Building Life Cycle Report

For

Residential development at

Monacnappa, Blarney, Co. Cork,

on behalf of

Eoin Sheehan

House Type 1G (Character Area 1)

Introduction

The following Building Lifecycle Report has been prepared By BRH Design Partners in relation to the Housing and Apartment Development located at Monacnappa, Blarney, Cork. The Building Lifecycle Report assesses the long term running and maintenance costs of the development and demonstrate the provisions put in place as to reduce this cost as per The Sustainable Urban Housing: Design Standards for New Apartments – Guidelines for Planning Authorities were published in March 2018. The proposed development has utilised the Apartment Design Guidelines in order to design a more efficient and viable apartment design within the context of the site.

Summary of Proposed Development

The proposed development will accommodate a total of 105 no. houses, 38 apartments and a Childcare Facility. See the table below for the full breakdown of all unit numbers and areas associated, arranged by Character Area group.

The design team's overall goal has been to ensure a varied and well balanced mix of housing comprising of a split of 8 no. 1-bed apartments, 30 no. 2-bed apartments, 8 no. 2 bedroom houses, 71 no. 3 bedroom houses and 2 no. 4 bedroom houses. Provision for a variety of units has been utilised. It is believed that this proposed mix will provide a broad range of residential units that will cater to the needs of all prospective end user's. A 42-child capacity Creche Facility has also been allocated for on the site and placed in a readily accessible location.

HOUSING MIX			
CHARACTER AREA 1			
Unit	Description	Unit Area	No. of Units
1A	3 Bed / 5 person / 2 storey	113.2	1
1B	3 Bed / 5 person / 2 storey	101.7	4
1B(i)	3 Bed / 5 person / 2 storey	102.4	3
1C	3 Bed / 5 person / 2 storey	108.2	4
1D	3 Bed / 5 person / 2 storey	108.0	5
1E	3 Bed / 5 person / 2.5 storey	125.3	8
1F	3 Bed / 5 person / 2.5 storey	125.3	4
1G	4 Bed / 7 person / 3 storey split level	162.1	8
1G(i)	4 Bed / 7 person / 3 storey split level	162.1	1
CHARACTER AREA 2			
Unit	Description	Unit Area	No. of Units
2A	3 Bed / 5 person / 2 storey	111.7	8
2B	3 Bed / 4 person / 2 storey	89.7	8
2C	4 Bed / 7 person / 2 storey	116.5	8
2D	2 Bed / 4 person / 2 storey	80	3
2E	1 Bed / 2 person / 2 storey Apartment	53.4 / 61.3	4
2F	2 Bed / 4 person / 2 storey	88.0	2
CHARACTER AREA 3			
Unit	Description	Unit Area	No. of Units
3A	3 Bed / 5 person / 2 storey	114.3	8
3B	4 Bed / 7 person / 2 storey	116.5	6
3B(i)	4 Bed / 7 person / 2 storey	116.5	3
3C	2 Bed / 4 person / 2 storey	80	3
3D	1 Bed / 2 person / 2 storey Apartment	53.4 / 61.3	4
CHARACTER AREA 4			
Unit	Description	Unit Area	No. of Units
4A	3 Bed / 5 person / 2,5 storey	114.7	8
4B	3 Bed / 5 person / 2.5 storey	114.7	4
4C	3 Bed / 5 person / 2 storey	111.7	5
4C(i)	3 Bed / 5 person / 2 storey	111.5	1
APT Type A	2 Bed / 4 person / 3 storey Apartment	84.32	6
APT Type B	2 Bed / 4 person / 3 storey Apartment	78.8	12
APT Type C	2 Bed / 4 person / 3 storey Apartment	83.64	12

Total Houses	105	
Total Apartments	38	
Total Units	143	
Creche	42-Child	309.66 sq.m
Developable Site Area	4.1 Hectares	
Density	143/4.1 = 35 Units / Hectare	

House Type 2A (Character Area 2)

Efficiency of Design

The lifecycle cost of the developments is defined by the overall efficiency of the design, the durability and resilience of the materials selected, and the general maintenance obligations of the common areas throughout the development. Particular consideration has been applied throughout the design process to ensure that each house / apartment optimises the efficiency of the common areas whilst also providing future occupants with enhanced comfort of access.

The materials selected for the apartment blocks are in direct correlation to the materials chosen for the dwelling houses throughout the development. This serves to ensure a consistent approach of design and construction whilst also minimising shipping and delivery cost. All materials have been considered and chosen specifically for their cost effectiveness and durability. External finishes such as fine course dash, brick and zinc cladding have been selected due for this development for the ease of construction and to minimise future maintenance costs.

There is a particular responsibility for this scheme to provide high unit density due to it's close proximity to Cork City. This target is reached due to the proposed development achieving a unit density of 35 units per hectare. The apartments have been located to the South of the site allowing for a lower density of housing to the North thereby creating distinct density zones within the development. The cost of maintenance will only be determined once detailed design has commenced and will therefore not be included in this report.

Apartment Block 1 (Character Area 4) (High Density Units)

House Types 3B (Character Area 3)

Carbon Emissions and Energy Efficiency

A Building Energy Rating (BER) certificate will be provided for each dwelling in the proposed development which will provide detail of the energy performance of the dwellings. A BER is calculated through energy use for space and hot water heating, ventilation, and lighting and occupancy. The certificate rates the energy performance of the home on a scale of A-G. A-rated homes are the most energy efficient and will tend to have the lowest energy bills. G-rated are the least energy efficient.

It is proposed to target an A2/A3 rating for the apartments this will equate to the following emissions.

A2 – 25-50 kwh/m2/yr with CO2 emissions circa 10kgCO2/m2 year A3 – 51-75 kwh/m2/yr with CO2 emissions circa 12kgCO2/m2 /year

Benefit: Higher BER ratings reduce energy consumption and running costs.

Low Energy Technologies

Low energy technologies will be implemented throughout the scheme. Technologies such as Air Source Heat Pumps and Solar PV Panels will be considered to minimise the energy dependency on the grid whilst also reducing the need to rely on fossil fuels.

Natural Ventilation

Natural ventilation in conjunction with mechanical extract to wet rooms is proposed for apartments as a ventilation strategy to minimise energy usage and noise levels.

Benefit: The main advantages of natural ventilation are:

- Low noise impact for occupants and adjacent units.
- Natural ventilation is passive and has a limited impact on primary energy use.
- Minimal maintenance required.
- Reduced environmental impact as minimal equipment disposal over life cycle.
- Full fresh air resulting in healthier indoor environment.

Fabric Energy Efficiency Standard (FEES)

The Fabric Energy Efficiency Standard is the proposed maximum space heating and cooling energy demand for zero carbon homes. The U-values being investigated will be in line with the requirements set out by the current regulatory requirements of the Technical Guidance Documents Part L, titled “Conservation of Fuel and Energy Buildings other than Dwellings”. 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.

Benefit: Lower U-values and improved air tightness is being considered to help minimise heat losses through the building fabric, lower of energy consumption and thus minimise carbon emissions to the environment.

Exhaust Air Heat Pump

It is proposed to utilise an exhaust air heat pump type system for space heating, hot water and ventilation of the apartment units.

Benefit: Reduction in the cost of fuel bills. Reduction in the environmental impact of buildings through a reduction in CO2 emissions. Contribution to compliance with building regulation requirements. Continuous ventilation of building which can help improve indoor air quality and prevent condensation. Heat pumps operate with efficiencies >400%. Exhaust air heat pumps utilise extract air as the air source for the heat pump. This will re-cycle the heat from the dwelling's ventilation system. These machines are ideal for apartments and more compact air-tight low energy or passive homes. Additional heat generated internally from lighting, people and domestic appliances is also utilised through heat recovery from outgoing exhaust air.

E-CAR Charging Points

All commercial areas with dedicated car parking on site will be designed to allow for the ESB to introduce on site charge points in accordance with their prevailing design approach at a 10% rate as required by the Development Plan. This scheme operates on a single charge point access card. A full re- charge can take from one to eight hours using a standard charge point.

Benefit: Providing the option of E-car charging points will allow residents to avail of the advancing efficient electric car technologies.

Energy Labelled White Goods

The white goods package proposed for use in the apartments will be of a very high energy efficiency rating. It is expected that the below appliance ratings will be provided:

Oven – A+

Fridge Freezer – A+

Dishwasher – AAA

Washer/Dryer - A

Benefit: The provision of high rated appliances in turn reduces the amount of electricity required for occupants.

Public Lighting Layout Showing Luminosity

Public Lighting

The proposed public lighting scheme within the development consists of 6m pole mounted fittings as indicated on the public lighting plan drawings. The luminaire fittings are selected as follows reasons:

Neighbourhood Lamps - Philips Luma Micro LED BGP615 DW50 3.4klm

Secondary Pathways - Philips Luma Micro LED BGP615 DW50 1.4klm

Main Distributor - Philips Luma Micro LED BGP615 DW50 5.0klm .

Fittings are selected based on the following:

Low voltage LED lamps –

Neighbourhood Lamps - 21W

Secondary Pathways - 9W

Main Distributor - 31W

Minimum light spillage

Pre-approved by Cork City

Each light fitting shall be controlled via an individual Photoelectric Control Unit (PECU). The operation of the lighting shall be on a dusk- dawn profile.

Benefit: The site lighting has been designed to provide a safe environment for pedestrians, cyclists and moving vehicles, to deter anti- social behaviour and to limit the environmental impact of artificial lighting on adjoining residential properties in addition to existing flora and fauna in the area. PECU allows for the optimum operation of lighting which minimizes costs.

Landscaping Design Between Character Areas

Landscape

To improve the quality of life within the development, selected areas throughout the site and surrounding the houses and apartments will contain extensively landscaped areas. Urban spaces within the development will contain significant planting with robust materials to reduce maintenance cost.

Hard Landscape Materials

Sustainable, robust materials, with high slip resistance to be used for paving. Durable and resilient finishes to be selected for all fencing, furniture, bin and bicycle storage units.

Hardstand areas in public open spaces and within the curtilage of the apartment blocks and houses will be finished with a combination of concrete sett pavers and compacted gravel for visual effect and variation through the site.

Benefit: Materials selected to minimise on-going maintenance inputs.

Soft Landscape Materials

Planting proposals have generally been formulated to complement the local landscape setting as well as being fit for purpose in respect of private and public realm uses and spatial constraints imposed by garden sizes and the width of planting strips. Native tree species have been selected in significant numbers for planting along boundaries and across open spaces while non-native species have also been selected where spatial constraints are a factor.

Benefit: Reduction in the frequency of required soft landscape maintenance.

Site Layout and Design

Generous and high-quality landscaped corridors with pedestrian and cyclist friendly hierarchy of streets and open spaces providing long term high quality residential environments.

Benefit: Encourages safe, high quality residential environments reducing vandalism and antisocial behaviour issues.

Maintenance & Management

Maintenance and management requirements have been considered through the design process. Complex planting arrangements have been omitted thus avoiding onerous maintenance and management requirements

Benefit: Development maintenance costs reduced.

Sustainability & Biodiversity

Considerable effort has been made to respond positively to the surrounding boundary conditions where possible across the site. Existing trees and hedges along site boundaries will be retained and protected during site works. Other species have been carefully selected for compatibility with the size of available spaces which is an important factor in long term management of the housing estate. The overall objective is to enhance the biodiversity potential of the site in addition to providing seasonal interest and variety.

Judiciously placed flowering shrub and groundcover planting have been included to further promote biodiversity. This will positively contribute to the character and identity of the development.

Benefit: Enhanced sustainability of long-term estate management and reduced frequency of maintenance.

House Types 4C (Character Area 4)

Waste Management

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

Construction Waste Management Plan

The application is accompanied by a Construction Waste Management Plan which is intended to demonstrate how the scheme has been designed to comply with best practice.

Storage of Non- Recyclable Waste and Recyclable Household Waste

Inclusion of individual covered & locked bin storage, easily accessible by residents which minimises potential littering of the scheme. Bin stores with access control are provided centrally to each of the individual apartment complex.

A domestic waste management strategy has been adopted within the design: mixed non-recyclable

waste, Dry mixed recyclables, glass and organic waste segregation.

A competitive tender for waste management collection shall help reduce potential waste charge. Bin stores will be built from durable materials in keeping with the design palate and located in appropriate areas of the development.

Property Management

Property Management (Common Areas)

A property management company will be engaged at an early stage of the development to ensure that all property management functions are dealt with for the development this will include the running and maintenance costs of the common areas of the development are kept within the agreed annual operational budget.

The property management company will enter into a contract directly with the Owners Management Company (OMC) for the ongoing management of the built development. This contract will be for a maximum period of 3 years and in the form prescribed by the PSRA.

The Property Management Company also has the following responsibilities for the apartment development once constructed:

- Timely formation of an Owners Management Company (OMC) – which will be a company limited by guarantee having no share capital. All future purchasers will be obliged to become members of this OMC.
- Preparation of annual service charge budget for the development common areas.
- Fair and equitable apportionment of the Annual operational charges in line with the Multi Units Development Act 2011 (MUD Act).
- 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 common areas.
- Transfer of documentation in line with Schedule 3 of the MUD Act.
- Estate Management.
- Third Party Contractors Procurement and management.
- OMC Reporting.
- Accounting Services.
- Insurance Management.
- After Hours Services & Staff Administration.

*Part V units located within Apartment complexes will be managed by the Local Authority (Cork City Council).

Residents Service Charge Budget

The property management company has a number of key responsibilities, 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. The service charge budget is in accordance with the Multi Unit Developments Act 2011 (“MUD” Act) for the developments common areas which covers items such as cleaning, landscaping, refuse management, utility bills, insurance, maintenance of mechanical/electrical lifts/ life safety systems, security, property management fee, etc.

This service charge budget also includes an allowance for a Sinking Fund and this allowance is determined following the review of the Building Investment Fund (BIF) report prepared for the OMC. 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 the sinking fund. The BIF report once adopted by the OMC, determines an adequate estimated annual cost provision requirement based on the needs of the development over a 30- year cycle period. The BIF report will identify those works which are necessary to maintain, repair, and enhance the premises over the 30- year life cycle period, as required by the Multi Unit Development Act 2011.

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 the figures provided are estimates

Homeowners

Consideration has been given to the ensuring the homeowners have a clear understanding of their property and once a purchaser completes their sale, a homeowner user guide will be provided which will include the following:

Homeowner manual – Information included within the manual will include important information for the purchaser on details of their new property:

Details regarding connections with service providers.

MPRN and GPRN details.

Operating / User instructions for appliances and devices within the property.

Warranties for mechanical & electrical installations.

Maintenance requirements and contacts for Mechanical, heating & plumbing installations.

Technical specification and colours for materials / External finishes.

A Residents Pack - Information included within the manual will include important information provided by the OMC:

Contact details for relevant agents

- Emergency contact details

- Local transport connections

- Rules and Regulations

- OMC & Resident responsibilities

Example of a bicycle rack location

Transport

The proposed site is c.0.5km from the centre of Blarney town. The Blarney Church bus stop is approx. 0.6km from the entrance to the site (No. 215 bus runs regularly to and from Cork City from this stop). The nearest supermarket (Centra) is also a distance of 0.6km from the site.

Ample parking is provided throughout the scheme to the extent that the 105 housing units share a total of 182 car park spaces evenly spread around the development, this includes 164 regular parking spaces & 18 electric vehicle charging points. An additional 30 parking spaces including 4 EV parking spaces and 4 motorbike parking bays are provided for the apartments in the basement car park. 9 bicycle stands are provided throughout the scheme which can accommodate 8 spaces each. Two Large bicycle racks in the basement car park can accommodate 90 bicycle spaces in addition to the two dedicated bicycle store room at entry to level of the apartments which gives a total of 238 bicycle spaces.

Orientation of parking spaces is varied to further define the character and layout of the proposed scheme and to allow for minimum repetition of hard landscaping. The garden spaces to the front of each dwelling will be defined within the ownership of the dwelling and will be unambiguous throughout the use of materiality of the surface as well as the use of landscaping throughout the site.

Conclusion

To conclude, a variety of elements throughout this development display measures designed to reduce the lifestyle cost for each building. Through implementing a high density approach in specific areas the building efficiency is fully optimised. A reduction in overall maintenance costs will be seen due to this. Methods of energy reduction will be considered such as Air Source Heat Pumps and Solar PV Panels with the aim of minimising energy consumption and cost for the end user. The implementation of electric car charging points throughout the scheme will also serve to encourage the future occupants to switch to a low emission mode of transport.

The 2018 Sustainable Urban Housing: Design Standards for New Apartments has been consistently utilised throughout the design process in order to benefit the end user with effective management and reduced costs.