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BUILDING LIFE CYCLE REPORT

Proposed Residential Development at
Broomfield, Midleton, Co. Cork

Report prepared by
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On behalf of

Castle Rock Homes Midleton Ltd.

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1.0 INTRODUCTION

1.1 Overview of Planning Policy

The design of a housing scheme must be viewed on a long-term basis and not simply limited to the design and build phase. The management and maintenance of such a scheme must be considered at an early stage to ensure a level of certainty is in place for residents. Furthermore, section 6.11 of the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities (2022) states that “*robust legal and financial arrangements*” should be in place to ensure these long-term management and maintenance agreements of the apartment scheme are binding.

Section 6.12 of the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities (2022) also highlights that compliance with the Multi-Unit Developments Act, 2011 also needs to be taken into consideration for such developments. This is coupled with giving due “*consideration of the long-term running costs*”. The aims of this Life Cycle Report follow directly on from this and is set out specifically in section 6.13 of the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities (2022). It is to assess, on a more micro level, the long-term running & maintenance costs as well as the effective management and reduction of costs for individual residential units and the associated residents.

This Life Cycle Report will specifically examine the following two sub-sections of section 6.13 of the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities (2022):

Section 2.0 - 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 3.0 - Measures specifically considered by the proposer to effectively manage and reduce costs for the benefit of residents.

1.2 Outline of Proposed Development

Castle Rock Homes Midleton Ltd. intend to apply for Planning Permission for a large residential housing development at lands located at Broomfield, Midleton, Co. Cork on a site measuring c. 8.15 ha.

The development will consist of:

- The construction of 272 residential units.

The housing breakdown by bedroom number and type are as follows:

- 94no. 3-bedroom dwellings
 - 22no. 4-bedroom dwellings
 - 96no. 2-bedroom dwellings
 - 26no. 2-bedroom duplex apartments
 - 34no. 1-bedroom apartments
- The Construction of a creche facility with community use rooms to accommodate up to 88 children.
 - The provision of private carparking spaces, visitor and public carparking spaces, public bicycle parking spaces, and private covered or communal bicycle parking spaces. There are 4no. vehicular entrances to the scheme via Broomfield Road L7630.
 - The scheme provides for pedestrian and cycling connections to the existing Blossom Hill Development and the Broomfield Road.
 - The public road and public footpath on Broomfield Road is currently being improved and realigned to facilitate another housing development and this road improvement will continue along the northwest boundary of the site.
 - All other ancillary site development works, site services, public lighting, bin stores, bike stores, boundary treatments and landscaping;

2.0 AN ASSESSMENT OF LONG-TERM RUNNING AND MAINTENANCE COSTS AS THEY WOULD APPLY ON A PER RESIDENTIAL UNIT BASIS AT THE TIME OF APPLICATION

2.1 Establishment of an Owners Management Company

As a pre-cursor for the establishment of an Owners Management Company (OMC), Caslte Rock Homes Midleton Ltd. have placed the future long-term running and maintenance costs as a central component in the design process. They have utilized a combination of past experience from previous projects, similar in nature, and the recommendations as set out in the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities (2022) to inform these costs.

As per section 6.14 of Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities (2022) – The Multi-Unit Developments Act, 2011 (MUD Act) sets out the legal requirement for the “Establishment of an Owners Management Company (OMC)”. Common areas of the development are to be transferred to the OMC. Such common areas include external walls, access roads, footpaths, landscaped areas and boundary walls. These all contribute to the overall long-term running and maintenance costs. It will ultimately be the OMC, or those engaged by the OMC that will have responsibility for the long-term running and maintenance costs as examined at the design stage. All apartments, duplexes and mews dwellings will be under the OMC.

The OMC will engage a Property Management Company (PMC), as a matter of priority, to carry out the ongoing management of the completed development. The contract between the OMC and the PMC will be for a maximum period of c. 3 years and in the form prescribed by the PSRA. The Property Management Company will have the responsibility for dealing with all property management functions including the maintenance and running costs of the abovementioned common areas and that same adhere to the agreed Annual Operational Budget.

The appointed Property Management Company's also has other responsibilities including the following:

- The preparation of an annual service charge budget relating to the common areas of the development
- Fair and equitable apportionment of the annual operational charges in line with the MUD Act
- Transfer of documentation in line with Schedule 3 of the MUD Act
- Estate Management and the procurement/management of third-party contractors for the upkeep of common areas
- Engagement of independent legal representation on behalf of the OMC in keeping with the MUD Act - including completion of Developer OMC Agreement and transfer of the common areas
- Staff administration
- Insurance management
- Accounting services

2.2 Residents Service Charge Budget

The long-term running and maintenance costs on a per residential unit basis are reflected in the annual service charge payable by each residential unit (i.e. each apartment, duplex and mews dwelling units in the development). The compiling of the service charge budget is one of the key responsibilities of the Property Management Company, which in turn, must be agreed with the Owners Management Company by means of a general meeting of the members concerned.

Section 18 (3) of the Multi-Unit Developments Act, 2011 (MUD Act) breaks the service charge budget down into the following categories:

- a) Insurance
- b) General maintenance
- c) Repairs
- d) Waste management
- e) Cleaning
- f) Gardening and landscaping
- g) Concierge and security services
- h) Legal services and accounts preparation
- i) Other expenditure arising in connection with the maintenance, repair and management of the common areas anticipated to arise

The MUD act also stipulates the establishment of building investment fund (sinking fund) as part of the service charge budget. This sinking fund covers reasonable expenditure incurred on the refurbishment, improvement and maintenance of a non-recurring nature or advice from a suitably qualified person in relation to same. A Building Investment Fund report should be prepared and regularly updated by the OMC to help determine the annual contribution to sinking fund. Section 19 (5) of the MUD Act apportions a nominal figure of €200 per unit for the sinking fund or *“such other amount as may be agreed by a meeting of the members as the contribution in respect of the year concerned”*

The next section of this report examines the “measures specifically considered by the proposer to effectively manage and reduce costs for the benefit of residents”. These measures, considered at early design stage by Castle Rock Homes Midleton Ltd. have a major bearing on the day-to-day service charges incurred in the finished development and also on potential non-recurring costs covered by the sinking fund. Examples that will be highlighted include the considered use of landscaping finishes to reduce day-to-day service charges and the considered selection of building materials to reduce potential non-recurring costs affecting the sinking fund.

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

3.1 Scheme Design

3.1.1 Building Form:

The apartments and duplexes coming under the umbrella of the Owners Management Company have been designed in accordance with all aspects of current 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
INTERNAL CIRCULATION	
Common Internal circulation areas have been omitted	Whilst maximizing the use of space, avoids any unnecessary expense in cleaning and renewal of finishes. This also avoids the requirement for continuous artificial lighting and continuous space heating reduces cost for same
Access to the Apartments and Duplexes is via own door	This minimizes the number of access lifts common stairways and corridors, and the associated maintenance of same This also avoids the requirement for common mechanical ventilation, continuous space heating or fire detection and escape systems which require maintenance and future replacement.
Dual aspect design where possible	Dual aspect glazing increases natural light and adds the benefit of passive solar gain to reduce heating costs

3.1.2 Selection of Materials, Finishes and Treatments

Whilst building form has a more direct bearing on the day-to-day running costs for residents, the careful selection of materials, finishes and treatments has a direct impact on the sinking fund cost apportioned to the residents. Part D “Materials and Workmanship” of the current building regulations has influenced these selections along with Castle Rock Homes Midleton Ltd.’s experience with developments, similar in nature. Both aesthetics and durability played a central role in the design process, with the element of durability directly linked with the need and associated expense for the maintenance, upkeep, or potential replacement of the selected materials. This design approach has been applied in equal part to both the external building envelope and the landscaping scheme. Some of these specific design measures include the following:

MEASURE DESCRIPTION	BENEFIT
EXTERNAL BUILDING ENEVELOPE	
Use of Brickwork in a significant portion of the designed facades	Brick requires no on-going maintenance.
Minimal amount of painted render to envelope	Painted render requires minimum maintenance of washing and repainting
Use of alu clad timber windows/Upvc windows	Requires no maintenance to upkeep the visual appearance
Secure ground level cycle and refuse storage areas	Avoids access lifts /ramps and any handling/moving equipment.
LANDSCAPING	
<p>Hard landscape surfaces:</p> <p>The Landscape Design Report highlights: “The proposed palette of materials for hard landscaping surfaces are selected from a tried and tested range of attractive and hard wearing materials which are suitable for both pedestrian and vehicular traffic”</p>	Minimum ongoing maintenance associated with this choice of materials
Play areas i.e. front of mews housing or o coloured asphalt areas throughout the scheme: Sustainable, robust materials, with high slip resistance to be used for the play areas. Durable and robust equipment to be used throughout.	Robust materials and elements reduce the frequency of required repair and maintenance.
External paved areas to have high slip resistance and robust in nature	All of these require low/minimal maintenance

3.1.3 Material Specification

BS 7543:2015, 'Guide to Durability of Buildings and Building elements, Products and Components' has been referenced in conjunction with the current building regulations. This standard provides guidance on the durability, design life and predicted service life of buildings and their parts and further helps predict and reduce associated costs for Operational Management Company and thus, the individual resident.

The performance and durability of common areas of the proposed apartments and duplexes, as discussed previously are designed 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: Annex A Climatic Agents affecting Durability; Annex B Guidance on materials and durability; Annex C Examples of UK material or component failures and Annex D Design Life Data sheets.

3.1.4 Waste Management

MEASURE DESCRIPTION	BENEFIT
Construction Waste Management Plan	This report demonstrates how the proposed development has been designed to comply with current best practice. Please refer to the submitted CEMP.
Operational Waste Management Plan	This report demonstrates how the proposed development has been designed to comply with current best practice. Please refer to the submitted Waste and Resource Management Plan.
Non-Recyclable Waste and Recyclable Household Waste will be stored via a domestic waste management strategy of Grey, Brown and Green bins, as well as compost bins for organic waste	This will have the effect of reducing overall waste charges and environmental impact.

3.1.5 Human Health and Wellbeing

MEASURE DESCRIPTION	BENEFIT
The design, separation distances and layout of the apartment blocks have been designed to optimize the ingress of natural daylight/ sunlight to the proposed dwellings to provide good levels of natural light	This will aid in reducing and potential need for security costs
Natural light was key in the design of individual units and the layout of same so as to maximise same	Associated costs of artificial lighting reduced.
Compliance with Parts M and K of the current Building Regulations.	Reduces the potential need/cost for changes in design to accommodate resident's future changing circumstances.
Public open/amenity space	Encourages improved wellbeing through social interaction, exercise and play

3.2 **Energy and Carbon Emissions**

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

MEASURE DESCRIPTION	BENEFIT
Fabric Energy Efficiency	
Reduced U values of all external envelope elements of the proposed buildings to meet and exceed Part L “Conservation of Fuel and Energy” of current building regulations. Robust detailing at junctions between all external envelope elements will be imperative to reduce thermal bridging. Robust detailing in all areas of construction will also ensure a high level of air tightness, to meet and exceed Part L “Conservation of Fuel and Energy” of current building regulations.	Reduced U values, minimization of thermal bridging and minimization of air leakage ensures the reduction energy consumption and the associated costs
BER Certification	
It will be prudent to carry out preliminary (Dwelling Energy Assessment Procedure) DEAP calculations, prior to construction, to ensure the required energy rating, renewable energy contribution etc. will be achieved post construction. Achieving full compliance with Part L “Conservation of Fuel and Energy” of current building regulations will be informed by the subsequent final BER certification which is influenced by orientation, dimensions, space heating, water heating, ventilation, lighting, insulation etc.	Early DEAP calculations will flag any potential changes in fabric insulation, heating system, ventilation system etc. that would need to be made to both reduce costs and ensure compliance. The resulting “A” rated BER certificate post construction will inform the residents as to the energy efficiency of the residential unit and inspire confidence in the reduced environmental impact and reduction in energy costs of the unit.
White Goods	
“A” rated white goods, where possible, to be provided with any white goods package planned for the apartments.	Reduction in electricity consumption and associated costs for residents.

External Lighting	
<p>Latest design standards and technologies to be utilized, including low level lighting with minimal upward light spill and low voltage LED lights, all approved by the local authority</p> <p>The operation of the lighting shall be on a dusk-dawn profile to reduce unnecessary artificial light usage.</p>	<p>Aswell as the aim of reducing lighting costs apportioned to the service charge budget, the external lighting plan will ensure safety for pedestrians, motorists and cyclists alike whilst deterring any potential anti-social behaviour.</p>

3.2.1 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:

DESCRIPTION	BENEFIT
Space and Water Heating	
<p>Air to Water Heat Pumps:</p> <p>An air to water heatpump essentially 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</p>	<p>Although a certain amount of electricity is used to power an air to water heatpump, the high efficiencies of such system (typically in excess of 400% for space heating) means they are classed as a renewable heating source and running costs can typically be up to one third of a conventional heating system.</p>
Ventilation	
<p>Natural/passive ventilation is being evaluated as a ventilation strategy to minimise energy usage and noise levels.</p>	<p>No mechanical parts or associated noise, maintenance etc. for occupants. Provides a supply of fresh air which is essential in modern well insulated and airtight buildings.</p>
Energy Producing Technologies	
<p>Photovoltaic (PV) solar panels are being considered to utilise renewable solar energy to produce electricity. Careful consideration needs to be given to the orientation and any possible impact of shading on the panels.</p>	<p>This renewable electrical energy could be used to offset any electricity costs associated with the heat pump.</p>

3.3 Transport and Accessibility

The proposed development is highly accessible via a variety of modes of transport. The following table illustrates how such accessibility allows residents to manage and reduce costs associated with travel to and from home:

DESCRIPTION	BENEFIT
Access to Public Transport (Light Rail/Bus)	
The site is located within a 9 minute walk to local town train station and a further 7 minutes into Middleton town.	The close proximity to the local train station provides access for the residents of the area to the national rail networks.
Pedestrian Permeability	
The site is located adjacent to existing residential developments and the proposed design has afforded a wide variety of pedestrian only and cyclist traffic through the site.	Ensure the long-term benefits of walking and cycling through the development and encourage a vibrant active locale.
Cycling	
Localised pockets of bicycle parking spaces are provided within the scheme, particularly at public open spaces or a cul de sacs. Additional bicycle parking is provided for apartment buildings as outlined in apartment design guidelines and promotes sustainable transport modes. The development is to provide public pedestrian and cycle tracks into the Blossom Hill Development at two southern boundary locations which directly abut this completed development.	Accommodates the uptake of cycling and reducing the reliance on the private motor vehicle. Reduces the reliance on the private motor vehicle and encourages use of amenity spaces provided to stimulate a more vibrant and active series of open spaces.
ECAR Charging Points	
Ducting shall be provided from a local landlord distribution board to designated E-car charging car park spaces. This will enable the management company the option to install a number of E-car charging points within the car parking layout to cater for E-car demand of the residence. A full re-charge can take from one to eight hours using a standard charge point. The developer intends to install E-car charge ducting to a point on the front or side elevation to each dwelling house or apartment with private driveway to allow for a charge unit connection.	Providing the option of E-car charging points will allow occupants to avail of economically efficient and environmentally friendly electric car

3.4 Management

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

MEASURE DESCRIPTION	BENEFIT
<p>On purchase the homeowner will be provided with a pack that includes:</p> <p>A Homeowner manual which will provide important information for the purchaser on details of their new property / dwelling. It typically includes details of the property such as the MPRN and GPRN, information in relation to connections with utilities and communication providers, contact details for all relevant suppliers, and user instructions for appliances, devices and system in the dwelling.</p> <p>A Residents' pack prepared by the owner's management company which will typically provide information on contact details for the managing agent, emergency contact information, information on transport links in the area, and a clear set of regulations and rules associated with the development.</p>	<p>Information provided to residents will allow them to be as informed as possible so that any issues can be addressed in an efficient and convenient manner.</p>

Conclusion

In conclusion, various aspects of the apartments and duplexes within this development contain measures to reduce the lifecycle cost.

These high density buildings have been designed and laid out within the site to maximize building efficiency and reduce maintenance cost per person.

Energy reducing methods such as heat pumps and photovoltaic roof panels have been included in the design to reduce energy consumption and reduce energy cost for the end user.

The 2020 Sustainable Urban Housing; Design Standards for New Apartments – Guidelines for Planning Authorities, has been utilized in order to effectively manage and reduce costs for the benefit of the residents.

Appendix A: ITEMS INCLUDED IN A TYPICAL BIF

The BIF table below illustrates what would be incorporated for the calculation of a Sinking Fund. It is based on a typical apartment building type M/N or O/P/QR in the development which consists of 60 apartments in 14 buildings over 3 floors.

BUILDING INVESTMENT FUND (SINKING FUND) ESTIMATION		
Example Apartment Building E1		
Specification to be finalized at detailed design stage		
REF	ELEMENT	LIFE EXPECTANCY
1.00	ROOFS	
1.01	Replacement EPDM roof covering incl. insulation to main roofs	25
1.02	Replacement parapet details	18
1.03	Replace roof access hatches	N/A
1.04	Specialist Roof Systems - Fall arrest	N/A
2.00	ELEVATIONS	
2.01	Timber panels to bike & bin storage	18
2.02	Minor repairs and preparation for decorations of rendered areas (if applicable)	18
2.03	Replace exit/ entrance doors	25
2.04	Replace Rainwater goods	25
2.05	Recoat powder coated Finishes to balconies	20
2.06	Periodic replacement and overhauling of external fixings	5
2.07	Replace Balcony floor finishes	25
3.00	STAIR CORES & LOBBIES	
3.01	Decorate Ceilings	N/A
3.02	Decorate Walls	N/A
3.03	Decorate Joinery	N/A
3.04	Replace fire doors	N/A
3.05	Replace carpets (stairwells & lobbies)	N/A
3.06	Replace entrance mats	N/A
3.07	Replace nosings	N/A

3.08	Replace ceramic floors tiles	N/A
5.00	M&E SERVICES	
5.01	General - Internal relamping	7
5.02	Replace Internal light fittings	18
5.03	Replace External light fittings (lights at entrance lobbies)	18
5.04	Replace smoke detector heads	18
5.05	Replace manual break glass units	18
5.06	Replace Fire alarm panel	18
5.07	Replace lift car and controls	25
5.08	Replace AOV's	25
5.08	Replace security access control installation	15
5.09	Sump pumps replacement	15
5.10	External Mains Water connection	20
5.12	Electrical Mains and Sub Mains distribution	20
5.13	Emergency Lighting	20
6.00	EXTERIOR	
6.01	Repaint car parking	12
6.02	Re tarmac	60
6.03	External boundary treatments - Recoat powder coated Finishes to railings	60
6.04	Replace cobble block areas	18
6.05	10 year cutback & thinning of trees. Overhaul landscaping generally	10
6.06	Replace CCTV provision	12
6.07	External Handrails and balustrade	18

Appendix B: PHASES OF THE LIFE CYCLE OF BS7543; 2015

<i>Table 1 - Categories of Design Life for Buildings (from BS 7543:1992)</i>			
Category	Description	Building Life	Examples
1	Temporary	Up to 10 yrs	Site huts; temporary exhibition buildings
2	Short life	Min. 10 yrs	Temporary classrooms; warehouses
3	Medium Life	Min. 30 yrs	Industrial buildings; housing refurbishment
4	Normal life	Min. 60 yrs	Health, housing and educational buildings
5	Long life	Min. 120 yrs	Civic and high quality buildings