DOSA

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CONSULTING ENGINEERS

RESIDENTIAL DEVELOPMENT AT KILNAP, OLD WHITECHURCH ROAD, CORK.

CLIMATE ACTION & ENERGY STATEMENT

DATE 25/06/2024

REVISION 2

JOB NO. 6254

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DOCUMENT CONTROL

PROJECT NAME: Residential Development at Kilnap, Old Whitechurch Road, Cork.

PROJECT NUMBER: 6254

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Contents

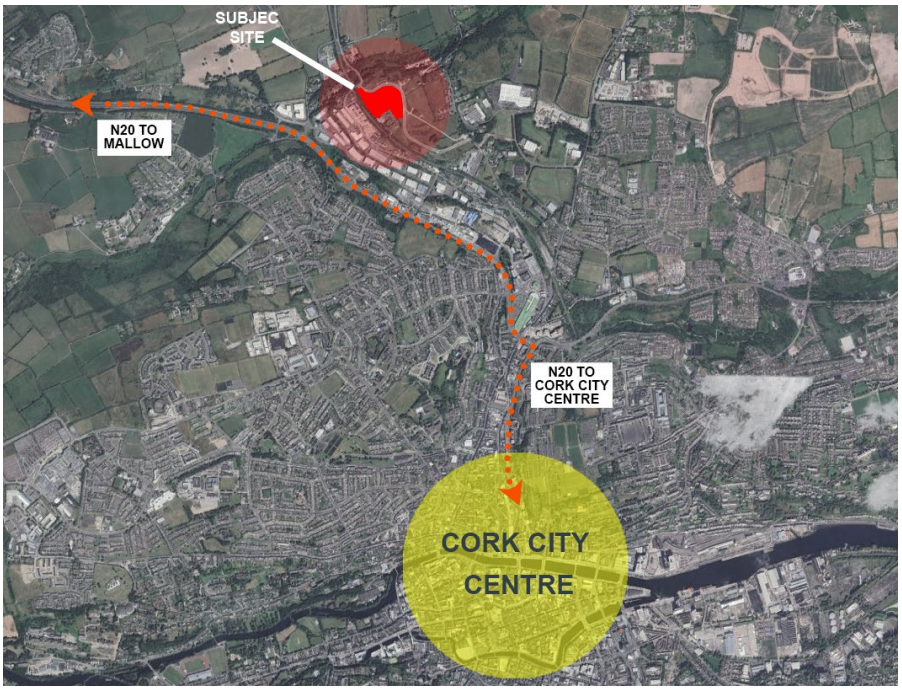
1 *Introduction*

Denis O'Sullivan & Associates were engaged as Consulting Engineers for the proposed development at Old Whitechurch Road, Kilnap.

This report provides information on the various buildings energy status and carbon dioxide emissions, the statutory compliance requirements and energy/CO2 reduction achievements based on the proposed construction specifications.

1.1 Development Description

The 3.7 ha subject site, with a developable area of 2.74 ha, is situated approximately 3.5 km north of Cork City Centre, in an area characterised by commercial and residential use. It is located off the N20 and a new road that meanders through the site to connect Old Mallow Road in the north with Old Whitechurch Road in the Southeast.



The proposed development will consist of 1 no. accessible 4 bed detached, 72 no. 3 bed semi-detached, 8 no. 3 be townhouses, 6 no. 2 bed townhouses, 4 no. 3 bd duplex apartments & 4 no. 1 bed apartments. The form, architecture and scale of the development is consistent with the immediate context and it will enhance the visual amenity of the site as a whole.

1.2 Policy

Compliance will be to new Part L 2022. Compliance to the above would deem the development and developments residential units to be "Nearly Zero Energy Buildings" (NZEB) in accordance to the EU Energy performance of Buildings Directive Recast 2013/31/EU.

1.3 NZEB Definition

The definition for Nearly Zero Energy Buildings in the Energy performance in Buildings Directive (EPBD) is "a very high energy performance, as determined in accordance with Annex 1, The nearly

zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby".

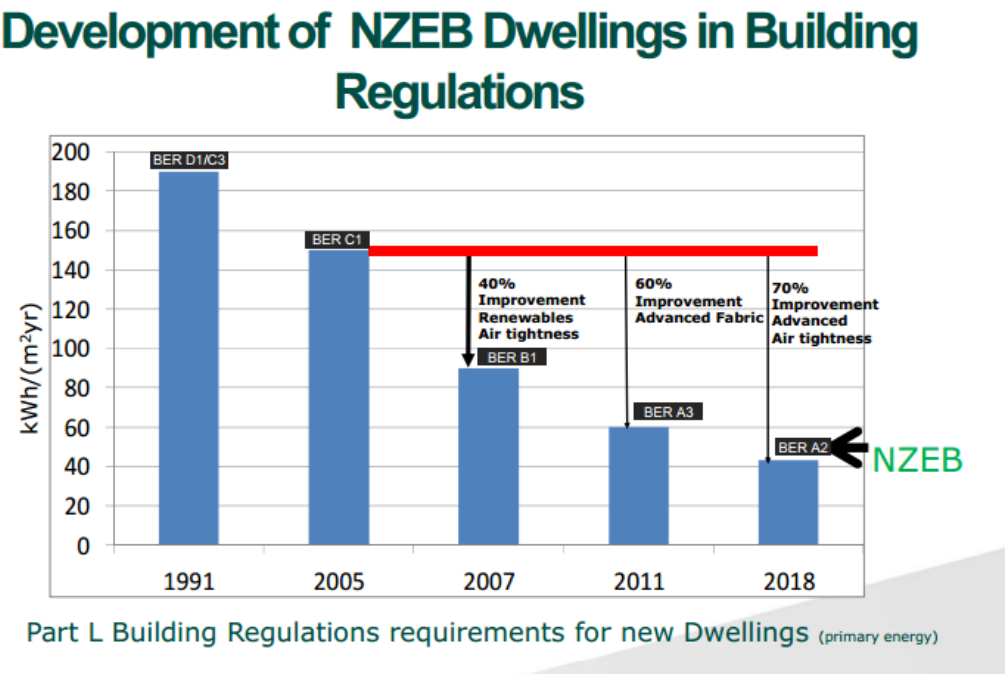
1.4 Requirements for Domestic Buildings

A full review of the public consultation, refer to Department of Housing, Planning and Local Government website has been completed for the building regulations and DEAP methodology.

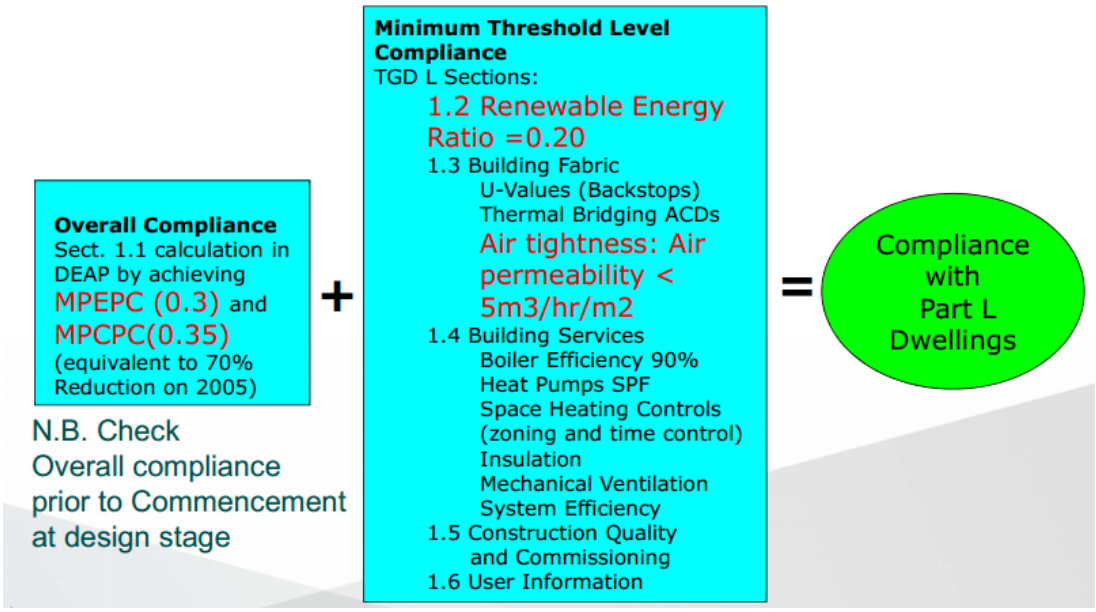
For this report the calculation data is based on residential Part L 2022 and covers the main compliance criteria;

- Primary Energy,
- Carbon dioxide,
- Renewable energy.

To comply to Part L the residential units require to achieve a primary energy reduction of 70% (0.30 MEPC factor), a carbon emission reduction of 65% (0.35 MCPC factor) and a 20% renewable energy contribution on a reference residential unit. This reference residential unit is identical to the actual proposed residential unit but applies pre-fixed Part L stipulated calculation parameters, U-values, insulation levels, boiler efficiency, controls etc.



2 Achieving Compliance with TDG L Dwellings 2019



Part L requires a new dwelling to make primary energy and carbon dioxide emission reductions on a reference dwelling by applying improved calculation parameters and technologies. Part L also requires the actual dwelling to provide at least 20% of its primary energy usage by means of renewable energy. The reference dwelling is exactly the same as the actual dwelling but uses fixed pre-set (by the SEAI) basic standard Part L calculation parameters, U-values / insulation levels, energy conversion efficiency, controls etc. to enable the actual dwelling to make substantial reductions. The reference dwelling has no renewable energy element.

3 DEAP Analysis

The Building Energy Rating has been calculated by Denis O'Sullivan & Associates (DOSA). The current BER is as per that indicated on the energy rating Sheet in the Appendices. All unit types will meet NZEB Compliance.

The analysis has been carried out on the latest SEAI software.

4 Report Structure

The Building Energy Rating has been calculated by DOSA Consulting Engineers. The current BERs for the various House Types are as per that indicated on the energy rating Sheet. The report is preliminary in nature and provides guidance based on design assumptions (pre design development). In detailed design the specifications will be updated and revised analysis carried out. For the purpose of this report only the house types have been analysed. The Duplex Units (Type E & F) will have a similar design approach and achieve minimum A3 ratings

5 House Specification

- The typical house specification is included in Appendix A to achieve a minimum A3 rating
- Part L compliance is included in Appendix B

6 Building Regulations

The Irish Building Regulations will apply in full to the proposed development as listed in the table below:

Building Regulations 1997-2014 (SI 497 of 1997 as amended – refer to www.environ.ie for latest)

Building Regulations 1997-2014 (SI 497 of 1997 as amended – refer to www.environ.ie for latest)
Part A –Structure - 2012
Part B – Fire Safety - Volume 2 – Dwelling Houses - 2017
Part C – Site preparation and resistance to moisture - 2004
Part D – Materials and workmanship - 2013
Part E – Sound - 2014
Part F –Ventilation - 2011
Part G – Hygiene - 2008
Part H – Drainage and wastewater disposal - 2016
Part J – Heat producing appliances - 2014
Part K – Stairways, ladders, ramps and guards -2014
Part L – Conservation of Fuel and Energy – Dwellings - 2017
Part M – Access and Use - 2010

For products or systems that do not fall within the scope of existing standards, or deviate from established norms, third party certification should be used to demonstrate compliance with the Irish Building Regulations.

The Contractor will comply with all relevant & applicable EN Standards & Codes of Practice. Irish Standards and British Standards (or equivalent) are applicable where no equivalent EN standard exists.

All Local Authority Codes of Practice are applicable, along with all statutory regulations appropriate to the provision of Housing will apply.

All Codes of practice, standards, and requirements of the statutory service providers (ESBN, GBN, Irish Water, Cork City Council, Eir, etc.) are applicable in full to the development.

7 NZEB Summary

The analysis of NZEB Compliance is based under the following 3 headings

- Energy Performance Coefficient - EPC
  (Maximum Permitted Energy Performance Coefficient MPEPC = 0.30)
- Carbon Performance Coefficient - CPC
  (Maximum Permitted Carbon Performance Coefficient MPCPC = 0.35)
- Renewable Energy Ratio - RER (Minimum Requirement 0.20)

Below is a summary of a typical dwellings/ house types (except duplex units) and the percentages wherby it surpasses the minimum requirements of NZEB

Dwelling Ref	Energy Performance Coefficent - EPC (maximum Permitted Energy Performance Coefficent MPEPC = 0.3)	% better than Maximum permitted	Carbon Peformance Coefficent - CPC (Maximum Permitted Carbon Performance Coefficent MPCPC = 0.35)	% better than Maximum permitted	Renewable Energy Ratio - RER (Minimum Requirement = 0.20)	% better than Maximum permitted
A1	0.293	2%	0.234	33.14%	0.51	155%
B1	0.264	12%	0.171	51.14%	0.52	160%
B2	0.266	11%	0.172	50.86%	0.53	165%
C	0.242	19%	0.158	54.86%	0.57	185%
D	0.221	26%	0.145	58.57%	0.57	185%

8 Conclusions

Compliance to part L 2022 is achieved by means of a 70% primary energy reduction on the reference dwelling or an EPC (primary energy) of 0.30 or less and 65% carbon dioxide reduction or a CPC (carbon dioxide) of 0.35 or less and an equivalent primary renewable energy contribution of 20% or more. The energy reduction proposals resulted in a much lower primary energy and carbon dioxide performance than required under Part L 2022 and achieved a renewable energy contribution in excess of 50% or half of the primary energy coming from a renewable source. These results were achieved by applying the proposed exposed element parameters in combination with air source heat pumps for space & hotwater heating and other reduction measures proposed

Appendix A – Preliminary Unit Specification

All items to have accredited certification

Floor

- 150mm reinforced concrete slab on 150mm Xtratherm XT/HYF, Thermal conductivity 0.022W/mK on radon barrier on blinded hardcore.

Walls

- 310mm cavity wall with 20mm external plaster, 110mm cavity pumped with Korefill cavity, wall insulation system, Thermal conductivity 0.033W/mK, with Xtratherm Insulated plasterboard XT/TL, Thermal conductivity 0.022W/mK on dab skimmed with light weight plaster.
- 310mm Cavity wall, 110mm cavity with brick outer leaf, 60 mmXtratherm XT/CW cavity wall insulation thermal conductivity 0.022W/mK with 72.5mm (60+12.5) Xtratherm insulated plasterboard XT/TL thermal conductivity 0.022W/mK on dabs skimmed with light weight plaster.

Attic

- 400mm (200/200) Thermal conductivity 0.044W/mK, mineral wool insulation.
- Sloping Ceiling 150mm Xtratherm with a Thermal conductivity of 0.022W/mK laid between joists plus 72.5mm (60/12.5) Xtratherm insulated plasterboard with a Thermal conductivity of 0.022W/mK

Windows

- Double glazed windows by Bantry Bespoke Joinery, U-value of 1.2 W/m^2K

Doors

- Palladio composite doors supplied by Profile Developments, Glin, Co. Limerick

Primary Heating

- Heat Pump, air to water by Mitsubishi, Model SUZ-SWM 60VA, radiators on both ground and first floors, with time and temperature control. All primary pipe work is insulated.

Secondary Heating

- Hota STi5 stove

Lights

- 100% LED/CFL lights throughout

Ventilation

- Mechanical Extract Ventilation System by Passive House System model PHS MEV/HV

Domestic Hot Water

- 200L cylinder by Mitsubishi model EHST 20D-VM2D

Thermal Bridging As per "Limiting thermal bridging construction details" TGD L 2011 All key junctions are provided.

Appendix B – Part L Compliance

Part L Compliance – House Type A1

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Detached house	**Type of BER rating**	New Dwelling - Final
Address line 1	Old Whitechurch Road house Type A1	**Year of Construction**	2024
Address line 2		**Date of Assessment**	15/05/2023
Address line 3		**Date of Plans**	
County	Co. Cork	**Planning Reference**	
Eircode		**Building Regulations**	2019 TGD L
BER Number		**MPRN No.**	0
Purpose of Rating	Sale	**Is MPRN shared with another dwelling?**	N/A
Assessor Name	Brian O'Sullivan	**Assessor Number**	104915
Comment	Old Whitechurch Road house Type A1	**BER number assigned to shared dwelling**	N/A

Dimension Details

	Area [m^2]	Height [m]	Volume [m^3]
Ground Floor	97.07	2.72	264.03
First Floor	83.32	2.91	242.46
Second Floor	0.00	0.00	0.00
Third and other floors	0.00	0.00	0.00
Room in roof	0.00	0.00	0.00
Total Floor Area	180.39		506.49

Living Area [m^2]	20.45	**Living area percentage [%]**	11.34
No of Storeys	2		

Ventilation Details

	Number		
Chimneys	0	**Has permeability test been carried out?**	Yes
Open Flues	1	**Structure type**	N/A
Fans & Vents	1	**Is there a suspended wooden ground floor?**	No
Number of flueless combustion room heaters	0	**Percentage windows/doors draught stripped [%]**	N/A
Is there a draught lobby on main entrance?	No	**Number of sides sheltered**	1
Ventilation method	Whole-house extract ventilation	**Mechanical Ventilation Manufacturer**	N/A
Specific fan power [W/(L/s)]	0.800	**Mechanical Ventilation Model Name**	N/A
Heat exchanger efficiency [%]	N/A	**How many wetrooms (incl. kitchen)?**	N/A

Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m^{2}K]	Area [m^2]
Ground Floor - Solid		No	0.09	97.07
Non-Heat Loss Floor		N/A	0	83.32

Building Elements - Roof Details

Type	Description	U-Value [W/m^{2}K]	Area [m^2]
Pitched Roof - Insulated on Rafter		0.13	6.83
Pitched Roof - Insulated on Ceiling		0.12	83.32
Pitched Roof - Insulated on Ceiling		0.13	4.97
Flat Roof		0.14	1.61

Building Elements - Wall Details

Type	Description	U-Value [W/m^{2}K]	Area [m^2]
300mm Filled Cavity		0.17	175.4
300mm Cavity		0.17	14.9

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m^{2}K]	Area [m^2]
	1	0.79	2.110
	1	0.94	1.970

Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m^{2}K]	Area [m^2]
Double-glazed, argon filled	Yes	1.200	11.350
Double-glazed, argon filled	Yes	1.200	9.290
Double-glazed, argon filled	Yes	1.200	8.550
Double-glazed, argon filled	Yes	1.200	0.840
Double-glazed, argon filled	Yes	1.400	4.180
Double-glazed, argon filled	Yes	1.300	0.910
Double-glazed, argon filled (low-E, en = 0.15, hard coat)	Yes	2.000	1.020

Other Details

Thermal bridging factor [W/m²k]	0.1500	**Thermal mass category of dwelling**	Medium-low

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/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 System

Distribution Losses	397.53	**Combi boiler present?**	No
Supplementary electric water heating	N/A	**Water Storage Volume [L]**	200
Hot water storage manufacturer and model name	Mitsubishi EHST 20D-VM2D	**Declared loss factor [kWh/d]**	1.91
Temperature factor unadjusted	0.89	**Temperature Factor Multiplier**	0.89
Primary Circuit loss type	Boiler / heat pump and thermal store within a single casing (cylinder thermostat present)		
Is hot water storage indoors or in group heating system?	Yes	**Insulation type**	N/A
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0	**Control Category**	3	**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		

Heating System - Energy Requirements (Individual)

Main space heating system efficiency [%]	463.45	**Space heating efficiency adjustment factor**	1.0000	**Main space heating fuel**	Electricity
Main water heating system efficiency [%]	287.87	**Water heating efficiency adjustment factor**	1.0000	**Main water heating fuel**	Electricity
Secondary heating system efficiency [%]	74.8	**Fraction of heating from secondary heating system**	0.10	**Secondary space heating system fuel**	Manufactured Smokeless Fuel
Fraction of main space and water heat from CHP	N/A	**Electrical efficiency of CHP**	N/A	**Heat efficiency of CHP**	N/A
CHP Fuel type	N/A				

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

BER Number		**Building Regulations**	**2019 TGD L**
BER Result	A2	**Energy Value kWh/m^2/yr**	**41.78**
CO_2 emissions [kg/m^2/yr]	6.81		
EPC	0.293	**EPC Pass/Fail**	**Pass**
CPC	0.234	**CPC Pass/Fail**	**Pass**

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	**U-value [W/m^{2}K]**	**Pass/Fail**	**Conformity with Maximum U-value requirements**	**U-Value [W/m^{2}K]**	**Pass/Fail**
Pitched roof insulated on ceiling	0.12	Pass	**Roofs**	0.14	Pass
Pitched roof insulated on slope	0.13	Pass	**Walls**	0.17	Pass
Flat Roof	0.14	Pass	**Floors**	0.09	Pass
Floors with no underfloor heat	0.09	Pass	**External doors / windows / rooflights**	2.00	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.17	Pass			
Percentage of opening areas [%]	22.30				
Average U value of openings	1.21	Pass			
Permeability test carried out and meets guidelines in TGD L				0.184 | Pass	

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

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	PV/Wind	0.00	0.00	
+ Delivered energy	Other	0.00	0.00	
+ Delivered energy	Solar	0.00	0.00	
+ Delivered energy	Biomass	0.00	0.00	
+ Delivered energy	Biodiesel	0.00	0.00	
+ Delivered energy	Bioethanol	0.00	0.00	
+ Environmental energy	HP	7873.44	7873.44	
+ Saved energy	CHP	0.00	0.00	
+ District heating	District Heating	0.00	0.00	
+ Delivered energy	Grid	0.00	6213.97	
+ Delivered energy	Thermal	0.00	1213.01	
SUBTOTAL		7873.44	15300.41	0.51 - Pass
Energy not used in Regulated Loads	PV/Wind/CHP	0.00	0.00	
TOTAL		7873.44	15300.41	0.51

Energy Requirements: Individual Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO_2 emission factor
Main space heating system	Electricity	Current	1.75	0.224
Secondary space heating system	Manufactured Smokeless Fuel	Current	1.20	0.392
Main water heating system	Electricity	Current	1.75	0.224
Cooling System	None	Current	0.00	0.000
Pumps, fans	Electricity	Current	1.75	0.224
Energy for lighting	Electricity	Current	1.75	0.224

Part L Compliance – House Type B1

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Semi-detached house	**Type of BER rating**	New Dwelling - Final
Address line 1	Old Whitechurch road House type B1	**Year of Construction**	2024
Address line 2		**Date of Assessment**	17/06/2024
Address line 3		**Date of Plans**	
County	Co. Cork	**Planning Reference**	
Eircode		**Building Regulations**	2019 TGD L
BER Number		**MPRN No.**	0
Purpose of Rating	Sale	**Is MPRN shared with another dwelling?**	N/A
Assessor Name	Stephen O'Donoghue	**Assessor Number**	108540
Comment	Old Whitechurch road House type B1	**BER number assigned to shared dwelling**	N/A

Dimension Details

	Area [m^2]	Height [m]	Volume [m^3]
Ground Floor	55.22	2.45	135.29
First Floor	55.22	2.82	155.72
Second Floor	0.00	0.00	0.00
Third and other floors	0.00	0.00	0.00
Room in roof	0.00	0.00	0.00
Total Floor Area	110.44		291.01

Living Area [m^2]	15.20	**Living area percentage [%]**	13.76
No of Storeys	2		

Ventilation Details

	Number		
Chimneys	0	**Has permeability test been carried out?**	Yes
Open Flues	0	**Structure type**	N/A
Fans & Vents	1	**Is there a suspended wooden ground floor?**	No
Number of flueless combustion room heaters	0	**Percentage windows/doors draught stripped [%]**	N/A
Is there a draught lobby on main entrance?	No	**Number of sides sheltered**	2
Ventilation method	Whole-house extract ventilation	**Mechanical Ventilation Manufacturer**	N/A
Specific fan power [W/(L/s)]	0.290	**Mechanical Ventilation Model Name**	N/A
Heat exchanger efficiency [%]	N/A	**How many wetrooms (incl. kitchen)?**	N/A

Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m^{2}K]	Area [m^2]
Ground Floor - Solid		No	0.15	55.22
Non-Heat Loss Floor		N/A	0	55.22

Building Elements - Roof Details

Type	Description	U-Value [W/m^{2}K]	Area [m^2]
Pitched Roof - Insulated on Ceiling		0.12	55.22

Building Elements - Wall Details

Type	Description	U-Value [W/m^{2}K]	Area [m^2]
300mm Filled Cavity		0.18	96.06

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m^{2}K]	Area [m^2]
	1	0.79	2.100
	1	0.94	2.100

Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m^{2}K]	Area [m^2]
Double-glazed, argon filled	Yes	1.400	3.720
Double-glazed, argon filled	Yes	1.200	5.700
Double-glazed, argon filled	Yes	1.200	4.480
Double-glazed, argon filled	Yes	1.200	0.510
Double-glazed, argon filled (low-E, en = 0.15, hard coat)	Yes	2.000	0.700

Other Details

Thermal bridging factor [W/m²k]	0.1500	**Thermal mass category of dwelling**	Medium

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/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 System

Distribution Losses	383.24	**Combi boiler present?**	No
Supplementary electric water heating	N/A	**Water Storage Volume [L]**	170
Hot water storage manufacturer and model name	Mitsubishi EHST 17D-VM2D	**Declared loss factor [kWh/d]**	1.65
Temperature factor unadjusted	0.89	**Temperature Factor Multiplier**	0.89
Primary Circuit loss type	Boiler / heat pump and thermal store within a single casing (cylinder thermostat present)		
Is hot water storage indoors or in group heating system?	Yes	**Insulation type**	N/A
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0	**Control Category**	3	**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		

Heating System - Energy Requirements (Individual)

Main space heating system efficiency [%]	375.03	**Space heating efficiency adjustment factor**	1.0000	**Main space heating fuel**	Electricity
Main water heating system efficiency [%]	287.87	**Water heating efficiency adjustment factor**	1.0000	**Main water heating fuel**	Electricity
Secondary heating system efficiency [%]	N/A	**Fraction of heating from secondary heating 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**	N/A
CHP Fuel type	N/A				

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

BER Number		**Building Regulations**	**2019 TGD L**
BER Result	A2	**Energy Value kWh/m^2/yr**	**39.09**
CO_2 emissions [kg/m^2/yr]	5		
EPC	0.264	**EPC Pass/Fail**	**Pass**
CPC	0.171	**CPC Pass/Fail**	**Pass**

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	**U-value [W/m^{2}K]**	**Pass/Fail**	**Conformity with Maximum U-value requirements**	**U-Value [W/m^{2}K]**	**Pass/Fail**
Pitched roof insulated on ceiling	0.12	Pass	**Roofs**	0.12	Pass
Pitched roof insulated on slope	0	Pass	**Walls**	0.18	Pass
Flat Roof	0	Pass	**Floors**	0.15	Pass
Floors with no underfloor heat	0.15	Pass	**External doors / windows / rooflights**	2.00	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.18	Pass			
Percentage of opening areas [%]	17.48				
Average U value of openings	1.19	Pass			
Permeability test carried out and meets guidelines in TGD L				0.179 | Pass	

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

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	PV/Wind	0.00	0.00	
+ Delivered energy	Other	0.00	0.00	
+ Delivered energy	Solar	0.00	0.00	
+ Delivered energy	Biomass	0.00	0.00	
+ Delivered energy	Biodiesel	0.00	0.00	
+ Delivered energy	Bioethanol	0.00	0.00	
+ Environmental energy	HP	4770.90	4770.90	
+ Saved energy	CHP	0.00	0.00	
+ District heating	District Heating	0.00	0.00	
+ Delivered energy	Grid	0.00	4316.61	
+ Delivered energy	Thermal	0.00	0.00	
SUBTOTAL		4770.90	9087.52	0.52 - Pass
Energy not used in Regulated Loads	PV/Wind/CHP	0.00	0.00	
TOTAL		4770.90	9087.52	0.52

Energy Requirements: Individual Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO_2 emission factor
Main space heating system	Electricity	Current	1.75	0.224
Secondary space heating system	None	Current	0.00	0.000
Main water heating system	Electricity	Current	1.75	0.224
Cooling System	None	Current	0.00	0.000
Pumps, fans	Electricity	Current	1.75	0.224
Energy for lighting	Electricity	Current	1.75	0.224

Part L Compliance – House Type B2

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Semi-detached house	**Type of BER rating**	New Dwelling - Final
Address line 1	Old Whitechurch road House type B2	**Year of Construction**	2024
Address line 2		**Date of Assessment**	17/06/2024
Address line 3		**Date of Plans**	
County	Co. Cork	**Planning Reference**	
Eircode		**Building Regulations**	2019 TGD L
BER Number		**MPRN No.**	0
Purpose of Rating	Sale	**Is MPRN shared with another dwelling?**	N/A
Assessor Name	Stephen O'Donoghue	**Assessor Number**	108540
Comment	Old Whitechurch road House type B2	**BER number assigned to shared dwelling**	N/A

Dimension Details

	Area [m^2]	Height [m]	Volume [m^3]
Ground Floor	55.25	2.45	135.36
First Floor	55.25	2.90	160.23
Second Floor	0.00	0.00	0.00
Third and other floors	0.00	0.00	0.00
Room in roof	0.00	0.00	0.00
Total Floor Area	110.50		295.59

Living Area [m^2]	15.00	**Living area percentage [%]**	13.57
No of Storeys	2		

Ventilation Details

	Number		
Chimneys	0	**Has permeability test been carried out?**	Yes
Open Flues	0	**Structure type**	N/A
Fans & Vents	1	**Is there a suspended wooden ground floor?**	No
Number of flueless combustion room heaters	0	**Percentage windows/doors draught stripped [%]**	N/A
Is there a draught lobby on main entrance?	No	**Number of sides sheltered**	2
Ventilation method	Whole-house extract ventilation	**Mechanical Ventilation Manufacturer**	N/A
Specific fan power [W/(L/s)]	0.290	**Mechanical Ventilation Model Name**	N/A
Heat exchanger efficiency [%]	N/A	**How many wetrooms (incl. kitchen)?**	N/A

Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m^{2}K]	Area [m^2]
Ground Floor - Solid		No	0.16	55.25
Non-Heat Loss Floor		N/A	0	55.25

Building Elements - Roof Details

Type	Description	U-Value [W/m^{2}K]	Area [m^2]
Pitched Roof - Insulated on Ceiling		0.15	55.32

Building Elements - Wall Details

Type	Description	U-Value [W/m^{2}K]	Area [m^2]
Other	Partial fill with internal insulated slab	0.18	97.51

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m^{2}K]	Area [m^2]
	1	0.79	2.100
	1	0.94	2.100

Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m^{2}K]	Area [m^2]
Double-glazed, argon filled	Yes	1.400	3.760
Double-glazed, argon filled	Yes	1.200	4.540
Double-glazed, argon filled	Yes	1.200	5.550
Double-glazed, argon filled (low-E, en = 0.15, hard coat)	Yes	2.000	0.760
Double-glazed, argon filled	Yes	1.200	0.530

Other Details

Thermal bridging factor [W/m²k]	0.1500	**Thermal mass category of dwelling**	Medium

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/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 System

Distribution Losses	383.27	**Combi boiler present?**	No
Supplementary electric water heating	N/A	**Water Storage Volume [L]**	170
Hot water storage manufacturer and model name	Mitsubishi EHST 17D-VM2D	**Declared loss factor [kWh/d]**	1.65
Temperature factor unadjusted	0.89	**Temperature Factor Multiplier**	0.89
Primary Circuit loss type	Boiler / heat pump and thermal store within a single casing (cylinder thermostat present)		
Is hot water storage indoors or in group heating system?	Yes	**Insulation type**	N/A
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0	**Control Category**	3	**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		

Heating System - Energy Requirements (Individual)

Main space heating system efficiency [%]	362.29	**Space heating efficiency adjustment factor**	1.0000	**Main space heating fuel**	Electricity
Main water heating system efficiency [%]	325.83	**Water heating efficiency adjustment factor**	1.0000	**Main water heating fuel**	Electricity
Secondary heating system efficiency [%]	N/A	**Fraction of heating from secondary heating 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**	N/A
CHP Fuel type	N/A				

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

BER Number		**Building Regulations**	**2019 TGD L**
BER Result	A2	**Energy Value kWh/m^2/yr**	**39.51**
CO_2 emissions [kg/m^2/yr]	5.06		
EPC	0.266	**EPC Pass/Fail**	**Pass**
CPC	0.172	**CPC Pass/Fail**	**Pass**

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	**U-value [W/m^{2}K]**	**Pass/Fail**	**Conformity with Maximum U-value requirements**	**U-Value [W/m^{2}K]**	**Pass/Fail**
Pitched roof insulated on ceiling	0.15	Pass	**Roofs**	0.15	Pass
Pitched roof insulated on slope	0	Pass	**Walls**	0.18	Pass
Flat Roof	0	Pass	**Floors**	0.16	Pass
Floors with no underfloor heat	0.16	Pass	**External doors / windows / rooflights**	2.00	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.18	Pass			
Percentage of opening areas [%]	17.50				
Average U value of openings	1.20	Pass			
Permeability test carried out and meets guidelines in TGD L				0.199 | Pass	

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

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	PV/Wind	0.00	0.00	
+ Delivered energy	Other	0.00	0.00	
+ Delivered energy	Solar	0.00	0.00	
+ Delivered energy	Biomass	0.00	0.00	
+ Delivered energy	Biodiesel	0.00	0.00	
+ Delivered energy	Bioethanol	0.00	0.00	
+ Environmental energy	HP	4892.38	4892.38	
+ Saved energy	CHP	0.00	0.00	
+ District heating	District Heating	0.00	0.00	
+ Delivered energy	Grid	0.00	4365.73	
+ Delivered energy	Thermal	0.00	0.00	
SUBTOTAL		4892.38	9258.11	0.53 - Pass
Energy not used in Regulated Loads	PV/Wind/CHP	0.00	0.00	
TOTAL		4892.38	9258.11	0.53

Energy Requirements: Individual Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO_2 emission factor
Main space heating system	Electricity	Current	1.75	0.224
Secondary space heating system	None	Current	0.00	0.000
Main water heating system	Electricity	Current	1.75	0.224
Cooling System	None	Current	0.00	0.000
Pumps, fans	Electricity	Current	1.75	0.224
Energy for lighting	Electricity	Current	1.75	0.224

Part L Compliance – House Type C

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Semi-detached house	**Type of BER rating**	New Dwelling - Final
Address line 1	Old Whitechurch road House type C	**Year of Construction**	2024
Address line 2		**Date of Assessment**	17/06/2024
Address line 3		**Date of Plans**	
County	Co. Cork	**Planning Reference**	
Eircode		**Building Regulations**	2019 TGD L
BER Number		**MPRN No.**	0
Purpose of Rating	Sale	**Is MPRN shared with another dwelling?**	N/A
Assessor Name	Brian O'Sullivan	**Assessor Number**	104915
Comment	Old Whitechurch road House type C	**BER number assigned to shared dwelling**	N/A

Dimension Details

	Area [m^2]	Height [m]	Volume [m^3]
Ground Floor	45.35	2.48	112.47
First Floor	45.35	2.90	131.52
Second Floor	0.00	0.00	0.00
Third and other floors	0.00	0.00	0.00
Room in roof	0.00	0.00	0.00
Total Floor Area	90.70		243.98

Living Area [m^2]	14.90	**Living area percentage [%]**	16.43
No of Storeys	2		

Ventilation Details

	Number		
Chimneys	0	**Has permeability test been carried out?**	Yes
Open Flues	0	**Structure type**	N/A
Fans & Vents	1	**Is there a suspended wooden ground floor?**	No
Number of flueless combustion room heaters	0	**Percentage windows/doors draught stripped [%]**	N/A
Is there a draught lobby on main entrance?	No	**Number of sides sheltered**	3
Ventilation method	Whole-house extract ventilation	**Mechanical Ventilation Manufacturer**	N/A
Specific fan power [W/(L/s)]	0.210	**Mechanical Ventilation Model Name**	N/A
Heat exchanger efficiency [%]	N/A	**How many wetrooms (incl. kitchen)?**	N/A

Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m^{2}K]	Area [m^2]
Ground Floor - Solid		No	0.15	45.35
Non-Heat Loss Floor		N/A	0	45.35

Building Elements - Roof Details

Type	Description	U-Value [W/m^{2}K]	Area [m^2]
Pitched Roof - Insulated on Ceiling		0.15	45.35

Building Elements - Wall Details

Type	Description	U-Value [W/m^{2}K]	Area [m^2]
300mm Filled Cavity		0.18	76.81
300mm Cavity		0.18	12.7

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m^{2}K]	Area [m^2]
	1	0.79	2.190

Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m^{2}K]	Area [m^2]
Double-glazed, argon filled	Yes	1.200	6.900
Double-glazed, argon filled	Yes	1.200	4.700
Double-glazed, argon filled	Yes	1.400	4.240
Double-glazed, argon filled (low-E, en = 0.15, hard coat)	Yes	2.000	1.030

Other Details

Thermal bridging factor [W/m²k]	0.1500	**Thermal mass category of dwelling**	Medium-low

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/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 System

Distribution Losses	366.85	**Combi boiler present?**	No
Supplementary electric water heating	N/A	**Water Storage Volume [L]**	170
Hot water storage manufacturer and model name	Mitsubishi EHST 17D-VM2D	**Declared loss factor [kWh/d]**	1.65
Temperature factor unadjusted	0.89	**Temperature Factor Multiplier**	0.89
Primary Circuit loss type	Boiler / heat pump and thermal store within a single casing (cylinder thermostat present)		
Is hot water storage indoors or in group heating system?	Yes	**Insulation type**	N/A
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0	**Control Category**	3	**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		

Heating System - Energy Requirements (Individual)

Main space heating system efficiency [%]	506.7	**Space heating efficiency adjustment factor**	1.0000	**Main space heating fuel**	Electricity
Main water heating system efficiency [%]	287.87	**Water heating efficiency adjustment factor**	1.0000	**Main water heating fuel**	Electricity
Secondary heating system efficiency [%]	N/A	**Fraction of heating from secondary heating 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**	N/A
CHP Fuel type	N/A				

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

BER Number		**Building Regulations**	**2019 TGD L**
BER Result	A2	**Energy Value kWh/m^2/yr**	**38.81**
CO_2 emissions [kg/m^2/yr]	4.97		
EPC	0.242	**EPC Pass/Fail**	**Pass**
CPC	0.158	**CPC Pass/Fail**	**Pass**

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	**U-value [W/m^{2}K]**	**Pass/Fail**	**Conformity with Maximum U-value requirements**	**U-Value [W/m^{2}K]**	**Pass/Fail**
Pitched roof insulated on ceiling	0.15	Pass	**Roofs**	0.15	Pass
Pitched roof insulated on slope	0	Pass	**Walls**	0.18	Pass
Flat Roof	0	Pass	**Floors**	0.15	Pass
Floors with no underfloor heat	0.15	Pass	**External doors / windows / rooflights**	2.00	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.18	Pass			
Percentage of opening areas [%]	21.01				
Average U value of openings	1.24	Pass			
Permeability test carried out and meets guidelines in TGD L				0.249 | Pass	

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

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	PV/Wind	0.00	0.00	
+ Delivered energy	Other	0.00	0.00	
+ Delivered energy	Solar	0.00	0.00	
+ Delivered energy	Biomass	0.00	0.00	
+ Delivered energy	Biodiesel	0.00	0.00	
+ Delivered energy	Bioethanol	0.00	0.00	
+ Environmental energy	HP	4683.70	4683.70	
+ Saved energy	CHP	0.00	0.00	
+ District heating	District Heating	0.00	0.00	
+ Delivered energy	Grid	0.00	3520.01	
+ Delivered energy	Thermal	0.00	0.00	
SUBTOTAL		4683.70	8203.70	0.57 - Pass
Energy not used in Regulated Loads	PV/Wind/CHP	0.00	0.00	
TOTAL		4683.70	8203.70	0.57

Energy Requirements: Individual Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO_2 emission factor
Main space heating system	Electricity	Current	1.75	0.224
Secondary space heating system	None	Current	0.00	0.000
Main water heating system	Electricity	Current	1.75	0.224
Cooling System	None	Current	0.00	0.000
Pumps, fans	Electricity	Current	1.75	0.224
Energy for lighting	Electricity	Current	1.75	0.224

Part L Compliance – House Type D

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Mid-terrace house	**Type of BER rating**	New Dwelling - Final
Address line 1	Old Whitechurch road House type D	**Year of Construction**	2024
Address line 2		**Date of Assessment**	17/06/2024
Address line 3		**Date of Plans**	
County	Co. Cork	**Planning Reference**	
Eircode		**Building Regulations**	2019 TGD L
BER Number		**MPRN No.**	0
Purpose of Rating	Sale	**Is MPRN shared with another dwelling?**	N/A
Assessor Name	Stephen O'Donoghue	**Assessor Number**	108540
Comment	Old Whitechurch road House type D	**BER number assigned to shared dwelling**	N/A

Dimension Details

	Area [m^2]	Height [m]	Volume [m^3]
Ground Floor	45.03	2.45	110.32
First Floor	45.03	2.90	130.59
Second Floor	0.00	0.00	0.00
Third and other floors	0.00	0.00	0.00
Room in roof	0.00	0.00	0.00
Total Floor Area	90.06		240.91

Living Area [m^2]	33.60	**Living area percentage [%]**	37.31
No of Storeys	2		

Ventilation Details

	Number		
Chimneys	0	**Has permeability test been carried out?**	Yes
Open Flues	0	**Structure type**	N/A
Fans & Vents	1	**Is there a suspended wooden ground floor?**	No
Number of flueless combustion room heaters	0	**Percentage windows/doors draught stripped [%]**	N/A
Is there a draught lobby on main entrance?	No	**Number of sides sheltered**	2
Ventilation method	Whole-house extract ventilation	**Mechanical Ventilation Manufacturer**	N/A
Specific fan power [W/(L/s)]	0.260	**Mechanical Ventilation Model Name**	N/A
Heat exchanger efficiency [%]	N/A	**How many wetrooms (incl. kitchen)?**	N/A

Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m^{2}K]	Area [m^2]
Ground Floor - Solid		No	0.13	45.03
Non-Heat Loss Floor		N/A	0	45.03

Building Elements - Roof Details

Type	Description	U-Value [W/m^{2}K]	Area [m^2]
Pitched Roof - Insulated on Ceiling		0.15	45.03

Building Elements - Wall Details

Type	Description	U-Value [W/m^{2}K]	Area [m^2]
Other	Partial fill cavity with insulated slab internally	0.18	37.43

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m^{2}K]	Area [m^2]
	1	0.79	2.100

Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m^{2}K]	Area [m^2]
Double-glazed, argon filled	Yes	1.400	3.920
Double-glazed, argon filled	Yes	1.200	4.220
Double-glazed, argon filled (low-E, en = 0.15, hard coat)	Yes	2.000	0.750
Double-glazed, argon filled	Yes	1.200	4.880

Other Details

Thermal bridging factor [W/m²k]	0.1500	**Thermal mass category of dwelling**	Medium-high

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/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 System

Distribution Losses	366.07	**Combi boiler present?**	No
Supplementary electric water heating	N/A	**Water Storage Volume [L]**	170
Hot water storage manufacturer and model name	Mitsubishi EHST 17D-VM2D	**Declared loss factor [kWh/d]**	1.65
Temperature factor unadjusted	0.89	**Temperature Factor Multiplier**	0.89
Primary Circuit loss type	Boiler / heat pump and thermal store within a single casing (cylinder thermostat present)		
Is hot water storage indoors or in group heating system?	Yes	**Insulation type**	N/A
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0	**Control Category**	3	**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		

Heating System - Energy Requirements (Individual)

Main space heating system efficiency [%]	508.04	**Space heating efficiency adjustment factor**	1.0000	**Main space heating fuel**	Electricity
Main water heating system efficiency [%]	325.83	**Water heating efficiency adjustment factor**	1.0000	**Main water heating fuel**	Electricity
Secondary heating system efficiency [%]	N/A	**Fraction of heating from secondary heating 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**	N/A
CHP Fuel type	N/A				

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

BER Number		**Building Regulations**	**2019 TGD L**
BER Result	A2	**Energy Value kWh/m^2/yr**	**32.90**
CO_2 emissions [kg/m^2/yr]	4.21		
EPC	0.221	**EPC Pass/Fail**	**Pass**
CPC	0.145	**CPC Pass/Fail**	**Pass**

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	**U-value [W/m^{2}K]**	**Pass/Fail**	**Conformity with Maximum U-value requirements**	**U-Value [W/m^{2}K]**	**Pass/Fail**
Pitched roof insulated on ceiling	0.15	Pass	**Roofs**	0.15	Pass
Pitched roof insulated on slope	0	Pass	**Walls**	0.18	Pass
Flat Roof	0	Pass	**Floors**	0.13	Pass
Floors with no underfloor heat	0.13	Pass	**External doors / windows / rooflights**	2.00	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.18	Pass			
Percentage of opening areas [%]	17.62				
Average U value of openings	1.23	Pass			
Permeability test carried out and meets guidelines in TGD L				0.19 | Pass	

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

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	PV/Wind	0.00	0.00	
+ Delivered energy	Other	0.00	0.00	
+ Delivered energy	Solar	0.00	0.00	
+ Delivered energy	Biomass	0.00	0.00	
+ Delivered energy	Biodiesel	0.00	0.00	
+ Delivered energy	Bioethanol	0.00	0.00	
+ Environmental energy	HP	3930.48	3930.48	
+ Saved energy	CHP	0.00	0.00	
+ District heating	District Heating	0.00	0.00	
+ Delivered energy	Grid	0.00	2963.37	
+ Delivered energy	Thermal	0.00	0.00	
SUBTOTAL		3930.48	6893.85	0.57 - Pass
Energy not used in Regulated Loads	PV/Wind/CHP	0.00	0.00	
TOTAL		3930.48	6893.85	0.57

Energy Requirements: Individual Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO_2 emission factor
Main space heating system	Electricity	Current	1.75	0.224
Secondary space heating system	None	Current	0.00	0.000
Main water heating system	Electricity	Current	1.75	0.224
Cooling System	None	Current	0.00	0.000
Pumps, fans	Electricity	Current	1.75	0.224
Energy for lighting	Electricity	Current	1.75	0.224