Dundrum Central

Proposed Part 10 Residential Development

Dundrum Central Development,
Dundrum Road, Dublin 14

Planning Submission –
Building Lifecycle Report
September 2024

LDA DUNDRUM CENTRAL

dlr Comhairle Contae County Council

Contents

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INTRODUCTION

The Sustainable Urban Housing: Design Standards for New Apartments 2023 – Guidelines for Planning Authorities, document under Section 28 of the Planning and Development Act 2000 (as amended), hereafter referred to as the Apartment Guidelines, requires planning applications to include details on the management and maintenance of apartment schemes. This is set out in Section 6.10 to 6.14 – "Operation & Management of Apartment Developments", and specifically Section 6.12.

Section 6.12 of the Apartment Guidelines 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 6.12 of the Apartment Guidelines. The report is broken into 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 the residents.

PROPOSED DEVELOPMENT

The proposed development comprises:

A ten year approval to carry out the following proposed development which is located on a total application site area of c. 9.7 ha, located on the former Central Mental Hospital, Dundrum Road, Dundrum, Dublin 14 and areas of Dundrum Road and St. Columbanus Road, Dublin 14. The subject site is in the immediate setting and curtilage of a number of protected structures, namely the 'Asylum' (RPS No. 2072), the 'Catholic Chapel' (RPS No. 2071) and the 'Hospital Building' (RPS No. 2073).

The development will consist of the construction of a residential scheme of 934 no. dwellings on an overall site of c. 9.7 ha.

The development will consist of the demolition of existing structures associated with the existing use (3,677 sq m), including:

- Single storey former swimming pool / sports hall and admissions unit (2,750 sq m);
- Two storey redbrick building (305 sq m);
- Single storey ancillary and temporary structures including portacabins (618 sq m);
- Removal of existing internal sub-divisions/ fencing, including removal of security fence at Dundrum Road entrance;
- Demolition of section of porch and glazed screens at Gate Lodge building (4 sq m);
- Removal of walls adjacent to Main Hospital Building;
- Alterations and removal of section of wall to Walled Garden.

The development will also consist of alterations and partial demolition of the perimeter wall, including:

- Alterations and removal of section of perimeter wall adjacent to Rosemount Green (south);
- Formation of a new opening in perimeter wall at Annaville Grove to provide a pedestrian and cyclist access;
- Alterations and removal of sections of wall adjacent to Dundrum Road (including removal of existing gates and entrance canopy), including reduction in height of section, widening of existing vehicular access, and provision of a new vehicle, cyclist and pedestrian access;
- Alterations and removal of section of perimeter wall adjacent to Mulvey Park to provide a pedestrian and cyclist access.

The development with a total gross floor area of c. 94,058 sq m (c. 93,980 sq m excluding retained existing buildings), will consist of 934 no. residential units comprising:

- 926 no. apartments (consisting of 342 no. one bedroom units; 98 no. two bedroom (3 person) units; 352 no. two bedroom (4 person) units; and 134 no. three bedroom units) arranged in 9 blocks (Blocks 02-10) ranging between 2 and 8 storeys in height (with a lower ground floor to Blocks 02 and Block 10 and Basements in Blocks 03 and 04), together with private balconies and private terraces and communal amenity open space provision (including courtyards) and ancillary residential facilities, including an 130 sq m internal residential amenity area at the Ground Floor Level of Block 3;
- 6 no. three bedroom duplex apartments located at Block 02, together with private balconies and terraces.
- 2 no. 5 bedroom Assisted Living Units and private rear gardens located at Block 02.

The development will also consist of 4,380 sq m of non-residential uses, comprising:

- Change of use and renovation of existing single storey Gate Lodge building (former reception/staff area) to provide a café unit (78 sq m);
- 1 no restaurant unit (266 sq m) located at ground floor level at Block 03;
- 3 no. retail units (1,160 sq m) located at ground floor level at Blocks 03 and 07;
- 1 no. medical unit (288 sq m) located at ground floor level at Block 02;
- A new childcare facility (716 sq m) and associated outdoor play area located at lower ground and ground floor level at Block 10;
- A management suite (123 sq m) located at ground floor level at Block 10; and
- A new community centre facility, including a multi-purpose hall, changing rooms, meeting rooms, storage and associated facilities (1,749 sq m) located at ground and first floor level at Block 06.

Vehicular access to the site will be from a new signalised access off Dundrum Road to the south of the existing access and the existing access of Dundrum Road will be retained for emergency vehicle, pedestrian and cyclist access only.

The development will also consist of the provision of public open space and related play areas; hard and soft landscaping including internal roads, cycle and pedestrian routes, active travel routes for cyclists and pedestrians, pathways and boundary treatments, street furniture, wetland features, part-basement, car parking (524 no. spaces in total, including car sharing and accessible spaces); motorcycle parking; electric vehicle charging points; bicycle parking (long and short stay spaces including stands); ESB substations, piped infrastructural services and connections (including connection into existing surface water sewer in St. Columbanus Road); ducting; plant (including external plant for Air Source Heat Pumps and associated internal heating plantrooms); waste management provision; SuDS measures (including green roofs, blue roofs, bio-retention areas); attenuation tanks; sustainability measures (including solar panels); signage; public lighting; any making good works to perimeter wall and all site development and excavation works above and below ground.

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

1.1. Property Management of the Common Areas of the development

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 and that the running and maintenance costs of the common areas of the development are kept within the agreed Annual operational budget. Should it be proposed to sell residential units, the client will comply with the relevant legislation and will establish an Owners' Management Company (OMC) where necessary.

The property management company will enter 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 15 years and in the form prescribed by the Property Services Regulatory Authority (PSRA). For leased units, a third-party Property Management Company may be engaged. The Property Management Company 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.
- Corporate Services.
- Insurance Management.
- After Hours Services.
- Staff Administration.

1.2. Service Charge Budget

The service charge budget covers 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 provisions of the Multi Unit Developments Act 2011 ("MUD" Act), where applicable to the development. This may vary based on the chosen tenure and split between units to be sold or leased.

The 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. 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. In line with the requirements of the MUD Act, the members of the OMC will determine and agree each year at a General Meeting of the members, the contribution to be made to the Sinking Fund, having regard to the BIF report produced.

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.

SECTION 02

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

2.1. Energy Performance and Carbon Emissions

A Building Energy Rating (BER) certificate will be provided for each apartment which will provide detail of the energy performance and carbon emissions associated with each of the dwellings. It is proposed to target a BER Rating for each apartment of A2/A3. This will equate to the following emissions:

A2 – 25-50 kWh/m2/yr. with CO2 emissions approx. 10 kgCO2/m2/yr.
A3 – 51-75 kWh/m2/yr. with CO2 emissions approx. 10 kgCO2/m2/yr.

The following table outlines the proposed passive and active, energy and carbon emission reduction measures which will directly benefit occupants in terms of reducing operational costs.

<table>
<tr><th>Measure</th><th>Description</th><th>Benefit</th></tr>
<tr><td>Building Fabric Efficiency</td><td>The U-Value of a building element is a measure of the amount of heat energy that will pass through the constituent element of the building envelope. Increasing the insulation levels in each element will reduce the heat lost during the heating season. It is possible to exceed the requirements of the current building regulations. The current target U-Values are identified below:
<table>
<tr><th rowspan="2">Fabric Element</th><th colspan="2">U value (W/m².K)</th></tr>
<tr><th>TGD Part L (2022)</th><th>Targeted</th></tr>
<tr><td>Ground Floor</td><td>0.18</td><td>0.18</td></tr>
<tr><td>Exposed Floor</td><td>0.18</td><td>0.18</td></tr>
<tr><td>Wall (External)</td><td>0.18</td><td>0.18</td></tr>
<tr><td>Roof (Pitched)</td><td>0.16</td><td>0.16</td></tr>
<tr><td>Flat Roof</td><td>0.2</td><td>0.2</td></tr>
<tr><td>Windows and glazed doors</td><td>1.4</td><td>Total system u-value: 1.10W/m2K for windows, and 1.40W.m2k for sliding doors</td></tr>
<tr><td>Opaque doors U-Value</td><td>1.4</td><td>1.4</td></tr>
<tr><td>Thermal bridging factor</td><td>0.08 W/m2k</td><td>0.08 W/m2k</td></tr>
<tr><td>Internal Heat Capacity</td><td>NA</td><td>Medium Light</td></tr>
<tr><td>Air permeability</td><td>5m3/(hr.m2) @50pa</td><td>3m3/(hr.m2) @50pa or 0.15 ach</td></tr>
</table>
To limit heat loss through the façade, careful consideration will be shown when designing the external envelope. The specification of the insulation utilised, and the continuity of insulation are crucial. Insulation slows the rate at which heat is lost to the outdoors. Heat flows in three ways: by conduction, convection, and radiation.

One major contributing factor to unnecessary heat loss is infiltration. Infiltration is the air leakage of external air into a building due to the pressure difference associated with internal and external temperatures.

Under the Part L 2022 (Domestic) the minimum air permeability performance of not greater than 5 m3/hr/m2 @ 50 Pa. It is intended that the residential development will target an air permeability rate of 3 m³/hr/m² @ 50 Pa.</td><td>Reduction in the consumption of fuel and the associated carbon emissions and operating costs.</td></tr>
</table>

	By reducing the number of infiltration/ external air changes per hour, the buildings energy demand and carbon emissions will reduce as the buildings ability to retain conditioned thermal energy has increased i.e., the space heating system will not be required as often. The proposed development is being assessed against the Home Performance Index (HPI) outlined by the Irish Green Building Council (IGBC). These assessments will include on-site testing of materials to ensure the durability and resilience of the building fabric. With good design and strict on-site control of building techniques, infiltration losses can be significantly reduced. To ensure that a sufficient level of air tightness is achieved, air permeability testing will be specified, with the responsibility being placed on the main contractor to carry out testing and achieve the targets identified in the tender documents. Thermal bridges occur where the insulation layer is penetrated by a material with a relatively high thermal conductivity and at interfaces between building elements where there is a discontinuity in the insulation. It is intended to target a Thermal Bridging Factor of 0.08 W/m2k as per TGD Part L 2022 Accredited Construction details. Air testing specification will require testing to be carried out in accordance with: BS EN 13829:2001 'Determination of air permeability of buildings, fan pressurisation method' CIBSE TM23: 2000 'Testing buildings for air leakage'.	
Lighting Efficiency	The Lighting design intent is to introduce artificial lighting in all applicable areas. Energy efficient light fittings will be installed throughout. They will be controlled by PIR and will be designed to reduce energy consumption. For the lighting to the public open space the distance to lighting columns and maintaining coverage has been considered in the design. Sufficient light coverage in opens spaces accounts for security, visibility and access for maintenance. The external lighting design also takes into account the requirements for biodiversity such as the lux levels suitable for bats and the badger sett.	Reduction in the consumption of electricity and the associated carbon emissions and operating costs.
Sanitary ware	Showers are proposed with a max flow rate at 3 Bar to be no greater than 6 litres per minute. Bath volume to be no greater than 150 litres.	Reduction in the consumption of potable water and energy associated with domestic hot water heating.

The following Low Energy / Carbon & Renewable Energy Solutions that are being considered for the development.

Measure	Description	Benefit
Heat Pumps	The general principal of heat pump technology is the use of electrical energy to drive a refrigerant cycle capable of extracting heat energy from one medium at one temperature and delivering this heat energy to a second medium at the desired temperature. The main source of renewable energy for this development will be produced by Heat Pumps. The centralised communal heating scheme per block is proposed to generate heat through air source heat pumps. This is intended to provide sufficient renewable energy contribution to meet the TGD Part L renewable energy requirements. A heat pump provides renewable (thermal) energy through their operational efficiencies. They can produce 4.5 – 5 times the amount of energy that is put into the system, reducing the demand and energy requirements substantially.	Reduction in the consumption of fuel and the associated carbon emissions and operating costs.

Photovoltaic (PV) Panels	Photovoltaic (PV) are proposed for areas that require an additional renewable energy contribution to meet TGD Part L. The required quantity of PV will be located on the roof of each block. PV panels convert the solar radiation into electricity, which can be connected to the mains supply of a dwelling. Panels are typically arranged in arrays on a building roof, with the produced electricity fed directly into the building. The sun's solar radiation, which strikes the PV cells as sunlight, is the basis for how the PV system functions. This solar radiation hits the PV cells, converting the solar energy into DC electricity. DC electricity passes through an inverter which converts the electricity to AC making it ready to use. The current is then fed through a meter before passing through the consumer unit. The dwelling will automatically use the PVs energy to power appliances, any electricity that is not used can be exported back to the national grid.	Reduction in the consumption of electricity and the associated carbon emissions and operating costs.
Mechanical Ventilation Heat Recovery	Mechanical heat recovery ventilation (MVHR) will provide ventilation to each apartment. MVHR provides tempered external fresh air to occupied spaces and extract ventilation from rooms with “Bad Air” such as Bathrooms, utility stores etc. Heat is recovered from exhaust air streams and transferred to the fresh air stream negating the requirements to use heating energy to heat incoming cold external fresh air.	Reduction in the consumption of fuel and the associated carbon emissions and operating costs. Increases comfort conditions for occupants Prevents mould growth.
ECAR Charging Points	It is intended to provide up to 20% of all public parking spaces with electric vehicle charging facilities. Ducting infrastructure (electrical conduits) are intended to be provide to all public car parking spaces, where: i. the car park is located inside the building; or ii. the car park is physically adjacent to the building.	Providing the option for E-Car charging points will futureproof the development.

2.1.1. CIBSE Life Expectancy Analysis

MECHANICAL		
	EQUIPMENT ITEM	INDICATIVE LIFE (YEARS)
	Condensing Boilers (MTHW/LTHW)	20
	Dosing Pots	15
	Flue (stainless steel)	30
	Gas Burners (atmospheric)	20
	Base Mounted Pumps	20
	Expansion Vessel (unvented hot water)	15
	Heating Pressurisation Unit	20
	Mains Cold Water Booster	15
	Sprinkler Booster	20
	Condensate Pipework System	12
	Steel Pipework (closed)	25
	Copper Pipework (open)	30
	Water Treatment Plant	15
	Steel Radiators	20
	Computer Rooms Air Conditioning	15
	Axial Fans	15
	Galvanised Ductwork (rectangular and circular)	40
	Plastic Ductwork	15
	Ductwork Ancillaries: External Louvres (steel painted)	20
	BMS : Head End (Supervisor)	5
	BMS : Outstations	10
	BMS : Plant Controller	10
	BMS : Operating System	5
	BMS : Remote Display Panels	10
	BMS : Communications Network (hardwiring)	25
	Leak Detection: Gas	10
	Above Ground Drainage (plastic)	25
	Sanitary Ware	25
	Gas Meter	20
	Water Meter	20
	Dry Risers	25
	Sprinklers : Wet	25
	Sprinkler Heads	30
	Heat Pumps	15

ELECTRICAL		
	Mains Cables	35
	Switchgear	30
	Transformer	30
	Protective Installation: Earth Bonding (major)	30
	Protective Installation: Earth Bonding (domestic)	25
	Consumer Units	25
	Distribution Boards	20
	Feeder Pillar	20
	Final Circuits and Outlets	20
	Inverter	20
	Lighting Installations (external)	15
	Lighting Installations (internal)	20
	Miniature Circuit Breakers (MCB)	20
	Moulded Case Circuit Breaker (MCCB)	25
	Power Distribution Unit (PDU)	20
	Residual Current Breaker (RCB)	20
	Switched Socket Outler (SSO)	15
	Emergency Lighting	25
	Switches	10
	Electricity Meters	20
	Access Control	15
	Call Points (BGU's)	15
	CCTV : Internal	20
	CCTV : External	15
	Fire Alarms (battery support & electrical)	20
	Heat Detectors	20
	Smoke Ventilation Systems	30
	Clock Systems	15
	CCTV & Video System	10
	Communication System (voice & data)	20
	Electric Heaters	12
	Lighting Control and Management Systems	15
	Lightning Protection	15
	Television and Satellite Systems	15
	Escalators	30
	Uninterruptable Power Supply Systems (UPS)	20

2.2. Materials

The practical implementation of the Design and Material principles has informed design of building facades, internal layouts and detailing of the proposed apartment buildings.

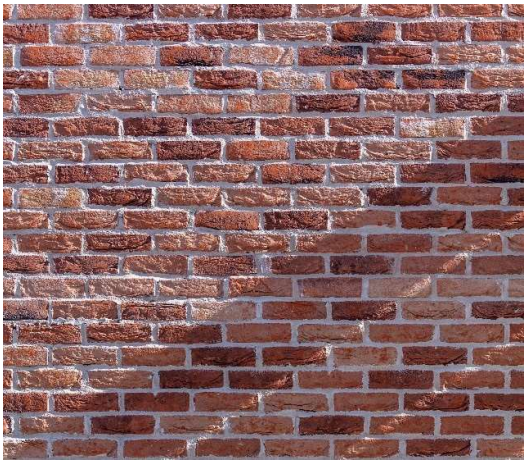
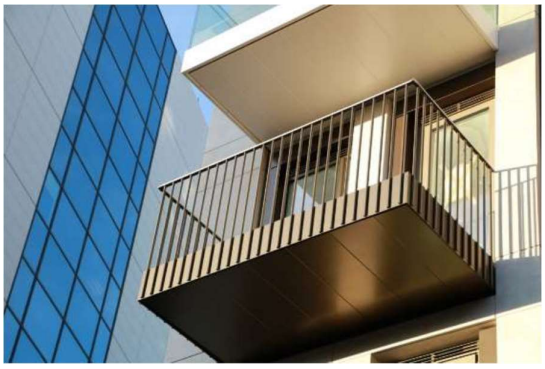
2.2.1. Buildings

The buildings are designed in accordance with the Building Regulations, in particular Part D 'Materials and Workmanship', which includes all elements of the construction. The Design Principles and Specification are applied to both the apartment units, commercial spaces and the common parts of the building and specific measures taken include:

Measure Description	Benefit
Daylighting to circulation areas where possible	Avoids the requirement for continuous artificial lighting
Natural/Passive ventilation system to circulation areas where possible	Avoids costly mechanical ventilation systems and associated maintenance and future replacement.
Assisted Natural Ventilation system to upper basement car park with limited extent of induction fans. The lower level carpark will be mechanically ventilated	Avoids provision of fully mechanically ventilating the whole basement.
External paved and landscaped areas	All of these require low/minimal maintenance

2.2.2. Material Specification

Measure Description	Benefit
Consideration is given to the requirements of the Building Regulations and includes reference to BS 7543:2015, 'Guide to Durability of Buildings and Building elements, Products and Components', which provides guidance on the durability, design life and predicted service life of buildings and their parts. All common parts of the proposed Apartment buildings and, the durability and performance of these are designed and specified in accordance with Figure 4; Phases of the Life Cycle of BS7543; 2015. (Please see Appendix A 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 • Annex D Design Life Data sheets	Ensures that the long-term durability and maintenance of Materials is an integral part of the Design and Specification of the proposed development.

Use of brickwork to envelope 	Requires minimal on-going maintenance.
Use of factory finished alu-clad/aluminium windows and external doors. Along with Aluminium cappings to roof parapets 	Requires minimal on-going maintenance.
Use of Galvanised Steel balconies and handrails with PPC finish on exposed visual surfaces. Composite self-finished board for deck of the balcony. 	Requires minimal on-going maintenance.

2.3 Landscape

Measure	Description	Benefit
Site Layout & Landscape design	Generous and high-quality landscaping that responds to the existing heritage of the site. The proposed landscape design will aim to retain as many healthy mature existing trees on site as possible whilst creating a strong green framework through the proposed development providing high quality, historic core of public open space that is linked for pedestrians and cyclists alike. Proposed tree, shrub and groundcover planting is found throughout the streetscape, historic core, communal courtyards and public civic spaces. Planting is chosen for its robust nature and yearlong interest. The overriding design intention is to create an inclusive and coherent new community based on best practice urban planning principles, giving residents a sense of place, ownership and identity.	Natural attenuation, reduced surface water runoff from site and increased biodiversity.
Green Roofs	Use of green roofs and traditional roof coverings with robust and proven detailing to landscape roof elements. 	Attenuation reduces the need to construct large attenuation systems on site. The proposed Green Roofs will also aid biodiversity on the site
Paving materials	Use of robust, high-quality and high slip-resistance materials throughout the development.	Required ongoing maintenance significantly reduced through use of robust materials installed with proven details.
Materials	Sustainable, robust materials with high slip-resistance to be used for paving. Durable and robust street furniture and play equipment to be used throughout	Robust materials and elements installed with proven details reduces the frequency of required repair and maintenance.
Sustainable drainage systems	1. Use of green roofs across the development. Interception trays incorporated into the build-ups. 2. Additional use of a combined drainage/reservoir board across all raised podium areas (blue roofs). 3. Use of bio-retention areas and filter drains across the development to treat and intercept rainwater at source.	SuDS measures treat and reduce rainwater runoff from the site protecting surrounding watercourses. They have additional amenity and biodiversity benefits.
Planting details	Planting and landscape works will be carried out in accordance with BS4428. Trees will be advanced/semi-mature rootballed stock, in accordance with BS 8545. Low level, low maintenance shrub and groundcover planting will be used in planting beds containerised with a minimum size of 2 litre pots, with a 75mm well composted fine bark mulch. Proposed meadows will follow the guidelines set out by the DLR biodiversity guidance and All-Ireland pollinator plan with the aim to increase Biodiversity on site. Please refer to the outline softworks specification, planting schedule, accompanying landscape details and plans which will be submitted as part of the application.	Correctly installed planting will develop into well established and robust soft landscaping, reducing future maintenance and replacement of failures.

2.4 Waste Management

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

Measure	Description	Benefit	Discipline
Operational Waste Management Plan	This application will be accompanied by an Operational Waste Management Plan prepared by AWN Consulting	The report demonstrates how the scheme has been designed to comply with local, regional, and national waste legislation along with best practice	AWN
Storage of Non-Recyclable Waste and Recyclable Household Waste	Inclusion of centralised waste storage areas, with enough space to accommodate a weekly/bi-weekly collection of bins	Easily accessible by all residents, minimises potential littering of the scheme, reduce potential waste charges and not limit waste contractor selection	AWN
	Domestic waste management strategy: General waste, mixed recyclable, and organic bin distinction	Helps reduce potential waste charges and not limit waste contractor selection	
	Security restricted waste storage rooms	Reduce potential for fly tipping by residents and non-residents	
	Well signed waste storage rooms and bins	Help reduce potential cross contamination of waste and reduce waste charges.	
Composting	Organic waste bins to be provided in waste storage areas	Helps reduce potential waste charges	AWN

A waste generation model (WGM) developed by AWN, has been used to predict waste types, weights and volumes arising from operations within the proposed development. The WGM incorporates building area and use and combines these with other data including Irish and US EPA waste generation rates.

The estimated quantum/volume of waste that will be generated from the residential and community home units has been determined based on the predicted occupancy of the units. While the floor area uses m^2 has been used to estimate the waste that will be generated by the retail, café, restaurant, community and creche units (All classed as commercial) in the development.

Waste from residential amenities has been calculated within the residential waste figures and waste will be stored within the closet residential waste store. The estimated waste generation for the development for the main waste types is presented in the following tables.

Waste type	Waste Volume (m^3/week)			
	Residential Duplex/House 2 - Bed (Individual)	Residential Duplex/House 3 - Bed (Individual)	Community Home 5 - Bed - Block 2 (Combined)	Residential Block 2 (Combined)
Organic Waste	0.02	0.02	0.06	1.49
DMR	0.12	0.14	0.44	10.56
Glass	<0.00	<0.00	0.01	0.29
MNR	0.06	0.07	0.21	5.55
Total	**0.20**	**0.23**	**0.72**	**17.90**

Estimated waste generation for the proposed development for the main waste types

Waste type	Waste Volume (m^3/week)			
	Residential Block 3 (Combined)	Residential Block 4 (Combined)	Residential Block 5 (Combined)	Residential Block 6 (Combined)
Organic Waste	2.42	1.42	1.67	0.55
DMR	16.54	10.05	11.81	3.87
Glass	0.47	0.27	0.32	0.11
MNR	9.62	5.28	6.21	2.03
Total	**29.05**	**17.02**	**20.00**	**6.56**

Estimated waste generation for the proposed development for the main waste types

Waste type	Waste Volume (m^3/week)			
	Residential Block 7 (Combined)	Residential Duplex Block 8 (Combined)	Residential Duplex Block 9 (Combined)	Residential Block 10 (Combined)
Organic Waste	3.28	0.45	0.31	2.57
DMR	23.28	3.21	2.16	18.21
Glass	0.64	0.09	0.06	0.50
MNR	12.24	1.69	1.14	9.57
Total	**39.44**	**5.44**	**3.66**	**30.85**

Estimated waste generation for the proposed development for the main waste types

Waste type	Waste Volume (m^3/week)			
	Medical Unit (Block 2) (Individual)	Retail / Restaurant (Block 3) (Combined)	Community Centre Facility (Block 6) (Individual)	Retail (Block 7) (Combined)
Organic Waste	0.03	0.31	0.30	0.26
DMR	0.69	2.91	1.88	5.15
Glass	0.02	0.06	0.20	0.14
MNR	0.30	1.66	2.30	2.15
Confidential Paper	0.28	-	-	-
Medical Waste	0.63	-	-	-
Total	**1.93**	**4.94**	**4.78**	**7.70**

Estimated waste generation for the proposed development for the main waste types

Waste type	Waste Volume (m^3/week)	
	Childcare Unit / Management Suite (Block 10) (Combined)	Cafe (Gate Lodge) (Individual)
Organic Waste	0.07	0.08
DMR	2.71	0.18
Glass	0.01	0.01
MNR	1.48	0.24
Total	**4.27**	**0.51**

Estimated waste generation for the proposed development for the main waste types

The DLR Pre-Planning Waste Management Form recommends calculating residential waste using Section 4.7 of *BS5906:2005 Waste Management in Buildings – Code of Practice* [26]. The predicted total waste generated from the residential units based on the Code of Practice is c. 147.63m^3 per week for the residential units. Whereas the AWN waste generation model estimates c. 180.88m^3 per week from the residential units. AWN's modelling methodology is based on data from recent published data and data from numerous other similar developments in Ireland and based on AWN's experience it is a more representative estimate of the likely waste arisings from the development.

Waste Storage And Collection

This section provides information on how waste generated within the development will be stored and how the waste will be collected from the development. This has been prepared with due consideration of the proposed site layout as well as best practice standards, local and national waste management requirements including those of DLRCC. In particular, consideration has been given to the following documents:

BS 5906:2005 Waste Management in Buildings – Code of Practice;
DLRCC Guidance Notes for Waste Management Planning for Residential and Commercial Developments (2023);
DLRCC, Dún Laoghaire Rathdown County Council Segregation, Storage and Presentation of Household and Commercial Waste) Bye-laws (2019).
The NWMPCE 2024 - 2030;
DoHLGH, Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities (2023) [27].
DoHLGH, Design Manual for Urban Roads and Streets (2019) [28]

Waste Storage Areas

Duplex Units Block 2

1 no. WSA has been allocated for use by the duplex units in this block. The WSA is located in external location to the northeast of the block.

Community Home Units Block 2

2 no. shared communal Waste Storage Areas (WSAs) have been allocated within the development design for the community home unit blocks. All WSAs have been strategically located on the ground in an external location, in close proximity to the buildings.

Unit Blocks 2-7 & 10

15 no. shared communal Waste Storage Areas (WSAs) have been allocated within the development design for the residential apartment blocks. All WSAs have been strategically located on the ground and basement floor levels, in close proximity to cores.

Duplex/Unit Blocks 8 & 9

Duplex units will have their own individual WSAs allocated at the rear of their buildings where external access to the rear yard is possible. When external access to the rear of the property is unavailable, bins will be stored at the front of the unit, shielded from view of the road.

Medical Unit Block 2

1 no. WSA has been allocated for use by the medical unit. The medical unit will have their own individual WSA for the storage of general and medical waste at ground floor level in Block 2

Commercial Units Block 3

2 no. WSAs have been allocated for use by the commercial units in Block 3. These WSAs have been allocated on ground floor level in close proximity to the commercial units within Block 3.

Community Unit Block 6

1 no. WSA has been allocated in the development design for use by the Community unit in Block 6.

Commercial Units Block 7

2 no. WSAs have been allocated for use by the commercial units in Block 7. These WSAs have been allocated on ground floor level in close proximity to the commercial units within Block 7.

Childcare and Management Units Block 10

The Childcare and Management units will have a shared WSA allocated on ground floor level in Block 10.

Café Gatehouse Unit

The café will be required to allocate space within their own unit for the storage of segregated waste.

Facilities management will supply all tenants with a document that shall clearly state the methods of source waste segregation, storage, reuse and recycling initiatives that shall apply within the development.

The waste receptacles from the shared WSAs will be collected by facilities management, immediately prior to collection and brought to where the bins will be staged temporarily awaiting collection. The staging areas are such that it will not obstruct traffic or pedestrians (allowing a footway path of at least 1.8m, the space needed for two wheelchairs to pass each other) as is recommended in the *Design Manual for Urban Roads and Streets* (2019).

Using the estimated waste generation volumes, the waste receptacle requirements for MNR, DMR, organic waste and glass have been established for the residential WSA. These are presented in the table below.

Waste storage requirements for the proposed development

Area/Use	Bins Required					Equipment
	MNR*	DMR**	Organic	Glass	Bales	
Houses / Duplex (Individual)	1 x 240L	1 x 240L	1 x 120L	Bottle Bank	-	-
Residential Apartment Block 2 (Shared)	5 x 1100L	10 x 1100L	7 x 240L	2 x 240L	-	-
Residential Community Home Block 2 (Shared)	2 x 240L	4 x 240L	2 x 120L	2 x 120L	-	-

Area/Use	Bins Required					Equipment
	MNR*	DMR**	Organic	Glass	Bales	
Residential Duplex Block (Shared)	1 x 1100L	1 x 1100L	1 x 240L	1 x 120L		
Residential Apartment Block 3 (Shared)	9 x 1100L	15 x 1100L	10 x 240L	2 x 240L	-	-
Residential Apartment Block 4 (Shared)	5 x 1100L	10 x 1100L	6 x 240L	2 x 240L	-	-
Residential Apartment Block 5 (Shared)	6 x 1100L	11 x 1100L	7 x 240L	2 x 240L	-	-
Residential Apartment Block 6 (Shared)	2 x 1100L	4 x 1100L	1 x 240L	1 x 120L	-	-
Residential Apartment Block 7 (Shared)	12 x 1100L	22 x 1100L	14 x 240L	3 x 240L	-	-
Medical Unit Block 2 (Individual)	2 x 240L	1 x 1100L	1 x 120L	1 x 120L	-	Medical Waste bin Sharps Container
Commercial Units Block 3 (Shared)	2 x 1100L	3 x 1100L	2 x 240L	1 x 120L	-	-
Community Unit Block 6 (Individual)	3 x 1100L	2 x 1100L	2 x 240L	2 x 240L	-	-
Commercial Units Block 7 (Shared)	2 x 1100L	5 x 1100L	2x 240L	1 x 120L	-	-
Childcare & Management Units Block 10 (Shared)	2 x 1100L	3 x 1100L	1 x 120L	1 x 120L	-	-
Café Gate Lodge (Individual)	1 x 240L	1 x 240L	1 x 120L	Bottle Bag	-	-

Note: ** = Mixed Non-Recyclables*
*** = Dry Mixed Recyclables*

The waste receptacle requirements have been established from distribution of the total weekly waste generation estimate into the holding capacity of each receptacle type.

The Operational Waste Management Plan is included within the planning application.

2.5. Health and Wellbeing

The following are illustrations of how the health and wellbeing of future residents are considered.

Measure	Description	Benefit
Natural / Day Light	The design, layout and separation distances of the building blocks have been designed to optimize the ingress of natural daylight/ sunlight to the proposed dwellings to provide good levels of natural light. Please see daylight and sunlight report prepared by GIA submitted with this planning application.	Reduces reliance on artificial lighting thereby reducing running costs.
Accessibility	All units will comply with the requirements of Building regulations Parts M and K.	Reduces the level of adaptation, and associated costs, potentially necessitated by residents' future circumstances.
Security	The scheme is designed to incorporate passive surveillance with the following security strategies available for adaptation into the design: • CCTV monitoring details • Secure bicycle stands – covered by CCTV • Controlled Access to individual circulation cores • Controlled access between Public Spaces and Residents Communal Spaces • Routine access fob audits • Appropriately lit external spaces.	Aids in reducing potential security/management costs. Enhances safety for residents and visitors.
Natural Amenity	Multiple podium garden spaces with varying themes to provide active and passive use of the spaces. Additionally, the proposed scheme has a generous civic space with raised planters and high-quality surface materials and passive recreation areas away from traffic on Dundrum Road.	Facilitates community interaction, socialising and play – resulting in improved wellbeing. Proximity and use of external green spaces promote a healthy lifestyle. External spaces being provided separately for residents (communal podium spaces & private balconies) and public (Quality Public open Space).

2.6 Management

Consideration has been given to ensuring the residents have a clear understanding of the subject property.

Measure	Description	Benefit
Home User Guide	Once a purchaser completes their sale, a homeowner box will be provided which will include: **Homeowner manual** – this will provide important information for the purchaser on details of their new property. It typically includes details of the property such as MPRN and GPRN, Information in relation to connect with utilities and communication providers, Contact details for all relevant suppliers and User Instructions for appliances and devices in the property. **A Residents Pack** prepared by the OMC which will typically provide information on contact details for the Managing agent, emergency contact information, transport links in the area and a clear set of rules and regulations. **Tenant manual** – this will provide important information for the tenant on details of their rental property. It typically includes details of the property such as MPRN and GPRN, Information in relation to connect with utilities and communication providers, Contact details for all relevant suppliers and User Instructions for appliances and devices in the property.	Residents are as informed as possible so that any issues can be addressed in a timely and efficient manner.

2.7 Transport

Measure	Description	Benefit
Access to Public Transport (Bus Services)	Dublin Bus Route No.11 has a 15-30 minute frequency and operates along the Drummartin Road between Wadelai Park through Dublin City Centre and the Sandyford Business District. Dublin Bus Route 175 from Kingswood Avenue to UCD passes along Dundrum Road every 30 minutes. Bus facilities are adjacent from the site. As part of the BusConnects programme, it is proposed to further enhance the number of bus services in the area, and the existing services will be replaced by: • No. 10 Route with 30 minute frequency along R825 between Ticknock and the City Centre; and • No. S6 Route with 10-15 minute frequency between Mount Merrion and Firhouse along R112. [This will also provide access to the Luas Green line via the Dundrum Transport Interchange for those unwilling or unable to walk.] 	These bus services provide access to a range of destinations in the city centre including light and heavy rail and other transport hubs such as Busáras. The proximity, frequency and range of destinations served by these local bus services enhance the accessibility levels of the proposed residential development in addition to providing a viable and practical sustainable alternative to journeys undertaken by the private motor car.
Access to Public Transport (LUAS / Light Rail)	Luas green line stations are located within a 5 minute walk of the site at Dundrum Windy Arbour. The Luas provides a high capacity high frequency connection to the city centre and Broombridge to the north, and to Sandyford and Cherrywood to the south.	The availability, proximity and ease of access to high quality public transport services contribute to reducing the reliance on the private motor vehicle for all journey types.
Permeable Connections	The site's redevelopment presents significant opportunities for enhanced local permeability and connectivity, for the integration of neighbouring and wider community. The successful integration of the site with surrounding development will rely on the creation of new access points and the site's interfaces with Rosemount Green to the south, Mulvey Park, Dundrum Road and Annaville are each recognised as presenting opportunities to enhance local connectivity and permeability.	Ensure the long-term attractiveness of walking and cycling to neighbourhood centres.

Bicycle Storage	Secure bicycle parking has been designed throughout the site as follows: • 1,850 no. long stay and 488 no. short stay residential cycle spaces are proposed. • 50% of short stay residential visitor cycle parking is covered (short stay). • Long stay (residents') cycle parking within podiums is located within 50m of residential core entrances. • Short stay (visitor) parking is provided externally, convenient to entrances at ground or podium level rather than for convenience to lift cores under the podium. • A mixture of Sheffield stands and stacking bike stands will be provided at resident long term secure storage areas. • Sheffield stands will be provided for all short stay locations. • For non-residential uses a total of 60 no. long term secure cycle spaces are provided to locations within podium. • For non-residential uses a total of 84 no. short stay bike spaces are provided within the public realm at street level.	Accommodates the uptake of cycling and reducing the reliance on the private motor vehicle for both residences and guests.
ECAR Facilities	20% of all car parking spaces will be provided with E-Car Charging points. Ducting shall be provided from local distribution boards to all remaining car park spaces. This will enable the management company the option to install E-Car charging points to cater for future E-Car demand of residents.	To accommodate the growing demand for ECARS which assist in decarbonising society and reducing oil dependency.

2.8 Building Services Lifecycle

Mechanical and Electrical Systems

EDC have prepared an Energy & Sustainability Report which outlines the importance of compliance with Part L 2022 of the Building Regulations. The below is an extract from the Energy & Sustainability Report which outlines information on the selected heating option. The full report is available within the Planning Application.

2.8.1 Central Heating (CH)

The Centralised heating system is intended to provide 100% of the space and water heating using **Air Source Heat Pumps.** The Air-water heat pumps will be in a located in an external location in each apartment block, most likely the roof. The renewable energy requirements set out in TGD Part L 2021, are expected to be met in all unit types with this type of system. Fossil fuels have been excluded in this study.

Centralised heating systems are very similar to the DH systems. The main difference is the energy centres will be in a centralised location in each apartment block. Dwellings will also have HIU's located in a services cupboard.

Central Heating

- The Centralised heating system is heated by the Air-Water Heat Pumps, located in a centralised location in each apartment block, most commonly the roof.
- Hot water is distributed through a heat network, providing heat for the complete development.
- A heat interface unit (HIU) is located within each dwelling, where a plate heat exchanger transfers heat from the CH system to the dwelling internal space heating and domestic hot water system.
- A management company or a third-party ESCO company will bill each unit individually for heat consumed.

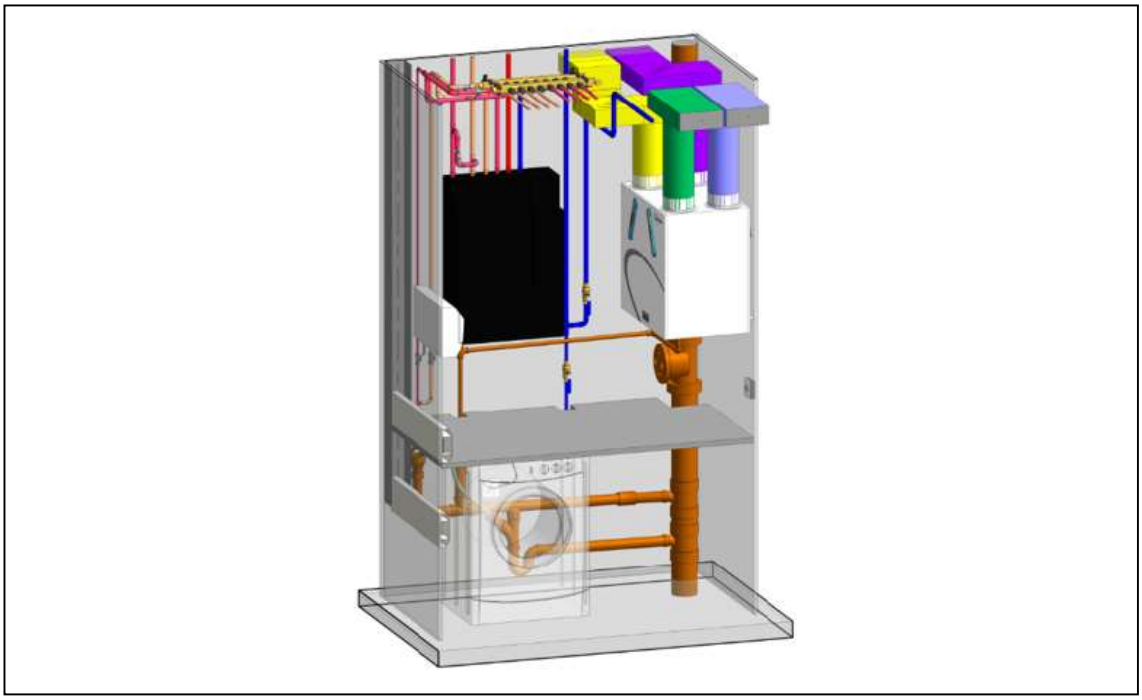
Summary of Characteristics

- Can provide Part L compliance and meet renewable target from a centralised location.
- Most system maintenance can be conducted without access to apartments.
- Reduces space requirements for plant within the units when compared to EAHP.
- Common corridors and stairs do not require additional mechanical systems and can be run from the CH system.
- Primary plant can be easily upgraded with modern technologies in future years, providing the potential to further reduce energy consumption, CO2 emissions and operational costs.
- Combined PV system could be installed and sent to landlord panel to offset generation costs.
- The system has less distribution losses compared to DH schemes.
- To mitigate overheating in units and corridors because of circulation heat losses, an overheating risk assessment can be carried out in early design phase.
- Third party ESCO management company will be required to manage billing.
- ESCO management companies generally provide a fixed price for 12months, this is reviewed every 12 months.

Spatial Requirements

The spatial requirements for the central heating plant can vary from block to block. Space for external central heat pumps and an additional heating plantroom will also be required.

The image below shows a typical dwelling service cupboard housing a Heat Interface Unit and a Mechanical Ventilation Heat Recovery (MVHR) unit. The service cupboard at low level can accommodate washing machines, clothes dryers etc. A typical DH scheme and MVHR unit spatial requirement for a district heating system heat interface unit is 0.9m x 1.5m.



Typical Dwelling Service Cupboard Housing for Central Heating

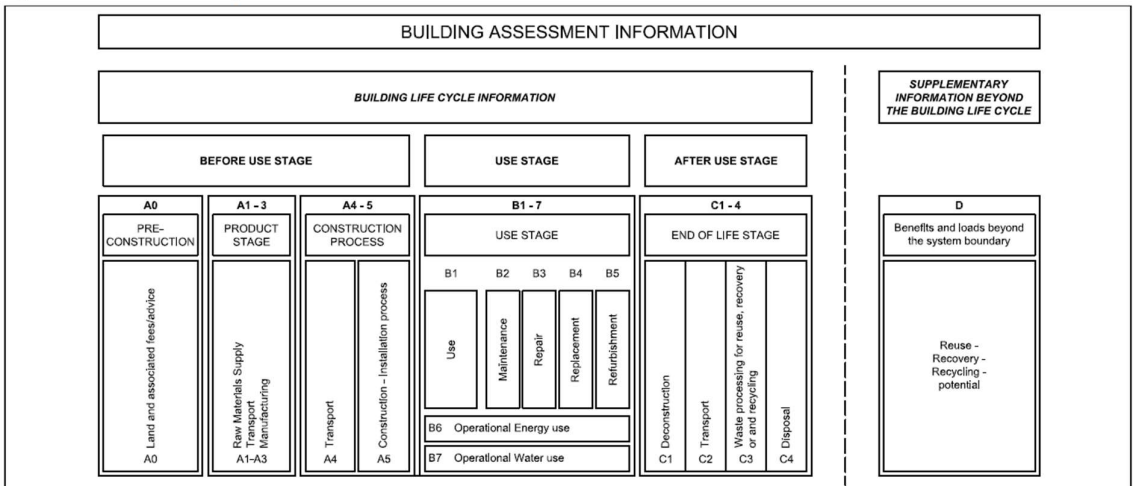
APPENDIX A

BS 7543:2015

BSI Standards Publication

Guide to durability of buildings and building elements, products and components

Figure 4 **Phases of the life cycle**



Key
1 Highest severity of consequence of failure
2 Anticipated severity of consequence of failure
3 Lowest severity of consequence of failure
4 Minimum service life
5 Most likely service life
6 Maximum service life