



Delap & Waller

Clongriffin Blocks 5 & 6

Climate Action, Energy & Sustainability
Statement

15/08/2024

Revision History

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1.0 Executive Summary

The report has been prepared by Delap and Waller for the Land Development Agency (LDA) to summarise the proposed fabric, services and renewable specification for the mixed-use development at Clongriffin, to demonstrate compliance with TGD Part L 2022 and Dublin City Council's Development Plan 2022-2028. This report forms part of the planning application. The Clongriffin masterplan consists of a series of residential mixed-use blocks, this report specifically relates to Blocks 5 & 6.

The proposed is required to demonstrate compliance with Technical Guidance Documents Part F (2019) and Part L (2022), which establishes the minimum performance requirements for ventilation, energy performance, carbon emissions, renewable energy and electric vehicle charging. In line with the Land Development Agency's (LDA) Sustainable Development Strategy, the proposed development will be designed to achieve certification with the Irish Green Building Council's (IGBC) Home Performance Index (HPI). The HPI Certification is Ireland's national certification for new homes. Similar to certification for commercial development like LEED and BREEAM, except that it's specifically designed for residential development and aligns to Irish building regulations. The certification is based on over 30 verifiable indicators across five categories; Environment, Health & Wellbeing, Economic, Quality Assurance and Sustainable Location. The BER assessment feeds into scoring for Environmental, Economic and Quality assurance categories.

The proposed development will be designed and constructed to meet Approved Document Part L 2022 Conservation of Fuel and Energy – Dwellings and Buildings other than Dwellings. This standard is also referred to as Nearly Zero Energy Building Standard (NZEB), which has become the regulatory standard since October 2022. The Part L regulation requires an overall improved energy performance for the fabric, services, lighting and renewable specification.

For the non-domestic and communal, the standard requires a Carbon Performance Coefficient (CPC) level of <1.00 and an Energy Performance Coefficient (EPC) level of <1.15. The nZEB also introduces a mandatory requirement for renewable energy sources, providing 20% of the buildings overall regulated primary energy use. However, where the energy performance and carbon performance is significantly lower than the maximum permissible targets, a renewable energy source providing 10% of the buildings primary energy demand is compliant.

For the residential dwellings, the standard requires an overall improved energy performance for the fabric, services and lighting specification. The standard requires a Carbon Performance Coefficient level of <0.35 and an Energy Performance Coefficient level of <0.30. The nZEB also introduces a mandatory requirement for renewable energy sources, providing 20% of the primary energy use.

As Blocks 5 & 6 are required to demonstrate compliance with the Irish Green Building Council's Home Performance Index (HPI), one of the minimum requirement of the HPI is to achieve a 10% improvement on the Energy Performance Coefficient. Therefore, all dwellings within Clongriffin shall achieve a an EPC of ≤ 0.27 .

The report will outline target U-Values of each fabric element, air permeability and options for the space heating, hot water and ventilation for consideration. Please note the specification and efficiencies outlined within this report are based on calculations and design information available at the time of writing.

2.0 Assessment Methodology

2.1 Architectural Design

The Domestic Energy Assessment Procedure (DEAP) calculations were carried out using the site plan, floor plans, sections, elevations provided by the CCK Architects for Clongriffin blocks 5 & 6. The tables below summarises the schedule of drawings for the two apartment blocks.

Block 5			
Title	Drawing Number	Revision	Date
Floor Plans	CLN-CCK-B5-01-M2-A-000100-Block_5_L0/L1/L2/L3/L4/L5LR	P01	19/07/2024
Elevations	CLN-CCK-B5-ZZ-M2-A-000200-Block_5_Elevations	P01	19/07/2024
Sections	Section A-A/B-B/C-C/D-D	P01	19/07/2024

Table 1: Architectural design Block 5

Block 6			
Title	Drawing Number	Revision	Date
Floor Plans	CLN-CCK-B6-01-M2-A-000100-Block_6_L0/L1/L1/L3/L4/L5/L6/LR	P01	19/07/2024
Elevations	CLN-CCK-B6-ZZ-M2-A-000200-Block_6_Elevations	P01	19/07/2024
Sections	Section A-A/B-B	P01	19/07/2024

Table 2: Architectural design Block 6

2.2 Software

Energy and carbon calculations have been carried out to demonstrate the performance of the buildings against the NZEB standard. The residential units are assessed using the Dwelling Energy Assessment Procedure (DEAP). DEAP Irish official procedure for calculating and assessing the energy required for space heating, space cooling, ventilation, water heating and lighting, less savings from energy generation technologies. DEAP calculates the annual delivered energy consumption, primary energy consumption and carbon dioxide emissions for standardised occupancy.

The commercial units are assessed using the Non-Domestic Energy Assessment Procedure (NEAP) using IES VE software. NEAP is the official procedure for the calculation of energy performance of non-domestic buildings in Ireland for the purposes of producing Building Energy Ratings (BER). It considers space heating, cooling, ventilation, water heating, and lighting in a building. The Sustainable Energy Authority of Ireland (SEAI) publishes NEAP software, the associated guidance and procedural documents.

2.3 Site Plan



Figure 1: Site Layout Plan – CCK Architects

3.0 Assessment Criteria

3.1 Technical Guidance Document L 2022

Technical Guidance Document Part L Conservation of Fuel and Energy – Buildings other than Dwellings 2022, has been issued by the Department of Housing, Planning and Local Government. This document becomes the regulatory standard for all new buildings other than dwellings from October 2022, to achieve Nearly Zero Energy Building standard (NZEB).

A Nearly Zero-Energy Building means a building that has a very high energy performance, as determined in accordance with Annex I of the EU Energy Performance of Buildings Directive Recast. The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby.

For the non-domestic units within the Neighbourhood Centre, the NZEB standard requires a Carbon Performance Coefficient (CPC) level of <1.00 and an Energy Performance Coefficient (EPC) level of <1.15. The nZEB also introduces a mandatory requirement for renewable energy sources, providing 20% of the buildings overall regulated primary energy use. However, where the energy performance and carbon performance is significantly lower than the maximum permissible targets, a renewable energy source providing 10% of the buildings primary energy demand is compliant.

For the residential dwellings, the standard requires an overall improved energy performance for the fabric, services and lighting specification. The standard requires a Carbon Performance Coefficient level of <0.35 and an Energy Performance Coefficient level of <0.30. The nZEB also introduces a mandatory requirement for renewable energy sources, providing 20% of the primary energy use.

Renewable Energy Ratio is the ratio of the primary energy from renewable energy technologies to total primary energy, as defined and calculated in NEAP/DEAP respectively. Renewable energy technologies means technology, products or equipment that supply energy derived from renewable energy sources, e.g. solar thermal systems, solar photovoltaic systems, biomass systems, systems using biofuels, heat pumps, aerogenerators and other small scale renewable systems. NEAP and DEAP analyses have been completed for the proposed Neighbourhood Centre and sample dwellings to demonstrate compliance with Part L 2022 Building Regulations.

Part L outlines the requirement for new developments to include provision for electric vehicle charging, this report will outline how the proposed development complies with TGD Part L in this regard.

As of 2006 all domestic and non-dwellings buildings that were newly built and existing buildings that are for sale or rent require a BER (Building Energy Rating) certificate. The BER is based on the primary energy used for one year and is classified on a scale of A1 to G with A1 being the most energy efficient. It also gives the anticipated carbon emissions for a year's occupation based on the type of fuel that the systems use. In order to identify Primary energy consumption of the building, the BER assesses energy consumed based on; building type, orientation, thermal envelope, air permeability, heating system, ventilation system and efficiency, domestic hot water generation, lighting systems and renewable energy.

3.2 Dublin City Development Plan 2022-2028

The energy strategy of the proposed Clongriffin Blocks 5 & 6 development will consider and adhere to the following relevant policies and objectives as outlined in the Dublin City Development Plan 2022 – 2028.

3.2.1 Chapter 3 Climate Action

It is the policy of Dublin City Council	
	<p>Mitigation and Adaptation</p>
CA2	<p>To prioritise and implement measures to address climate change by way of both effective mitigation and adaptation responses in accordance with available guidance and best practice.</p>
	<p>Climate Mitigation and Adaptation in Strategic Growth Area</p>
CA5	<p>To ensure that all new development including in Strategic Development and Regeneration Areas integrate appropriate climate mitigation and adaptation measures.</p>
	<p>Climate Mitigation Actions in the Built Environment</p>
	<p>To require low carbon development in the city which will seek to reduce carbon dioxide emissions, and which will meet the highest feasible environmental standards during construction and occupation, see Section 15.7.1 when dealing with development proposals. New development should generally demonstrate/ provide for:</p>
CA8	<p>a. building layout and design which maximises daylight, natural ventilation, active transport and public transport use; b. sustainable building/services/site design to maximise energy efficiency; c. sensitive energy efficiency improvements to existing buildings; d. energy efficiency, energy conservation, and the increased use of renewable energy in existing and new developments; e. on-site renewable energy infrastructure and renewable energy; f. minimising the generation of site and construction waste and maximising reuse or recycling; g. the use of construction materials that have low to zero embodied energy and CO2 emissions; and h. connection to (existing and planned) decentralised energy networks including the Dublin District Heating System where feasible.</p>
	<p>Climate Adaptation Actions in the Built Environment</p>
CA9	<p>Development proposals must demonstrate sustainable, climate adaptation, circular design principles for new buildings / services / site. The council will promote and support development which is resilient to climate change. This would include:</p> <p>a. measures such as green roofs and green walls to reduce internal overheating and the urban heat island effect;</p>

	<p>b. ensuring the efficient use of natural resources (including water) and making the most of natural systems both within and around buildings;</p> <p>c. minimising pollution by reducing surface water runoff through increasing permeable surfaces and use of Sustainable Drainage Systems (SuDS);</p> <p>d. reducing flood risk, damage to property from extreme events – residential, public and commercial;</p> <p>e. reducing risks from temperature extremes and extreme weather events to critical infrastructure such as roads, communication networks, the water/drainage network, and energy supply;</p> <p>f. promoting, developing and protecting biodiversity, novel urban ecosystems and green infrastructure</p>
	<p>Climate Action Energy Statements</p> <p>All new developments involving 30 residential units and/or more than 1,000 sq. of commercial floor space, or as otherwise required by the Planning Authority, will be required to submit a Climate Action Energy Statement as part of the overall Design Statement to demonstrate how low carbon energy and heating solutions, have been considered as part of the overall design and planning of the proposed development.</p>
CA10	
	<p>Energy from Renewable Sources</p> <p>To support, encourage and facilitate the production of energy from renewable sources, such as from solar energy, hydro energy, wave/tidal energy, geothermal, wind energy, combined heat and power (CHP), heat energy distribution such as district heating/cooling systems, and any other renewable energy sources, subject to normal planning and environmental considerations.</p>
CA11	
	<p>Electric Vehicles</p> <p>To ensure that sufficient charging points and rapid charging infrastructure are provided on existing streets and in new developments subject to appropriate design, siting and built heritage considerations and having regard to the Planning and Development Regulations (2001) as amended, which have been updated to include EV vehicle charging point installation.</p>
CA25	
	<p>Regional Strategy for Electric Vehicle (EV) Charging</p> <p>To support and implement the forthcoming Regional Strategy for Electric Vehicle (EV) charging over the lifetime of the plan in order to facilitate the transition to low carbon vehicles required to achieve 2030 national targets.</p>
CA04	

Table 3: DCC Development Plan Chapter 3 Climate Action

3.2.2 Chapter 13: Strategy Development Regenerations Areas (SDRAs)

It is the policy of Dublin City Council	
SDRA01	<p>Sustainable Energy</p> <p>Climate Action Energy Statements for significant new residential and commercial developments, in Strategic Development and Regeneration Areas (SDRAs), will be required to investigate local heat source and networks, and, where feasible, to demonstrate that the proposed development will be 'District Heating Enabled' in order to facilitate a connection to an available or developing district heating network. Further specific guidance regarding 'District Heating Enabled' Development is set out in Chapter 15 and should be complied with. Specific guidance is set out regarding SDRA 6 (Docklands) and SDRA 10 (NEIC) where applicants must demonstrate how a proposed development is District Heating Enabled and will connect to the 'Docklands and Poolbeg' DDHS catchment. Guidance is also set out regarding SDRA 7 (Heuston and Environs), SDRA 8 (Grangegorman/Broadstone), SDRA 11 (St. Teresa's Garden and Environs), SDRA 14 (St. James's Healthcare Campus and Environs), SDRA 15 (Liberties and Newmarket Square) where possible connections or interconnections to existing heat networks in the area, to create a district heating 'node' must be investigated.</p> <p>Climate Change</p> <p>Proposed developments within the SDRA shall be required to apply innovative approaches to energy efficiency, energy conservation and the use of renewable energy in order to contribute to achieving zero carbon developments.</p>

Table 4: DCC Development Plan Chapter 13 SDRA

4.0 Energy Strategy

4.1 Energy Hierarchy

The design of the proposed Clongriffin development will incorporate the principles of the energy hierarchy. The energy hierarchy consists of three key principles:

1. Be Lean
2. Be Clean
3. Be Green

The Be Lean stage encourages a passive strategy whereby space heating, cooling and lighting energy demand is minimised through a fabric first approach. A carefully designed fabric first approach will ensure a robust, efficient and sustainable design throughout the lifetime of the building, which is affordable. Furthermore, it reduces the reliance on technologies, which overtime will require maintenance or replacing.

The Be Clean stage encourages that energy supplied to the development, such as heating or domestic hot water is delivered efficiently through communal or highly efficient systems.

The Be Green stage ties in with the Renewable Energy Ratio requirement of Part L 2022, whereby any remaining requirements are addressed through on-site renewable energy or low zero carbon technologies.

4.2 Be Lean

4.2.1 Passive Design Measures

The table below outlines the target thermal performance for the heat loss elements within the dwellings and communal areas required to achieve compliance with Part L 2022 (nZEB). The values are compared with the Part L 2022 limiting values for new build developments.

Element	Proposed Fabric Design	Part L 2022 Limiting Values
Ground Floor	0.12 W/m ² K	0.18 W/m ² K
Exposed Upper Floor	0.15 W/m ² K	0.18 W/m ² K
Semi Exposed Upper Floor	0.15 W/m ² K	0.18 W/m ² K
External Walls	0.18 W/m ² K	0.18 W/m ² K
Semi Exposed Walls	0.18 W/m ² K	0.18 W/m ² K
Flat Roof	0.15 W/m ² K	0.16 W/m ² K

Windows / Glazed Doors	1.20 W/m ² K	1.40 W/m ² K
	G-Value 0.50	N/A
Air Permeability	3.00 m ³ (m ² /hr) at 50 Pa	5.00 m ³ (m ² /hr) at 50 Pa
Thermal Bridging Factor	Y-Factor 0.05 – 0.08	Default y-value of 0.15

Table 5: Apartments and Communal Areas proposed fabric specification

U-Values for opaque elements will be calculated by manufacturer or using approved software following conventions outlined in BR 443. U-Values and G-Value information relating to openings will be provided by the system manufacturer.

To ensure energy use is minimised from the outset, where feasible the proposed development has been designed with regard to the principles of passive design including; orientation, location of openings, local shading to maximise the potential for solar gain and limit overheating.

The fabric specification has been optimised in order to strike a balance between maximising natural daylight benefits to reduce the use of artificial lighting, the provision of solar gains to reduce space heating demands during the winter months, whilst limiting summertime solar gains to reduce space cooling demands. This can be exhibited in the design window U-Value of 1.20 W/m²K and a solar transmission value of 0.50.

4.2.2 Thermal Bridging

Heat loss via thermal bridging is a critical aspect of the energy performance, for the purposes of the Provisional Part L analysis an indicative Y-Factor ranging between 0.05 - 0.08 W/mK has been used, on the basis of all details being compliant with the Acceptable Construction Details. At detail design stage, where architectural details are bespoke, a specific thermal modelling calculation will need to be carried out to ensure the Psi Value (Ψ) is within acceptable parameters as per BR497 and the HPI Quality Assurance QA 2.0 Credit Area. Refer to figure 1 below for examples of bespoke calculations for an intermediate floor and roof detail

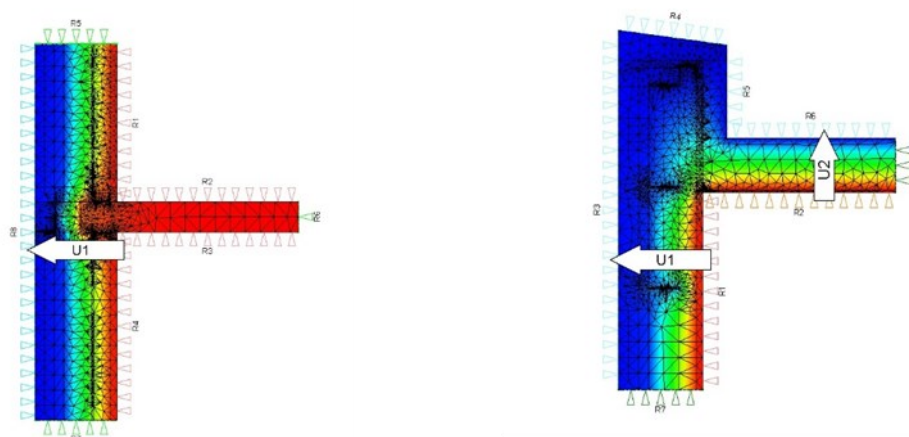


Figure 2: Typical linear thermal bridging heat flows

4.2.3 Air Permeability

Convective losses through drafts and junctions are another main source of heat loss within a dwelling. This is referred to Air Permeability or Infiltration. Part L 2022 outlines that an air permeability level of 5.00 m³ (m²/ hr) @ 50 Pa represents a reasonable upper limit for air permeability. Therefore, the dwellings at Clongriffin have been to achieve an air permeability of 3.00 m³ (m²/ hr) @ 50 Pa.

4.2.3 Thermal Comfort

Incremental changes to construction regulations and methodologies have introduced; greater thermal standards, high proportions of glazing, lightweight construction and inadequate ventilation strategies. This has led to an increasing number of occupants experiencing overheating in new build developments. The houses, duplexes and apartments have been designed to achieve thermal comfort in accordance with the industry standard CIBSE Technical Memorandum 59 (2017). Compliance has been achieved through; reduced glazing solar transmission to control excessive solar gains, high thermal mass capacity of the floors, openable windows for purge ventilation and mechanical ventilation to provide continuous background ventilation. A sample overheating analysis has been carried out to supplement the planning assessment. As apartments are most at risk of overheating, a sample range of apartments have been assessed against industry standard CIBSE TM59 Methodology.

The thermal analysis has been carried out using average weather data appropriate to the location of the proposed dwelling. In accordance with the requirements of CIBSE TM59 the weather file “BelfastDSY1.fyt” has been used as per CIBSE TM59:2017 requirements. As per CIBSE TM59 methodology, lights may be off during peak overheating hours (high sunlight). However, for the purposes of the assessment a limit of 2 W/m² has been used in accordance with CIBSE TM59. Internal gains associated with occupancy and equipment is in accordance with the following table:

Unit / Room type	Occupancy	Equipment Load
1-bedroom dwelling: living room / kitchen	1 person from 9am to 10pm; room is unoccupied for the rest of the day	Peak load of 450 W from 6 pm to 8 pm 200 W from 8 pm to 10 pm 110 W from 9 am to 6 pm and from 10 pm to 12 pm Base load of 85 W for the rest of the day
2-bedroom dwelling: living room/kitchen	2 people from 9 am to 10 pm; room is unoccupied for the rest of the day	Peak load of 450 W from 6 pm to 8 pm 200 W from 8 pm to 10 pm 110 W from 9 am to 6 pm and from 10 pm to 12 pm Base load of 85 W for the rest of the day
3-bedroom dwelling: living room/kitchen	3 people from 9 am to 10 pm; room is unoccupied for the rest of the day	Peak load of 450 W from 6 pm to 8 pm 200W from 8 pm to 10 pm 110 W from 9 am to 6 pm and from 10 pm to 12 pm Base load of 85 W for the rest of the day
Double bedroom	2 people at 70% gains from 11 pm to 8 am 2 people at full gains from 8 am to 9 am and from 10 pm to 11 pm 1 person at full gain in the bedroom from 9 am to 10 pm	Peak load of 80 W from 8 am to 11 pm Base load of 10 W during the sleeping hours
Single bedroom	1 person at 70% gains from 11 pm to 8 am 1 person at full gains from 8 am to 11 pm	Peak load of 80 W from 8 am to 11 pm Base load of 10 W during sleeping hours

Table 6: CIBSE TM59 Internal Gains

Thermal Comfort compliance is based on passing both of the following criteria:

For living rooms, kitchens and bedrooms: the number of hours during which ΔT is greater than or equal to one degree (K) during the period May to September inclusion shall not be more than 3 per cent of occupied hours. (The above design criterion is extracted from CIBSE TM52 Criterion 1: Hours of exceedance).

For bedrooms only: to guarantee comfort during the sleeping hours the operative temperature in the bedroom from 10pm to 7am shall not exceed 26oC for more than 1% of annual hours. (Note: 1% of the annual hours between 22:00 and 07:00 for bedrooms is 32 hours, so 33 or more hours above 26°C will be recorded as a fail).

Apartment	Room	TM59 Criteria (a) Compliance TM52:2013 Criterion 01 (No. of Hrs Top- Tmax>=1K)	TM59 Criteria (b) Compliance Air temperature (°C) - hours in range > 26.00 22:00 - 07:00	TM59 Overall Compliance
Block 05 Level 01 Apartment 11	Kitchen/Living/Dining	0.00	N/A	Pass
	Bedroom 1	0.00	0.00	Pass
Block 5 Level 3 Apt 23	Kitchen/Living/Dining	0.00	N/A	Pass
	Bedroom	0.00	0.00	Pass
Block 5 Level 3 Apt 29	Kitchen/Living/Dining	0.00	N/A	Pass
	Bedroom 1	0.00	0.00	Pass
	Bedroom 2	0.00	0.00	Pass
Block 5 Level 5 Apt 14	Kitchen/Living/Dining	0.00	N/A	Pass
	Bedroom 1	0.00	0.10	Pass
	Bedroom 2	0.00	0.00	Pass
Block 6 Level 0 Apt 16	Kitchen/Living/Dining	0.00	N/A	Pass
	Bedroom 1	0.00	0.00	Pass
	Bedroom 2	0.00	0.00	Pass
Block 6 Level 3 Apt 45	Kitchen/Living/Dining	0.00	N/A	Pass
	Bedroom	N/A	0.00	Pass
Block 6 Level 3 Apt 47	Kitchen/Living/Dining	0.00	N/A	Pass
	Bedroom 1	0.00	0.00	Pass
	Bedroom 2	0.00	0.00	Pass
Block 6	Kitchen/Living/Dining	0.00	N/A	Pass

Level 6
Apt 12

Bedroom

0.00

0.00

Pass

Table 7: CIBSE TM59 Results

The results show that all areas comply with the thermal comfort standard of CIBSE TM59. The graph below shows the typical internal temperatures experienced one of the worst case bedrooms assessed. As shown, throughout July, the internal temperatures do not exceed 26°C.

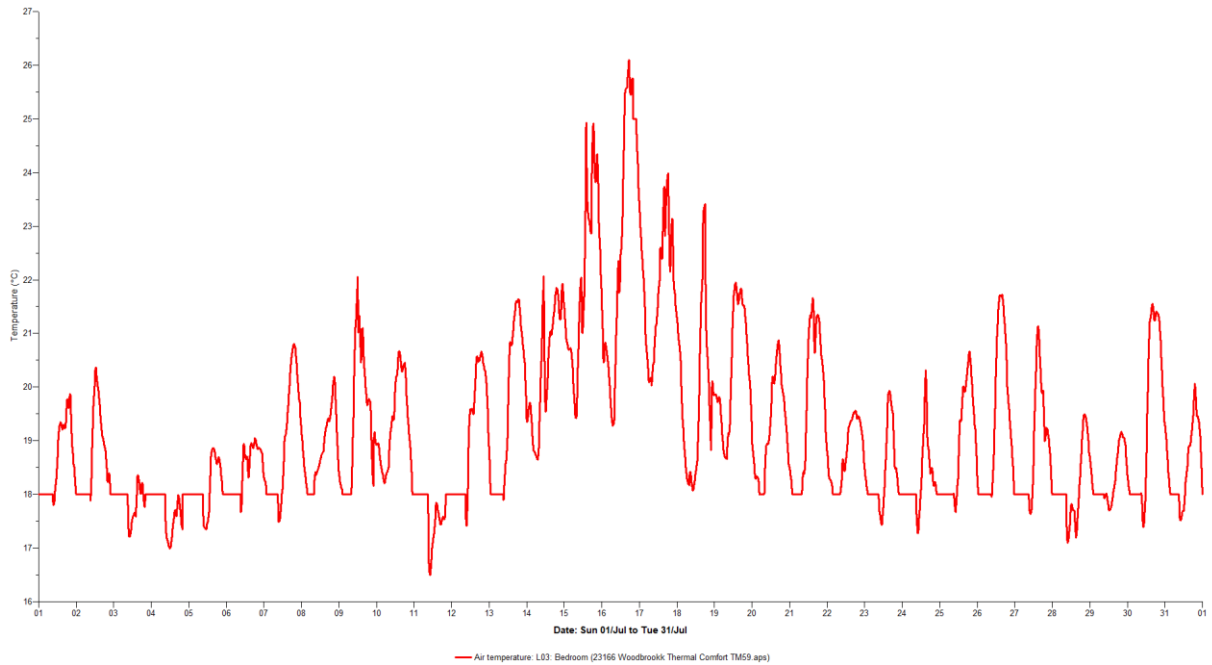


Figure 3: Typical Bedroom Internal Temperature July

4.3 Be Clean

4.3.1 District Heating Feasibility

Once demand for energy has been minimised, applicants are expected to demonstrate how their energy supply system will be designed to supply energy efficiently and reduce carbon emissions. The Dublin City Development Plan seeks to encourage site-wide heat networks, these should be embedded into development proposals from the beginning of the design process to avoid significant redesign later on.

Dublin City Council is currently developing the Dublin District Heating System (DDHS) to supply low-carbon heat to houses and businesses throughout the Docklands and the wider Poolbeg peninsula. Waste heat will be taken from the Poolbeg waste-to-energy facility and delivered through insulated pipes to the buildings connected to the system, replacing fossil fuel heating systems and, therefore, reducing air pollution and GHG emissions.

Chapter 13 of the development plan outlines the strategic development regeneration areas (SDRA) which either have existing or proposed district heating networks. It is therefore possible to identify any opportunities that may exist for connecting a proposed development to an existing network, proposals for future networks that could be connected to the proposed development, or identify centres of significant energy demand which could help the viability of a proposed new heat network.

A desktop review has been carried out to assess the feasibility of connecting to an existing or future heat network in accordance with the heating hierarchy. The table below lists out the existing or proposed SDRAs which have proposed district heating networks along with their proximity to the development. The proposed Clongriffin Blocks 5 and 6 development, falls under SDRA 1, where there are no existing district heating networks.

SDRA	Status of District Heating Network	Approximate Distance from Proposed Development (km)	Comment
SDRA 6 Docklands	Existing	10.02	Network is not within feasible proximity to development
SDRA 10 NEIC	Existing	8.65	Network is not within feasible proximity to development
SDRA 7 Heuston	Future Proposed	11.35	Network is not within feasible proximity to development
SDRA 8 Grangegorman	Future Proposed	10.10	Network is not within feasible proximity to development
SDRA 11 St Teresa's Garden	Future Proposed	11.79	Network is not within feasible proximity to development
SDRA 14 St James' Healthcare Campus	Future Proposed	11.80	Network is not within feasible proximity to development
SDRA 15 Liberties and Newmarket Square	Future Proposed	10.57	Network is not within feasible proximity to development

Table 8: Existing and Proposed District Heating Network Summary

The desktop study has outlined that there are no existing or currently proposed district heating networks within the vicinity of the proposed Clongriffin Development, with the closest future proposed network being within SDRA 10 NEIC located 8.65km from the proposed development.

Clongriffin Blocks 5 & 6 formed part of a wider Clongriffin Masterplan, which was submitted and granted under a Strategic Housing Development (305316 and 305319). The masterplan consisted of a mixed use development, totalling 1,823 residential apartment dwellings and circa 22,727.50m² of commercial area across 15 blocks. Due to the scale and mix of use of the proposed Clongriffin Masterplan, a Clongriffin City District Heating Network report was developed in 2019. The report proposes to apply a city district heating network serving all residential and commercial units within the 15 no blocks.

The proposal was to have the district heating energy centre within Block 12, as shown below. The figure below shows a proposed outline of the district heating system with its proposed central production plans and control/metering centre in Block 12.

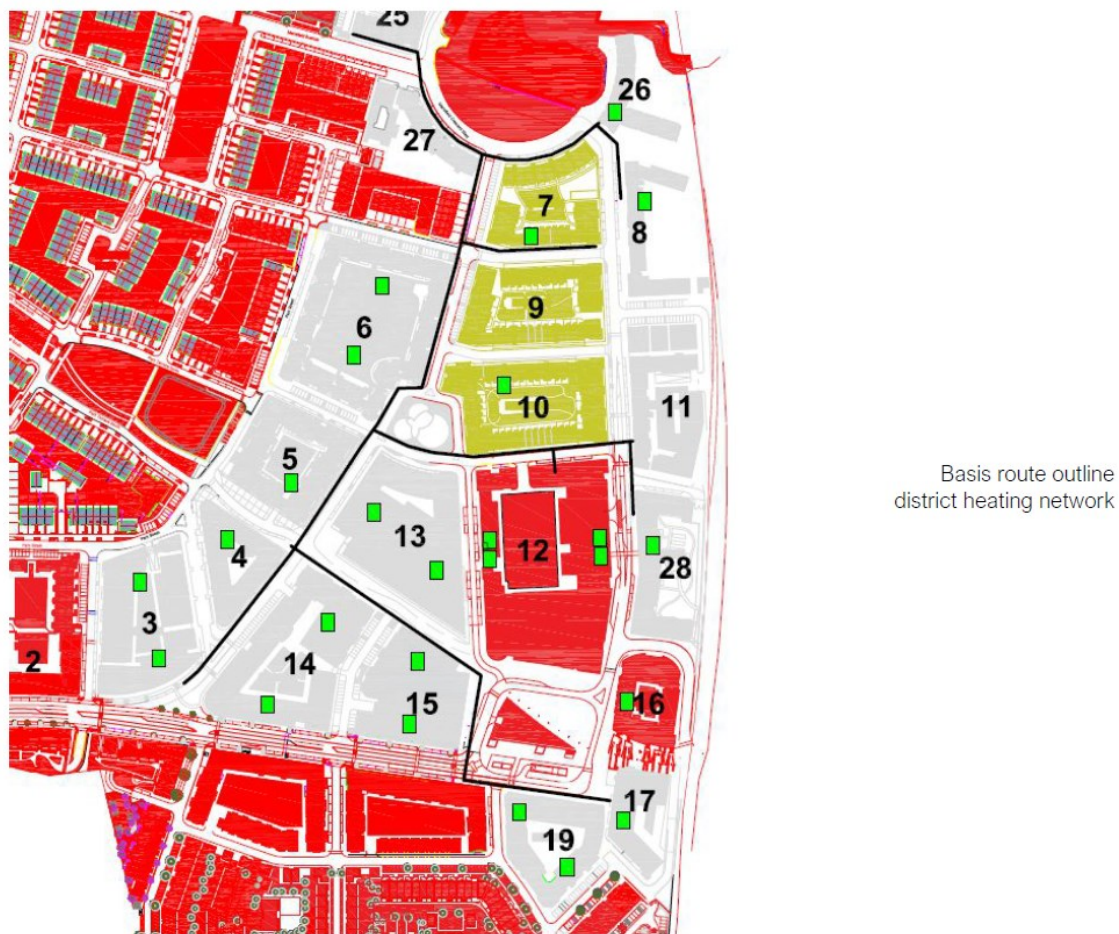


Figure 4: Clongriffin SHD Masterplan Indicative District Heating Routes

However, of the 15 blocks proposed within the original SHD, only Block 12 has been completed. Furthermore, Block 12 was completed and handed over without an installed district heating centre.

Therefore, in accordance with the DCC document “Dublin District Heating System Technical Information Pack for Developers” the proposed energy strategy for Blocks 5 & 6 will be a district heating enable centralised communal energy strategy, compliant with Nearly Zero Energy Building

standards. This will ensure that the development complies with Part L 2022, nZEB, and DCC's Climate Action Policies upon completion. In the future, should a district heating network be developed for the wider Clongriffin lands or elsewhere in SDRA 1, the proposed Blocks 5 & 6 the building can connect to this system.

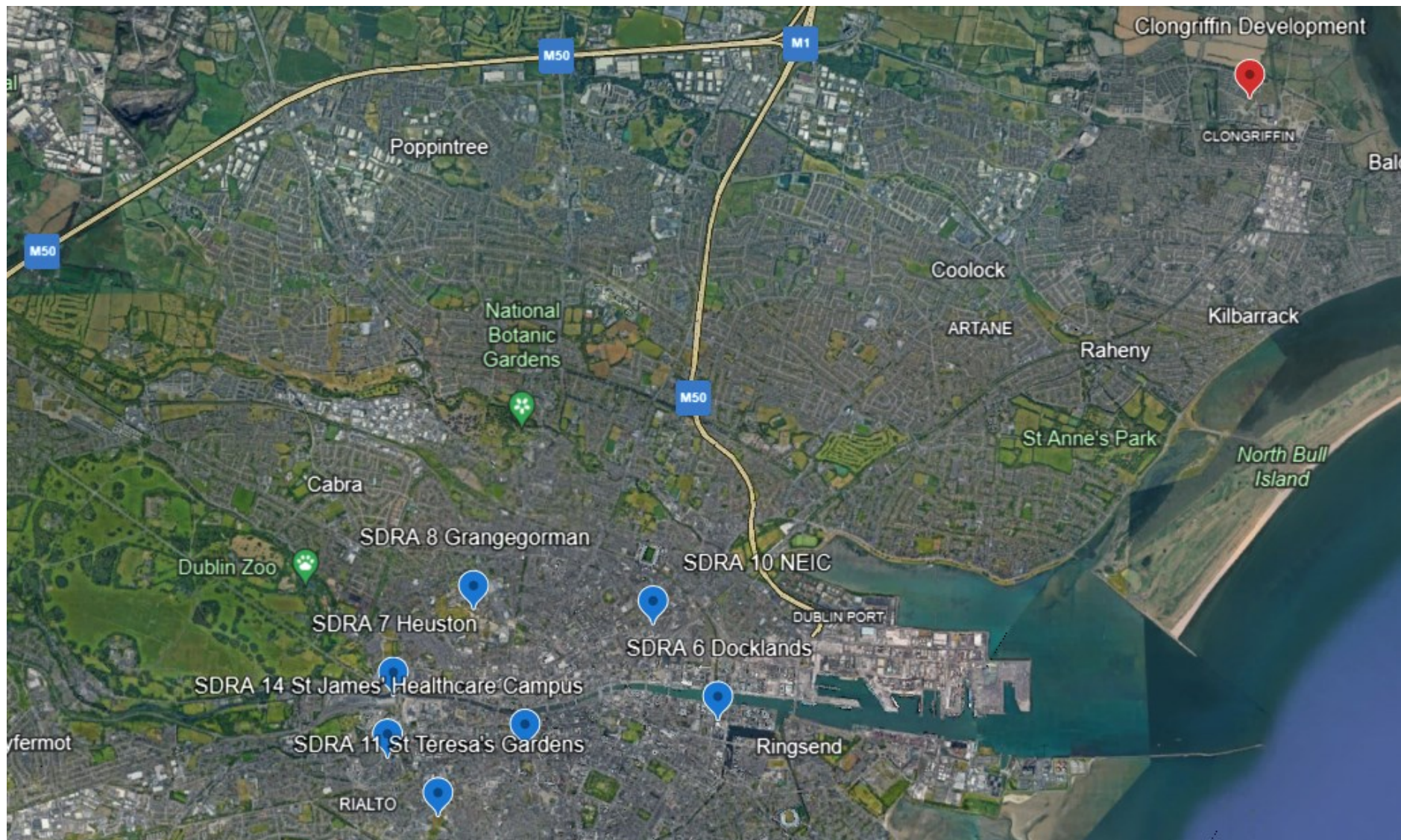

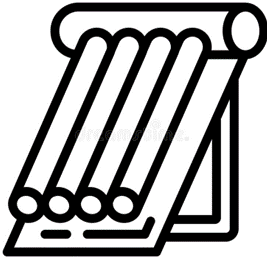


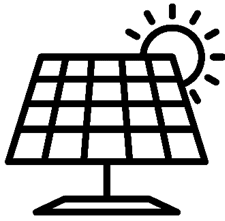
Figure 5: SDRAs with current or proposed district heating networks relative to the proposed Clongriffin Blocks 5 & 6 development

5.0 Be Green

5.1 Low or Zero Carbon Technology Feasibility

In addition to assessing the feasibility of a district heating network, a feasibility study has been carried out to determine the most appropriate low zero carbon or renewable energy systems for Clongriffin Blocks 5 & 6. Each system was assessed based on cost, planning implications, carbon emissions reduction and maintenance.

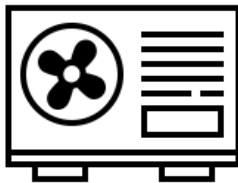
Technology	Comment	Feasibility
	<p>Ground mounted wind turbines can be located in an open area away from obstructions such as buildings</p> <p>Due to the location of Clongriffin it is deemed that a ground mounted wind turbine installation is not feasible</p>	<p>Low</p>
	<p>The term 'solar thermal' (ST) is used to describe a system where the energy from the sun is harvested to be used for its heat. Solar thermal systems differ from solar photovoltaics which convert sunlight directly into electricity. The use of the term 'solar thermal' is also associated with the integration of 'passive' heating and cooling technologies in buildings.</p> <p>The main application for solar thermal systems in Ireland is domestic hot water heating although there are also 'combisystems' that use non-potable thermal stores directly linked with low temperature space heating</p> <p>Solar thermal systems typically have a payback greater than 10 years and also require regular maintenance. Given the proposed energy strategy is an all-electric solution, solar photovoltaic panels would provide a greater energy and carbon saving compared to solar thermal. For this reason solar thermal has been discounted for Clongriffin</p>	<p>Low</p>



Photovoltaic (PV) panels offer a “passive” method for generation of electricity. Photovoltaic systems use solar cells to convert sunlight into electricity. The PV cell consists of one or two layers of a semi-conducting material, usually silicon. When photovoltaic modules are exposed to the sun rays, they generate a direct current (DC).

The DC power is typically converted into AC power dependant on the application, which is then utilised by the systems on site and/or exported to the electrical grid and sold. In summary the greater the solar intensity, the greater the flow of electricity. With upcoming changes to feed in tariffs, PV panels have a payback period of approximately 6 years.

Medium



This system utilises a series of air source heat pumps (ASHP) designed to cater for the heating, cooling, and hot water loading of a building. The heat pumps absorb heat from the atmosphere, by directing a flow of air across the primary (evaporator) side of the heat pump. The heat pump, through the normal refrigerant cycle elevates the temperature of the rejection (condenser) side circuit water to typically 50degC. The 50degC water produced by the ASHPs would typically be stored within buffer vessels. This heated water would be the primary source for heating the domestic hot water cylinder for hot water generation.

The systems efficiency (COP) varies depending on the external temperature and the temperature to which the water is heated, but can range between 2.50 – 3.80. As ASHP extract heat from external air at a high efficiency, they are classified as a renewable energy source and contribute towards the renewable energy ratio under TGD Part L 2022.

This technology is deemed as feasible for Clongriffin Blocks 5 & 6

High



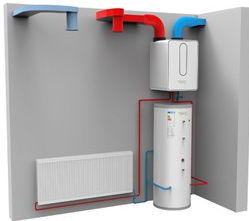
Ground source heat pumps (GSHP) are a proven and efficient method of heating and cooling both domestic and non-domestic developments. Heat pumps use refrigerant gases and an electrical compressor to take heat from a source and deliver it to an output. Chillers and refrigerators are examples of systems that remove heat, but other types of system use the heat removed from a source to heat a building. Traditional heat pumps use the air as the source of heat. However, the ideal source for maximum efficiency would be one having a stable temperature, and the ground provides such a resource.

Low

The ground itself acts as a solar collector and thermal store. The surface is warmed by the sun and the adjacent air during daytime and in the summer. Similarly, it is cooled during the night time. Fluctuations in ground temperature reduce with depth and stabilise at the annual mean for the location by about 12m below the surface. This temperature ranges between 9°C -12°C in Ireland

However, the uncertain thermal conditions of the ground and the significantly high capital expenditure associated with boreholes and pipework, this option has been discounted for Clongriffin.

Exhaust air heat pump (EAHP) operate in a similar manner to air source heat pumps. However, as oppose to extracting heat from the external air which varies between -5°C to 26°C, EAHP's extract air from the buildings wet rooms for hot water generation.



EAHPs have a high COP of 3.9 due to the high extract air temperature of around 20°C which is constant all year, guaranteeing high seasonal efficiency. EAHP's are optimal for small apartments or terraced dwellings with a low heat loss parameter. However, a decentralised system such as EAHP would not enable the scheme to connect to a future district heating network without significant redesign and works.

Low

Therefore, this solution is not deemed feasible.

Table 9: Review of renewable energy technologies

6.0 Proposed Energy Strategy

6.1 Group Heating and Hot Water

A detailed feasibility study was carried out by the design team in order to determine the most feasible, practical and future proofed energy strategy for the proposed development. It was determined that a highly efficient on-site centralised network using Air Source Heat Pumps will provide space heating and domestic hot water.

When carrying out DEAP assessments where Group Heating system is used to provide space heating and domestic hot water, the calculation of efficiency for heat pumps in group heating systems, whether served by single or multiple heat pumps, requires use of the heat pump calculator. The calculator requires technical inputs from the proposed Air Source Heat Pump system along with inputs from the DEAP calculation. The calculator then provides the BER assessor with the Efficiency, Percentage and Efficiency Adjustment Factor for the space heating and water heating along with the required Renewable Energy Ratio adjustment for Part L compliance.

The table below summarises the anticipated DEAP efficiencies for the space heating and hot water requirements at Clongriffin Blocks 5 & 6. The efficiencies range on a dwelling by dwelling basis, due to their differing space heating and hot water requirements.

Source	Percentage of Heat	Efficiency (as calculated in DEAP)
Space Heating Efficiency	Varies	496.05
Hot Water Efficiency	Varies	185.96

Table 10: System heating and cooling efficiencies

Further and developed assessment of the proposed heat pump using the heat pump tool and the DEAP methodology is critical to ensure compliance with Part L 2022 is maintained. Please note the efficiencies stated below are as per the DEAP Heat Pump calculation methodology. Any proposals for alternative systems, must be based on efficiencies derived from the DEAP Heat Pump calculation tool and subsequently tested in DEAP.

Distribution losses within DEAP are assessed as 1.05, as per the DEAP manual Table 9: Distribution loss factor for group and group heating schemes.

6.2 Hot Water DEAP Specification

Element	DEAP Input
Storage Type	Plate Heat Exchanger in a group heating system
Storage	1.00 Litre
Declared Storage Loss	0.06 kWh/day
Primary Circuit Loss Category	Community / group / district heating
Low water usage	≤90 litres/person/day
Showers & Baths	Quantity varies per apartment type
Shower Flow Rate	5.00 litres/minute

Table 11: Clongriffin DEAP Water Specification

6.3 Cooling

None of the apartments have been supplied with active cooling. A thermal comfort analysis has been carried out in line with HPI and CIBSE TM59 requirements, which demonstrates compliance is achieved through passive measures.

6.4 Lighting Specification

Table 12 below provides a summary proposal for the lighting efficacy and controls for each room type within the rooms.

Room Type	Lighting Efficacy (Lm/W)	Controls
Bedrooms	100.00	Manual
Kitchen/Living/Dining	100.00	Manual
Hall	100.00	Manual
Bathrooms / Ensuite	100.00	Manual
Communal Areas	120.00	PIR – Auto-On-Off

Table 12: Lighting design specification

6.5 Ventilation

The intent is that all habitable areas will be ventilated via a localised Mechanical Ventilation with Heat Recovery units (MVHR). The table below summarises the specific fan power and heat recovery efficiencies used, which are taken from specific manufacturer and model technical data. For the MVHR system serving the apartments

Room Type	Ventilation Strategy	Specific Fan Power (W/l/s)	Heat Recovery Efficiency	Ducting Type
Apartments	MVHR 1	0.57	91.00%	Rigid
Communal Areas	Natural Ventilation	-	-	-
Creche / Gym	MVHR 2	1.60	82%	Rigid

Table 13: Clongriffin Blocks 5 & 6 proposed ventilation strategy

7.0 Home Performance Index

The HPI Certification is Ireland's national certification for new homes. Similar to certification for commercial development like LEED and BREEAM, except that it's specifically designed for residential development and aligns to Irish building regulations. The certification is based on over 30 verifiable indicators across five categories; Environment, Health & Wellbeing, Economic, Quality Assurance and Sustainable Location.

This section will summarise the HPI assessment for Blocks 5 & 6 at Clongriffin, with commentary on the key indicators. The HPI assessment is assessed throughout the design and construction process, therefore some indicators and percentages are subject to change as the design progresses.

The scoring across the five categories are summarised in the table below:

Category	Total Standard Available	Total Awarded
Environment	38.00%	19.50%
Health & Wellbeing	17.00%	8.50%
Economic	13.00%	6.50%
Quality Assurance	17.00%	9.50%
Sustainable Location	15.00%	7.00 %
Total	100.00%	51.00%
Achieved Standard		Certified

Table 14: Clongriffin Blocks 5 & 6 HPI Scoring Summary

When targeting the mandatory credits for HPI, in conjunction with the proposed base design information, the results show that the expected level achieved at this stage for Clongriffin is HPI Certified. The blocks achieve a total of 51.00%, where a minimum of 45.00% is required for certification.

8.0 Climate Action Plan

As the electrical grid is now being produced more and more by renewable power sources rather than gas or coal fired power stations, the grid is decarbonizing and as such the carbon emission factor for electricity as a fuel has significantly reduced compared to 10 years ago. Most recent industry findings estimate the carbon emissions associated with electricity is in the region of 0.224 kgCO₂/kWh. The natural gas emissions will remain relatively consistent.

As part of the process to move towards net zero, there will be policies put in place which will push new developments to move away from fossil-fuel based heating systems such as gas or oil.

Potential alternatives will include electric solutions which will be supplied by an electricity grid which will have been largely decarbonised due to the significant contribution from renewable technologies onto the network. As a result, the use of different replacement fuels including heat pump options are included in this analysis as potential heating solutions for the development to ensure an element of futureproofing in design.

In the past 10 years, Ireland has achieved significant carbon savings through the decarbonisation of the electricity grid. Decarbonising heat is now acknowledged as one of the biggest challenges if Ireland is to continue its trajectory and meet its climate action targets. There is currently no clear, single contender to replace the wide coverage and convenience of gas heating, and a low carbon heating future is likely to require a mix of options. These include electric heating (with a large role for heat pumps); hydrogen, whether used in fuel cells or for decarbonising the gas grid; and heat networks, particularly in dense and mixed-use areas, where they can take advantage of alternative fuel sources and heat rejection from cooling systems or other processes.

The carbon emission factors related to fuels are now beginning to be re-set to take cognisance of grid electricity now being generated from renewable sources such as offshore wind farms, with the next planned change in fuel emission factors (CEF) bringing the CEF for electricity down from 0.519 to 0.224, this will bring it in line with gas with a CEF of 0.216 being updated to 0.204 as per SEAI conversion and emission factors.

Following a review of the most feasible low zero carbon and renewable solutions, it was determined that the most feasible and applicable solution is to use Centralised Air to Water Heat Pumps to generate space heating and domestic hot water for Blocks 5 & 6. This is an all-electric and highly efficient solution for the development, which aligns with DCC's and the government's Climate Action Plan. While there are no proposed district heating networks in the vicinity of the development, the centralised nature of this energy strategy will allow the development to connect into any future district heating network.

Designing for resilience, adaptation and future climates is another feature of Clongriffin in its energy strategy. Incremental changes to construction regulations and methodologies have introduced; greater thermal standards, high proportions of glazing, lightweight construction and inadequate ventilation strategies. This has led to an increasing number of occupants experiencing overheating in new build developments. The Clongriffin development has been designed to mitigate against the risk of overheating using advanced simulation software and using current climate weather scenarios. As part of the Climate Action plan, the development will additionally be assessed against future climate scenario weather files. This will allow the design team to implement design measures that will ensure the residents will experience acceptable thermal comfort levels over the lifecycle of the building.

8.1 Embodied Carbon of Materials

In the current landscape where buildings are achieving greater energy efficiency and the electricity supply becomes more decarbonized, the operational carbon emissions of buildings are decreasing significantly. As a result, these emissions now form a smaller fraction of a building's total whole life carbon emissions. This shift highlights the growing importance of focusing on the embodied carbon emissions, which include the carbon costs associated with the entire lifecycle of building materials, from production to disposal. Additionally, unregulated emissions, encompassing energy uses not covered by Building Regulations like small power and cooking, are also gaining attention. It's essential to not only calculate but also actively work towards reducing these types of emissions to achieve a more comprehensive and effective approach to lowering a building's overall carbon footprint.

Designing for use of construction materials is low embodied carbon, where practical and feasible is considered within the design of Clongriffin Blocks 5 & 6. Within the Home Performance Index (HPI) assessment and certification process, a full Whole Lifecycle Analysis (WLC) will be carried out at detailed design and then again at post construction. The assessment will be verified by the Irish Green Building Council (IGBC) with materials and the respective quantities taken from the Bill of Quantities. The benchmark for the project is to achieve a whole life carbon level of $\leq 800\text{kgCO}_2\text{e/m}^2$.

An early stage embodied carbon emissions analysis was undertaken during feasibility to quantify and understand the embodied carbon emissions of a centralised air source heat pump system compared to a decentralised heat pump system. A simplified embodied carbon assessment was carried out. The assessment focuses solely on the core heating strategy elements for the purposes of comparing centralised with decentralised. The embodied carbon assessment was carried out using OneClick LCA software.

For the purposes of the comparative analysis, only materials directly related to each systems core energy strategy were included i.e plant, heat interface units and distribution pipework. Other elements such as radiators, lighting, cold water storage have not been included in this analysis. The WLC uses OneClickLCA system selections based on the kW rating and number of units required per option. The length of communal heating network pipe was based on a measured estimate.

Heating & Domestic Hot Water	Embodied Carbon Emissions (kgCO _{2e})	Embodied Carbon Emissions per Apartment (kgCO _{2e})
Centralised Air Source Heat Pump	723,688.00	2680.33
Decentralised Heat Pump	1,728,290.00	6401.07

Table 15: Embodied Carbon Analysis of Energy Strategy Options

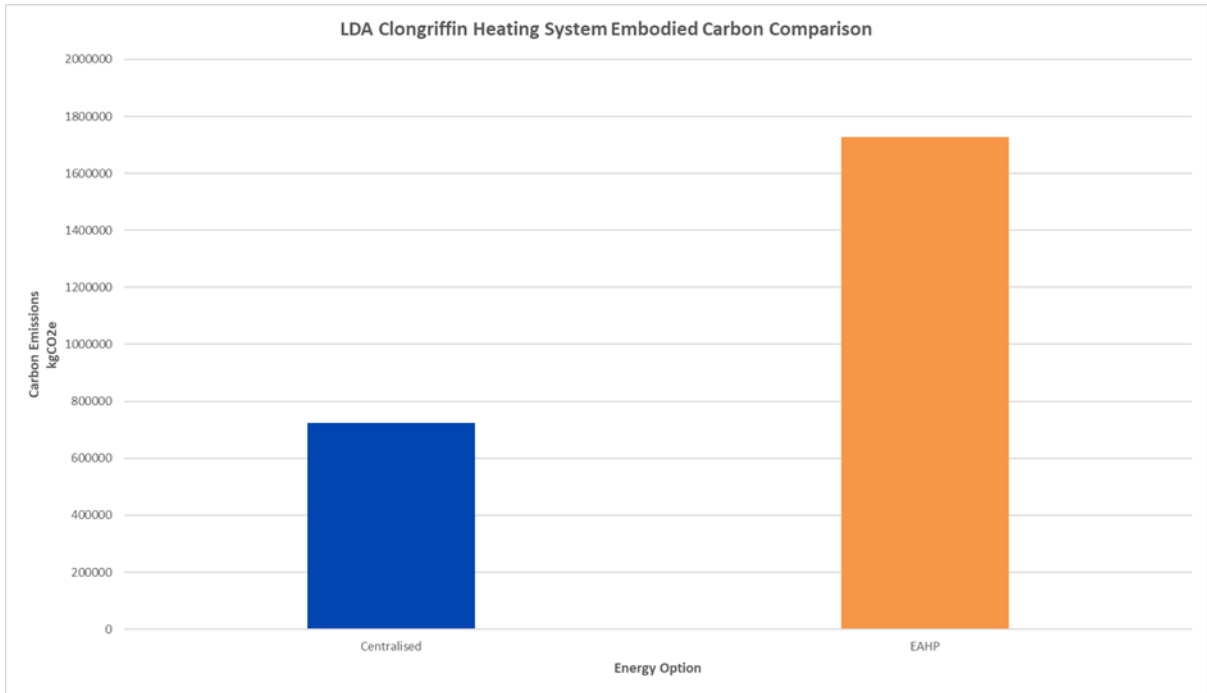


Figure 6: Embodied Carbon Comparison between centralised and decentralised heat pumps

Given that the decentralised Heat Pump options consist of individual heat pumps installed, maintained and replaced in each individual apartment across the development, this option would incur significantly higher whole lifecycle carbon emissions compared to a centralised option. This is particularly due to the carbon associated with maintenance, repair, replacement and disposal of the systems.

Taking into account capital expenditure, maintenance, utility costs, end user experience, future resilience and adaptability centralised air source heat pump solution combined with Mechanical Ventilation with Heat Recovery was the recommended solution.

9.0 Conclusion.

The report has been prepared by Delap and Waller for the Land Development Agency (LDA) to summarise the proposed fabric, services and renewable specification for the mixed-use development at Clongriffin, to demonstrate compliance with TGD Part L 2022 and Dublin City Council's Development Plan 2022-2028. This report forms part of the planning application. The Clongriffin masterplan consists of a series of residential mixed-use blocks, this report specifically relates to Blocks 5 & 6.

The design of the proposed Clongriffin development will incorporate the principles of the energy hierarchy. The energy hierarchy consists of three key principles:

1. Be Lean
2. Be Clean
3. Be Green

The Be Lean stage encourages a passive strategy whereby space heating, cooling and lighting energy demand is minimised through a fabric first approach. A carefully designed fabric first approach will ensure a robust, efficient and sustainable design throughout the lifetime of the building, which is affordable. Furthermore, it reduces the reliance on technologies, which overtime will require maintenance or replacing.

The Be Clean stage encourages that energy supplied to the development, such as heating or domestic hot water is delivered efficiently through communal or highly efficient systems. The Be Green stage ties in with the Renewable Energy Ratio requirement of Part L 2022, whereby any remaining requirements are addressed through on-site renewable energy or low zero carbon technologies.

A desktop review has been carried out to assess the feasibility of connecting to an existing or future heat network in accordance with the heating hierarchy. The proposed Clongriffin Blocks 5 and 6 development, falls under SDRA 1, where there are no existing district heating networks. Therefore, in accordance with the DCC document "Dublin District Heating System Technical Information Pack for Developers" the proposed energy strategy for Blocks 5 & 6 will be a district heating enable centralised communal energy strategy, compliant with Nearly Zero Energy Building standards. This will ensure that the development complies with Part L 2022, nZEB, and DCC's Climate Action Policies upon completion. In the future, should a district heating network be developed for the wider Clongriffin lands or elsewhere in SDRA 1, the proposed Blocks 5 & 6 the building can connect to this system.

A sample BER assessment has been carried out to apartments across both Blocks 5 & 6 of Clongriffin. The purpose of the assessment is to demonstrate that the proposed fabric, services and renewable specification complies with Part L 2022 (NZEB) The NZEB standard requires an overall improved energy performance for the fabric, services and lighting specification. The standard requires a Carbon Performance Coefficient level of <0.35 and an Energy Performance Coefficient level of <0.30 . The nZEB also introduces a mandatory requirement for renewable energy sources, providing 20% of the primary energy use.

As Blocks 5 & 6 are required to demonstrate compliance with the Irish Green Building Council's Home Performance Index (HPI), one of the minimum requirement of the HPI is to achieve a 10% improvement on the Energy Performance Coefficient. Therefore, all dwellings within Clongriffin shall achieve an EPC of ≤ 0.27 .

The table below summarises the energy, carbon and renewable performance of the sample assessment at this stage. Part L reports for each unit can be found in Appendix A of this report. Please note that as these are design stage calculations, the SEAI watermark of draft used.

Block	DEAP Reference	Energy Performance Coefficient	Carbon Performance Coefficient	Renewable Energy Ratio
5	00_01_G1	0.126	0.081	0.393
5	01_14_12	0.099	0.065	0.308
5	01_28_D	0.140	0.089	0.433
5	05_09_8A	0.108	0.072	0.334
6	00_21_03	0.090	0.058	0.339
6	01_17_01	0.084	0.056	0.284
6	01_37_03	0.127	0.085	0.384
6	06_01_04	0.119	0.079	0.349

Table 16: DEAP Part L Results - Apartments

It is critical that the PBER assessment is carried out and continually assessed throughout the design and construction stages, this ensures that any proposed design changes can be captured and compliance with Part L and the relevant Home Performance Index credit areas are checked.

Appendix A: BER Calculation

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Ground-floor apartment	Type of BER rating	New Dwelling - Provisional
Address line 1	G1_00-01 - L00 - 2 Bed - Clongriffin - Block 5	Year of Construction	2023
Address line 2	Option 2.1	Date of Assessment	26/01/2024
Address line 3		Date of Plans	
County	Co. Dublin	Planning Reference	
Eircode		Building Regulations	2019 TGD L
BER Number		MPRN No.	0
Purpose of Rating	New dwelling for owner occupation	Is MPRN shared with another dwelling?	N/A
Assessor Name	Ryan Young	Assessor Number	107341
Comment		BER number assigned to shared dwelling	N/A

Dimension Details

	Area [m ²]	Height [m]	Volume [m ³]	
Ground Floor	92.00	2.87	264.04	
First Floor	0.00	0.00	0.00	
Second Floor	0.00	0.00	0.00	
Third and other floors	0.00	0.00	0.00	
Room in roof	0.00	0.00	0.00	
Total Floor Area	92.00		264.04	
Living Area [m²]	30.90			Living area percentage [%] 33.59
No of Storeys	1			

Ventilation Details

	Number		
Chimneys	0	Has permeability test been carried out?	Yes
Open Flues	0	Structure type	N/A
Fans & Vents	1	Is there a suspended wooden ground floor?	No
Number of flueless combustion room heaters	0	Percentage windows/doors draught stripped [%]	N/A
Is there a draught lobby on main entrance?	No	Number of sides sheltered	3
Ventilation method	Balanced whole-house mechanical ventilation with heat recovery	Mechanical Ventilation Manufacturer	Nuaire
Specific fan power [W/(L/s)]	0.540	Mechanical Ventilation Model Name	MRXBOX-ECO2
Heat exchanger efficiency [%]	88.00	How many wetrooms (incl. kitchen)?	Kitchen + 2 Rigid

Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m ² K]	Area [m ²]
Ground Floor - Solid	Ground Floor EF01	No	0.15	92

Building Elements - Roof Details

Type	Description	U-Value [W/m ² K]	Area [m ²]
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Building Elements - Wall Details

Type	Description	U-Value [W/m ² K]	Area [m ²]
425 mm Cavity Wall	62.5mm XT Safe R, RC Inner, 100mm XT Stonewool Cavity, Brick EW01	0.18	46.49
Other	Semi-Exposed Wall to Bin/Bike Store - EW02	0.18	15.96
Other	Semi-Exposed Wall to Retail - EW03	0.09	36.54

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m ² K]	Area [m ²]
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Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m ² K]	Area [m ²]
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	2.300
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	8.240
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	2.650
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	2.650

DRAFT

Other Details

Thermal bridging factor [W/m ² k]	0.0800	Thermal mass category of dwelling	Medium-high
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Heating System - Solar Water Heating

Solar Water Heating Present?	No	Aperture area of solar collector [m ²]	N/A
Type, manufacturer, model	N/A	Collector heat loss coefficient, a1 [W/m ² >K]	N/A
Zero loss collector efficiency, n0	N/A	Overshading factor	N/A
Annual Solar Radiation [kWh/m ²] (Refer to Appendix H in DEAP)	N/A	Combined Cylinder	N/A
Dedicated storage volume [Litres]	N/A		
Solar fraction [%]	0.000		

Heating System - Hot Water System

Distribution Losses	278.82	Combi boiler present?	No
Supplementary electric water heating	N/A	Water Storage Volume [L]	1
Hot water storage manufacturer and model name	Danfoss FSS	Declared loss factor [kWh/d]	0.06
Temperature factor unadjusted	1	Temperature Factor Multiplier	1
Primary Circuit loss type	Community / group / district heating	Insulation type	N/A
Is hot water storage indoors or in group heating system?	Yes		
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0.000	Control Category		Responsiveness category	
Central heating pumps	1	Oil Boiler Pump	0	Oil boiler pump inside dwelling	No
Gas boiler flue fan	0	Warm air heating or fan coil radiators present	No		

Heating System - Energy Requirements (Group)

Charging based on heat consumed?	Yes	Distribution loss factor	1.05	Fraction of heat from waste heat/CHP	0
% of heat from secondary heating		Efficiency of secondary heating [%]		Secondary heating fuel type	Electricity
Heating System 1 percentage of heat [%]	53	Heating System 1 efficiency [%]	496.05	Heating System 1 fuel type	Electricity
Heating System 2 percentage of heat [%]	47	Heating System 2 efficiency [%]	185.96	Heating System 2 fuel type	Electricity
Solar space heating percentage of heat [%]					
CHP electrical efficiency		CHP thermal efficiency		CHP Fuel type	N/A

Summary for Part L Conformance (Applies to TGD L 2008/2011/2019 for new dwellings only)

BER Number		Building Regulations	2019 TGD L
BER Result	A1	Energy Value kWh/m ² /yr	21.68
CO ₂ emissions [kg/m ² /yr]	2.77		
EPC	0.126	EPC Pass/Fail	Pass
CPC	0.081	CPC Pass/Fail	Pass

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	U-value [W/m ² K]	Pass/Fail	Conformity with Maximum U-value requirements	U-Value [W/m ² K]	Pass/Fail
Pitched roof insulated on ceiling	0.00	Pass	Roofs	0	Pass
Pitched roof insulated on slope	0	Pass	Walls	0.18	Pass
Flat Roof	0	Pass	Floors	0.15	Pass
Floors with no underfloor heat	0.15	Pass	External doors / windows / rooflights	1.20	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.15	Pass			
Percentage of opening areas [%]	17.22				
Average U value of openings	1.20	Pass			
Permeability test carried out and meets guidelines in TGD L				0.15	Pass

Part L Conformance - Renewables (applies to TGD L 2019)

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	PV/Wind	0.00	0.00	
+ Delivered energy	Other	1119.73	1119.73	
+ Delivered energy	Solar	0.00	0.00	
+ Delivered energy	Biomass	0.00	0.00	
+ Delivered energy	Biodiesel	0.00	0.00	
+ Delivered energy	Bioethanol	0.00	0.00	
+ Environmental energy	HP	1964.53	1964.53	
+ Saved energy	CHP	0.00	0.00	
+ District heating	District Heating	0.00	0.00	
+ Delivered energy	Grid	0.00	4762.02	
+ Delivered energy	Thermal	0.00	0.00	
SUBTOTAL		3084.26	7846.28	0.39 - Pass
Energy not used in Regulated Loads	PV/Wind/CHP	0.00	0.00	
TOTAL		3084.26	7846.28	0.39

DRAFT

Energy Requirements: Renewables

	Type	Part L Total Contribution [kWh/y]	Delivered Energy [kWh/y]	Primary energy conversion factor	CO ₂ emission factor [kg/kWh]
Energy produced or saved 1	Thermal	1119.730	1119.730	1.75	0.224
Energy consumed by the technology 1			0.000	0.00	0.000
Energy produced or saved 2	N/A	0.000	0.000	0.00	0.000
Energy consumed by the technology 2			0.000	0.00	0.000
Energy produced or saved 3	N/A	0.000	0.000	0.00	0.000
Energy consumed by the technology 3			0.000	0.00	0.000

Energy Requirements: Group Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO ₂ emission factor
Main space heating system	group heating scheme	Current	0.66	0.08
Secondary space heating system	Electricity	Current	1.75	0.22
Main water heating system	group heating scheme	Current	0.66	0.08
Supplementary water heating system		Current	0.00	0.00
Pumps, fans		Current	1.75	0.22
Energy for lighting		Current	1.75	0.22

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Mid-floor apartment	Type of BER rating	New Dwelling - Provisional
Address line 1	12_01-14 - L01 - 2 Bed - Clongriffin - Block 5	Year of Construction	2023
Address line 2	Option 2.1	Date of Assessment	26/01/2024
Address line 3		Date of Plans	
County	Co. Dublin	Planning Reference	
Eircode		Building Regulations	2019 TGD L
BER Number		MPRN No.	0
Purpose of Rating	New dwelling for owner occupation	Is MPRN shared with another dwelling?	N/A
Assessor Name	Ryan Young	Assessor Number	107341
Comment		BER number assigned to shared dwelling	N/A

Dimension Details

	Area [m ²]	Height [m]	Volume [m ³]	
Ground Floor	80.28	2.48	199.09	
First Floor	0.00	0.00	0.00	
Second Floor	0.00	0.00	0.00	
Third and other floors	0.00	0.00	0.00	
Room in roof	0.00	0.00	0.00	
Total Floor Area	80.28		199.09	
Living Area [m ²]	30.76			Living area percentage [%] 38.32
No of Storeys	1			

Ventilation Details

	Number		
Chimneys	0	Has permeability test been carried out?	Yes
Open Flues	0	Structure type	N/A
Fans & Vents	1	Is there a suspended wooden ground floor?	No
Number of flueless combustion room heaters	0	Percentage windows/doors draught stripped [%]	N/A
Is there a draught lobby on main entrance?	Yes	Number of sides sheltered	3
Ventilation method	Balanced whole-house mechanical ventilation with heat recovery	Mechanical Ventilation Manufacturer	Nuaire
Specific fan power [W/(L/s)]	0.540	Mechanical Ventilation Model Name	MRXBOX-ECO2
Heat exchanger efficiency [%]	88.00	How many wetrooms (incl. kitchen)?	Kitchen + 2 Rigid

Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m ² K]	Area [m ²]
Exposed / Semi Exposed	Exposed Floor over Car Park EF02	No	0.15	69.04
Exposed / Semi Exposed	Semi-Exposed floor over Bin EF04	No	0.15	7.15
Exposed / Semi Exposed	Semi-Exposed floor over Sprinkler Tank EF08	No	0.15	4.09

Building Elements - Roof Details

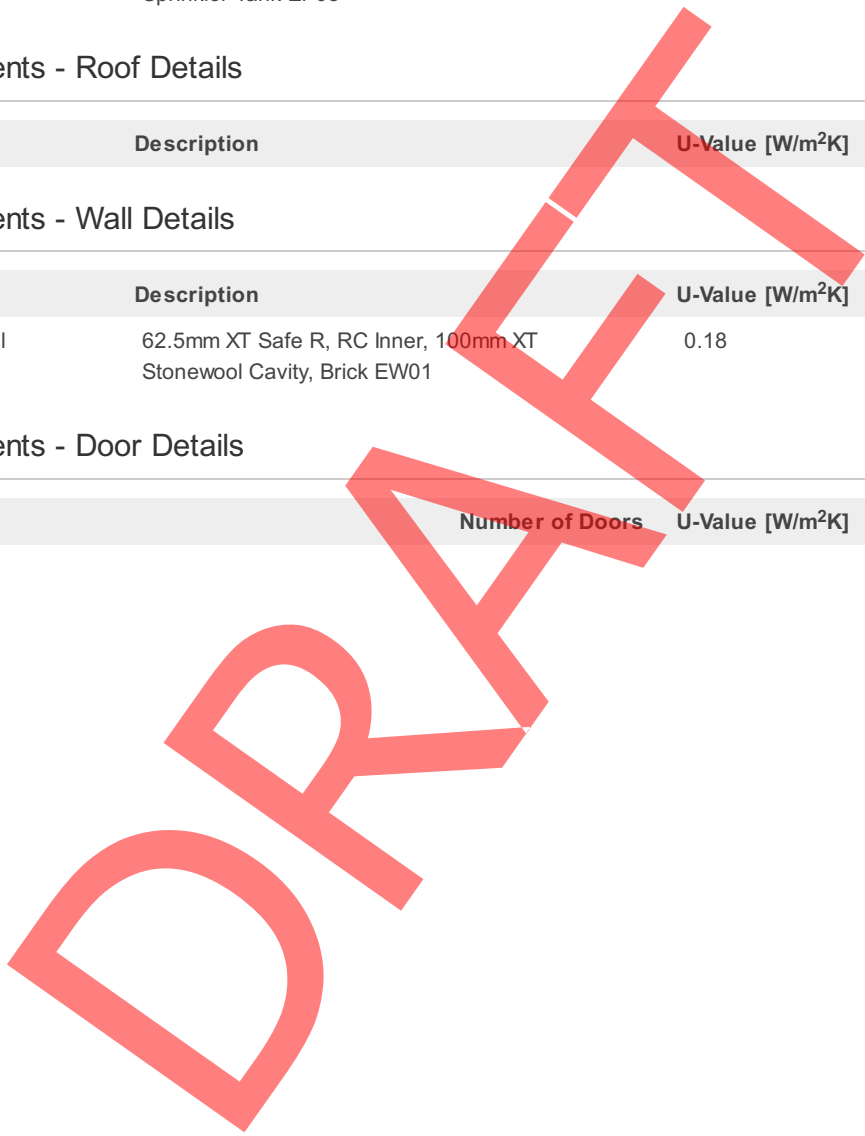
Type	Description	U-Value [W/m ² K]	Area [m ²]
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Building Elements - Wall Details

Type	Description	U-Value [W/m ² K]	Area [m ²]
425 mm Cavity Wall	62.5mm XT Safe R, RC Inner, 100mm XT Stonewool Cavity, Brick EW01	0.18	15.82

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m ² K]	Area [m ²]
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Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m ² K]	Area [m ²]
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	7.350
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	2.460
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	2.460

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Other Details

Thermal bridging factor [W/m ² k]	0.0800	Thermal mass category of dwelling	Medium-high
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Heating System - Solar Water Heating

Solar Water Heating Present?	No	Aperture area of solar collector [m ²]	N/A
Type, manufacturer, model	N/A	Collector heat loss coefficient, a1 [W/m ² >K]	N/A
Zero loss collector efficiency, n0	N/A	Overshading factor	N/A
Annual Solar Radiation [kWh/m ²] (Refer to Appendix H in DEAP)	N/A	Combined Cylinder	N/A
Dedicated storage volume [Litres]	N/A		
Solar fraction [%]	0.000		

Heating System - Hot Water System

Distribution Losses	266.3	Combi boiler present?	No
Supplementary electric water heating	N/A	Water Storage Volume [L]	15
Hot water storage manufacturer and model name	Danfoss FSS	Declared loss factor [kWh/d]	0.06
Temperature factor unadjusted	1	Temperature Factor Multiplier	1
Primary Circuit loss type	Community / group / district heating	Insulation type	N/A
Is hot water storage indoors or in group heating system?	Yes		
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0.000	Control Category		Responsiveness category	
Central heating pumps	1	Oil Boiler Pump	0	Oil boiler pump inside dwelling	No
Gas boiler flue fan	0	Warm air heating or fan coil radiators present	No		

Heating System - Energy Requirements (Group)

Charging based on heat consumed?	Yes	Distribution loss factor	1.05	Fraction of heat from waste heat/CHP	0
% of heat from secondary heating		Efficiency of secondary heating [%]		Secondary heating fuel type	Electricity
Heating System 1 percentage of heat [%]	26	Heating System 1 efficiency [%]	540.37	Heating System 1 fuel type	Electricity
Heating System 2 percentage of heat [%]	74	Heating System 2 efficiency [%]	185.97	Heating System 2 fuel type	Electricity
Solar space heating percentage of heat [%]					
CHP electrical efficiency		CHP thermal efficiency		CHP Fuel type	N/A

Summary for Part L Conformance (Applies to TGD L 2008/2011/2019 for new dwellings only)

BER Number		Building Regulations	2019 TGD L
BER Result	A1	Energy Value kWh/m ² /yr	14.55
CO ₂ emissions [kg/m ² /yr]	1.86		
EPC	0.099	EPC Pass/Fail	Pass
CPC	0.065	CPC Pass/Fail	Pass

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	U-value [W/m ² K]	Pass/Fail	Conformity with Maximum U-value requirements	U-Value [W/m ² K]	Pass/Fail
Pitched roof insulated on ceiling	0.00	Pass	Roofs	0	Pass
Pitched roof insulated on slope	0	Pass	Walls	0.18	Pass
Flat Roof	0	Pass	Floors	0.15	Pass
Floors with no underfloor heat	0.15	Pass	External doors / windows / rooflights	1.20	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.18	Pass			
Percentage of opening areas [%]	15.28				
Average U value of openings	1.20	Pass			
Permeability test carried out and meets guidelines in TGD L				0.15	Pass

Part L Conformance - Renewables (applies to TGD L 2019)

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	PV/Wind	0.00	0.00	
+ Delivered energy	Other	1072.59	1072.59	
+ Delivered energy	Solar	0.00	0.00	
+ Delivered energy	Biomass	0.00	0.00	
+ Delivered energy	Biodiesel	0.00	0.00	
+ Delivered energy	Bioethanol	0.00	0.00	
+ Environmental energy	HP	596.11	596.11	
+ Saved energy	CHP	0.00	0.00	
+ District heating	District Heating	0.00	0.00	
+ Delivered energy	Grid	0.00	3752.90	
+ Delivered energy	Thermal	0.00	0.00	
SUBTOTAL		1668.70	5421.61	0.31 - Pass
Energy not used in Regulated Loads	PV/Wind/CHP	0.00	0.00	
TOTAL		1668.70	5421.61	0.31

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Energy Requirements: Renewables

	Type	Part L Total Contribution [kWh/y]	Delivered Energy [kWh/y]	Primary energy conversion factor	CO ₂ emission factor [kg/kWh]
Energy produced or saved 1	Thermal	1072.590	1072.590	1.75	0.224
Energy consumed by the technology 1			0.000	0.00	0.000
Energy produced or saved 2	N/A	0.000	0.000	0.00	0.000
Energy consumed by the technology 2			0.000	0.00	0.000
Energy produced or saved 3	N/A	0.000	0.000	0.00	0.000
Energy consumed by the technology 3			0.000	0.00	0.000

Energy Requirements: Group Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO ₂ emission factor
Main space heating system	group heating scheme	Current	0.82	0.10
Secondary space heating system	Electricity	Current	1.75	0.22
Main water heating system	group heating scheme	Current	0.82	0.10
Supplementary water heating system		Current	0.00	0.00
Pumps, fans		Current	1.75	0.22
Energy for lighting		Current	1.75	0.22

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Mid-floor apartment	Type of BER rating	New Dwelling - Provisional
Address line 1	D_01-28 - L01 - 3 Bed - Clongriffin (Duplex) - Block 5	Year of Construction	2023
Address line 2	Option 2.1	Date of Assessment	26/01/2024
Address line 3		Date of Plans	
County	Co. Dublin	Planning Reference	
Eircode		Building Regulations	2019 TGD L
BER Number		MPRN No.	0
Purpose of Rating	New dwelling for owner occupation	Is MPRN shared with another dwelling?	N/A
Assessor Name	Ryan Young	Assessor Number	107341
Comment		BER number assigned to shared dwelling	N/A

Dimension Details

	Area [m ²]	Height [m]	Volume [m ³]	
Ground Floor	56.23	2.82	158.57	
First Floor	64.50	2.82	181.89	
Second Floor	0.00	0.00	0.00	
Third and other floors	0.00	0.00	0.00	
Room in roof	0.00	0.00	0.00	
Total Floor Area	120.73		340.46	
Living Area [m ²]	36.39			Living area percentage [%] 30.14
No of Storeys	2			

Ventilation Details

	Number		
Chimneys	0	Has permeability test been carried out?	Yes
Open Flues	0	Structure type	N/A
Fans & Vents	1	Is there a suspended wooden ground floor?	No
Number of flueless combustion room heaters	0	Percentage windows/doors draught stripped [%]	N/A
Is there a draught lobby on main entrance?	No	Number of sides sheltered	2
Ventilation method	Balanced whole-house mechanical ventilation with heat recovery	Mechanical Ventilation Manufacturer	Nuaire
Specific fan power [W/(L/s)]	0.660	Mechanical Ventilation Model Name	MRXBOX-ECO2
Heat exchanger efficiency [%]	87.00	How many wetrooms (incl. kitchen)?	Kitchen + 3 Rigid

Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m ² K]	Area [m ²]
Exposed / Semi Exposed	Exposed Floor at Entrance EF03	No	0.15	2.72
Exposed / Semi Exposed	Semi-Exposed Floor to Retail EF05	No	0.08	53.51
Exposed / Semi Exposed	Exposed Floor to Balcony EF03	No	0.15	8.88
Non-Heat Loss Floor		N/A	0	55.62

Building Elements - Roof Details

Type	Description	U-Value [W/m ² K]	Area [m ²]
Flat Roof	Flat Roof RF01 - L02	0.15	64.5
Flat Roof	Exposed Ceiling RF02 - L01	0.15	2.72

Building Elements - Wall Details

Type	Description	U-Value [W/m ² K]	Area [m ²]
425 mm Cavity Wall	62.5mm XT Safe R, RC Inner, 100mm XT Stonewool Cavity, Brick EW01	0.18	111.99

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m ² K]	Area [m ²]
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Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m ² K]	Area [m ²]
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	2.210
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	3.170
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	2.040
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	1.010
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	2.040
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	1.070
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	8.830
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	1.060
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	5.420

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Other Details

Thermal bridging factor [W/m ² k]	0.0800	Thermal mass category of dwelling	Medium-high
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Heating System - Solar Water Heating

Solar Water Heating Present?	No	Aperture area of solar collector [m ²]	N/A
Type, manufacturer, model	N/A	Collector heat loss coefficient, a1 [W/m ² >K]	N/A
Zero loss collector efficiency, n0	N/A	Overshading factor	N/A
Annual Solar Radiation [kWh/m ²] (Refer to Appendix H in DEAP)	N/A	Combined Cylinder	N/A
Dedicated storage volume [Litres]	N/A		
Solar fraction [%]	0.000		

Heating System - Hot Water System

Distribution Losses	293.39	Combi boiler present?	No
Supplementary electric water heating	N/A	Water Storage Volume [L]	15
Hot water storage manufacturer and model name	Danfoss FSS	Declared loss factor [kWh/d]	0.06
Temperature factor unadjusted	1	Temperature Factor Multiplier	1
Primary Circuit loss type	Community / group / district heating	Insulation type	N/A
Is hot water storage indoors or in group heating system?	Yes		
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0.000	Control Category		Responsiveness category	
Central heating pumps	1	Oil Boiler Pump	0	Oil boiler pump inside dwelling	No
Gas boiler flue fan	0	Warm air heating or fan coil radiators present	No		

Heating System - Energy Requirements (Group)

Charging based on heat consumed?	Yes	Distribution loss factor	1.05	Fraction of heat from waste heat/CHP	0
% of heat from secondary heating		Efficiency of secondary heating [%]		Secondary heating fuel type	Electricity
Heating System 1 percentage of heat [%]	63	Heating System 1 efficiency [%]	506.93	Heating System 1 fuel type	Electricity
Heating System 2 percentage of heat [%]	37	Heating System 2 efficiency [%]	185.96	Heating System 2 fuel type	Electricity
Solar space heating percentage of heat [%]					
CHP electrical efficiency		CHP thermal efficiency		CHP Fuel type	N/A

Summary for Part L Conformance (Applies to TGD L 2008/2011/2019 for new dwellings only)

BER Number		Building Regulations	2019 TGD L
BER Result	A1	Energy Value kWh/m ² /yr	22.04
CO ₂ emissions [kg/m ² /yr]	2.82		
EPC	0.140	EPC Pass/Fail	Pass
CPC	0.089	CPC Pass/Fail	Pass

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	U-value [W/m ² K]	Pass/Fail	Conformity with Maximum U-value requirements	U-Value [W/m ² K]	Pass/Fail
Pitched roof insulated on ceiling	0.00	Pass	Roofs	0.15	Pass
Pitched roof insulated on slope	0	Pass	Walls	0.18	Pass
Flat Roof	0.15	Pass	Floors	0.15	Pass
Floors with no underfloor heat	0.09	Pass	External doors / windows / rooflights	1.20	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.18	Pass			
Percentage of opening areas [%]	22.24				
Average U value of openings	1.20	Pass			
Permeability test carried out and meets guidelines in TGD L				0.15	Pass

Part L Conformance - Renewables (applies to TGD L 2019)

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	PV/Wind	0.00	0.00	
+ Delivered energy	Other	1174.56	1174.56	
+ Delivered energy	Solar	0.00	0.00	
+ Delivered energy	Biomass	0.00	0.00	
+ Delivered energy	Biodiesel	0.00	0.00	
+ Delivered energy	Bioethanol	0.00	0.00	
+ Environmental energy	HP	3033.03	3033.03	
+ Saved energy	CHP	0.00	0.00	
+ District heating	District Heating	0.00	0.00	
+ Delivered energy	Grid	0.00	5520.28	
+ Delivered energy	Thermal	0.00	0.00	
SUBTOTAL		4207.59	9727.87	0.43 - Pass
Energy not used in Regulated Loads	PV/Wind/CHP	0.00	0.00	
TOTAL		4207.59	9727.87	0.43

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Energy Requirements: Renewables

	Type	Part L Total Contribution [kWh/y]	Delivered Energy [kWh/y]	Primary energy conversion factor	CO ₂ emission factor [kg/kWh]
Energy produced or saved 1	Thermal	1174.560	1174.560	1.75	0.224
Energy consumed by the technology 1			0.000	0.00	0.000
Energy produced or saved 2	N/A	0.000	0.000	0.00	0.000
Energy consumed by the technology 2			0.000	0.00	0.000
Energy produced or saved 3	N/A	0.000	0.000	0.00	0.000
Energy consumed by the technology 3			0.000	0.00	0.000

Energy Requirements: Group Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO ₂ emission factor
Main space heating system	group heating scheme	Current	0.59	0.08
Secondary space heating system	Electricity	Current	1.75	0.22
Main water heating system	group heating scheme	Current	0.59	0.08
Supplementary water heating system		Current	0.00	0.00
Pumps, fans		Current	1.75	0.22
Energy for lighting		Current	1.75	0.22

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Top-floor apartment	Type of BER rating	New Dwelling - Provisional
Address line 1	8A_05-09- L05 - 1 Bed - Clongriffin - Block 5	Year of Construction	2023
Address line 2	Option 2.1	Date of Assessment	26/01/2024
Address line 3		Date of Plans	
County	Co. Dublin	Planning Reference	
Eircode		Building Regulations	2019 TGD L
BER Number		MPRN No.	0
Purpose of Rating	New dwelling for owner occupation	Is MPRN shared with another dwelling?	N/A
Assessor Name	Ryan Young	Assessor Number	107341
Comment		BER number assigned to shared dwelling	N/A

Dimension Details

	Area [m ²]	Height [m]	Volume [m ³]	
Ground Floor	52.76	2.48	130.84	
First Floor	0.00	0.00	0.00	
Second Floor	0.00	0.00	0.00	
Third and other floors	0.00	0.00	0.00	
Room in roof	0.00	0.00	0.00	
Total Floor Area	52.76		130.84	
Living Area [m ²]	26.18			Living area percentage [%] 49.62
No of Storeys	1			

Ventilation Details

	Number		
Chimneys	0	Has permeability test been carried out?	Yes
Open Flues	0	Structure type	N/A
Fans & Vents	1	Is there a suspended wooden ground floor?	No
Number of flueless combustion room heaters	0	Percentage windows/doors draught stripped [%]	N/A
Is there a draught lobby on main entrance?	Yes	Number of sides sheltered	2
Ventilation method	Balanced whole-house mechanical ventilation with heat recovery	Mechanical Ventilation Manufacturer	Nuaire
Specific fan power [W/(L/s)]	0.540	Mechanical Ventilation Model Name	MRXBOX-ECO2
Heat exchanger efficiency [%]	88.00	How many wetrooms (incl. kitchen)?	Kitchen + 2 Rigid

Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m ² K]	Area [m ²]
Non-Heat Loss Floor		N/A	0	52.76

Building Elements - Roof Details

Type	Description	U-Value [W/m ² K]	Area [m ²]
Flat Roof	Flat Roof RF01	0.15	52.76

Building Elements - Wall Details

Type	Description	U-Value [W/m ² K]	Area [m ²]
425 mm Cavity Wall	62.5mm XT Safe R, RC Inner, 100mm XT Stonewool Cavity, Brick EW01	0.18	13.94

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m ² K]	Area [m ²]
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Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m ² K]	Area [m ²]
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	2.880
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	5.450
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	5.760

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Other Details

Thermal bridging factor [W/m ² k]	0.0800	Thermal mass category of dwelling	Medium-high
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Heating System - Solar Water Heating

Solar Water Heating Present?	No	Aperture area of solar collector [m ²]	N/A
Type, manufacturer, model	N/A	Collector heat loss coefficient, a1 [W/m ² >K]	N/A
Zero loss collector efficiency, n0	N/A	Overshading factor	N/A
Annual Solar Radiation [kWh/m ²] (Refer to Appendix H in DEAP)	N/A	Combined Cylinder	N/A
Dedicated storage volume [Litres]	N/A		
Solar fraction [%]	0.000		

Heating System - Hot Water System

Distribution Losses	218.87	Combi boiler present?	No
Supplementary electric water heating	N/A	Water Storage Volume [L]	15
Hot water storage manufacturer and model name	Danfoss FSS	Declared loss factor [kWh/d]	0.06
Temperature factor unadjusted	1	Temperature Factor Multiplier	1
Primary Circuit loss type	Community / group / district heating	Insulation type	N/A
Is hot water storage indoors or in group heating system?	Yes		
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0.000	Control Category		Responsiveness category	
Central heating pumps	1	Oil Boiler Pump	0	Oil boiler pump inside dwelling	No
Gas boiler flue fan	0	Warm air heating or fan coil radiators present	No		

Heating System - Energy Requirements (Group)

Charging based on heat consumed?	Yes	Distribution loss factor	1.05	Fraction of heat from waste heat/CHP	0
% of heat from secondary heating		Efficiency of secondary heating [%]		Secondary heating fuel type	Electricity
Heating System 1 percentage of heat [%]	33	Heating System 1 efficiency [%]	509.45	Heating System 1 fuel type	Electricity
Heating System 2 percentage of heat [%]	67	Heating System 2 efficiency [%]	185.96	Heating System 2 fuel type	Electricity
Solar space heating percentage of heat [%]					
CHP electrical efficiency		CHP thermal efficiency		CHP Fuel type	N/A

Summary for Part L Conformance (Applies to TGD L 2008/2011/2019 for new dwellings only)

BER Number		Building Regulations	2019 TGD L
BER Result	A1	Energy Value kWh/m ² /yr	18.42
CO ₂ emissions [kg/m ² /yr]	2.36		
EPC	0.108	EPC Pass/Fail	Pass
CPC	0.072	CPC Pass/Fail	Pass

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	U-value [W/m ² K]	Pass/Fail	Conformity with Maximum U-value requirements	U-Value [W/m ² K]	Pass/Fail
Pitched roof insulated on ceiling	0.00	Pass	Roofs	0.15	Pass
Pitched roof insulated on slope	0	Pass	Walls	0.18	Pass
Flat Roof	0.15	Pass	Floors	0	Pass
Floors with no underfloor heat	0.00	Pass	External doors / windows / rooflights	1.20	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.18	Pass			
Percentage of opening areas [%]	26.71				
Average U value of openings	1.20	Pass			
Permeability test carried out and meets guidelines in TGD L				0.15	Pass

Part L Conformance - Renewables (applies to TGD L 2019)

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	PV/Wind	0.00	0.00	
+ Delivered energy	Other	894.08	894.08	
+ Delivered energy	Solar	0.00	0.00	
+ Delivered energy	Biomass	0.00	0.00	
+ Delivered energy	Biodiesel	0.00	0.00	
+ Delivered energy	Bioethanol	0.00	0.00	
+ Environmental energy	HP	693.46	693.46	
+ Saved energy	CHP	0.00	0.00	
+ District heating	District Heating	0.00	0.00	
+ Delivered energy	Grid	0.00	3168.27	
+ Delivered energy	Thermal	0.00	0.00	
SUBTOTAL		1587.54	4755.81	0.33 - Pass
Energy not used in Regulated Loads	PV/Wind/CHP	0.00	0.00	
TOTAL		1587.54	4755.81	0.33

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Energy Requirements: Renewables

	Type	Part L Total Contribution [kWh/y]	Delivered Energy [kWh/y]	Primary energy conversion factor	CO ₂ emission factor [kg/kWh]
Energy produced or saved 1	Thermal	894.080	894.080	1.75	0.224
Energy consumed by the technology 1			0.000	0.00	0.000
Energy produced or saved 2	N/A	0.000	0.000	0.00	0.000
Energy consumed by the technology 2			0.000	0.00	0.000
Energy produced or saved 3	N/A	0.000	0.000	0.00	0.000
Energy consumed by the technology 3			0.000	0.00	0.000

Energy Requirements: Group Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO ₂ emission factor
Main space heating system	group heating scheme	Current	0.78	0.10
Secondary space heating system	Electricity	Current	1.75	0.22
Main water heating system	group heating scheme	Current	0.78	0.10
Supplementary water heating system		Current	0.00	0.00
Pumps, fans		Current	1.75	0.22
Energy for lighting		Current	1.75	0.22

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Ground-floor apartment	Type of BER rating	New Dwelling - Provisional
Address line 1	Type 3_00-21 - L00 - 2 Bed - Clongriffin - Block 6	Year of Construction	2023
Address line 2	Option 2.1	Date of Assessment	26/01/2024
Address line 3		Date of Plans	
County	Co. Dublin	Planning Reference	
Eircode		Building Regulations	2019 TGD L
BER Number		MPRN No.	0
Purpose of Rating	New dwelling for owner occupation	Is MPRN shared with another dwelling?	N/A
Assessor Name	Ryan Young	Assessor Number	107341
Comment		BER number assigned to shared dwelling	N/A

Dimension Details

	Area [m ²]	Height [m]	Volume [m ³]	
Ground Floor	92.36	3.53	326.03	
First Floor	0.00	0.00	0.00	
Second Floor	0.00	0.00	0.00	
Third and other floors	0.00	0.00	0.00	
Room in roof	0.00	0.00	0.00	
Total Floor Area	92.36		326.03	
Living Area [m²]	33.88			Living area percentage [%] 36.68
No of Storeys	1			

Ventilation Details

	Number		
Chimneys	0	Has permeability test been carried out?	Yes
Open Flues	0	Structure type	N/A
Fans & Vents	1	Is there a suspended wooden ground floor?	No
Number of flueless combustion room heaters	0	Percentage windows/doors draught stripped [%]	N/A
Is there a draught lobby on main entrance?	No	Number of sides sheltered	2
Ventilation method	Balanced whole-house mechanical ventilation with heat recovery	Mechanical Ventilation Manufacturer	Nuaire
Specific fan power [W/(L/s)]	0.540	Mechanical Ventilation Model Name	MRXBOX-ECO2
Heat exchanger efficiency [%]	88.00	How many wetrooms (incl. kitchen)?	Kitchen + 2 Rigid

Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m ² K]	Area [m ²]
Ground Floor - Solid	Ground Floor EF01	No	0.12	92.36

Building Elements - Roof Details

Type	Description	U-Value [W/m ² K]	Area [m ²]
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Building Elements - Wall Details

Type	Description	U-Value [W/m ² K]	Area [m ²]
425 mm Cavity Wall	62.5mm XT Safe R, RC Inner, 100mm XT Stonewool Cavity, Brick EW01	0.18	52.29
Other	Semi-Exposed Wall to Bin/Bike Store - EW02	0.18	36.99

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m ² K]	Area [m ²]
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Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m ² K]	Area [m ²]
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	4.420
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	4.420
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	7.490
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	2.740

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Other Details

Thermal bridging factor [W/m ² k]	0.0800	Thermal mass category of dwelling	Medium-high
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Heating System - Solar Water Heating

Solar Water Heating Present?	No	Aperture area of solar collector [m ²]	N/A
Type, manufacturer, model	N/A	Collector heat loss coefficient, a1 [W/m ² >K]	N/A
Zero loss collector efficiency, n0	N/A	Overshading factor	N/A
Annual Solar Radiation [kWh/m ²] (Refer to Appendix H in DEAP)	N/A	Combined Cylinder	N/A
Dedicated storage volume [Litres]	N/A		
Solar fraction [%]	0.000		

Heating System - Hot Water System

Distribution Losses	279.13	Combi boiler present?	No
Supplementary electric water heating	N/A	Water Storage Volume [L]	15
Hot water storage manufacturer and model name	Danfoss FSS	Declared loss factor [kWh/d]	0.06
Temperature factor unadjusted	1	Temperature Factor Multiplier	1
Primary Circuit loss type	Community / group / district heating	Insulation type	N/A
Is hot water storage indoors or in group heating system?	Yes		
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0.000	Control Category		Responsiveness category	
Central heating pumps	1	Oil Boiler Pump	0	Oil boiler pump inside dwelling	No
Gas boiler flue fan	0	Warm air heating or fan coil radiators present	No		

Heating System - Energy Requirements (Group)

Charging based on heat consumed?	Yes	Distribution loss factor	1.05	Fraction of heat from waste heat/CHP	0
% of heat from secondary heating		Efficiency of secondary heating [%]		Secondary heating fuel type	Electricity
Heating System 1 percentage of heat [%]	30	Heating System 1 efficiency [%]	559	Heating System 1 fuel type	Electricity
Heating System 2 percentage of heat [%]	70	Heating System 2 efficiency [%]	290	Heating System 2 fuel type	Electricity
Solar space heating percentage of heat [%]					
CHP electrical efficiency		CHP thermal efficiency		CHP Fuel type	N/A

Summary for Part L Conformance (Applies to TGD L 2008/2011/2019 for new dwellings only)

BER Number		Building Regulations	2019 TGD L
BER Result	A1	Energy Value kWh/m ² /yr	16.37
CO ₂ emissions [kg/m ² /yr]	2.1		
EPC	0.090	EPC Pass/Fail	Pass
CPC	0.058	CPC Pass/Fail	Pass

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	U-value [W/m ² K]	Pass/Fail	Conformity with Maximum U-value requirements	U-Value [W/m ² K]	Pass/Fail
Pitched roof insulated on ceiling	0.00	Pass	Roofs	0	Pass
Pitched roof insulated on slope	0	Pass	Walls	0.18	Pass
Flat Roof	0	Pass	Floors	0.12	Pass
Floors with no underfloor heat	0.12	Pass	External doors / windows / rooflights	1.20	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.18	Pass			
Percentage of opening areas [%]	20.65				
Average U value of openings	1.20	Pass			
Permeability test carried out and meets guidelines in TGD L				0.15	Pass

Part L Conformance - Renewables (applies to TGD L 2019)

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	PV/Wind	0.00	0.00	
+ Delivered energy	Other	1238.83	1238.83	
+ Delivered energy	Solar	0.00	0.00	
+ Delivered energy	Biomass	0.00	0.00	
+ Delivered energy	Biodiesel	0.00	0.00	
+ Delivered energy	Bioethanol	0.00	0.00	
+ Environmental energy	HP	1238.83	1238.83	
+ Saved energy	CHP	0.00	0.00	
+ District heating	District Heating	0.00	0.00	
+ Delivered energy	Grid	0.00	4837.01	
+ Delivered energy	Thermal	0.00	0.00	
SUBTOTAL		2477.66	7314.67	0.34 - Pass
Energy not used in Regulated Loads	PV/Wind/CHP	0.00	0.00	
TOTAL		2477.66	7314.67	0.34

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Energy Requirements: Renewables

	Type	Part L Total Contribution [kWh/y]	Delivered Energy [kWh/y]	Primary energy conversion factor	CO ₂ emission factor [kg/kWh]
Energy produced or saved 1	Thermal	6075.830	1238.830	1.75	0.224
Energy consumed by the technology 1			0.000	0.00	0.000
Energy produced or saved 2	N/A	0.000	0.000	0.00	0.000
Energy consumed by the technology 2			0.000	0.00	0.000
Energy produced or saved 3	N/A	0.000	0.000	0.00	0.000
Energy consumed by the technology 3			0.000	0.00	0.000

Energy Requirements: Group Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO ₂ emission factor
Main space heating system	group heating scheme	Current	0.54	0.07
Secondary space heating system	Electricity	Current	1.75	0.22
Main water heating system	group heating scheme	Current	0.54	0.07
Supplementary water heating system		Current	0.00	0.00
Pumps, fans		Current	1.75	0.22
Energy for lighting		Current	1.75	0.22

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Mid-floor apartment	Type of BER rating	New Dwelling - Provisional
Address line 1	1_01-17 - L01 - 1 Bed - Clongriffin - Block 6	Year of Construction	2023
Address line 2	Option 2.1	Date of Assessment	26/01/2024
Address line 3		Date of Plans	
County	Co. Dublin	Planning Reference	
Eircode		Building Regulations	2019 TGD L
BER Number		MPRN No.	0
Purpose of Rating	New dwelling for owner occupation	Is MPRN shared with another dwelling?	N/A
Assessor Name	Ryan Young	Assessor Number	107341
Comment		BER number assigned to shared dwelling	N/A

Dimension Details

	Area [m ²]	Height [m]	Volume [m ³]	
Ground Floor	50.23	2.50	125.58	
First Floor	0.00	0.00	0.00	
Second Floor	0.00	0.00	0.00	
Third and other floors	0.00	0.00	0.00	
Room in roof	0.00	0.00	0.00	
Total Floor Area	50.23		125.58	
Living Area [m²]	22.98			Living area percentage [%] 45.75
No of Storeys	1			

Ventilation Details

	Number		
Chimneys	0	Has permeability test been carried out?	Yes
Open Flues	0	Structure type	N/A
Fans & Vents	1	Is there a suspended wooden ground floor?	No
Number of flueless combustion room heaters	0	Percentage windows/doors draught stripped [%]	N/A
Is there a draught lobby on main entrance?	Yes	Number of sides sheltered	3
Ventilation method	Balanced whole-house mechanical ventilation with heat recovery	Mechanical Ventilation Manufacturer	Nuaire
Specific fan power [W/(L/s)]	0.540	Mechanical Ventilation Model Name	MRXBOX-ECO2
Heat exchanger efficiency [%]	88.00	How many wetrooms (incl. kitchen)?	Kitchen + 2 Rigid

Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m ² K]	Area [m ²]
Exposed / Semi Exposed	Semi-Exposed floor over Creche EF05	No	0.08	50.23

Building Elements - Roof Details

Type	Description	U-Value [W/m ² K]	Area [m ²]
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Building Elements - Wall Details

Type	Description	U-Value [W/m ² K]	Area [m ²]
425 mm Cavity Wall	62.5mm XT Safe R, RC Inner, 100mm XT Stonewool Cavity, Brick EW01	0.18	12.2

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m ² K]	Area [m ²]
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Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m ² K]	Area [m ²]
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	3.540
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	3.540
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	2.190

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Other Details

Thermal bridging factor [W/m ² k]	0.0800	Thermal mass category of dwelling	Medium-high
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Heating System - Solar Water Heating

Solar Water Heating Present?	No	Aperture area of solar collector [m ²]	N/A
Type, manufacturer, model	N/A	Collector heat loss coefficient, a1 [W/m ² >K]	N/A
Zero loss collector efficiency, n0	N/A	Overshading factor	N/A
Annual Solar Radiation [kWh/m ²] (Refer to Appendix H in DEAP)	N/A	Combined Cylinder	N/A
Dedicated storage volume [Litres]	N/A		
Solar fraction [%]	0.000		

Heating System - Hot Water System

Distribution Losses	213.79	Combi boiler present?	No
Supplementary electric water heating	N/A	Water Storage Volume [L]	15
Hot water storage manufacturer and model name	Danfoss FSS	Declared loss factor [kWh/d]	0.06
Temperature factor unadjusted	1	Temperature Factor Multiplier	1
Primary Circuit loss type	Community / group / district heating	Insulation type	N/A
Is hot water storage indoors or in group heating system?	Yes		
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0.000	Control Category		Responsiveness category	
Central heating pumps	1	Oil Boiler Pump	0	Oil boiler pump inside dwelling	No
Gas boiler flue fan	0	Warm air heating or fan coil radiators present	No		

Heating System - Energy Requirements (Group)

Charging based on heat consumed?	Yes	Distribution loss factor	1.05	Fraction of heat from waste heat/CHP	0
% of heat from secondary heating		Efficiency of secondary heating [%]		Secondary heating fuel type	Electricity
Heating System 1 percentage of heat [%]	16	Heating System 1 efficiency [%]	535.77	Heating System 1 fuel type	Electricity
Heating System 2 percentage of heat [%]	84	Heating System 2 efficiency [%]	185.96	Heating System 2 fuel type	Electricity
Solar space heating percentage of heat [%]					
CHP electrical efficiency		CHP thermal efficiency		CHP Fuel type	N/A

Summary for Part L Conformance (Applies to TGD L 2008/2011/2019 for new dwellings only)

BER Number		Building Regulations	2019 TGD L
BER Result	A1	Energy Value kWh/m ² /yr	14.95
CO ₂ emissions [kg/m ² /yr]	1.91		
EPC	0.084	EPC Pass/Fail	Pass
CPC	0.056	CPC Pass/Fail	Pass

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	U-value [W/m ² K]	Pass/Fail	Conformity with Maximum U-value requirements	U-Value [W/m ² K]	Pass/Fail
Pitched roof insulated on ceiling	0.00	Pass	Roofs	0	Pass
Pitched roof insulated on slope	0	Pass	Walls	0.18	Pass
Flat Roof	0	Pass	Floors	0.08	Pass
Floors with no underfloor heat	0.08	Pass	External doors / windows / rooflights	1.20	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.18	Pass			
Percentage of opening areas [%]	18.46				
Average U value of openings	1.20	Pass			
Permeability test carried out and meets guidelines in TGD L				0.15	Pass

Part L Conformance - Renewables (applies to TGD L 2019)

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	PV/Wind	0.00	0.00	
+ Delivered energy	Other	874.96	874.96	
+ Delivered energy	Solar	0.00	0.00	
+ Delivered energy	Biomass	0.00	0.00	
+ Delivered energy	Biodiesel	0.00	0.00	
+ Delivered energy	Bioethanol	0.00	0.00	
+ Environmental energy	HP	264.66	264.66	
+ Saved energy	CHP	0.00	0.00	
+ District heating	District Heating	0.00	0.00	
+ Delivered energy	Grid	0.00	2867.97	
+ Delivered energy	Thermal	0.00	0.00	
SUBTOTAL		1139.62	4007.59	0.28 - Pass
Energy not used in Regulated Loads	PV/Wind/CHP	0.00	0.00	
TOTAL		1139.62	4007.59	0.28

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Energy Requirements: Renewables

	Type	Part L Total Contribution [kWh/y]	Delivered Energy [kWh/y]	Primary energy conversion factor	CO ₂ emission factor [kg/kWh]
Energy produced or saved 1	Thermal	874.960	874.960	1.75	0.224
Energy consumed by the technology 1			0.000	0.00	0.000
Energy produced or saved 2	N/A	0.000	0.000	0.00	0.000
Energy consumed by the technology 2			0.000	0.00	0.000
Energy produced or saved 3	N/A	0.000	0.000	0.00	0.000
Energy consumed by the technology 3			0.000	0.00	0.000

Energy Requirements: Group Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO ₂ emission factor
Main space heating system	group heating scheme	Current	0.88	0.11
Secondary space heating system	Electricity	Current	1.75	0.22
Main water heating system	group heating scheme	Current	0.88	0.11
Supplementary water heating system		Current	0.00	0.00
Pumps, fans		Current	1.75	0.22
Energy for lighting		Current	1.75	0.22

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Mid-floor apartment	Type of BER rating	New Dwelling - Provisional
Address line 1	3_01-37 - L01 - 2 Bed - Clongriffin - Block 6	Year of Construction	2023
Address line 2	Option 2.1	Date of Assessment	26/01/2024
Address line 3		Date of Plans	
County	Co. Dublin	Planning Reference	
Eircode		Building Regulations	2019 TGD L
BER Number		MPRN No.	0
Purpose of Rating	New dwelling for owner occupation	Is MPRN shared with another dwelling?	N/A
Assessor Name	Ryan Young	Assessor Number	107341
Comment		BER number assigned to shared dwelling	N/A

Dimension Details

	Area [m ²]	Height [m]	Volume [m ³]	
Ground Floor	90.78	2.50	226.95	
First Floor	0.00	0.00	0.00	
Second Floor	0.00	0.00	0.00	
Third and other floors	0.00	0.00	0.00	
Room in roof	0.00	0.00	0.00	
Total Floor Area	90.78		226.95	
Living Area [m ²]	33.49			Living area percentage [%] 36.89
No of Storeys	1			

Ventilation Details

	Number		
Chimneys	0	Has permeability test been carried out?	Yes
Open Flues	0	Structure type	N/A
Fans & Vents	1	Is there a suspended wooden ground floor?	No
Number of flueless combustion room heaters	0	Percentage windows/doors draught stripped [%]	N/A
Is there a draught lobby on main entrance?	Yes	Number of sides sheltered	3
Ventilation method	Balanced whole-house mechanical ventilation with heat recovery	Mechanical Ventilation Manufacturer	Nuaire
Specific fan power [W/(L/s)]	0.540	Mechanical Ventilation Model Name	MRXBOX-ECO2
Heat exchanger efficiency [%]	88.00	How many wetrooms (incl. kitchen)?	Kitchen + 2 Rigid

Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m ² K]	Area [m ²]
Exposed / Semi Exposed	Exposed floor over Carpark EF02	No	0.15	28.41
Exposed / Semi Exposed	Exposed floor over Bike Store EF04	No	0.15	62.37

Building Elements - Roof Details

Type	Description	U-Value [W/m ² K]	Area [m ²]
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Building Elements - Wall Details

Type	Description	U-Value [W/m ² K]	Area [m ²]
425 mm Cavity Wall	62.5mm XT Safe R, RC Inner, 100mm XT Stonewool Cavity, Brick EW01	0.18	22.47

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m ² K]	Area [m ²]
Spandrel Panel Window (North)	1	1.2	6.710
Spandrel Panel Window (North)	1	1.2	2.810

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Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m ² K]	Area [m ²]
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	3.540
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	3.540
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	8.440
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	2.190
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	0.640
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	0.730

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Other Details

Thermal bridging factor [W/m ² k]	0.0800	Thermal mass category of dwelling	Medium-high
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Heating System - Solar Water Heating

Solar Water Heating Present?	No	Aperture area of solar collector [m ²]	N/A
Type, manufacturer, model	N/A	Collector heat loss coefficient, a1 [W/m ² >K]	N/A
Zero loss collector efficiency, n0	N/A	Overshading factor	N/A
Annual Solar Radiation [kWh/m ²] (Refer to Appendix H in DEAP)	N/A	Combined Cylinder	N/A
Dedicated storage volume [Litres]	N/A		
Solar fraction [%]	0.000		

Heating System - Hot Water System

Distribution Losses	277.74	Combi boiler present?	No
Supplementary electric water heating	N/A	Water Storage Volume [L]	15
Hot water storage manufacturer and model name	Danfoss FSS	Declared loss factor [kWh/d]	0.06
Temperature factor unadjusted	1	Temperature Factor Multiplier	1
Primary Circuit loss type	Community / group / district heating	Insulation type	N/A
Is hot water storage indoors or in group heating system?	Yes		
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0.000	Control Category		Responsiveness category	
Central heating pumps	1	Oil Boiler Pump	0	Oil boiler pump inside dwelling	No
Gas boiler flue fan	0	Warm air heating or fan coil radiators present	No		

Heating System - Energy Requirements (Group)

Charging based on heat consumed?	Yes	Distribution loss factor	1.05	Fraction of heat from waste heat/CHP	0
% of heat from secondary heating		Efficiency of secondary heating [%]		Secondary heating fuel type	Electricity
Heating System 1 percentage of heat [%]	49	Heating System 1 efficiency [%]	513.46	Heating System 1 fuel type	Electricity
Heating System 2 percentage of heat [%]	51	Heating System 2 efficiency [%]	185.96	Heating System 2 fuel type	Electricity
Solar space heating percentage of heat [%]					
CHP electrical efficiency		CHP thermal efficiency		CHP Fuel type	N/A

Summary for Part L Conformance (Applies to TGD L 2008/2011/2019 for new dwellings only)

BER Number		Building Regulations	2019 TGD L
BER Result	A1	Energy Value kWh/m ² /yr	19.09
CO ₂ emissions [kg/m ² /yr]	2.44		
EPC	0.129	EPC Pass/Fail	Pass
CPC	0.085	CPC Pass/Fail	Pass

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	U-value [W/m ² K]	Pass/Fail	Conformity with Maximum U-value requirements	U-Value [W/m ² K]	Pass/Fail
Pitched roof insulated on ceiling	0.00	Pass	Roofs	0	Pass
Pitched roof insulated on slope	0	Pass	Walls	0.18	Pass
Flat Roof	0	Pass	Floors	0.15	Pass
Floors with no underfloor heat	0.15	Pass	External doors / windows / rooflights	1.20	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.18	Pass			
Percentage of opening areas [%]	31.50				
Average U value of openings	1.20	Pass			
Permeability test carried out and meets guidelines in TGD L				0.15	Pass

Part L Conformance - Renewables (applies to TGD L 2019)

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	PV/Wind	0.00	0.00	
+ Delivered energy	Other	1115.66	1115.66	
+ Delivered energy	Solar	0.00	0.00	
+ Delivered energy	Biomass	0.00	0.00	
+ Delivered energy	Biodiesel	0.00	0.00	
+ Delivered energy	Bioethanol	0.00	0.00	
+ Environmental energy	HP	1665.70	1665.70	
+ Saved energy	CHP	0.00	0.00	
+ District heating	District Heating	0.00	0.00	
+ Delivered energy	Grid	0.00	4456.10	
+ Delivered energy	Thermal	0.00	0.00	
SUBTOTAL		2781.36	7237.46	0.38 - Pass
Energy not used in Regulated Loads	PV/Wind/CHP	0.00	0.00	
TOTAL		2781.36	7237.46	0.38

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Energy Requirements: Renewables

	Type	Part L Total Contribution [kWh/y]	Delivered Energy [kWh/y]	Primary energy conversion factor	CO ₂ emission factor [kg/kWh]
Energy produced or saved 1	Thermal	1115.660	1115.660	1.75	0.224
Energy consumed by the technology 1			0.000	0.00	0.000
Energy produced or saved 2	N/A	0.000	0.000	0.00	0.000
Energy consumed by the technology 2			0.000	0.00	0.000
Energy produced or saved 3	N/A	0.000	0.000	0.00	0.000
Energy consumed by the technology 3			0.000	0.00	0.000

Energy Requirements: Group Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO ₂ emission factor
Main space heating system	group heating scheme	Current	0.68	0.09
Secondary space heating system	Electricity	Current	1.75	0.22
Main water heating system	group heating scheme	Current	0.68	0.09
Supplementary water heating system		Current	0.00	0.00
Pumps, fans		Current	1.75	0.22
Energy for lighting		Current	1.75	0.22

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Top-floor apartment	Type of BER rating	New Dwelling - Provisional
Address line 1	4_06-01 - L06 - 2 Bed - Clongriffin - Block 6	Year of Construction	2023
Address line 2	Option 2.1	Date of Assessment	29/01/2024
Address line 3		Date of Plans	
County	Co. Dublin	Planning Reference	
Eircode		Building Regulations	2019 TGD L
BER Number		MPRN No.	0
Purpose of Rating	New dwelling for owner occupation	Is MPRN shared with another dwelling?	N/A
Assessor Name	Ryan Young	Assessor Number	107341
Comment		BER number assigned to shared dwelling	N/A

Dimension Details

	Area [m ²]	Height [m]	Volume [m ³]	
Ground Floor	80.80	2.48	200.38	
First Floor	0.00	0.00	0.00	
Second Floor	0.00	0.00	0.00	
Third and other floors	0.00	0.00	0.00	
Room in roof	0.00	0.00	0.00	
Total Floor Area	80.80		200.38	
Living Area [m²]	30.00			Living area percentage [%] 37.13
No of Storeys	1			

Ventilation Details

	Number		
Chimneys	0	Has permeability test been carried out?	Yes
Open Flues	0	Structure type	N/A
Fans & Vents	1	Is there a suspended wooden ground floor?	No
Number of flueless combustion room heaters	0	Percentage windows/doors draught stripped [%]	N/A
Is there a draught lobby on main entrance?	Yes	Number of sides sheltered	3
Ventilation method	Balanced whole-house mechanical ventilation with heat recovery	Mechanical Ventilation Manufacturer	Nuaire
Specific fan power [W/(L/s)]	0.540	Mechanical Ventilation Model Name	MRXBOX-ECO2
Heat exchanger efficiency [%]	88.00	How many wetrooms (incl. kitchen)?	Kitchen + 2 Rigid

Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m ² K]	Area [m ²]
Non-Heat Loss Floor		N/A	0	80.8

Building Elements - Roof Details

Type	Description	U-Value [W/m ² K]	Area [m ²]
Flat Roof	Flat Roof RF01	0.15	80.8

Building Elements - Wall Details

Type	Description	U-Value [W/m ² K]	Area [m ²]
425 mm Cavity Wall	62.5mm XT Safe R, RC Inner, 100mm XT Stonewool Cavity, Brick EW01	0.18	22.32

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m ² K]	Area [m ²]
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Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m ² K]	Area [m ²]
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	6.180
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	3.650
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	3.650
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	3.650
Double-glazed, argon filled (low-E, en = 0.05, soft coat)	Yes	1.200	2.260

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Other Details

Thermal bridging factor [W/m ² k]	0.0800	Thermal mass category of dwelling	Medium-high
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Heating System - Solar Water Heating

Solar Water Heating Present?	No	Aperture area of solar collector [m ²]	N/A
Type, manufacturer, model	N/A	Collector heat loss coefficient, a1 [W/m ² >K]	N/A
Zero loss collector efficiency, n0	N/A	Overshading factor	N/A
Annual Solar Radiation [kWh/m ²] (Refer to Appendix H in DEAP)	N/A	Combined Cylinder	N/A
Dedicated storage volume [Litres]	N/A		
Solar fraction [%]	0.000		

Heating System - Hot Water System

Distribution Losses	266.96	Combi boiler present?	No
Supplementary electric water heating	N/A	Water Storage Volume [L]	15
Hot water storage manufacturer and model name	Danfoss FSS	Declared loss factor [kWh/d]	0.06
Temperature factor unadjusted	1	Temperature Factor Multiplier	1
Primary Circuit loss type	Community / group / district heating	Insulation type	N/A
Is hot water storage indoors or in group heating system?	Yes		
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0.000	Control Category		Responsiveness category	
Central heating pumps	1	Oil Boiler Pump	0	Oil boiler pump inside dwelling	No
Gas boiler flue fan	0	Warm air heating or fan coil radiators present	No		

Heating System - Energy Requirements (Group)

Charging based on heat consumed?	Yes	Distribution loss factor	1.05	Fraction of heat from waste heat/CHP	0
% of heat from secondary heating		Efficiency of secondary heating [%]		Secondary heating fuel type	Electricity
Heating System 1 percentage of heat [%]	39	Heating System 1 efficiency [%]	522.82	Heating System 1 fuel type	Electricity
Heating System 2 percentage of heat [%]	62	Heating System 2 efficiency [%]	185.96	Heating System 2 fuel type	Electricity
Solar space heating percentage of heat [%]					
CHP electrical efficiency		CHP thermal efficiency		CHP Fuel type	N/A

Summary for Part L Conformance (Applies to TGD L 2008/2011/2019 for new dwellings only)

BER Number		Building Regulations	2019 TGD L
BER Result	A1	Energy Value kWh/m ² /yr	17.24
CO ₂ emissions [kg/m ² /yr]	2.21		
EPC	0.119	EPC Pass/Fail	Pass
CPC	0.079	CPC Pass/Fail	Pass

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	U-value [W/m ² K]	Pass/Fail	Conformity with Maximum U-value requirements	U-Value [W/m ² K]	Pass/Fail
Pitched roof insulated on ceiling	0.00	Pass	Roofs	0.15	Pass
Pitched roof insulated on slope	0	Pass	Walls	0.18	Pass
Flat Roof	0.15	Pass	Floors	0	Pass
Floors with no underfloor heat	0.00	Pass	External doors / windows / rooflights	1.20	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.18	Pass			
Percentage of opening areas [%]	24.00				
Average U value of openings	1.20	Pass			
Permeability test carried out and meets guidelines in TGD L				0.15	Pass

Part L Conformance - Renewables (applies to TGD L 2019)

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	PV/Wind	0.00	0.00	
+ Delivered energy	Other	1075.08	1075.08	
+ Delivered energy	Solar	0.00	0.00	
+ Delivered energy	Biomass	0.00	0.00	
+ Delivered energy	Biodiesel	0.00	0.00	
+ Delivered energy	Bioethanol	0.00	0.00	
+ Environmental energy	HP	1072.79	1072.79	
+ Saved energy	CHP	0.00	0.00	
+ District heating	District Heating	0.00	0.00	
+ Delivered energy	Grid	0.00	4003.95	
+ Delivered energy	Thermal	0.00	0.00	
SUBTOTAL		2147.87	6151.82	0.35 - Pass
Energy not used in Regulated Loads	PV/Wind/CHP	0.00	0.00	
TOTAL		2147.87	6151.82	0.35

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Energy Requirements: Renewables

	Type	Part L Total Contribution [kWh/y]	Delivered Energy [kWh/y]	Primary energy conversion factor	CO ₂ emission factor [kg/kWh]
Energy produced or saved 1	Thermal	1075.080	1075.080	1.75	0.224
Energy consumed by the technology 1			0.000	0.00	0.000
Energy produced or saved 2	N/A	0.000	0.000	0.00	0.000
Energy consumed by the technology 2			0.000	0.00	0.000
Energy produced or saved 3	N/A	0.000	0.000	0.00	0.000
Energy consumed by the technology 3			0.000	0.00	0.000

Energy Requirements: Group Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO ₂ emission factor
Main space heating system	group heating scheme	Current	0.75	0.10
Secondary space heating system	Electricity	Current	1.75	0.22
Main water heating system	group heating scheme	Current	0.75	0.10
Supplementary water heating system		Current	0.00	0.00
Pumps, fans		Current	1.75	0.22
Energy for lighting		Current	1.75	0.22