



RESIDENTIAL ENERGY CONSERVATION STRATEGY

LONGVIEW STRATEGIC RESIDENTIAL HOUSING DEVELOPMENT

AT: LAHARDANE & BALLINCOLLY, CORK.

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1.0 Introduction

This Residential Energy Conservation Strategy is provided to set out the Energy Performance of the proposed mixed residential development of 753 residential units at Lahardane & Ballincolly (Townlands), Cork, hereafter referred to as "Longview". The strategy outlines how the method of construction and performance of the proposed development will meet or exceed legislative and planning requirements including:

- NZEB (Bear Zero Energy Building) Compliance.
- Technical Guidance Document Part L Dwellings 2019
- Cork County Council Development Plan Guidelines.

The Report should be read in conjunction with the Architects Design Statement.

1.1 Compliance Standards

The report will review the proposed development in terms of:

- The Building Regulations 1997-2019, Specifically Part L (Conservation of Fuel & Energy Dwellings) in terms of Technical Guidance Document Part L 2019.
- The Building Regulations 1997-2019, Specifically Part L (Conservation of Fuel & Energy Buildings other than Dwellings) in terms of Technical Guidance Document Part L 2017.
- Building Energy Rating in terms of the Sustainable Energy Authority of Ireland requirements and the Dwelling Energy Assessment Procedure (DEAP) Methodology.

The following assessments are based on the drawings and design information current at the date of this report and are subject to change pending, a positive planning decision, detailed design and revisions to the Building Regulations which may occur over the duration of the construction programme.

This report should be read in conjunction with the drawings and other documentation accompanying this Strategic Housing Development Application.

1.1.1 Abbreviations and Terms Used in this Report

TGD L	Technical Guidance Document Part L 2019
TGD L (Buildings Other Than Dwellings) Technical	Guidance Document Part L 2017
NZEB	Near Zero Energy Buildings
BER	Building Energy Rating
DEAP	Dwelling Energy Assessment Procedure
CPC	Carbon Performance Coefficient
MPCPC	Maximum Permitted Carbon Performance Coefficient
EPC	Energy Performance Coefficient
MPEPC	Maximum Permitted Energy Performance Coefficient
RER	Renewable Energy Ratio

1.2 Development Summary



This unit mix should be read in conjunction with the drawings and other documentation including The Residential Quality Audit accompanying this Strategic Housing Development Application.

2.0 Legislative and Planning Requirements

2.1 Technical Guidance Document Part L (Dwellings)

In this document, Part L of The Building Regulations will be referred to in Terms of TGD L (Dwellings) & TGD L (Buildings other than dwellings). Criteria assessed within TGD Part L include but are not exclusive to:

- Use of Renewable Energy Sources
- Fabric insulation performance
- Air tightness/ Permeability
- Heat Generation
- Building Services Control
- Insulation of pipes, ducts and vessels.
- Mechanical Ventilation Systems
- Limiting Heat Gains
- Performance of the Completed Dwellings
- External Environmental Factors
- Primary Energy Use
- Carbon Dioxide Emissions
- Para. 0.1.2.2 Consideration may be given to the future upgrading of the building fabric and fixed services so as to reduce further CO2 emissions associated with the operation and use of the dwelling

The method for assessing a buildings performance in relation to these standards is DEAP, the national standard for Domestic Building Energy Rating.

2.1.1 Limits for CO2 Emissions and Primary Energy Use

Under Part L, the maximum permitted limits for CO2 emissions (MPCPC) and Primary Energy Use (MPEPC) are:

MPCPC 0.35

MPEPC **0.30**



2.1.2 Building Fabric

The current maximum area Weighted elemental U-Values and Average elemental U-Values – Individual element or section of element in TGD L are:

	Weighted elemental U-Value (W/m2K)	Average elemental U-Value (W/m2K)
Pitched Roof (Insulation at ceiling & on slope)	0.16	0.3
Flat Roof	0.20	0.3
Walls	0.18	0.6
Ground Floors	0.18	
Ground (with underfloor heating)	0.15	-
Other exposed floors	0.18	0.6
External doors, windows & rooflights *	1.40	3.0

* Windows, doors and rooflights should have a maximum U-Value of 1.4W/m2k.

It is proposed that Building fabric U-values equal to or improved upon the minimum standards be applied. Such an approach allows for a further reduction in CO2 emissions/ Primary Energy use in the future by the home-owner economically and without interference with the building envelope. i.e. the installation of Photo voltaic solar panels.

2.1.3 Building Fabric – Air Permeability

TGD L, Section 1.3.4.4 recommends that when tested in accordance with procedures set out in sub-section 1.5.4, a performance level of 5 m3/(h.m2) represents a reasonable upper limit for air permeability.

In preparing preliminary DEAP assessments within this report, dwellings have been assessed with an Air-tightness performance of 3.6 m3/(h.m2). It is our experience that an Air Permeability rate of 3.6 m3/(h.m2) is relatively conservative, particularly with prefabricated timber frame construction.

2.1.4 Renewable Energy Contribution

Section 1.2 of TGD L provides guidance on the minimum level of renewable technologies to be provided to show compliance with Regulation 8(b) of the European Union (Energy Performance of Buildings) Regulations 2019. The Renewable Energy Ratio (RER) is the ratio of the primary energy from renewable energy technologies to total primary energy as defined and calculated in DEAP.

Where the MPEPC of 0.3 and MPCPC of 0.35 are achieved, a minimum RER of 0.20 which represents 20% of the primary energy from renewable energy technologies is required.

Sample assessments confirm RER's ranging between 43% and 60%, exceeding the minimum standards with regard to renewable energy provision. As noted elsewhere there is provision for future improvement of the RER up to 80% with the introduction of Photo voltaic panels by the homeowner.



2.1.5 Planning & Design Guidelines:

• The Cork County Development Plan, Policy Objective HE 4-6, Part B & C refer to energy efficiency as follows:

b) Promote sustainable approaches to housing development by encouraging new building projects to be energy efficient in their design and layout.

c) Foster an innovative approach to design that acknowledges the diversity of suitable design solutions in most cases, safeguards the potential for exceptional innovative design in appropriate locations and promotes the added economic, amenity and environmental value of good design.

The Plan refers to EU Directives in 2002 and 2010 on the Energy Performance of Buildings. The Planning Authority will seek to promote the use of energy efficient methods in the design of new developments.

- Policy objective ED 5-1 Building Energy Efficiency and Conservation seeks to *"Encourage innovative new building design and retrofitting of existing buildings where possible, to improve building energy efficiency, energy conservation and the use of renewable energy sources in accordance with national regulations and policy requirements"*.
- The Plan seeks to facilitate the provision of suitable ancillary infrastructure including charge points for electric vehicles and bicycles as per Council standards.
- The Sustainable Residential Development in Urban Areas Guidelines refer to Energy Efficiency in the following terms:

Passive solar design of new housing schemes contributes to a reduction in energy demand and thus in CO2 emissions. This includes taking maximum advantage of available sunlight, by orientating as many dwellings as possible within 300 of south and by avoiding obstructions which block light reaching windows. The greatest energy savings are achieved when passive solar design principles are also applied to the design of the individual dwelling units

Design, including layout and orientation of individual residential units on the site and within apartment blocks, room layout (with a preference for kitchen/dining & living rooms orientated to the south, easterly or westerly) and the use of balconies for solar shading within apartment blocks have all been considered to maximise energy efficiency and user comfort/ quality of light.

DEAP assessment demonstrate that the proposed dwellings do not have a risk of high internal temperatures as described at Section 1.3.5 Limiting Heat Gains.

An innovative design approach has been followed to ensure generally high-quality living environment's and compliance with Part L requirements with an emphasis on the thermal envelope. The provision for future improvement of the RER up to 55% with the introduction of Photo voltaic panels by the homeowner also provides a practical method of further improvement.

3.0 Test Cases

3.1 Methodology

The method of case-testing was as follows:

- A number of typical unit types and scenarios have been selected, with avoidance of "ideal" conditions for each house type/ apartment considered.
- Reports have been prepared utilising optimal configurations of fabric and services in association with:
 - Best practice
 - Likelihood of a high-quality outcome through selected construction methods.
 - The availability of qualified tradespersons in the locality.

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- Lifespan and maintenance requirements of services & Fabric (Refer to Horgan Carroll Life Cycle Report)
- Minimising carbon footprint of the building envelope/ construction process.
- Efficient deliverability timeline.

3.2 Test Case Inputs

3.2.1 Plan Layout, Passive Gain/loss and External Environment

To a avoid misleading outputs and ensure compliance throughout, the typical unit types and configurations were selected avoiding "ideal" conditions, whether they were conditions of the external environment or interior configuration.

3.2.2 Building Envelope & Values Applied

With a view to providing compliance with and improving upon Part L / NZEB, the following standards have been applied. DEAP/BER assessments are calculated based on a Timber Frame Construction with plastered block/ Brick outer leaf.

Element	Weighted elemental U-Value (W/m2K)	Indicative Specification
Pitched Roof (Insulation at ceiling & on slope)	0.13	400mm Moy Metac (0.034 W/mk) or similar approved, set between and across the ceiling joist.
Flat Roof	0.18	70mm Thermaroof TR26 (0.022 W/mk) or similar approved warm roof construction – No ventilation required.
Walls*	0.18	Timber frame with 90mm (0.020 W/mk) insulation between studwork & 48mm insulated plasterboard internally
Ground Floor	0.18	100mm Kooltherm K103 (0.018 W/mk) or similar approved
Doors	1.20	Insulated composite door
Windows	1.00	Triple glazed UPVC
Rooflights	1.00	Triple Glazed Low U-Value option

*A Thermal Bridging Factor of 0.08w/m2K has been applied when preparing the sample energy assessments. In accordance with Paragraph 1.3.3.2, Part L, it is reasonable to apply such a value where Acceptable Construction Details for typical constructions as shown in sections 1 to 6 in the document "Limiting Thermal Bridging and Air Infiltration – Acceptable Construction Details" for all key junctions has been applied. Where selected details are designed for improved performance and modelled further improvement may occur at the construction stage.



3.2.3 Space and Water Heating

An Air to Water heat pump (low temperature split system) is proposed to provide space heating and domestic hot water. The proposed and similar alternative systems provide for an insulated and integrated 180 litre stainless steel domestic hot water cylinder. Refer to Diagram 1 below.

The system delivers a constant supply of domestic hot water at an efficiency of circa 252% per unit of electricity and space heating via low temperature radiators at an efficiency of circa 496%. Efficiencies of up to 600% can be achieved in ambient conditions. Refer to Sample Building Energy Ratings / Part L/NZEB compliance reports.



Diagram 1

The proposed residential units, houses and apartments, are designed to include for a designated service area in addition to the minimum designated storage areas as defined under DOE Sustainable Urban Housing; Design Standards for New Apartments – Guidelines for Planning Authorities – March 2018. The reader is referred to Diagram 1, Above.

The integrated indoor unit requires a limited installation footprint, is easily accessible for maintenance with supply and returns connectivity from above and being neat in appearance.

The proposed system utilises a central control clock, digital thermostatic control of heating zones (i.e. Kitchen/Dining/Living Room, Bedrooms, Family Room & Domestic Hot Water) and weather compensation in addition to providing temperature and time control.



The design includes for the provision of an Aqua box (cold water storage tank with a built-in pressure activated submersible pump to ensure that there is good water pressure to all taps and showers). Note: Kitchen taps will have mains water connection.

Apartment blocks at N2 & N6 have been designed to incorporate a mono pitch roof. The roofs are orientated to the south, south east or south west to provide for the potential introduction of photo voltaic roof panels in the future. The void in the mono pitch roof's also provides a space for the setting of the heat pump condensing units and related venting to air in a design friendly manner, with the individual unit to each apartment hidden from view.

Potential future Improvement and further CO2 reduction.

Renewable energy resulting from the efficiency of the heat pump will provide compliance with Part L / NZEB (RER) requirements. Refer to Sample Building Energy Ratings / Part L/NZEB compliance reports below. The renewable Energy Ratio (RER) for house and apartments on the scheme averages at approximately 40-50%. NZEB requires a minimum RER of 20%.

The provision for future improvement of the RER to between 57% - 79% with the introduction of Photo voltaic panels by the homeowner, provides a practical method of further improvement.

There is the potential that within the proposed infrastructure of each individual house and within Apartment complexes for the future provision of Photo voltaic solar panels. The introduction of the PV would provide for an additional and substantial reduction in external Primary Energy requirements. Refer to Diagram 2.



Diagram 2 – Huse Type 3A potential for the provision of Panels.



Typical PV Panel arrangement

All proposed housing units can accommodate PV panels. Houses on an East-West axis will benefit from increase



Apartments. Central amenity space with southern orientation. The majority of apartment Kitchen/dining/living rooms are orientated to the south, south east and south west & overlook the central amenity space.

Diagram 3 – Option for provision of PV Panels to southerly orientated mono-pitch roofs at N6. Apartment schemes have been designed with south, south west and south easterly facing mono-pitch roofs which are designed to accommodate PV panels and subsidise primary energy requirements.

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3.2.4 Ventilation

Whole House Extract Ventilation in compliance with TGD Part F (Ventilation) has been selected when preparing sample DEAP assessments. MEV has been selected with the expectation of low air permeability/ tightness levels and to alleviate the inherent risks of poor-quality air and excessive moisture which may occur when reliant on natural ventilation.

Solid fuel stoves / open fires and associated chimneys are not proposed for the development.

3.2.5 Air Permeability

An Air Permeability value of 3.60m3/hr/m2 @ 50 Pascals has been applied when preparing sample Energy Assessments.

3.2.6 Thermal Mass

DEAP/BER assessments are calculated based on a Timber Frame Construction with plastered block/ Brick outer leaf. Dwellings assessed in timber frame result in a Thermal Massing value of Medium-low. Apartments constructed in a concrete/ steel primary frame with block in-fill and clad externally primarily in brick result in a Thermal Massing value of Medium-High.

Both Medium-low & Medium High are appropriate to the Irish climate which has a limited variation in temperature day to night.

3.2.7 Low Energy Lighting

All dwellings will be provided with low energy fittings or low energy/LED bulbs.

3.3 Case Study Summaries

Sample houses have been assessed using the specification summarised above. Resulting Energy Values, Carbon Performance Coefficients (CPC), Energy Performance Coefficients (EPC) and Renewable Energy Ratios (RER) have been graphed below against the relevant maximum/ minimum criteria in solid hatch. Improvements resulting from the future inclusion of Photo voltaic solar panels are shown in a dotted hatch for ease of reference.

3.3.1.1 House Type 3A – Semi-detached, 3-bedroom dwelling house.



BER Rating A2 - Energy Value 37.50 kWh/m2/yr



3.3.1.2 House Type 5A - Detached, 4-bedroom dwelling with room in the roof.



BER Rating A2- Energy Value 35.55 kWh/m2/yr

3.3.1.3 House Type 4D - 2-bedroom Ground Floor Duplex Apartment.





3.3.1.4 House Type 4C - 3-bedroom First Floor Duplex Apartment/ Town House.



BER Rating A2 - Energy Value 55.28 kWh/m2/yr



3.3.1.5 House Type 7A - 2-bedroom Mid-terrace, Town House.





3.3.1.5 House Type 10 - 2-bedroom Mid-terrace, Town House.



BER Rating A2 - Energy Value 34.60 kWh/m2/yr

3.3.1.6 Apartment No 10, Block B – N6 – 2 Bedroom, 1st Floor, Apartment.



BER Rating A2



3.3.1.7 Apartment No. 9 – N2 – 2 Bedroom, 1st Floor, Apartment.



BER Rating A2 Energy Value 32.27 kWh/m2/yr

4.0 Conclusions

The proposed development has been designed to be compliant with The Building Regulations, Technical Guidance Document Part L, Conservation of Fuel and Energy – Dwellings, 2019.

All residential units are designed to meet NZEB standards. Preliminary DEAP assessments are summarised at 3.3.1.1 – 3.3.1.7 above and detailed within the Part L compliance reports which follow at Section 5.0 below.

To avoid misleading outputs and ensure compliance throughout, the sample unit types and configurations were selected avoiding "ideal" conditions, whether they were conditions of the external environment or interior configuration.

The approach has been to prioritise the basic principles of good, energy efficient design including:

- Orientation and setting on site.
- Passive solar gain/ mitigating against over-heating.
- An emphasis on a highly insulated thermal envelope & airtightness.
- Renewable technologies to maximise efficiency and minimise Carbon Dioxide emissions.
- Offering homeowners, the potential to further improve energy efficiency with minimal disruption. i.e. the introduction of Photo Voltaic technology to supplement primary delivered energy requirements and maximise renewable's.
- The provision of infrastructure which will allow for the provision of Electric Vehicle charging.

The summary of DEAP assessments set out at section 3.3.1. above, confirm that compliance with NZEB will be comfortably achieved. Assessments set out the potential for further and future improvement in efficiencies of up to 30% with the addition of PV technologies.

Dwelling houses & Apartments will achieve A2 / A3 Building Energy Ratings with the potential for improvement to A1 with the addition of PV technology.

All houses are designed and proposed to accommodate PV panels / installations if required as part of individual building energy modelling / TGD Part L compliance. Technological changes will occur over the consent life span which may see alternate building methodologies or energy efficiencies allowing for building fabric changes and efficiencies.



5.0 DEAP Part L Reports:

					Le Lahard	ongview E ane Ballyv	states olane, Cor	rk				Project: Ballyvolane Ref : Prov Part L Job Ref: Prov Const & M&E Date: 08/11/2019 Rev 2 1000000000000000000000000000000000000
N	BA ENGIN	EERS, TRA	MWAY HO	USE, ALBERT	ROAD CORP	C. Ph: 021-	4965395, E	MAIL mail@	gmbaengineen	s,la		
		BE	R - Full ME	V - No PV					BER Full MEV	+ PV + Show	ver Flow Res	trictors
Dwelling	Rating	EPC	CPC	kWh/m2/yr	ReNew (Rev 2)	Rating	EPC	CPC	kWh/m2/yr	ReNew (Rev 2)		Required Improvement
Type 10 - End of Terrace 4 Bed RIR	A2	0,238	0,226	34,6	0,482	A1	0,167	0,159	24,31	0,593	2No PV	panels & Shower Flow Restrictors
Type 7A No 67 Mid Terrace Hse 3 Bed	A2	0.268	0.258	38.56	0.472	A1	0.145	0.14	20.98	0.674	3No PV	panels & Shower Flow Restrictors
N2 140 Typical Semi Detached House Type 3A (Rev 2 - House Na Ammended)	A2	0.269	0.259	37.5	0.471	A1	0,176	0.169	24.65	0.605	2No PV	panels & Shower Flow Restrictors
N2 173 Typical Detached House Type 5A (Rev 2 - House No Ammended)	A2	0.236	0.222	35,55	0.429	A1	0,16	0,15	24,16	0.576	3No PV	panels & Shower Flow Restrictors
Apt No 10 Block B 1st (Mid) Rev 1	A2	0,27	0,264	40,69	0,443	A1	0,15	0,146	22,59	0,691	3No PV	panels & Shower Flow Restrictors
Apt No 9 Block N 2 Bed 1st Floor Rev 1	A2	0,265	0,262	32,27	0,412	A1	0,178	0,176	21,71	0,607	2No PV	panels & Shower Flow Restrictors
4C No 82 3 Bed 2 Storey Town House (Rev 2 - House No Ammended)	A2	0.23	0.221	32.37	0.475	A1	0.17	0,164	23.98	0.611	2No PV	panels & Shower Flow Restrictors
4D No 81 2 Bed 1 Storey Town House Grd Fir Rev 2 (Rev 2 - House No Ammended)	A3	0.269	0.258	55.28	0.554	A1	0.1	0.096	20.79	0.796	4No PV	panels & Shower Flow Restrictors



5.1 House Type 3A

Property Details Dwelling Type Semidetendo house Type of DER rating Now Dwelling - Provide Address line 3 Address line 3 No No No No No Now Dwelling - Provide Address line 3 Now Dwelling - Provide Address line 3 31/10/2019 31/10/2019 Address line 3 Country Oato of Plane 31/10/2019 31/10/2019 Address line 3 Country Oato of Plane 31/10/2019 31/10/2019 Address line 3 Country Oato of Plane 31/10/2019 31/10/2019 Country Country BBE Number Building Reference 31/10/2019 31/10/2019 BER Number Sale Building Reference No No No Purpose of rating Sale MDRIN No, 0 100 100 Comment Sole 2.70 143.31 100 100 100 Second Plane 55.20 2.270 152.04 100 100 100 Second Plane 0.00 0.00 0.00 100 100 100 Second Plane 10.80 2.75 31.33	seai	TAINABLE RGY AUTHORITY RELAND			Dale rep	Part L Report cort created: 18/11/2019 Page 1/6		
Property Details Deterting Type Second Strategy Algoes Moute Moute Strategy Algoes Moute Algoes Moute Strategy Algoes Moute Moute Strategy Algoes Moute Mou	Part L Spec	cification						
Dwelling Type Sami-latitude house Type of BER rating New Dwelling - Provide Sami- Address line 1 New Dwelling - Provide Sami- Date of Assessment 2220 Address line 3 New Joe 107 pical Sami Deteches Date of Assessment 31/10/2019 220 Address line 3 Ballyrolane Date of Assessment 31/10/2019 31/10/2019 Address line 3 Ballyrolane Date of Assessment 31/10/2019 31/10/2019 County Co. Colk Planning Reference Building Regulations 2019 TGD L BER Number Building Regulations 2019 TGD L NA another develling? Purpose of rating Sale MPRN No. 9 Comment Value (h) 31 Comment 55.30 2.70 14)9.31 First Roor 55.30 2.75 Second Floors 0.00 0.00 0.00 0.00 10.01 1 Roon In nord 0.00 0.00 0.00 19.28 1 1 Living Area (m ²) 2 2 Ventilation Details NA NA	Property Del	tails						
Address line 1No. 140 Typed Semi No. 140 Typed Semi Address line 2No. 140 Typed Semi No. 199 Typed Semi Purpose of rating to part t	Dwelling Type		Semi-detached house	Type of BER rating	New Dwelli	ng - Provisional		
Address line 2 Personal Symbolic Pers	Address line 1		N2 No 140 Typical Semi	Year of Construction	2020			
Address line 3BalavolanoDate of Plane31/10/2019Courne 4Co.Con/LPlanning Reference7019 TGOExcrodeBuilding Reference2019 TGO1019 TGOBREN Number 4Sample 4Building Reference7019 TGOBREN Number 5Sample 4Building Reference7019 TGOPurpose of rating 7Sample 4MPN No.9Purpose of rating 7Sample 4MPN No.9CommentSample 5MPRN No.9CommentSample 52,70149,31Strain FleborSample 40,0010,20Brens Name0,000,0010,20Second Floor0,000,0010,20Second Floor0,000,00Second Floor10,000,00Second Floor10,000,00Second Floor10,0019,20Second Floor10,0019,20Second Floor10,0019,20Second Floor10,0019,20Second Floor10,0019,20Second Floor10,0019,20Second Floor10,0019,20Second Floor10,0019,20Second Floor10,0019,20Second Floor10,0010,00Second Floor10,00Second Floor10,00Second Floor10,00Second Floor10,00Second Floor10,00Second Floor10,00Second Floor10,00Second Flo	Address line 2 Hous & N1-		House Type 3A (3Bed N2-140 & N1-6)	Date of Assessment	31/10/2019	1		
County Co. Colk Planning Reference Eircode BER Number BUIting Regulation Regulatio Regulation Regulatio Regulation Regulation R	Address line 3		Ballyvolane	Date of Plans	31/10/2019	,		
Eiro de la construction de la con	County		Co. Cork	Planning Reference				
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Ground Fileor 55.00 2,70 148.31 Finit Fileor 55.30 2,75 152.04 Second Filoor 0.00 0.00 0.00 Trind and other 0.00 0.00 0.00 Beener Filoor 0.00 0.00 0.00 Total Filoor Area 10.60 0.00 0.00 Jving Area [m ²] 21.30 Living area percentage [%] 19.20 Ventifiation Details 2 Living area percentage [%] 19.20 Paper Filoer Area 1 Structure type N/A Iama & Vents 0 Structure type N/A Iama & Vents 1 Is there a suspended wooden ground stripeol (%) N/A Instrea drought lobby on main N/A Moberbouss area versitables N/A Instrea drought lobby on main N/A Moberbouss 0.00 N/A <td></td> <td>Area [m²]</td> <td>Height [m]</td> <td>Volume (m³)</td> <td></td> <td></td>		Area [m ²]	Height [m]	Volume (m³)				
Number Stand 2,75 152,08 Second Floors 0,00 0,00 0,00 0,00 Iter and on other bors 0,00 0,00 0,00 0,00 Born in roof 0,00 0,00 0,00 0,00 0,00 Ving Area [m ²] 0,00 0,00 0,00 19.28 Image: Second Floor Second Flo	Ground Floor	55.30	2.70	149.31				
Second Floom 0,00 0,00 0,00 0,00 Third and other 0,00 0,00 0,00 0,00 Third and other 0,00 0,00 0,00 0,00 0,00 0,00 0,00 0,	First Floor	55,30	2.75	152.08				
Number of Busics 0,00 0,00 Reserie in roof 0,00 0,00 Reserie in roof 0,00 0,00 Stall Flork Area 10,00 0,00 Table Flork Area 10,00 301,33 Jving Area (m ²) 21.30 Living area percentage (%) 19,28 Jving Area (m ²) 2 Vertilitation Details Vertilitation Details Etimosys 0 Has permeability test been carried out? Yes Dipen Fillues 0 Has permeability test been carried out? Yes nes & Vents 1 Is there a suspended wooden ground foror? No number of fluidless combustion room easters Ne Percentage windowstoors draught of 100,00 a there a draught lobby on main No Number of sides sheltered 1 Vertilitation method 0.00 No 0.000 No	Second Floors	0.00	0.00	0,00				
Nomin read 0,00 0,00 0,00 Tala FloorAvea 110.00 ·	Third and other Scors	0.00	0.00	0.00				
Number of fluelless combustion room texters Number of fluelless combustion room texters Number of threa draught lobby on main Number of threa draught lobby on main Number of threa draught lobby on main No Ventilization method Ventilization method No No No Number of fluelless combustion room relations 0 Structure type No Number of fluelless combustion room relations 0 Percentage windows/doors draught stripped (%) No Number of fluelless combustion room relations No Percentage windows/doors draught stripped (%) 10,0,00 Number of fluelless combustion room relations No No 10,0,00 10,0,00 No Monter-of sides sheltered 1 No No No	Room in roof	0.00	0.00	0,00				
Wing Area [m ²] 21.30 Living area percentage [%] 19.28 to of Storeys 2 2 19.28 2 Ventilation Details Number Number 7 7 hImmays 0 Has permeability test been carried out? Yes poin Flaces 0 Structure type NA ans & Vents 1 Is there a suspended wooden ground floor? No umber of flaces combustion room eaters 0 Percentage windows/doors draught stripped (%) 100.00 Intere a draught lobby on main intere of restrict winfilation No No 100.00 windowshoors main 0 Whole-boxis artifilation mathod NA	Total Floor Area	110.60		301.39				
Non-Storeys 2 Ventilation Details Number Yes chinneys 0 Has perneability test been carried out? Yes pen Flaces 0 Hard Structure type NA an & Vents 1 E thare a suspended wooden ground floor? No tumber of flacess combustion room reaters 0 Percentage windows/doors draught stripped (%) 100.00 Intere a draught lobby on main ntrance? NS Number of sides sheltered 1 ventilation method Woole-boxis 0.250 Mechanical Ventilation Manufacture NA	iving Area Im ² 1		21.30	Living area percentage [%]	19.26			
Ventiliation Details Number Yes 2himnays 0 Has permeability test been carried out? Yes 3pan Flues 0 Structure type NA ares & Vents 1 Et thare a suspanded wooden ground floor? No futures of flueses combustion room waters 0 Percentage windowsdoors draught stripped (%) 100.00 1 thare a draught lobby on main windows on method NA Number of sides sheltered 1 Ventilation method 0.000 0.000 NA NA	lo of Storeys		2	17 11 (T.A.M.				
Number Number Dhimneys 0 Has permeability test been carried out? Yes Dpen Fillues 0 Structure type NA ans & Vents 1 Est there a suspanded wooden ground fileor? No futumber of fluelless combustion room reaters 0 Percentage windows/doors draught stripped (%) 100.00 intrance? NA No No 100.00 intrance? Velophotuss Na 1 windington method 0.00 No Na	/entilation Det	tails						
Nimmarys 0 Has permeability test been carried out? Yes Ipen Flues 0 Structure type NA ans & Vents 1 Externor supported wooden ground floor? No umber of flueless combustion room eaters 0 Percentage windows/doors draught stripped (%) 100.00 there a draught lobby on main ntrance? No Number of states sheltered 1 Wolge-bouns and comparison Wolge-bouns 0.250 Mechanical Ventilation Manufacturer NA			Number					
Open Fillues O Structure type NA ams & Vents 1 Is there a suspended wooden ground floor? No Number of fluelless combustion room 0 Percentage windows/doors draught stripped (%) 100,00 Interace 7 No Number of sides sheltered 1 Intrance 7 VMole=house antrance 4 ventilation Mechanical Ventilation Manufacturer NA	Chimneys		0	Has permeability test been ca	rried out?	Yes		
Image: System Image: System Image: System No No Number of flux@ess combustion room 0 Percentage windows/doors draught extended windows/doors draught	open Filues		0	Structure type		N/A		
Number of fluelless combustion room 0 Percentage windows/doors draught stripped [%] 100,00 eaters stripped [%] No Number of sides sheltered 1 intrance? No Number of sides sheltered 1 vanitation method Weblehouss astract vanitation Mechanical Vanitation Manufacturer NA	ans & Vents		1	Is there a suspended wooder floor?	ground	No		
s there a draught lobby on main No Number of sides sheltered ¹ Intranse? Anditation method <u>Whole-house</u> Mechanical Ventilation Manufacturer NA extract ventilation 0.250 NA	Number of fluelles neaters	s combustion	room 0	Percentage windows/doors di stripped [%]	raught	100.00		
Ventilation method Whole-house Mechanical Ventilation Manufacturer N/A extract venijation 0.250 N/A	s there a draught intrance?	lobby on main	No	Number of sides sheltered		3		
0.250 N/A	entilation metho	d	Whole-house extract ventilation	Mechanical Ventilation Manuf	acturer	N/A		
pecific tan power [w/[L/s]] Mechanical Ventilation Model Name	specific fan powe	r [W/(L/s)]	0.250	Mechanical Ventilation Model	Name	N/A		

Seal ENERGY AUTHORITY			Da	te report created: 18/11/201 Page 2/
Building Elements -	Floor Details			
Туре	Description	Underfloor heating	U-Va j ue (W/m ² K)	Aroa (m²)
Ground Floor - Solid	Apartment Floor55.3	NiA	a	55.3
Non-Heat Loss Filcor		NA	a	55,3
Building Elements -	Roof Details			
Туре	Description		U-Value (W/m ² K)	Area [m²]
Pitched Roof - Insulated or Colling	1		0.13	55,3
Building Elements -	Wall Details			
Туре	Description		U-Value [W/m ² K]	Area [m ²]
300mm Filled Cavity			0.18	95.96
Building Elements -	Door Details			
Description		Number of Doors	U-Value (W/m ² K)	Area [m ²]
		4	12	2.040

Seal BISTRINABLE		Da	Part L Report te report created: 18/11/2019
			Page 3/6
Building Elements - Window Details			
Glazing type	User defined u- value	U-Value [W/m ² K]	Area [m²]
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	3.320
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	1.200
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1,000	2,400
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1,000	1.320
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	2.340
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	1.080
Double-glazed, air filled (low-E, en = 0.2, hard cost)	Yes	1,000	0,800

eal sustainable bibliograuthority					Dat	e report create	Part L Nepo d: 18/11/201 Page 4/
Other Details							
Thermal bridging factor [W/	im ² k]	0.0800	Thormal r	iass ci	tegory of dwelling	MediumH	high
Heating System - Sola	ar Water	Heating					
Solar Water Heating Preser	t?	No	Aperture	area of	solar collector [m²]	NA	
Type, manufacturer, model		N/A					
Sero loss collector efficient	:y, n0	NA	Collector [W/m ² >K]	heat lo	ss coefficient, a1	N/A	
Annual Solar Radiation [kW Refer to Appendix H in DEA	h/m²] \P)	NA	Overshad	ing fac	tor	NA	
Dedicated storage volume	[Litres]	N/A	Combine	Cyllin	der	NIA	
Solar fraction [%]		0.000					
Heating System - Hot	Water S	ystem					
Distribution Losses		285.93	Combi bo	ller pre	esent?	No	
Supplementary electric wat heating	or	N/A	Water Sto	rage V	olume (L)	180	
Hot water storage manufac model name	turer and	Daikin ERGA04DV3	Declared	loss fa	ctor [kWh/d]	1.20	
Temperature factor unadju	sted	0,89	Temperat	ure Fa	ctor Multiplier	0.81	
Primary Circuit loss type		Boller and thermal	store within a	single	casing (cylinder thermos	tat present)	
s hot water storage indoor group heating system?	s or in	Yes					
Heating System - Dist	. system	losses and gain	IS				
Temperature adjustment °C]	0	Control Category		2	Responsiveness o	ategory	1
Central heating pumps	1	Oll Boiler Pump		0	Oil boiler pump in dwelling	side	No
Gas boiler flue fan	0	Warm air heating o	or fan sent	No			



Ceal SUSTAINABLE THEREGY AUTHORITY						Date report cres	nted: 18/11/201 Page 5/
Heating System - Ener	gy Requiremen	ts (Individ	ua l)				
Main space heating system efficiency [%]	509,31 Space I adjustn	neating effic	iency	1,0000	Main sp	ace heating fue	Electricity
Main water heating system efficiency [%]	252.14 Water h adjustn	eating effici nent factor	ency	1.0000	Main water heating fuel		Electricity
Secondary heating system efficiency [%]	N/A Fractio second	n of heating ary heating	from system	N/A	Secondary space heating system fuel		None
Fraction of main space and water heat from CHP	N/A Electric	Electrical efficiency of CHP		NVA	Heat eff	iciency of CHP	N/A
CHP Fuel type	N/A						
Summary for Part L Co	onformance (Ap	plies to T	GD L 20	008/201	1/2019	for new dwelling	s only)
BER Number			Building	Regulatio	ns	2019 TG	DL
BER Result	A1		Energy V	alue kWh/	m²/yr	24.65	
CO ₂ emissions [kg/m²/yr]	4.85						
EPC	0.176		EPC Pas	s/Fail		Pass	
CPC	0.169		CPC Pas	s/Fail		Pass	
Part L Conformance -	Fabric						
Conformity with Maximum avg U-value requirements	U-value [W/m ² K]	Pass/Fall	Conform U-value	ity with Ma requireme	aximum rits	U-Value [W/m ² K]	Pass/Fail
Pitched roof insulated on ceiling	0.13	Pass	Roofs			0,13	Pass
Pitched roof insulated on slope	0	Pass	Walls			0,18	Pass
Flat Roof	0	Pass	Floors			0	Pass
Floors with no underfloor heat	0.00	Pass	External rooflight	doors / wi s	ndows /	1.20	Pass
Floors with underfloor heat	0.00	Pass					
Walls	0,18	Pass					
Percentage of opening areas [%]	13,11						
Average U vallue of	0.86	Pass					
obaumAs							

5.2 House Type 4C

seai	NABLE YAUTHORITY AND		Date	Part L Report report created: 16/11/2019 Page 1/6
Part L Speci	fication			
Property Deta	ils			
Dwelling Type		Top-foor apartment	Type of BER rating New Dv	elling - Provisional
Address line 1		4C No 82 3 Bed 2 Storey Duplex Apt / Town House	Year of Construction 2020	
Address line 2		3 Bed Town Hse	Date of Assessment 01/11/2	019
Address line 3		Ballyvolane (copy)	Date of Plans 31/10/2	019
County		Co. Cerk	Planning Reference	
Eircode			Building Regulations 2019 To	3D L
BER Number			Is MPRN shared with NIA another dwe≣ing?	
Purpose of rating		Salo	MPRN No. 0	
Comment				
Dimension Deta	ils			
	Area [m ²]	Height (m)	Volume [m ³]	
Ground Floor	55,43	2.70	149.66	
First Floor	55,43	2.75	162.43	
Second Floors	0.00	0.00	0_00	
Third and other Scors	0.00	0.00	0,00	
Room in roof	0.00	0.00	0.00	
Total Floor Area	110.86		302.09	
iving Area [m ²]		18.15	Living area percentage [%] 16.37	
No of Storeys		2		
Ventilation Deta	ils			
		Number		
Chimneys		0	Has permeability test been carried out	Yes
Open Flues		0	Structure type	N/A
ans & Vents		1	is there a suspended wooden ground floor?	No
lumber of flueless teaters	combustion	room 0	Percentage windows/doors draught stripped [%]	100.00
s there a draught lo intrance?	obby on main	No	Number of sides sheltered	1
Ventilation method		Whole-house extract ventilation	Mechanical Ventilation Manufacturer	N/A
specific fan power [[W/(L/s)]	0.250	Mechanical Ventilation Model Name	NA
Heat exchanger efficiency	ciency [%]	N/A	How many wetrooms (incl. kitchen)?	NA

Contraction of the second				Da	Part L Rep te report created: 18/11/20 Page 6
Part L Conformance - Renewa	bles (applies to	TGD L 2008/20	11 individ	lua l hea	ting system)
Type of renewable		Total contribution	[kWh/y]	Part L r	enewab l e ition [kWh/m²/y]
Solar water heating system		0.000		0.000	0.000
Heat pump as main space heating syst	tem	1222.361		11.052	
Heat pump as secondary space heatin	g system	0.000		0.000	
Heat pump as main water heating syst	em	18.859		0.171	
Wood/Biomass heater as main space h	neating system	0.000		0.000	
Wood/Biomass heater as secondary he	eating system	0.000		0.000	
Wood/Biomass heater as main water h	eating system	0.000		0,000	
Contribution from CHP	2020	0.000		0,000	
Renewable technology 1		446.784		4.040	
Renewable technology 2		0.000		0.000	
Renewable technology 3		0.000		0.000	
Total thermal		1241.220		11,223	
Total electrical		446,784		4,040	
Total thermal equivalent		2358,180		21,322	
Does total thermal equivalent meet pa	rt L requirement?	Pass			
Does total thermall equivalent meet pa Part L Conformance - Renewa	nt L requirement? bles (applies to Source	Pass TGD L 2019 ind Renewables Primary Energy	lividual h Total Pri Energy	eating s mary	ystem) RER
Does total thermail equivalent meet pa Part L Conformance - Renewa • Delivered energy	art L requirement? bles (applies to Source PV/Wind	Pass TGD L 2019 ind Renewables Primary Energy 929,311	lividual h Total Pri Energy 929.311	eating s ^{mary}	ystem) RER
Does total thermal equivalent meet pa Part L Conformance - Renewa • Delivered energy • Delivered energy	nt L requirement? bles (applies to Source PV/Wind Other	Pass TGD L 2019 ind Renewables Primary Energy 929.311 0.000	Total Pri Energy 929.311 0.000	eating s ^{mary}	ystem) RER
Does total thermal equivalent meet pa Part L Conformance - Renewa • Delivered energy • Delivered energy	nt L requirement? bles (applies to Source PV/Wind Other Sollar	Pass TGD L 2019 ind Renewables Primary Energy 929.311 0.000 0.00	Total Pri Energy 929.311 0.000 0.00	eating s ^{mary}	ystem) RER
Does total thermal equivalent meet pa Part L Conformance - Renewa + Dalivered energy + Dalivered energy + Dalivered energy	nt L requirement? bles (applies to Source PV/Wind Other Sollar Biomass	Pass TGD L 2019 ind Renewables Primary Energy 929.311 0.000 0.00 0.000	Total Pri Energy 929.311 0.000 0.00 0.000	eating s mary	ystem) RER
Does total thermal equivalent meet pa Part L Conformance – Renewa * Delivered energy * Delivered energy • Delivered energy • Delivered energy	nt L requirement? bles (applies to Source PV/Wind Other Solar Biomass Biodiesel	Pass TGD L 2019 ind Renewables Primary Energy 929-311 0,000 0,000 0,000	Total Pri Energy 929,311 0,000 0,000 0,000 0,000	eating s ^{mary}	ystem) RER
Does total thermal equivalent meet pa Part L Conformance – Renewa + Delivered energy + Delivered energy + Delivered energy + Delivered energy + Delivered energy	rt L requirement? bles (applies to Source PV/Wind Other Solar Biomass Biodiesel Biodesel	Pass TGD L 2019 ind Renewables Primary Energy 929,311 0,000 0,000 0,000 0,000	Total Pri Energy 929,311 0,000 0,000 0,000 0,000 0,000	eating s	ystem) RER
Does total thermal equivalent meet pa Part L Conformance - Renewa + Dalivered energy + Dalivered energy + Dalivered energy + Dalivered energy + Dalivered energy + Delivered energy + Delivered energy + Delivered energy	nt L requirement? bles (applies to Source PV/Wind Other Solar Biomass Biodissel Bioethanol HP	Pass TGD L 2019 ind Renewables Primary Energy 929,311 0,000 0,000 0,000 0,000 3252,652	Total Pri Energy 929,311 0,000 0,000 0,000 0,000 0,000 3252,652	eating s mary	ystem) RER
Does total thermal equivalent meet pa Part L Conformance - Renewa + Dalivered energy + Dalivered energy + Dalivered energy + Dalivered energy + Dalivered energy + Dalivered energy + Environmental energy + Environmental energy	nt L requirement? bles (applies to Source PV/Wind Other Solar Biodesel Biodesel Biodesel Biodesel CHP	Pass TGD L 2019 ind Renewables Primary Energy 283,311 0,000	Total Pri Energy 929,311 0,000 0,000 0,000 0,000 3252,552 0,000	eating s mary	ystem) RER
Does total thermal equivalent meet pa Part L Conformance – Renewa * Delivered energy + Delivered energy + Delivered energy + Delivered energy + Delivered energy + Delivered energy + Baive energy + Saved energy + Saved energy	nt L requirement? bles (applies to Source PV/Wind Other Solar Biomass Biodissel Biodessel Biotestanol HP CHP District Heating	Pass TGD L 2019 inc Rerewables Primary Tenergy 929-311 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Total Pri Energy 929,311 0,000 0,000 0,000 0,000 3252,652 0,000 0,000	eating s mary	ystem) RER
Does total thermal equivalent meet pa Part L Conformance - Renewa * Delivered energy + Delivered energy + Delivered energy + Delivered energy + Environmental energy + Environmental energy + Saved energy + District heating + Delivered energy	nt L requirement? bbes (applies to Source PV/Wind Other Solar Biodesal Biodesal Biodesal Biothanol HP CHP District Heating Grid	Pass TGD L 2019 ind Renewables Primary Energy 929-311 4,000 4,000 4,000 4,000 3252,652 4,000 4,0	Total Pri Energy 929,311 0.000 0.000 0.000 0.000 3252.652 0.000 0.000 2726.324	eating s mary t	ystem) RER
Does total thermal equivalent meet pa Part L Conformance - Renewa + Delivered energy + Delivered energy + Delivered energy + Delivered energy + Delivered energy = Environmental energy = Baiver energy + Delivered energy = Delivered energy + Delivered energy = Delivered energy	nt L requirement? bbes (applies to Source PV/Wind Other Solar Biodesel Biodesel Biodesel Biothanol HP CHP District Heating Grid Thermal	Pass TGD L 2019 ind Renewables Primary Energy 223,311 0,000	Total Pri Energy 929,311 0,000 0,000 0,000 0,000 3252,552 0,000 2726,324 0,000	eating s mary	ystem) RER
Does total thermal equivalent meet pa Part L Conformance – Renewa * Delivered energy + Delivered energy + Delivered energy + Delivered energy + Delivered energy + Delivered energy + Environmental energy + Environmental energy + Environmental energy + Delivered energy + Delivered energy + Delivered energy + Delivered energy + Delivered energy + Delivered energy	nt L requirement? bles (applies to Source PV/Wind Other Solar Biodasa Biodasa Biodesa Biodesa Biothanol HP CorP District Heating Grid Thermal	Pass TGD L 2019 ind Renewables Primary Energy 823-311 4.000 4.000 4.000 4.000 4.000 5252.562 4.000 4.0	Total Pri Energy 929,311 0.000 0.000 0.000 0.000 0.000 0.000 2726.324 0.000 2726.324 0.000	eating s mary	ystem) RER 0.605 - Pass
Does total thermal equivalent meet pa Part L Conformance – Renewa * Delivered energy + Delivered energy + Delivered energy + Delivered energy + Delivered energy + Saved energy + Saved energy + Saved energy + Saved energy + Delivered en	nt L requirement? bles (applies to Source PVWind Other Solar Biomass Biodiasel Biosthanel HP CHP District Heating Grid Thermal PVWind/CHP	Pass TGD L 2019 ind Renewables Primary Energy 929.311 4.000 4.000 4.000 4.000 5252.652 4.000 4.0	Total Pri Energy 929,311 0.000 0.000 0.000 0.000 3252,552 0.000 2726,324 0.000 0.000 2726,324 0.000	eating s mary	ystem) RER 0.606 - Pass

Seal SUSTAINABLE ENDROY AUTHORITY			De	te report created: 18/11/201 Page 2/
Building Elements -	Floor Details			
Туре	Description	Underfloor heating	U-Value [W/m ² K]	Area (m ²)
Non-Heat Loss Floor	Apartment Floor	NA	0	55.43
Non-Heat Loss Floor		NA	0	55.43
Building Elements -	Roof Details			
Туре	Description		U-Value [W/m ² K]	Area (m²)
Pitched Roof - Insulated or Celling	n		0,13	55,43
Building Elements -	Wall Details			
Туре	Description		U-Value [W/m ² K]	Area [m ²]
300mm Filled Cavity			0.18	87.6
Building Elements -	Door Details			
Description		Number of Doors	U-Value [W/m ² K]	Area [m ²]
		1	1.2	2.040



5.2 House Type 4C Cont`d

Seal SUSTAINABLE

Glazing type	User defined u- value	U-Value [W/m ² K]	Area [m ²]
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1,000	0.600
Double-glazed, air filled (low-E, en = 0,2, hard coat)	Yes	1.000	3,430
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	3,350
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1,000	1,900
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1,000	2,940
Double-glazed, air filled (low-E, en = 0,2, hard coat)	Yes	1,000	1,700
Double-glazed, air filled (low-E, en = 0,2, hard coat)	Yes	1,000	1,000
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	2.360
Double-glazed, air filled (low-E, en = 0,2, hard coat)	Yes	1,000	0.880
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1,000	1.670
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1,000	2,450
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1,000	2,930
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1,000	1.750

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		De	Part L Repo de report created: 18/11/20 Page 4
Other Details			
Thermal bridging factor [W/m ² k]	0.0800	Thermal mass category of dwelling	Medium-high
Heating System - Solar Water	Heating		
Solar Water Heating Present?	No	Aperture area of solar collector [m ²]	N/A
Type, manufacturer, model	N/A		
Zero loss collector efficiency, nO	N/A	Collector heat loss coefficient, a1 [W/m²>K]	N/A
Annual Solar Radiation [kWh/m²] (Refer to Appendix H in DEAP)	N/A	Overshading factor	N/A
Dedicated storage volume (Litres)	N/A	Combined Cylinder	N/A
Solar fraction [%]	0.000		
Heating System - Hot Water S	ystem		
Distribution Losses	286.04	Combi boiler present?	No
Supplementary electric water heating	N/A	Water Storage Volume [L]	180
Hot water storage manufacturer and model name	Daikin ERGA04DV3	Declared loss factor [kWh/d]	1.20
Temperature factor unadjusted	0_89	Temperature Factor Multiplier	0.81
Primary Circuit loss type	Boiler and therma	al store within a single casing (cylinder thermo	stat present)
Is hot water storage indoors or in group heating system?	Yes		
Heating System - Dist. system	losses and ga	ins	

Temperature adjustment [ºC]	0	Control Category	2	Responsiveness category	1.
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		

CENTRELAND						Date report crea	ded: 18/11/20 Page f
Heating System - Ener	gy Require	ements (Indivi	dual)				
Main space heating system efficiency [%]	509.31 g	ipace heating eff djustment factor	iciency	1.0000	Main sp	ace heating fuel	Electricit
Main water heating system efficiency [%]	252.14	Vater heating eff djustment factor	clency	1.0000	Main wa	iter heating fuel	Electricit
Secondary heating system efficiency [%]	N/A F	raction of heatin acondary heatin	g from g system	NIA	Second system	ary space heating fuel	None
Fraction of main space and water heat from CHP	N/A E	lectrical efficien	by of CHP	NIA	Heat eff	iciency of CHP	N/A
CHP Fuel type	N/A						
Summary for Part L Co	onformanc	e (Applies to	TGD L 20	008/201	1/2019	for new dwelling	s only)
BER Number			Building	Regulatio	ns	2019 TG	DL
BER Result	8	A1	Energy \	alue kWh	lm²/yr	23.98	
CO2 emissions [kg/m²/yr]	8	4.72					
EPC	63	0.170	EPC Pas	s/Fail		Pass	
CPC	0.164 CPC P		CPC Pas	s/Fail	Pass		
Part L Conformance - I	Fabric						
Conformity with Maximum avg U-value requirements	U-value (W	/m²K] Pass/Fa	E Conform U-vajue	ity with M requireme	aximum ints	U-Value [W/m ² K]	Pass/Fa
Pitched roof insulated on ceiling	0.13	Pass	Roofs			0,13	Pass
Pitched roof insulated on slope	0	Pass	Walls			0.18	Pass
Flat Roof	0	Pass	Floors			0	Pass
Floors with no underfloor heat	0.00	Pass	External rooflight	doors / w s	indows /	1.20	Pass
Floors with underfloor heat	0.00	Pass					
Walls	0,18	Pass					
Percentage of opening areas [%]	26.16						
Average U value of openings	0.83	Pass					
Permeability test carried out	and meets g	uidelines in TGD	L			0.175	Pass

Seal SUSTAINABLE Seal SUSTAINABLE OF HELAND

* Saved energy * District heating

+ Delivered energy

+ Delivered energy

SUBTOTAL

TOTAL

Part L Conformance - Renewables (applies to TGD L 2008/2011 individual heating system)

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Type of renewable		Total contribution	[kWh/y]	Part L contrib	renewable ution [kWh/m²/y]
Solar water heating system		0.000		0.000	
Heat pump as main space heatir	ig system	1211.003		10,924	
Heat pump as secondary space	heating system	0.000		0,000	
Heat pump as main water heatin	g system	18.864		0.170	
Wood/Biomass heater as main s	0.000		0.000		
Wood/Biomass heater as secon	0.000		0.000		
Wood/Biomass heater as main w	vater heating system	0,000		0,000	
Contribution from CHP		0.000		0.000	
Renewable technology 1		446,784		4.030	
Renewable technology 2		0.000		0.000	
Renewable technology 3		0.000		0.000	
Total thermal		1229,868		11.094	
Total electrical		446.784		4,030	
Total thermal equivalent		2346,828		21,169	
Does total thermal equivalent m	eet part L requirement?	Pass			
Part L Conformance - Re	newables (applies t	o TGD L 2019 ind	lividua l h	eating s	system)
	Source	Renewables Primary Energy	Total Pri Energy	imary	RER
	DM (AAII	000 344	000 044		
 Delivered energy 	1. Alanting	223.311	323.311		
 Delivered energy Delivered energy 	Other	0.000	0.000		
 Delivered energy Delivered energy Delivered energy 	Other Sojar	0.000	0.000		
 Delivered energy Delivered energy Delivered energy Delivered energy 	Other Solar Biomass	0.000 0.000 0.000	0.000 0.00 0.00		
 Delivered energy Delivered energy Delivered energy Delivered energy Delivered energy 	Other Solar Biomass Biodicsel	0,000 0,000 0,000 0,000	0.000 0.00 0.000 0.000		
 Delivered energy Delivered energy Delivered energy Delivered energy Delivered energy Delivered energy 	Other Solar Biomass Biodicsel Biochanol	0,000 0,000 0,000 0,000 0,000	0,000 0,000 0,000 0,000 0,000		

0.000 0.000

0,000

0.000

0.000

4181,962

4181.962

CHP District Heating

Grid

Energy not used in Regulated Loads PV/Wind/CHP

Thermal

0.000 0.000

2658,772

6840,734

6840,734

0,611 - Pass

0,611

0.000

0.000

Permeability test carried out and meets guidelines in TGD L



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Medium

House Type 4D 5.2

seai	AINABLE GY AUTHORITY ELANO			Date rep	Part L. Report ort created: 16/11/2019 Page 1/6
Part L Spec	ification				
Property Det	ails				
Dwelling Type		Ground-foor apartment	Type of BER rating	Now Dwall	ng - Provisional
Address line 1		4 D No 81 2 Bed 1 Storey Grd Floor Apt	Year of Construction	2020	
Address line 2			Date of Assessment	31/10/2019	1
Address line 3		Ballovalane	Date of Plans	31/10/2019	E.
County		Co. Cork	Planning Reference		
Eircode			Building Regulations	2019 TGD	L
BER Number			Is MPRN shared with another dwe∎ing?	N/A	
Purpose of ratio	9	Sale	MPRN No.	0	
Comment					
Dimension Det	ails				
	Area [m ²]	Height [m]	Volume [m ²]		
Ground Floor	75,00	2.85	213.75		
First Floor	0.00	0.00	0.00		
Second Floors	0.00	0.00	0,00		
Third and other Scors	0.00	0,00	0.00		
Room in roof	0.00	0.00	0.00		
Total Floor Area	75.00		213.75		
Living Area [m ²]		32.60	Living area percentage [%]	43.47	
No of Storeys		1			
Ventilation Deta	ails				
		Number			
Chimneys		a	Has permeability test been ca	rried out?	Yes
Open Filues		0	Structure type		NIA
Fans & Vents		1	is there a suspended wooder filcor?	ground	No
Number of flueless heaters	combustion	room 0	Percentage windows/doors d stripped [%]	raught	100.00
is there a draught i entrance?	lobby on main	No	Number of sides sheltered		,
Ventilation method		Whole-house extract ventilation	Mechanical Ventilation Manuf	acturer	N/A
Specific fan power	[W/(L/s)]	0,300	Mechanical Ventilation Model	Name	NIA
Heat exchanger off	iciency [%]	N/A	How many wetrooms (incl. kit	chen)?	NA

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Building Elements - Window Detai	s
----------------------------------	---

Glazing type	User defined u+ value	U-Value [W/m ² K]	Area [m ²]	
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	1.000	
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	0,600	
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	3.520	
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	2,100	
Double-glazed, argon filled	Yes	1_200	6,240	
Double-glazed, air filled (low-E, en = 0,2, hard coat)	Yes	1,000	3,300	

Seal SUSTAINABLE ENERGY AUTHORITY			Da	Part I, Repor le report created: 18/11/2019 Page 2/
Building Elements -	Floor Details			
Туре	Description	Underfloor heating	U-Value [W/m ² K]	Area [m²]
Ground Floor - Solid		No	0.18	75
Building Elements -	Roof Details			
Туре	Description		U-Value [W/m ² K]	Area [m²]
Flat Roof	Flat Roof Above Living Area		0.18	21.1
Building Elements -	Wall Details			
Туре	Description		U-Value [W/m ² K]	Area [m²]
300mm Filled Cavity	Ext Wall		0.17	85
Building Elements -	Door Details			
Description		Number of Doors	U-Value [W/m ² K]	Area [m ²]
		4	14	2.040

Thermal bridging factor [W/m ² k]	0.0800	Thermal mass category of dwelling	Med
Heating System - Solar Water	Heating		
Solar Water Heating Present?	No	Aperture area of solar collector [m²]	N/A
Type, manufacturer, model	N/A		
Zero loss collector efficiency, n0	N/A	Collector heat loss coefficient, a1 [W/m²>K]	N/A
Annual Solar Radiation [kWh/m ²] (Refer to Appendix H in DEAP)	N/A	Overshading factor	N/A
Dedicated storage volume [Litres]	N/A	Combined Cylinder	NA
Solar fraction [%]	0.000		

Seal SUSTAINABLE

Distribution Losses	221,35	Combi boiler present?	No
Supplementary electric water heating	N/A	Water Storage Volume [L]	180
Hot water storage manufacturer and model name	ERGA04DV3	Declared loss factor [kWh/d]	1_20
Temperature factor unadjusted	0.89	Temperature Factor Multiplier	0,81
Primary Circuit loss type	Boiler and therm	al store within a single casing (cylinder them	nostat present)
Is hot water storage indoors or in group heating system?	Yes		

Heating	System - Dist.	system	osses and	gains

Temperature adjustment [°C]	0	Control Category	2	Responsiveness category	1
Central heating pumps	1	Oil Boiler Pump	0	Oil boiler pump inside dwelling	No
Gas boiler flue fan	٥	Warm air heating or fan	No		



5.2 House Type 4D Cont`d

eal SUSTAINABLE ENERGY AUTHORITY OF IRELAND						Date report crea	ited: 18/11/201 Page 5
Heating System - Ener	gy Requiremer	nts (Individ	ual)				
Main space heating system efficiency [%]	493.79 Space adjust	Space heating efficiency adjustment factor		1.0000	Main space heating fuel		Electricit
Main water heating system efficiency [%]	252.14 Water adjust	Water heating efficiency adjustment factor		1.0000	Main wa	iter heating fuel	Electricit
Secondary heating system efficiency [%]	N/A Fraction secon	Fraction of heating from secondary heating system		N/A	Second system	ary space heating fue l	None
Fraction of main space and water heat from CHP	N/A Electri	Electrical efficiency of CHP		N/A	Heat off	iciency of CHP	NA
CHP Fuel type	NEA						
Summary for Part L Co	onformance (A	pplies to T	GD L 20	008/201	1/2019	for new dwelling	s only)
BER Number			Building	Regulatio	ns	2019 TGD L	
BER Result	A1	A1 Energy V		Value kWh/m²/yr		20.79	
CO ₂ emissions [kg/m ² /yr]	4.09						
EPC	0.100	0.100 EPC Pas		ss/Fail		Pass	
CPC	0.096		CPC Pas	s/Fail	Pass		
Part L Conformance - I	Fabric						
Conformity with Maximum avg U-value requirements	u⊷va]ue [W/m²K]	Pass/Fai	Conform U-value	ity with Ma requireme	ximum nts	U-Value [W/m ² K]	Pass/Fai
Pitched roof insulated on ceiling	0.00	Pass	Roofs			0,18	Pass
Pitched roof insulated on slope	0	Pass	Walls			0.17	Pass
Flat Roof	0.18	Pass	Floors			0.18	Pass
Floors with no underfloor heat	0.18	Pass	External rooflight	doors / wi s	ndows /	1,40	Pass
Floors with underfloor heat	0.00	Pass					
Walls	0.17	Pass					
Percentage of opening areas (%)	25.07						
Average U value of openings	1.00	Pass					
Permeability test carried out	and meets guideli	nes in TGD L				0.175	Pess

Seal SUSTAINABLE ENERGY AUTHORITY

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Type of renewable	Total contribution [kWh/y]	Part L renewable contribution [kWh/m ² /y
Solar water heating system	0.000	0.000
Heat pump as main space heating system	1474.771	19.664
Heat pump as secondary space heating system	0.000	0.000
Heat pump as main water heating system	15,205	0.203
Wood/Biomass heater as main space heating system	0.000	0.000
Wood/Biomass heater as secondary heating system	0,000	0.000
Wood/Biomass heater as main water heating system	0.000	0.000
Contribution from CHP	0.000	0.000
Renewable technology 1	893,568	11.914
Renewable technology 2	0.000	0.000
Renewable technology 3	0.000	0.000
Total thermal	1489.975	19.866
Total electrical	893,568	11,914
Total thermal equivalent	3723,895	49,652
Does total thermal equivalent meet part L requirement?	Pass	

Part L Conformance - Renewables (applies to TGD L 2019 individual heating system)

	Source	Renewables	Total Primary	RER
		Primary Energy	Energy	
+ Delivered energy	PV/Wind	1858.621	1858,621	
+ Delivered energy	Other	0.000	0.000	
+ Delivered energy	Solar	0.00	0.00	
+ Delivered energy	Biomass	0.000	0.000	
+ Delivered energy	Biodiese	0,000	0.000	
+ Delivered energy	Bioethano	0,000	0,000	
 Environmental energy 	HP	4241.182	4241.182	
+ Saved energy	CHP	0.000	0.000	
+ District heating	District Heating	0.000	0.000	
+ Delivered energy	Grid	0.000	1559,385	
+ Delivered energy	Thermal	0.000	0.000	
SUBTOTAL		6099,804	7659,189	0.796 - Pass
Energy not used in Regulated Loads	PV/Wind/CHP	0.000	0.000	
TOTAL		6099,804	7659,189	0.796

5.2 House Type 5A

seai	AINABLE Gy Althority Eland			Date rep	Part L, Report ort created: 18/11/2019 Page 1/8
Part L Spec	ification				
Property Det	ails				
Dwelling Type		Detached house	Type of BER rating	New Dwellin	ng - Provisional
Address line 1		N2 - No 173 Typical Detached	Year of Construction	2019	
Address line 2		Type 5A (4 Bed-3 Storey)	Date of Assessment	23/10/2019	
Address line 3			Date of Plans	21/10/2019	
County		Co. Cork	Planning Reference		
Eircode			Building Regulations	2019 TGD	L.
BER Number			Is MPRN shared with another dwe≣ing?	N/A	
Purpose of ratin	g	Salo	MPRN No.	D	
Comment					
Dimension Det	ails				
	Area [m ²]	Height [m]	Volume [m³]		
Ground Floor	71.10	2.70	191.97		
First Floor	61,40	2.75	168.85		
Second Floors	34,00	2.65	90.10		
Third and other floors	0.00	0.00	0.00		
Room in roof	0.00	0.00	0.00		
Total Floor Area	166.50		450.92		
iving Area [m ²]		31.40	Living area percentage [%]	18.86	
lo of Storeys		3			
√entilation Det	ails				
		Number			
Chimneys		a	Has permeability test been ca	rried out?	Yes
Open Filues		0	Structure type		N/A
ans & Vents		10	is there a suspended wooden floor?	ground	No
lumber of flueless leaters	combustion	room 0	Percentage windows/doors di stripped [%]	raught	100.00
s there a draught ntrance?	lobby on main	Na	Number of sides sheltered		2
/entilation method		Whole-house extract ventilation	Mechanical Ventilation Manuf	acturer	NA
specific fan power	[W/(L/s)]	0,240	Mechanical Ventilation Model	Name	NA
Heat exchanger eff	ficiency P%1	N/A	How many wetrooms (incl. kits	chen)?	NA

			Da	Part I, Repo te report created: 18/11/201 Braze 2
Building Elements - Fl	oor Details			1.926.4
Туре	Description	Underfloor heating	U-Value [W/m ² K]	Area (m²)
Ground Floor - Solid	Grd Floor	No	0.18	71,1
Non-Heat Loss Floor	1st Floor	N/A	a	61.4
Non-Heat Loss Floor	2nd Filr	N/A	0	34
Building Elements - Re	oof Details			
Туре	Description		U-Value [W/m ² K]	Area [m²]
Pitched Roof - Insulated on Ceiling	Celling House + Kitchen		0,13	27,13
Pitched Roof - Insulated on Rafter	RIR 2nd Fir		0.15	15,8
Pitched Roof - Insulated on Ceiling	Crawl Space		0.13	27.4
Building Elements - W	a Details			
Туре	Description		U-Value [W/m ² K]	Area [m ²]
300mm Filled Cavity			0.17	194.21
Timber Frame	KNee Wa		0.15	29,46
Timber Frame	Dormer Window Wall		0,16	2,8
Building Elements - D	oor Details			
Description		Number of Doors	U-Value [W/m ² K]	Area [m ²]
		1	1.2	2.400



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5.2 House Type 5A Cont`d

Seal SUSTAINABLE

Building Elements - Window Details			
Glazing type	User defined u- value	U-Value [W/m ² K]	Area (m²)
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.400	3,700
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1,400	2,100
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	1,260
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1,000	1.560
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	3,600
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1,000	0,630
Double-glazed, air filled (Jow-E, en = 0,2, hard coat)	Yes	1,000	2,150
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	0.960
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	0.850
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	1,120
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	2.300
Double-glazed, air filled (low-E, en = 0,2, hard coat)	Yes	1,000	1,800
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1,000	1.120
Double-glazed, air filled (low-E, en = 0,2, hard coat)	Yes	1,000	1,700
Double-glazed, argon filled	Yes	1,300	0,700
Double-glazed, argon filled	Yes	1.300	0.700

Seal SUSTAINABLE

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Part L Report

Thermal bridging factor [Wh	m ² k]	0.0800	Thermal	mass ca	tegory of dwelling	Medium	high
Heating System - Sola	r Water	Heating					
Solar Water Heating Presen	t?	No	Aperture	area of	solar collector [m²]	N/A	
Type, manufacturer, model		N/A					
Zero loss collector efficienc	y, n0	N/A	Collector [W/m ² >K	r heat lo	ss coefficient, a1	N/A	
Annual Solar Radiation [kWh (Refer to Appendix H in DEA	1/m²] .P)	N/A	Overshading factor		N/A		
Dedicated storage volume [[Litres]	N/A	Combine	d Cyline	ler	N/A	
Solar fraction [%]		0.000					
Heating System - Hot	Water S	lystem					
Distribution Losses		295.29	Combi boiler present?		No		
Supplementary electric wat heating	er	NA	Water Storage Volume [L]		180		
Hot water storage manufact model name	turer and	Daikin	Declared loss factor [kWh/d]		1.20		
Temperature factor unadjus	ited	0,89	Tempera	ture Fac	tor Multiplier	0.81	
Primary Circuit loss type		None					
Is hot water storage indoor group heating system?	s or in	Yes					
Heating System - Dist	. system	losses and gain	S				
Temperature adjustment [°C]	0	Control Category		z	Responsiveness	category	1
Central heating pumps	1	Oil Boiler Pump		0	Oil boiler pump in dwelling	side	No
Gas boiler flue fan	D	Warm air heating o	or fan	No			

¢					Part L Repo
Cal SUSTAINABLE ENERGY AUTHORITY				Date report ore	rated: 18/11/20
LY HELAND					Page :
Heating System - Ener	gy Requ	irements (Individu	al)		
Main space heating system efficiency [%]	496.45	Space heating efficie adjustment factor	ncy 1.0000	Main space heating fuel	Electric
Main water heating system efficiency [%]	252.14	Water heating efficie adjustment factor	ncy 1.0000	Main water heating fuel	Electric
Secondary heating system efficiency [%]	NIA	Fraction of heating fr secondary heating sy	rom N/A ratem	Secondary space heating system fuel	None
Fraction of main space and water heat from CHP	N/A	Electrical efficiency of	f CHP NA	Heat efficiency of CHP	N/A
CHP Fuel type	N/A				
Summary for Part L Co	onforma	nce (Applies to TG	D L 2008/201	1/2019 for new dwelling	gs only)
BER Number		é	Juilding Regulati	ons 2019 T	GD L
BER Result		A1 E	Energy Value KWh	u/m²/yr 24.16	
CO2 emissions [kg/m ² /yr]		4.75			
FPC		0.160	PC Pass/Fail	Pass	

EPC	0.160	EPC Pass/Fail	Pass
CPC	0.150	CPC Pass/Fail	Pass
Part I. Conformance - Fah	ric		

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	0,13	Pass	Roofs	0,15	Pass
Pitched roof insulated on slope	0.15	Pass	Walls	0.17	Pass
Flat Roof	0	Pass	Floors	0.18	Pass
Floors with no underfloor heat	0.18	Pass	Externalidoors / windows / rooflights	1,40	Pass
Floors with underfloor heat	D.00	Pass			
Walls	0,17	Pass			
Percentage of opening areas [%]	17.21				
Average U value of openings	0,95	Pass			
Permeability test carried out	and meets guidelin	es in TGD L		0.175	Pass

Seal SUSTAINABLE SPEAK OF HELAND

Part L Conformance - Renewables (applies to TGD L 2008/2011 individual heating system)

Type of renewable	Total contribution [kWh/y]	Part L renewable contribution [kWh/m ² /y]
Solar water heating system	0.000	0.000
Heat pump as main space heating system	2950.588	17.721
Heat pump as secondary space heating system	0,000	0.000
Heat pump as main water heating system	19,388	0.116
Wood/Biomass heater as main space heating system	0,000	0.000
Wood/Biomass heater as secondary heating system	0,000	0.000
Wood/Biomass heater as main water heating system	0,000	0,000
Contribution from CHP	0.000	0.000
Renewable technology 1	670.176	4.025
Renewable technology 2	0.000	0.000
Renewable technology 3	0.000	0.000
Total thormal	2969.975	17.838
Total electrical	670,176	4.025
Total thermal equivalent	4645,416	27.900
Does total thermal equivalent meet part 1, requirement?	Pass	

Part L Conformance - Renewables (applies to TGD L 2019 individual heating system)

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	PV/Wind	1393.966	1393,966	
+ Delivered energy	Other	0.000	0.000	
+ Delivered energy	Solar	0.00	0.00	
+ Delivered energy	Biomass	0.000	0.000	
+ Delivered energy	Biodiese	0.000	0,000	
 Delivered energy 	Bioethano	0,000	0,000	
 Environmental energy 	HP	4062.413	4062,413	
* Saved energy	CHP	0.000	0.000	
+ District heating	District Heating	0.000	0.000	
+ Delivered energy	Grid	0,000	4021.938	
+ Delivered energy	Thermal	0.000	0.000	
SUBTOTAL		5456,379	9478.317	0.576 - Pass
Energy not used in Regulated Loads	PV/Wind/CHP	0.000	0.000	
TOTAL		5456,379	9478.317	0.576



5.2 House Type 7A

seai	REVIEWER REVIEWER REVIEWER REVIEWER			Date rep	ort created: 04/11/2019 Page 1/6
Part L Spec	ification				
Property Det	ails				
Dwelling Type		Mid-terrace house	Type of BER rating	New Dwelli	ng - Provisional
Address line 1		Туре 7А	Year of Construction	2020	
Address line 2		No 67 3 Bed Mid Terrace Twn Hse	Date of Assessment	04/11/2019	
Address line 3		Ballyvolane (copy)	Date of Plans	31/10/2019	
County		Co. Cerk	Planning Reference		
Eircode			Building Regulations	2019 TGD	L.)
BER Number			Is MPRN shared with another dwe≣ing?	N/A	
Purpose of ratin	g	Sale	MPRN No.	D	
Comment					
Dimension Det	ails				
	Area [m ²]	Height (m)	Volume (m³)		
Ground Floor	53,60	2.70	144.72		
First Floor	53,60	2.75	147.40		
Second Floors	0.00	0.00	0.00		
Third and other fjoors	0.00	0.00	0.00		
Room in roof	0.00	0.00	0.00		
Total Floor Area	107.20		292.12		
Living Area [m ²]		21.10	Living area percentage [%]	19.68	
No of Storeys		2			
Ventilation Det	ails				
		Number			
Chimneys		0	Has permeability test been ca	rried out?	Yes
Open Filues		0	Structure type		NA
Fans & Vents		1	is there a suspended wooden ground floor?		No
Number of flueles: heaters	mber of flueless combustion room 0 aters		Percentage windows/doors draught 100. stripped [%]		100.00
Is there a draught entrance?	lobby on main	No	Number of sides sheltered		1
Ventilation method	1	Whole-house extract ventilation	Mechanical Ventilation Manut	facturer	N/A
Specific fan power	[W/(L/s)]	0.250	Mechanical Ventilation Mode	Name	NA
Heat exchanger ef	ficiency [%]	N/A	How many wetrooms (incl. kit	chen)?	NA

Cal SUSTAINABLE CONSTRUCTION			Da	te report created: 04/11/2 Page
Building Elements -	Floor Details			
Гуре	Description	Underfloor heating	U-Value [W/m ² K]	Area [m ²]
Ground Floor - Solid	Grd Flr	No	0.18	53.6
Non-Heat Loss Floor		NIA	0	53.6
Building Elements -	Roof Details			
Гуре	Description		U-Value [W/m ² K]	Area [m ²]
Pitched Roof - Insulated or Celling	1		0.13	53.6
Building Elements -	Door Details			
Description		Number of Doors	U-Value (W/m ² K)	Area [m ²]
		2/4		

Seal SHITMANULE		Da	Part L. Report te report created: 04/11/2019 Page 3/6	sea
Building Elements - Window Details				Other
Glazing type	User defined u- value	U-Value [W/m ² K]	Area (m²)	Therma
a second to a design of a self-or design of the second second second second	Marca.	1.000		Heat

Glazing type	User defined u- value	U-Value [W/m ² K]	Area (m ²)
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	3,500
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	1,320
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	2,080
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	2,800
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	1,300
Double-glazed, air filled (jow-E, en = 0.2, hard coat)	Yes	1,000	0,830
Double-glazed, argon filled	Yes	1,200	3,780

Seal SUSTAINABLE ENERGY AUTHORITY OF IRELAND					t	late report creat	ed: 04/11 Pag
Other Details							
Thermal bridging factor [W/	m²k]	0.0800	Therm	al mass ca	tegory of dwelling	Medium	high
Heating System - Sola	ar Water	Heating					
Solar Water Heating Presen	it?	No	Apertu	re area of	solar collector (m²)	N/A	
Type, manufacturer, model		N/A					
Zero loss collector efficienc	y, n0	N/A	Collect [W/m ² >	tor heat lo: •K]	ss coefficient, a1	N/A	
Annual Solar Radiation [kWl (Refer to Appendix H in DEA	h/m²] \P)	N/A	Oversi	ading fac	tor	N/A	
Dedicated storage volume	[Litres]	N/A	Combi	ned Cylind	er	N/A	
Solar fraction [%]		0.000					
Heating System - Hot	Water S	ystem					
Distribution Losses		381,39	Combi	boiler pre	sent?	No	
Supplementary electric wat heating	er	N/A	Water	Storage Vo	lume [L]	180	
Hot water storage manufact model name	turer and	Daikin ERGA04DV3	Declar	ed loss fac	tor [kWh/d]	1.20	
Temperature factor unadjus	stod	0.89	Tempe	rature Fac	tor Multiplier	0,81	
Primary Circuit loss type		Boiler and thermal	store with	in a single c	asing (cylinder therm	ostat present)	
Is hot water storage indoor group heating system?	s or in	Yes					
Heating System - Dist	. system	losses and gai	ns				
Temperature adjustment [°C]	D	Control Category		2	Responsiveness	category	1
Central heating pumps	1	Oil Boiler Pump		0	Oil boiler pump dwelling	inside	No
Gas boiler flue fan	0	Warm air heating	or fan	No			



eai SUSTAUMABLE EMERGY AUTHORITY CYTHELAND						Date report cres	ran L kepo ited: 04/11/201 Page 5
Heating System - Ener	gy Require	ments (Indivi	dual)				
fain space heating system fficiency [%]	509.31 s	pace heating eff djustment factor	iclency	1.0000	Main sp	ace heating fuel	Electricit
fain water heating system fficiency [%]	252.14 v a	later heating effi djustment factor	ciency	1.0000	Main wa	iter heating fuel	Electricit
secondary heating system fficiency [%]	N/A F	raction of heatin econdary heating	g from g system	N/A	Secondi system	ary space heating fue l	None
raction of main space and vater heat from CHP	N/A E	lectrical officient	ay of CHP	N/A	Heat off	iciency of CHP	N/A
CHP Fuel type	N/A						
Summary for Part L Co	onformance	e (Applies to	TGD L 20	008/201 Regu la tio	1/2019	for new dwelling	is only)
ER Result		12	Eneroy V	alue kWh/	m ² /ur	38.56	(E1-57)
O. emissions like/m ² /vrl		.58	Enc. 37	and string			
iPC		0.268 EPC Pa		s/Fail		Pass	
PC .		.258	CPC Pas	s/Fail		Pass	
Part L Conformance - I	Fabric	- 1990 - 1990 - 1990	MINE DO IN	2 20050	-02		17 200
Conformity with Maximum vg U-value requirements	U–ya]ue [W/	m ² K] Pass/Fa	Conform U-value	ity with Ma requireme	uximum Ints	U-Value [W/m ² K]	Pass/Fai
Pitched roof insulated on ceiling	0,13	Pass	Roofs			0,13	Pass
Pitched roof insulated on lope	0	Pass	Walls			0,18	Pass
lat Roof	0	Pass	Floors			0,18	Pass
loors with no underfloor leat	0,18	Pass	External rooflight	doors / wi s	indows /	1.20	Pass
loors with underfloor leat	0.00	Pass					
Valls	0,18	Pass					
	16.80						
ercentage of opening reas [%]							
ercentage of opening ireas [%] iverage U vallue of ipenings	0.94	Pass					

House Type 10 5.2

seai	INABLE Y ALITHORITY LAND			Date rep	Part L Rep ort created: 06/11/20 Page 1
Part L Speci	fication				
Property Deta	ils				
Dwelling Type		Semi-detached house	Type of BER rating	łow Dwa∎i	ng - Provisional
Address line 1		Type 10	Year of Construction 2	019	
Address line 2		End of Terrace 4 Bed RIR	Date of Assessment	6/11/2019	
Address line 3		Alle	Date of Plans 2	1/10/2019	
County		Co. Cork	Planning Reference		
Eircode			Building Regulations	019 TGD I	
BER Number			Is MPRN shared with another dwelling?	4/A	
Purpose of rating Comment	E.	Sale	MPRN No.		
Dimension Deta	üls				
	Area [m ²]	Height [m]	Volume [m³]		
Ground Floor	58,00	2.70	156,60		
Firat Floor	58,00	2.75	159,50		
Second Floors	25,20	2.65	66.78		
Third and other floors	0.00	0.00	0,00		
Room in roof	0.00	0.00	0.00		
Total Floor Area	141.20		382.88		
Living Area [m ²]		22.00	Living area percentage [%]	15.58	
No of Storeys		3			
Ventilation Deta	iils				
		Number			
Chimneys		a	Has permeability test been carrie	id out?	Yes
Open Filues		0	Structure type		NA
Fans & Vents		1	is there a suspended wooden gr filoor?	ound	No
Number of flueless heaters	combustion	room 0	Percentage windows/doors drau stripped [%]	ght	100.00
is there a draught is entrance?	obby on mai	n No	Number of sides sheltered		2
Ventilation method		Whole-house extract ventilation	Mechanical Ventilation Manufact	urer	N/A
Specific fan power	[W/(L/s)]	0.240	Mechanical Ventilation Model Na	me	NA
Heat exchanger effi	olency [%]	N/A	How many wetrooms (incl. kitche	n1?	N/A

Cat EFIRE AND				D	Part L ste report created: 04/1 Pi
Part L Conformance - Renewa	bles (applies to	TGD L 2008/20	11 individ	lual he	ating system)
Type of renewable		Total contribution	[kWh/y]	Part L contrib	renewable ution [kWh/m²/y]
Solar water heating system		0.000		0.000	
Heat pump as main space heating sys	tem	1227,885		11,454	
Heat pump as secondary space heatin	ig system	0.000		0.000	
Heat pump as main water heating syst	ieim	24.260		0.226	
Wood/Biomass heater as main space h	neating system	0,000		0.000	
Wood/Biomass heater as secondary h	eating system	0.000		0,000	
Wood/Biomass heater as main water h	eating system	0.000		0,000	
Contribution from CHP		0.000		0.000	
Renewable technology 1		0.000		0.000	
Renewable technology 2		0.000	0.000		
Renewable technology 3		0.000		0.000	
Total thermal		1252.145		11,680	
Total electrical		0.000	0,000		
Total thermal equivalent		1252,145	11,680		
Does total thermal equivalent meet pa	art L requirement?	Pass			
Part L Conformance - Renewa	bles (applies to	TGD L 2019 ind	ividual h	eating s	system)
	Source	Renewables	Total Pri	mary	RER
	Source	Renewables Primary Energy	Total Pri Energy	mary	RER
+ Delivered energy	Source PV/Wind	Renewables Primary Energy 0.000	Total Pri Energy 0.000	mary	RER
+ Delivered energy + Delivered energy	Source PV/Wind Other	Renewables Primary Energy 0.000 0.000	Total Pri Energy 0.000 0.000	mary	RER
- Delivered energy - Delivered energy - Delivered energy	Source PV/Wind Other Solar	Renewables Primary Energy 0.000 0.000 0.00	Total Pri Energy 0.000 0.000 0.000	mary	RER
- Delivered energy - Delivered energy - Delivered energy - Delivered energy	Source PV/Wind Other Solar Biomass	Renewables Primary Energy 0,000 0,000 0,000 0,000	Total Pri Energy 0,000 0,000 0,000 0,000	mary	RER
- Delivered energy + Delivered energy + Delivered energy + Delivered energy + Delivered energy	Source PV/Wind Other Solar Biomass Biodiesel	Renewables Primary Energy 0.000 0.000 0.000 0.000 0.000	Total Pri Energy 0.000 0.000 0.000 0.000 0.000	mary	RER
- Delivered energy + Delivered energy + Delivered energy + Delivered energy + Delivered energy + Delivered energy	Source PV/Wind Other Solar Biomass Biodiesel Biodiesel	Renewables Primary Energy 0.000 0.000 0.000 0.000 0.000 0.000	Total Pri Energy 0,000 0,000 0,000 0,000 0,000	mary	RER
- Delivered energy + Delivered energy + Delivered energy + Delivered energy + Delivered energy + Environmental energy	Source PV/Wind Other Solar Biomass Biodiesel Biodiesel Biodhanol HP	Renewables Primary Energy 0.000 0.000 0.000 0.000 0.000 0.000 3252.652	Total Pri Energy 0.000 0.000 0.000 0.000 0.000 3252.65	mary	RER
 Delivered energy Delivered energy Delivered energy Delivered energy Delivered energy Delivered energy Saved energy 	Source PV/Wind Other Solar Biomass Biodiesel Biodiesel Bioethanol HP CHP	Renewables Primary Energy 0,000 0,000 0,000 0,000 0,000 3252,652 0,000	Total Pri Energy 0.000 0.000 0.000 0.000 0.000 3252.852 0.000	mary	RER
 Delivered energy Delivered energy Delivered energy Delivered energy Delivered energy Delivered energy Environmental energy Exvironmental energy Saved energy District heating 	Source PV/Wind Other Solar Biodass Biodiese Bioethanol HP CHP District Heating	Renewables Primary Energy 0,000 0,000 0,000 0,000 0,000 0,000 3252,452 0,000 0,000	Total Pri Energy 0.000 0.000 0.000 0.000 0.000 3252.852 0.000 0.000	mary	RER
- Delivered energy - Environmental energy - Saved energy - Saved energy - District heating - Delivered energy - Delivered ener	Source PV/Wind Other Solar Biomass Biodlese[Biothano] HP CHP District Heating Orid	Renewables Primary Energy 0,000 0,000 0,000 0,000 0,000 0,000 3252,452 0,000 0,000 0,000	Total Pri Energy 0.000 0.000 0.000 0.000 0.000 3252.65: 0.000 0.000 4134.117	mary	RER
- Delivered energy - Environmental energy - Saved energy - District heating - Delivered energy - Delivered	Source PV/Wind Other Solar Biodisce] Bioethanol HP CHP District Heating Grid Thermal	Renewables Primary Energy 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000	Total Pri Energy 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 4134.117 0.000	mary	RER
- Delivered energy - Environmental energy - District heating - Delivered energy - Delivered -	Source PV/Wind Other Solar Biodasal Biodsanol HP CHP District Heating Orid Thermal	Renewables Primary Energy 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000	Total Pri Energy 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 4134.117 0.000 7386.764	mary	RER 0.440 - Pass
Delivered energy District hating Delivered energy Delivered energy Delivered energy Delivered energy	Source PV/Wind Other Soler Biodesel Biodesel Biodesel Biodethanol HP CHP District Heating Grid Thermal	Renewables Primary Energy 0,000 0,000 0,000 0,000 0,000 3252,652 0,000 0,000 0,000 0,000 0,000 1252,652	Total Pri Energy 0,000 0,000 0,000 0,000 0,000 0,000 3252,85: 0,000 0,000 4134,111 0,000 7386,764 0,000	mary 1	RER 0,440 - Pass

CONTRACTOR OF THE AND			Da	te report created: 06/11/2/ Page
Building Elements - Fl	oor Details			
Туре	Description	Underfloor heating	U-Value [W/m ² K]	Area (m²)
Ground Floor - Solid	Grd Floor	No	0.18	58
Non-Heat Loss Floor	1st Floor	NIA	0	58
Non-Heat Loss Floor	2nd Fir	N/A	0	25.2
Type	Description		U-Value [W/m ² K]	Area [m²]
Pitched Roof - Insulated on Celling	Ceiling House Flat		0,13	12,23
Pitched Roof - Insulated on Rafter	RIR 2nd Fir		0,15	28,65
Pitched Roof - Insulated on Colling	Crawl Space		0.13	19
Building Elements - De	oor Detai l s			
Description		Number of Doors	U-Value [W/m ² K]	Area [m ²]
		1	1.4	2,040

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5.2 House Type 10 Cont`d

seal SUSTAINABLE

Seal SUSTAINABLE MERCY AUTHORITY		Da	Part L Report te report created: 06/11/2019 Page 3/6
Building Elements - Window Details			
Glazing type	User defined u- value	U-Value [W/m ² K]	Area [m²]
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1,000	1.540
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	3,400
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	0.820
Double-glazed, air filled (low-E, en = 0,2, hard coat)	Yes	1.000	1.000
Double-glazed, air filled (low-E, en = 0.2, hard cost)	Yes	1,000	2.160
Double-glazed, air filled (law-E, en = 0,2, hard coat)	Yes	1,000	1,800
Double-glazed, air filled (low-E, en = 0,2, hard coat)	Yes	1,000	2,200
Double-glazed, air filled (low-E, en = 0.2, hard cost)	Yes	1.000	1.300
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	1.080
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1,000	1,430
Double-glazed, air filled (low-E, en = 0,2, hard coat)	Yes	1,000	1.300
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	1.100
Double-glazed, air filled (low-E, en = 0,2, hard coat)	Yes	1.000	2,160
Double-plazed, air filled (low-E, en = 0.2, hard coat)	Yes	1,400	3,780

				Date report creat	Part L Repo ed: 06/11/20 Page 4
Other Details					
Thermal bridging factor [W/m	² k]	0.0800	Thermal mass category of dwelling	Medium	high
Heating System - Solar	Water	Heating			
Solar Water Heating Present	,	No	Aperture area of solar collector [m ²]	N/A	
Type, manufacturer, model		N/A			
Zero loss collector efficiency	, n0	N/A	Collector heat loss coefficient, a1 [W/m ² >K]	N/A	
Annual Solar Radiation (kWh/ (Refer to Appendix H in DEAF	m²] ?)	N/A	Overshading factor	NA	
Dedicated storage volume [L	itres]	N/A	Combined Cylinder	N/A	
Solar fraction [%]		0.000			
Heating System - Hot V	Vater S	ystem			
Distribution Losses		392.4	Combi boiler present?	No	
Supplementary electric wate heating		N/A	Water Storage Volume [L]	180	
Hot water storage manufactu model name	irer and	Daikin	Declared loss factor [kWh/d]	1.20	
Temperature factor unadjust	ed	0.89	Temperature Factor Multiplier	0,81	
Primary Circuit loss type		None			
Is hot water storage indoors group heating system?	orin	Yes			
Heating System - Dist.	system	losses and gain	S		
Temperature adjustment [°C]	D	Control Category	2 Responsivenes	s category	1
Central heating pumps	1	Oil Boiler Pump	0 Oil boiler pump	inside	No

Oil boiler pump inside dwelling

Date r

No

CAL SUSTAINABLE ENERGY AUTHORITY							Date report orea	ded: 06/11/201
GFIRELAND								Page 6
Heating System - Ener	gy Requi	rement	s (Individ	ual)				
Main space heating system efficiency [%]	496.45	Space h adjustm	eating effic ent factor	iency	1.0000	Main sp	ace heating fuel	Electricit
Main water heating system efficiency [%]	252.14	Water h adjustm	eating effici ent factor	iency	1.0000	Main wa	ater heating fuel	Electricit
Secondary heating system efficiency [%]	N/A	Fraction	of heating try heating	from system	N/A	Second system	ary space heating fue l	None
Fraction of main space and water heat from CHP	NA	Electric	al efficiency	of CHP	N/A	Heat eff	iciency of CHP	N/A
CHP Fuel type	N/A							
Summary for Part L Co	onforman	ce (Ap	plies to T	GD L 20	008/201	1/2019	for new dwelling	s on l y)
BER Number				Building	Regulatio	ns	2019 TG	DL
BER Result		A2		Energy V	alue kWhi	m²/yr	34,46	
CO ₂ emissions [kg/m ² /yr]		6,78						
EPC		0.238		EPC Pas	s/Fail		Pass	
CPC		0.226		CPC Pas	s/Fail		Pass	
Part L Conformance - I	Fabric							
Conformity with Maximum avg U-value requirements	U-value (W/m ² K]	Pass/Fail	Conform U-value	ity with M	ximum nts	U-Value [W/m ² K]	Pass/Fal
Pitched roof insulated on ceiling	0.13		Pass	Roofs			0,15	Pass
Pitched roof insulated on slope	0.15		Pass	Walls			0.18	Pass
Flat Roof	0		Pass	Floors			0.18	Pass
Floors with no underfloor heat	0.18		Pass	External	doors / w s	ndows /	1,40	Pass
Floors with underfloor	0.00		Pass					

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	0,13	Pass	Roofs	0,15	Pass
Pitched roof insulated on slope	0.15	Pass	Walls	0.18	Pass
Flat Roof	0	Pess	Floors	0.18	Pass
Floors with no underfloor heat	0.18	Pass	External doors / windows / rooflights	1,40	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0,17	Pass			
Percentage of opening areas [%]	19.20				
Average U vallue of openings	0,90	Pass			
Permeability test carried out	t and meets guidelin	es in TGD L		0.175	Pass

Type of renewable	Total contribution [kWh/y]	Part L renewable contribution [kWh/m ² /y
Solar water heating system	0.000	0.000
Heat pump as main space heating system	1795,641	12.717
Heat pump as secondary space heating system	0.000	0.000
Heat pump as main water heating system	24,683	0,176
Vood/Biomass heater as main space heating system	0,000	0.000
Nood/Biomass heater as secondary heating system	0.000	0.000
Nood/Biomass heater as main water heating system	0,000	0.000
Contribution from CHP	0.000	0.000
Renewable technology 1	0.000	0.000
Renewable technology 2	0.000	0.000
Renewable technology 3	0.000	0.000
Total thermal	1820,524	12.893
Total electrical	0.000	0.000
Total thermal equivalent	1820,524	12,893

0

Gas boiler flue fan

Seal SUSTAINABLE

+ Delivered energy

Energy not used in Regulated Loads PV/Wind/CHP

SUBTOTAL

TOTAL

Warm air heating or fan coil radiators present

lotal thermal		THE OFFICE		7
Total electrical		0.000	0.000	
Total thermal equivalent		1820,524	3	
Does total thermal equivalent m	Pass			
Part L Conformance - Re	newables (applies to	TGD L 2019 ind	lividual heating	system)
	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	PV/Wind	0.000	0.000	
+ Delivered energy	Other	0.000	0.000	
+ Delivered energy	Solar	0.00	0.00	
+ Delivered energy	Biomass	0.000	0.000	
+ Delivered energy	Biodiese	0,000	0.000	
 Delivered energy 	Bioethano	0,000	0,000	
 Environmental energy 	HP	4062.413	4062.413	
+ Saved energy	CHP	0.000	0.000	
+ District heating	District Heating	0.000	0.000	
+ Delivered energy	Grid	0.000	4865,304	

0.000

0.000

4062,413

4062,413

Thermal

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0.000

0.000

8928,716

8928,716

0,455 - Pass

0,455

Permeability test carried out and meets guidelines in TGD L



5.2 Apartment 9 – N2

seal	unable Sy Authority Lake)			Date rej	port created: 05/11/2015 Page 1/E
Part L Speci	ification				
Property Deta	ails				
Dwelling Type		Mid-foor apartment	Type of BER rating	New Dwe	ing - Provisional
Address line 1		Apt No 9	Year of Construction	2020	
Address line 2		Block N Mid Fit Apt 2 Bed	Date of Assessment	04/11/2019	9
Address line 3		Ballyvolane (copy) (copy)	Date of Plans	31/10/2011	2
County		Co. Cork	Planning Reference		
Eircode			Building Regulations	2019 TGD	L
BER Number			is MPRN shared with another dwelling?	N/A	
Purpose of rating	2	Salo	MPRN No.	D	
Comment					
Dimension Deta	ails				
	Area [m ²]	Height [m]	Volume [m ³]		
Ground Floor	88.00	2,70	237.60		
First Floor	0.00	0.00	0,00		
Second Floors	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	88.00		237.60		
Living Area (m ²)		21,10	Living area percentage (%)	23,98	
No of Storevs		2			
Ventilation Deta	nils				
	1957)	Number			
Chimneys		0	Has permeability test been ca	rried out?	Yes
Open Flues		٥	Structure type		N/A
Fans & Vents		1	is there a suspended wooden fijoor?	ground	No
Number of flueless heaters	combustion	room 0	Percentage windows/doors di stripped [%]	raught	100.00
Is there a draught I entrance?	obby on mair	Yes	Number of sides sheltered		1
Ventilation method		Whole-house extract ventilation	Mechanical Ventilation Manuf	acturer	NA
Specific fan power	[W/(L/s)]	0.280	Mechanical Ventilation Mode	Name	NA
Heat exchanger offi	iciency [%]	NA	How many wetrooms (incl. kits	shen)?	NGA

Seal SUSTAINABLE			Da	Part L Repo e report created: 06/11/201 Page 2/
Building Elements -	Floor Details			
Туре	Description	Underfloor heating	U-Value [Wi/m ² K]	Area [m ²]
Non-Heat Loss Filoor	Grd Flr	N/A.	0	88
Building Elements -	Roof Details			
Туре	Description		U-Value [W/m ² K]	Area [m ²]
Building Elements -	Door Details			
Description		Number of Doors	U-Value [W/m ² K]	Area [m ²]
		1	1.2	2,200

e	Part L Report
SOAL SUSTAINABLE	Date report created: 05/11/2019
JCCI CHBELAND	Page 3/6

Building Elements - Window Details				
Glazing type	User defined u- value	U-Value [W/m ² K]	Area [m ²]	
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1,000	6.800	
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	3,400	
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1,000	3,400	

Seal SUSTAINABLE ENERGY AUTHORITY					Da	te report crea	5
Other Details							
Thermal bridging factor [W/m ²	ikg	0.0800	Thermal	mass c	stegory of dwelling	Medium	
Heating System - Solar	Water I	Heating					
Solar Water Heating Present?		No	Aperture	area of	solar collector [m²]	N/A	
Type, manufacturer, model		N/A					
Zero loss collector efficiency,	n0	N/A	Collecto [W/m ² >K	r heat lo	iss coefficient, a1	NA	
Annual Solar Radiation [kWh/m (Refer to Appendix H in DEAP)	n²]	N/A	Oversha	ding fac	tor	N/A	
Dedicated storage volume [Lit	tres]	N/A	Combine	d Cylin	der	N/A	
Solar fraction [%]		0.000					
Heating System - Hot W	/ater Sy	ystem					
Distribution Losses		271.1	Combi b	oiler pr	esent?	No	
Supplementary electric water heating		N/A	Water St	orage V	olume (L)	180	
Hot water storage manufactur model name	er and	Daikin ERGA04DV3	Declared loss factor [kWh/d]		1,20		
Temperature factor unadjuste	d	0,89	Tempera	ture Fa	ctor Multiplier	0.81	
Primary Circuit loss type		Boller and thermal ste	ore within	a single	casing (cylinder thermo-	stat present)
Is hot water storage indoors o group heating system?	or in	Yes					
Heating System - Dist. s	system	losses and gains					
Temperature adjustment [°C]	D	Control Category		2	Responsiveness	category	
Central heating pumps	3	Oil Boiler Pump		0	Oil boiler pump in dwelling	side	
Gas boiler flue fan	D	Warm air heating or coil radiators prese	fan	No			



5.2 Apartment 9 – N2 Cont`d

SUSTAINABLE							Date report crea	ated: 06/11/201	
Cal PRECAND								Page 5	
Heating System - Ener	gy Requ	irement	s (Individ	ual)					
Main space heating system efficiency [%]	509.31	Space h adjustm	eating effic ent factor	iency	1.0000	Main sp	ace heating fuel	Electricity	
Main water heating system efficiency [%]	252.14	Water h adjustm	eating effici ient factor	ency	1,0000	Main wa	iter heating fuel	Electricit	
Secondary heating system efficiency [%]	N/A	Fraction seconds	n of heating ary heating	from system	N/A	Seconda system	ary space heating fue l	None	
Fraction of main space and water heat from CHP	N/A	Electrica	al efficiency	of CHP	N'A	Heat off	iciency of CHP	N/A	
CHP Fuel type	N/A								
Summary for Part L Co	nformar	nce (Ap	plies to T	GD L 20	008/201	1/2019	for new dwelling	s only)	
BER Number				Building	Regulatio	ns	2019 TG	iD L	
BER Result		A2		Energy V	alue kWhi	m²/yr	32.27		
CO ₂ emissions [kg/m ² /yr]		6.35							
EPC		0,265		EPC Pas	s/Fail		Pass		
CPC		0.262		CPC Pas	s/Fail		Pass		
Part L Conformance - I	abric								
Conformity with Maximum avg U-value requirements	U-value	[W/m ² K]	Pass/Fai	Conform U-value	ity with M requireme	aximum Ints	U-Value [W/m ² K]	Pass/Fai	
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	Pass	
Floors with no underfloor heat	0.00		Pass	External	doors / w s	indows /	1.20	Pass	
Floors with underfloor heat	0,00		Pass						
Walls	0.18		Pass						
Percentage of opening areas [%]	17.95								
Average U value of openings	0.86		Pass						
Permeability test carried out	and meets	guideline	es in TGD L				0.175	Pass	

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Part L Conformance - Renewables (applies to TGD L 2008/2011 indivi					idual heating system)		
Type of renewable		Total contribution [kWh/y]		Part L renewable contribution [kWh/m²/v]			
Solar water heating system		0.000		0.000			
Heat pump as main space heating	ig system	419.423		4.766			
Heat pump as secondary space	heating system	0.000		0.000			
Heat pump as main water heatin	g system	18.020		0.205			
Wood/Biomass heater as main s	pace heating system	0.000		0.000			
Wood/Biomass heater as secon	dary heating system	0.000		0,000			
Wood/Biomass heater as main v	vater heating system	0.000		0.000			
Contribution from CHP		0.000		0.000			
Renewable technology 1		0.000		0.000			
Renewable technology 2		0.000		0.000			
Renewable technology 3		0.000		0.000			
Total thermal		437,442		4,971			
Total electrical		0.000		0,000			
Total thermal equivalent		437,442		4,971			
Does total thermal equivalent n	eet part L requirement?	Fall					
Part L Conformance - Re	newables (applies to	TGD L 2019 ind	ividual h	eating s	ystem)		
	Source	Renewables Primary Energy	Total Pri Energy	nary	RER		
+ Delivered energy	PV/Wind	0.000	0.000				
+ Delivered energy	Other	0.000	0.000				
+ Delivered energy	Solar	0.00	0,00				
+ Delivered energy	Biomass	0.000	0.000				
+ Delivered energy	Biodiese	0,000	0,000				
 Delivered energy 	Bioethano	0,000	0,000				
 Environmental energy 	HP	3252.652	3252.652				
 Saved energy 	CHP	0.000	0.000				
District heating	District Heating	0.000	0.000				
+ Delivered energy	Grid	0.000	2839,612				
+ Delivered energy	Thermal	0,000	0,000				
SURTOTAL		3252 652	6092 264		0 524 - Dare		

0,000

0.000

0,534

5.2 Apartment 10 – N6 – Block B

seai	AUTHORITY			Date repo	Part L Report f created: 06/11/2019 Page 1/6
Part L Specif	ication				
Property Detai	s				
Dwelling Type		Mid-floor apartment	Type of BER rating N	ew Dwellin	g - Provisional
Address line 1		Apt No 10	Year of Construction 20	320	
Address line 2		Apt No 10 Block B 1st (Mid)	Date of Assessment 05	5/11/2019	
Address line 3		Floor Apt 2 Bed Ballyvolane	Date of Plans 31	1/10/2019	
County		Co. Cork	Planning Reference		
Eircode			Building Regulations 20	119 TGD L	
BER Number			Is MPRN shared with N another dwelling?	A	
Purpose of rating Comment		Sale	MPRN No. 0		
Dimension Detai	ls				
	Area [m ²]	Height [m]	Volume (m ²)		
Sround Floor	77.00	2,90	223.30		
First Floor	0.00	0.00	0.00		
Second Floors	0.00	0.00	0.00		
Third and other loors	0.00	0,00	0.00		
Room in roof	0.00	0.00	0.00		
Total Floor Area	77.00		223.30		
iving Area [m ²]	3	2.00	Living area percentage [%]	11.56	
lo of Storeys	्रा				
/entilation Detai	s				
		Number			
himneys		o	Has permeability test been carried	d out?	Yes
pen Flues		o	Structure type		N/A
ans & Vents		4	is there a suspended wooden gro filoor?	und	No
lumber of flueless c eaters	combustion ro	om 0	Percentage windows/doors draug stripped [%]	ht	100.00
there a draught lo ntrance?	bby on main	Yes	Number of sides sheltered		1
entilation method		Whole-house extract ventilation	Mechanical Ventilation Manufactu	irer	N/A
pecific fan power [V	W/(L/s)]	0.300	Mechanical Ventilation Model Nan	ne	NA
leat exchanger effic	iency [%]	N/A	How many wetrooms (incl. kitchen	1)7	N/A

eal Sustainable Energy Authority			Dat	te report created: 06/11/2019 Page 2/6
Building Elements -	Floor Details			
Туре	Description	Underfloor heating	U-Value (W/m ² K)	Area (m²)
Non-Heat Loss Filoor	1st Floor Above Heated Space	N/A	0	40.7
Ground Floor - Solid	1st Floor Solid Grd Floor Const Exposed To Ground Level	No	0.18	36,3
Building Elements -	Roof Details			
Туре	Description		U-Value [W/m ² K]	Area [m²]
Building Elements -	Door Details			
Description		Number of Doors	U-Value [W/m ² K]	Area [m ²]
		1	1.2	2.200

Energy not used in Regulated Loads PV/Wind/CHP TOTAL



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5.2 Apartment 10 – N6 – Block B Cont`d

Seal SUSTAINABLE

Seal SUSTAINABLE

		Da	Part I, Report te report created: 06/11/2019
Seal Chercy Authobity			Page 3/il
Building Elements - Window Details			
Glazing type	User defined u- value	U-Value [W/m ² K]	Area (m²)
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	3.780
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	3.780
Double-glazed, air filled (low-E, en = 0.2, hard coat)	Yes	1.000	7.200

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S	ea		SUSTAINABLE ENERGY AUTHORITY OF INELAND

Thermal bridging factor [W/	m ² k]	0.0800	Thermal ma	sss cal	tegory of dwelling	Medium-	high
Heating System - Sola	ar Water	Heating					
Solar Water Heating Presen	t?	No	Aperture ar	nea of	solar collector [m²]	N/A	
Type, manufacturer, model		N/A					
Zero loss collector efficienc	y, n0	N/A	Co ll ector h [W/m ² >K]	eat lo:	ss coefficient, a1	N/A	
Annual Solar Radiation (kW) (Refer to Appendix H in DEA	n/m²] \P)	N/A	Overshadin	ig fact	tor	N/A	
Dedicated storage volume	[Litres]	N/A	Combined (Cylind	er	N/A	
Solar fraction [%]		0.000					
Heating System - Hot	Water S	ystem					
Distribution Losses		259.9	Combi boi l	er pre	sent?	No	
Supplementary electric wat heating	er	N/A	Water Stora	ige Vo	dume [L]	180	
Hot water storage manufac model name	turer and	Daikin ERGA04DV3	Declared lo	ss fac	tor [kWh/d]	1.20	
Temperature factor unadjus	sted	0.89	Temperatur	re Fac	tor Multiplier	0.81	
Primary Circuit loss type		Boiler and thermal store within a single casing (cylinder thermostat pr				lat present)	
Is hot water storage indoor group heating system?	s or in	Yes					
Heating System - Dist	. system	losses and gain	s				
Temperature adjustment [°C]	0	Control Category	3	2	Responsiveness c	ategory	4
Central heating pumps	1	Oil Boiler Pump	(3	Oil boiler pump in: dwelling	side	No
Gas boiler flue fan	0	Warm air heating o	er fan 1	No			

					Date report ore:	ated: 06/11/2011 Page 5/
Heating System - Energ	gy Requ	irements (Individ	ual)			
Main space heating system efficiency [%]	386.02	Space heating effic adjustment factor	iency	1.0000	Main space heating fuel	Electricity
Main water heating system efficiency [%]	252.14	Water heating efficient adjustment factor	lency	1.0000	Main water heating fuel	Electricity
Secondary heating system efficiency [%]	N/A	Fraction of heating secondary heating	from system	N/A	Secondary space heating system fuel	None
Fraction of main space and water heat from CHP	N/A	Electrical efficiency	of CHP	N/A	Heat efficiency of CHP	NA
CHP Fuel type	N/A.					
Summary for Part L Co	nformar	nce (Applies to T	GD L 20	08/201	1/2019 for new dwelling	is on l y)
BER Number			Building	Regulatio	ns 2019 TC	D L
BER Result		A2	Energy V	alue kWh	m²/yr 40.69	
CO ₂ emissions [kg/m ² /yr]		8				
CO ₂ emissions [kg/m²/yr] EPC		8 0 . 270	EPC Pasi	s/Fail	Pass	
CO ₂ emissions [kg/m ² /yr] EPC CPC		8 0.270 0.264	EPC Pasi CPC Pasi	s/Fail s/Fail	Pass Pass	
co ₂ emissions [kg/m²/yr] EPC cPC Part L Conformance - F	abric	8 0,270 0,264	EPC Pass	s/Fail s/Fail	Pass Pass	

and a second second second second			a set an sector sector sector		
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	0.18	Pass
Floors with no underfloor heat	0.18	Pass	External doors / windows / rooflights	1,20	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0,18	Pass			
Percentage of opening areas [%]	22.03				
Average U value of openings	0.85	Pass			
Permeability test carried out	and meets gui	delines in TGD	L		0.175 Pass

Seal SUSTAINABLE DE GENERALITHORITY Part L Conformance - Renewables (applies to TGD L 2008/2011 individual heating system)

Type of renewable		Total contribution	[kWh/y] Part L contril	renewable bution [kWh/m²/y]
Solar water heating system		0.000	0.000	
Heat pump as main space heat	ing system	502.244	6,523	
Heat pump as secondary space	e heating system	0.000	0.000	
Heat pump as main water heat	ing system	17.385	0,226	
Wood/Biomass heater as main	0.000	0,000		
Wood/Biomass heater as seco	0.000	0.000		
Wood/Biomass heater as main	0.000	0.000		
Contribution from CHP	0.000	0.000		
Renewable technology 1		0.000	0.000	
Renewable technology 2		0.000	0.000	
Renewable technology 3		0.000	0.000	
Total thermal		519,630	6.748	
Total electrical		0.000	0.000	
Total thermal equivalent		519,630	6,748	
Does total thermal equivalent	meet part L requirement	γ Fal		
Part L Conformance - Re	enewables (applies	to TGD L 2019 ind	lividual heating	system)
	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	PV/Wind	0.000	0.000	
+ Delivered energy	Other	0.000	0.000	
+ Delivered energy	Solar	0.00	0.00	
+ Delivered energy	Biomass	0.000	0.000	
+ Delivered energy	Biodiese	0,000	0.000	

+ Delivered energy	Biodiese	0.000	0.000	
* Delivered energy	Bioethano	0,000	0,000	
 Environmental energy 	HP	2491.363	2491.363	
* Saved energy	CHP	0.000	0.000	
+ District heating	District Heating	0.000	0.000	
+ Delivered energy	Grid	0.000	3133.078	
+ Delivered energy	Thermal	0.000	0.000	
SUBTOTAL		2491,363	5624.441	0.443 - Pass
Energy not used in Regulated Loads	PV/Wind/CHP	0.000	0.000	
TOTAL		2491.363	5624.441	0.443

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