (for emergency vehicles only), footpaths and repositioned pedestrian crossing and associated tactile paving on Orchard Road;
6. The provision of a new junction build out at the junction of Orchard Road and Victoria Cross Road;
7. The provision of footpaths and landscaped areas along Victoria Cross Road; and
8. All associated ancillary development including pedestrian/cyclist facilities, lighting, drainage, boundary treatments, bin and bicycle storage and plant at ground and roof top levels.



3.0 Section 01

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

3.1 Property Management Company

Bellmount Developments Ltd. have considered the long-term running costs for residents (students) and maintenance costs for the operators from the commencement of the design process, with the aim to manage and minimise potential unnecessarily high running costs for expenditure on a per residential unit basis. This exercise is a result of learning from previously undertaken residential projects and the application of changes in the standards arising from the new apartment guidelines. For this report the Student Residence will be considered as per a Build-to-Rent and Shared Accommodation scheme, where there is a commercial entity owning or operating and maintaining the development.

6.14 The Multi-Unit Developments Act, 2011 (MUD Act) sets out the legal requirements regarding the management of apartment developments. In this regard it is advised that when granting permission for such developments planning authorities attach appropriate planning conditions that require:

- *Compliance with the MUD Act,*
- *Establishment of an Owners Management Company (OMC) and:*
- *Establishment and ongoing maintenance of a sinking fund commensurate with the facilities in a development that require ongoing maintenance and renewal.*

6.15 Build-To-Rent and Shared Accommodation schemes, where there is a commercial entity owning, or operating and maintaining the development, may by their nature have different arrangements and obligations. Planning authorities should provide planning conditions for such developments which ensure the provision of appropriate management and maintenance structures including for the scenario where the BTR nature of a development is altered following specified period under SPPR 7(a) above.

3.2 Service Charge Budget

The property management company (PMC) has a number of key responsibilities for the development for agreement with the development owners. There would typically be a service charge budget in multi-unit developments to cover items such as cleaning, landscaping, refuse management, utility bills, insurance, maintenance of mechanical/electrical lifts/ life safety systems, security, property management fee, etc, to the development common areas in accordance with the Multi Unit Developments Act 2011 ("MUD" Act); With Build-to-Rent, this is required to be undertaken by management instead.

3.3 Sinking Fund

It is expected that a sinking fund allowance will account for future major maintenance and upgrade costs. A 10 year Planned Preventative Maintenance (PPM) strategy will determine the level of sinking fund required.



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



4.0 Section 02

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

The following is an indication of the energy saving measures that are planned for all units to assist in reducing day to day running costs for occupants:

4.1 Building Design

The building has been designed in accordance with the building regulations and particular measures have been implemented at the early stage of design to reduce potential costs for the effective functioning of the completed development. Some of these specific design measures include the following

Measure	Description	Benefit
Site Specific Location	The site is an under utilised brown field site in an inner urban location in close proximity to University College Cork. The site sits within an area of high density student accommodation development.	<p>The proposed building makes better and more sustainable use of brown field land.</p> <p>The site location will promote more sustainable forms of transport between third level institutions and students place of residence.</p> <p>Student accommodation within an already established student use will be less disruptive on adjoining uses.</p>
Internal circulation areas have been minimised	2no. stair cores are provided.	Minimises the number of access lifts, maximises the use of space, avoids unnecessary expense in cleaning and renewal of finishes.
Dual aspect design where possible.	Cluster apartments are designed to be dual aspect where possible.	Increased access to natural daylight and ventilation.
Daylighting to units	Where possible, as outlined in ' <i>Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning</i>	Reduces the requirement for continuous daylighting,



	<p><i>Authorities (March 2018) to have regard for quantitative performance approaches to daylight provisions 'outlined in guides like the BRE guide 'Site Layout Planning for Daylight and Sunlight'(2nd edition) or BS 8206-2: 2008 – 'Lighting for Buildings – Part 2:Code of Practice for Daylighting' when undertaken by development proposers which offer the capability to satisfy minimum standards of daylight provision'.</i></p>	and reduces costs assoc. with artificial lighting.
Daylighting to circulation areas		Reduces the requirement for continuous daylighting
External Lighting	<p>External lighting will comply with the latest standards and achieve:</p> <ul style="list-style-type: none"> • Low level lighting • Utilise low voltage LED lamps • Minimum upward light spill • Be pre-approved by / in accordance with City Council requirements <p>Each light fitting is to be controlled via an individual Photoelectric Control Unit (PECU). The operation of the lighting shall be on a dusk-dawn profile.</p>	Lighting will be designed to achieve required standards, provide a safe environment for pedestrians, cyclists, vehicular traffic, provide surveillance and limit the impact on the artificial lighting on surrounding existing flora and fauna.

4.2 Landscape

Measure	Description	Benefit
Site Layout & landscaping design	<p>High quality landscaping selected from a tried and tested palette of attractive and hard wearing materials.</p> <p>Refer to Landscape Design Rational report prepared by Cathal O'Meara Landscape Architects.</p>	Minimum ongoing maintenance associated with the choice of materials.
Paving and Decking materials	Use of robust high-quality durable materials and detailing.	Ensure longevity of materials.



4.3 Energy and Carbon Emissions

By taking due consideration of the energy and carbon emissions associated with the proposed development it will be possible to reduce the overall impact of the development on the environment, whilst reducing unit running costs for residents. Measures taken, in particular in relation to the construction stage include the following:

Measure	Description	Benefit
Fabric Energy Efficiency	<p>Building Fabric Performance – U-Values Proposed U-Values will be in line with the requirements set out by the current Technical Guidance Document Part L – “<i>Conservation of Fuel and Energy Buildings other than Dwellings</i>” 2017 (operable 2019) including Nearly Zero Energy Buildings targets.</p> <p>The U-Values that will be targeted for the development will exceed the minimum targets set out in TGD Part L Table 1 – refer Appendix A.</p> <p>Thermal bridging 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> <p>Air Tightness A major consideration in reducing the heat losses in a building is the air infiltration. This essentially relates to the ingress of cold outdoor air into the building and the corresponding displacement of the heated internal air. This incoming cold air must be heated if comfort conditions are to be maintained. In a traditionally constructed building, infiltration can account for 30 to 40 percent of the total heat loss, however construction standards continue to improve in this area.</p> <p>The building will be designed to achieve an air permeability (airtightness) target of 3 m³/hr/m²@50Pa.</p>	<p>Reduced u-values, minimisation of thermal bridging and improved airtightness will reduce the amount of heat loss throughout the building fabric, and lower overall consumption of energy. And therefore carbon emissions.</p>
BER Certificates	<p>A Building Energy Rating (BER) certificate will be provided for each unit in the proposed development. This will provide detail of the energy performance of the units. This is calculated through energy use for space and hot water heating, ventilation, and lighting and occupancy. It is proposed to target an A2/A3 rating for the apartments this will equate to the following emissions.</p>	<p>A BER rating is a rating given based on the overall energy efficiency of the building.</p>



	<p>A2 – 25-50 kwh/m2/yr with CO2 emissions circa 10kgCO2/m2 year.</p> <p>A3– 51-75 kwh/m2/yr with CO2 emissions circa 12kgCO2/m2 /year.</p>	
White Goods (Energy Labelled)	High standard, energy efficient “A” rated white goods will be supplied to all units. It is anticipated that ‘A’ rated appliances will be installed in the development.	High energy rated appliances will reduce electrical energy consumption and associated costs for residents.
External Lighting	<p>Low energy LED public lighting shall be designed and specified in accordance with CIBSE lighting guide and City Council public lighting standards and shall include:</p> <ul style="list-style-type: none"> • Low level lighting • Utilise low voltage LED lamps • Minimum upward light spill <p>Each light fitting is to be controlled via an individual Photoelectric Control Unit (PECU). The operation of the lighting shall be on a dusk-dawn profile.</p>	Lighting will be designed to achieve required standards, provide a safe environment for pedestrians, cyclists, vehicular traffic, provide surveillance and limit the impact on the artificial lighting on surrounding existing flora and fauna

4.4 Low Energy Technologies

To achieve the best possible BER rating, as discussed above, the following low energy technologies will be considered to achieve the required rating aswell as striving to reach the upcoming NZEB (Near Zero Energy Building) standards:

Measure	Description	Benefit
Air Source Heat Pumps (ASHPs)	An air to water heat pump extracts heat from the outside air, upgrades it to a higher temperature and the resultant heat is then used for space and water heating in the building	With a high conversion factor of up to 4:1 energy in (electricity) to energy out (heat) heat pumps are classified as renewable heating source. Running costs can typically be up to one third of a conventional heating system.



		The use of heat pump technology will also achieve reduction in Gas (non-renewable) central heating requirements.
Low energy LED Lighting	Shall be designed and specified in each unit and in the landlord areas in accordance with Part L requirements.	Lower consumption of energy and therefore lower carbon emissions.
Demand Control (Mechanical) Ventilation (DCVs)	Ventilation for the development will be provided by means of Natural Ventilation with Extract Fans serving WCs/Ensuites.	Improved air quality and reduced costs in providing alternative heating etc.

4.5 Materials and Material Specification

The practical implementation of the Design and Material principles has informed the design of the building – its form, position, internal layout, façade treatment and detailing have informed the proposed building design.

To improve on building standards there has been an increase in the expected build cost. Materials have been selected with a view to longevity, durability and low maintenance. Consideration has been given to Building Regulations and includes reference to BS 7543:2015 'Guide to Durability of Buildings and Building elements, Products and Components'.

It is expected that a sinking fund allowance will account for future major maintenance and upgrade costs. A 10 year Planned Preventative Maintenance (PPM) strategy will determine the level of sinking fund required.

The proposed envelope of the building comprises of brickwork, with aluminium double-glazed windows. Roofs will be asphalt coated warm inverted roof balasted. Based on comparison with similar schemes developed in the immediate locality, the proposed materials are durable and will not require regular replacement or maintenance. Specific design measures include the following:

Measure	Description	Benefit
Implementation of the Design and Material principles to the design of the proposed development.	Materials have been selected with a view to longevity, durability and low maintenance with Consideration given to Building Regulations and includes reference to BS 7543:2015 'Guide to Durability of Buildings and Building elements, Products and Components'.	Longevity, durability and low maintenance of materials



Brickwork to the building envelope	Materials have been selected with a view to longevity, durability and low maintenance with Consideration given to Building Regulations and includes reference to BS 7543:2015 'Guide to Durability of Buildings and Building elements, Products and Components'.	Requires minimal maintenance and does not require regular replacement
Installation of factory finished and aluminium windows and doors	Materials have been selected with a view to longevity, durability and low maintenance with Consideration given to Building Regulations and includes reference to BS 7543:2015 'Guide to Durability of Buildings and Building elements, Products and Components'.	Requires minimal maintenance and does not require regular replacement

4.6 Waste Management

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

Measure	Description	Benefit
Construction and Operational Waste Management Plan	The final application will be accompanied by a Construction and Demolition Waste Management Plan.	Will demonstrate how construction & demolition waste will be managed to maximise recycling and reuse rates, while minimising waste for disposal to landfill.
Operational Waste Management Plan	The final application will be accompanied by an Operational Waste Management Plan.	Will demonstrate how waste will be managed during the operational phase of the development to maximise recycling rates, while minimising waste for disposal to landfill.

4.7 Human Health & Well Being

The following are illustrations of how the health and well-being of future residents are considered.

Measure	Description	Benefit
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Natural daylight	Design of the layout of the development has been optimised to achieve a good quality of natural daylight to the units	Demonstration of how the scheme has been designed to comply with best practice.
Security	Passive surveillance is incorporated into the design	Access to all residents to reduce risk of littering within the scheme and Reduces Potential waste charges.
Accessibility	All units, egress routes and stair cores to comply with the requirements of Technical Guidance Documents Part M/K	Helps to reduce waste charges and the amount of waste going to landfill
Amenity	Provision of both internal and external public / communal amenity space	Facilitates socialising, community interaction.
Private Open Space	Provision of private open space	Facilitates interaction with outdoors.

4.8 Transport & Accessibility

The proposed development is highly accessible via a variety of modes of transport options including public transport (bus), cycling and walking. The development also makes provision in its design for the implementation of the planned BRT / LRT transport corridor. The following table illustrates how such accessibility allows residents to manage and reduce costs associated with travel to and from home / reducing the costs of ownership of private cars and reducing fossil fuel dependency:

Measure	Description	Benefit
Access to Public Transport (future BTR - Bus Connect and LRT)	<p>The development is served directly by the frequent 208 bus route to/from the city centre and wider environs.</p> <p>The site is also in walking distance of the 205 route (Dennehy's Cross) which serves UCC and CIT.</p> <p>Provision has also been made to facilitate the planned future Bus Connects (BRT) and LRT route via Victoria Cross.</p>	Availability of and close proximity to quality bus routes reduce the reliance on private motor vehicles
Pedestrian Permeability	The proposed design provides dedicated pedestrian and cycle infrastructure.	Ensures long term attractiveness of walking, and cycling to a range of local retail, sports, education and office facilities.



Cycling – Bicycle Storage	Bicycle parking spaces are provided within the scheme. This is in line with Build-to-Rent / City Development Plan standards and promotes sustainable transport modes.	Accommodates the uptake of cycling and reduces thereliance on the private motor vehicle.
Car Free Development	There are no proposed car parking spaces on the site	This reduces the dependency on car parking spaces.



Appendix A

Table 1 Technical Guidance Document Part L - Conservation of Fuel and Energy Buildings other than Dwellings 2017 (operable 2019).

Table 1 Maximum elemental U-value ¹ (W/m²K)		
Column 1 Fabric Elements	Column 2 Area – weighted Average Elemental U-Value (U_m)	Column 3 Average Elemental U-value Individual element or section of element
Roofs ²		
Pitched roof		
- Insulation at ceiling	0.16	
- Insulation on slope	0.16	0.3
Flat roof	0.20	
Walls ²	0.21	0.6
Ground Floors ^{2,3}	0.21	0.6
Other exposed floors ²	0.21	0.6
External personnel doors, windows ⁴ and rooflights ⁶	1.6 ⁵	3.0
Curtain Walling	1.8	3.0
Vehicle access and similar large doors	1.5	3.0
High usage entrance door ⁷	3.0	3.0
Swimming Pool Basin ⁸	0.25	0.6
Notes:		
1. The U-value includes the effect of unheated voids or other spaces.		
2. Reasonable provision would also be achieved if the total heat loss through the roof, wall and floor elements did not exceed that which would be the case if each of the area weighted average U-value (U _m) for these elements set out in Column 2 were achieved individually.		
3. Where the source of space heating is underfloor heating, a floor U-value of 0.15 W/m ² K should generally be satisfactory.		
4. Excludes display windows and similar glazing but their impact on overall performance must be taken into account in EPC and CPC calculation.		
5. In buildings with high internal heat gains a less demanding area-weighted average U-Value for the glazing may be an appropriate way of reducing overall primary energy and CO ₂ emissions. Where this can be shown then the average U-value for windows can be relaxed from the values given above. However values should be no worse than 2.2 W/m ² K.		
6. This is the overall U-value including the frame and edge effects, and it relates to the performance of the unit in the vertical plane so, for roof-lights, it must be adjusted for the slope of the roof as described in Sect 11.1 of BR 443		
7. High Usage Entrance door means a door to an entrance primarily for the use of people that is expected to experience larger volumes of traffic, and where robustness and/or powered operation is the main performance requirement. To qualify as a high-usage entrance door the door should be equipped with automatic closers and except where operational requirements preclude it, be protected by a lobby.		
8. Where a swimming pool is constructed as part of a new building, reasonable provision should be made to limit heat loss from the pool basin by achieving a U Value no worse than 0.25 W/m ² K as calculated according to BS EN 13370		



Appendix B

The BIF table below illustrates what would be incorporated for the calculation of a Sinking Fund.

Building Investment Fund (BIF) Sinking Fund Calculations (Specification to be finalised at detail design stage)			
Ref.	Element	Life Expectancy	Amount
1.00	Roofs		
1.01	Replacement asphalt roof covering inc insulation	25	
1.02	Replacement parapet details / fascias	25	
1.03	Replacement roof access hatches & fall arrest	25	
2.0	Elevations		
	Replacement brick finishes	60	
	Replace / recoat metal cladding panels	20	
	Replace curtain wall / windows	25	
	Replace curtain entrance doors	25	
	Replace Rainwater Goods	25	
	Replace external surface finishes inc balcony floor finish	25	
3.0	Staircores & Lobbies (2No. Cores)		
	Replace fire doors	25	
	Replacement handrails / balustrades	25	
	Replace floor finishes (carpet / vinyl)	10	
	Replace floor finishes (ceramic tile)	20	
	Replace entrance mats	10	
	Replace nosings	12	
	Decorate walls	7	



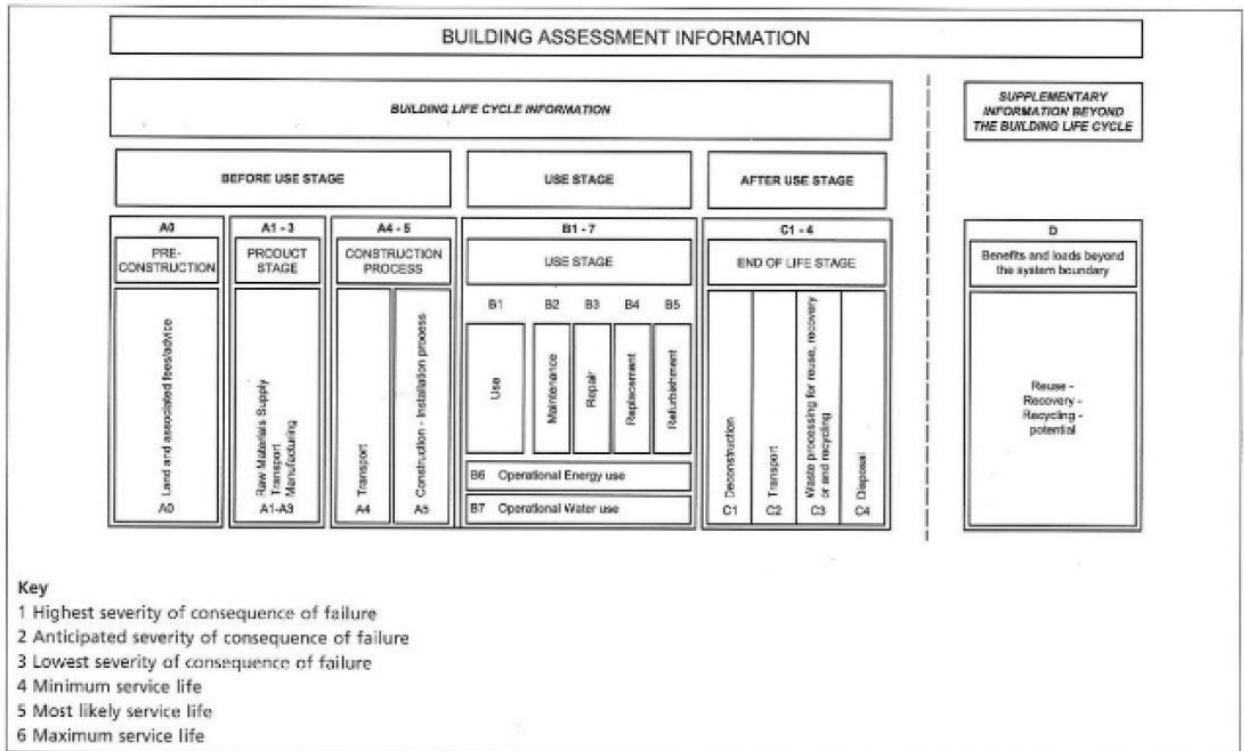
	Decorate ceilings	7	
	Decorate joinery	7	
4.0	M&E Services		
	General internal re-lamping	7	
	Replace internal light fittings	18	
	Replace external light fittings	18	
	Replace Smoke Detector Heads	18	
	Replace Fire Alarm Control Panel	18	
	Replace lift Car & Controls	25	
	Replace AOV's	25	
	Replace Manual Break Glass Units / Refuge Call Points	18	
	Replace Security system	15	
	Replace / upgrade external mains water connection	20	
	Replace / upgrade electrical mains and sub mains distribution	20	
	Replace emergency lighting	20	
	Replace / overhaul waste pipes, stacks and vents	20	
5.0	Exterior		
	External boundary treatments – recoat pc finishes to metal railings	60	
	Replace external signage	15	
	Replace cobblelock areas	18	
	Overhaul of landscaping generally	10	
	Replace CCTV provision	12	
	External Handrails and balustrades	20	



Appendix C

Phases of Life Cycle of BS 7543:2015 (Figure 4)

Figure 4 Phases of the life cycle



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