Domestic BER Case Study in DEAP – Semi-detached 3-storey dwelling

DEAP is the official procedure for the calculation of energy performance of domestic buildings in Ireland for the purposes of producing Building Energy Ratings (BER) and demonstrating compliance with Part L of the Building Regulations for Domestic Buildings.

This Case study document provides the survey information that was used for uploading to DEAP 4 to publish the included BER Cert, Advisory report and dwelling report.

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Table of Contents

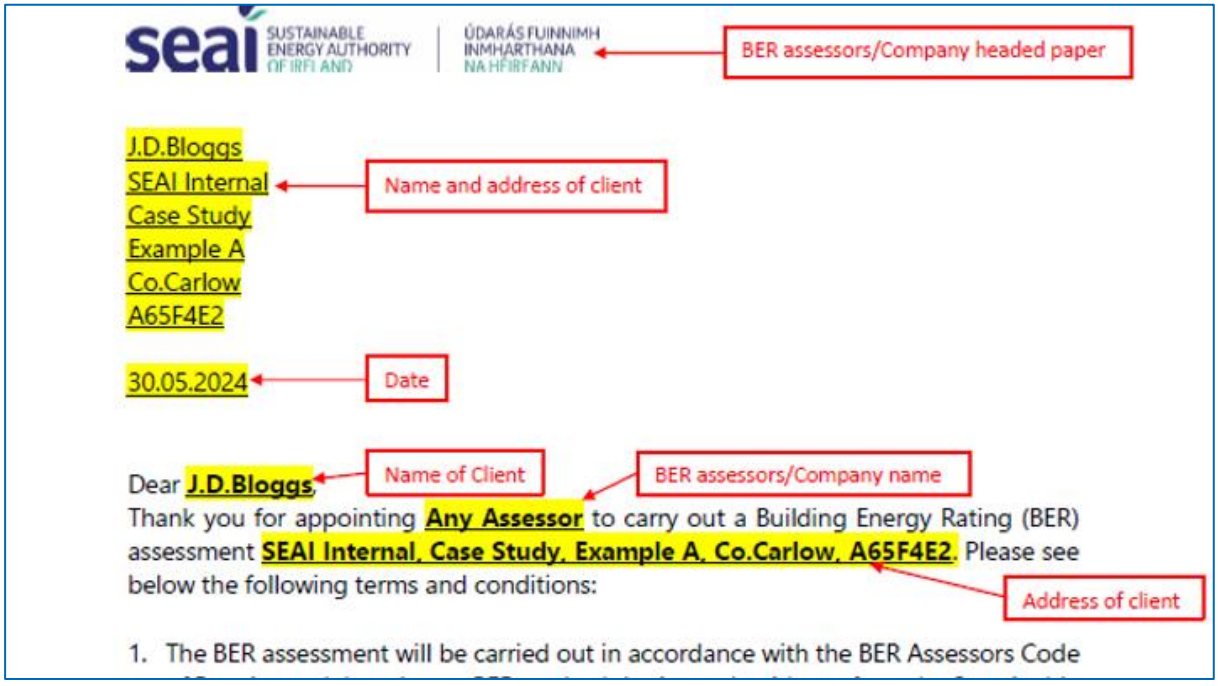
1. About this document

The document contains the required documentation and photos to support the publication of the BER cert and advisory report. The documents are in a chronological order from the start of the process to completion as listed below.

- Letter of Engagement
- Homeowner checklist
- Survey Form
- Plan/Sketch of dwelling
- Photo checklist External
- Photo checklist internal
- Thumbnail evidence images of dwelling
- Dwelling report
- BER cert
- Advisory report
- Customers documentary evidence

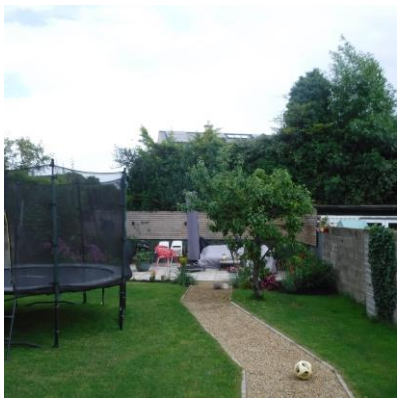
Throughout the documents the required entry field for **this*** case study are highlighted to assist the assessor in understanding what information is required to be populate or gathered for a similar assessment.

Example



2. Dwelling details





Dwelling type and brief details
The dwelling is a 3-storey semi-detached house built in 1954 with an extensive renovation and extension carried out in 2021, the ground floor plan comprises of hallway, bedroom 1, Living area, sitting room, kitchen/diner, W/C shower and a plant room. First floor plan comprises of landing area, 3 bedrooms and a bathroom. Second floor has a fifth bedroom and a store.

Structure type
Ground floor is solid which is broken into 3 sections – Original construction floor, new extension to the front and new extension to the rear. First floor comprises of a large non-heat loss floor – original construction as does the second floor. Main Roof is a room in roof - insulated on side, there are 4 other smaller roof areas – two Pitched roof - insulation on ceiling, Pitched roof - insulation on rafter and a Flat roof. The wall on the original dwelling is retrofitted external wall insulated on the outside, a small section of the original wall adjacent to the unheated garage is Type – Unknown and the extension walls are 300mm cavity. Windows consist of Double-glazed air filled and Double-glazed Argon-Low E. Main front door is solid as are the 2 additional external doors.

Ventilation
Ventilation is natural ventilation, there are intermittent fans and a flue present.

Space and water Heating
Main space heating is an Air to water Heat Pump servicing a underfloor heating system controlled by a programmer, room temperature sensors, secondary space heating is an Bioethanol fire, flueless. Water heating is serviced from another Air to water Heat Pump with integral Hot water storage, it has separate time control of the DHW.

Cooling
There is **NO** Cooling present.

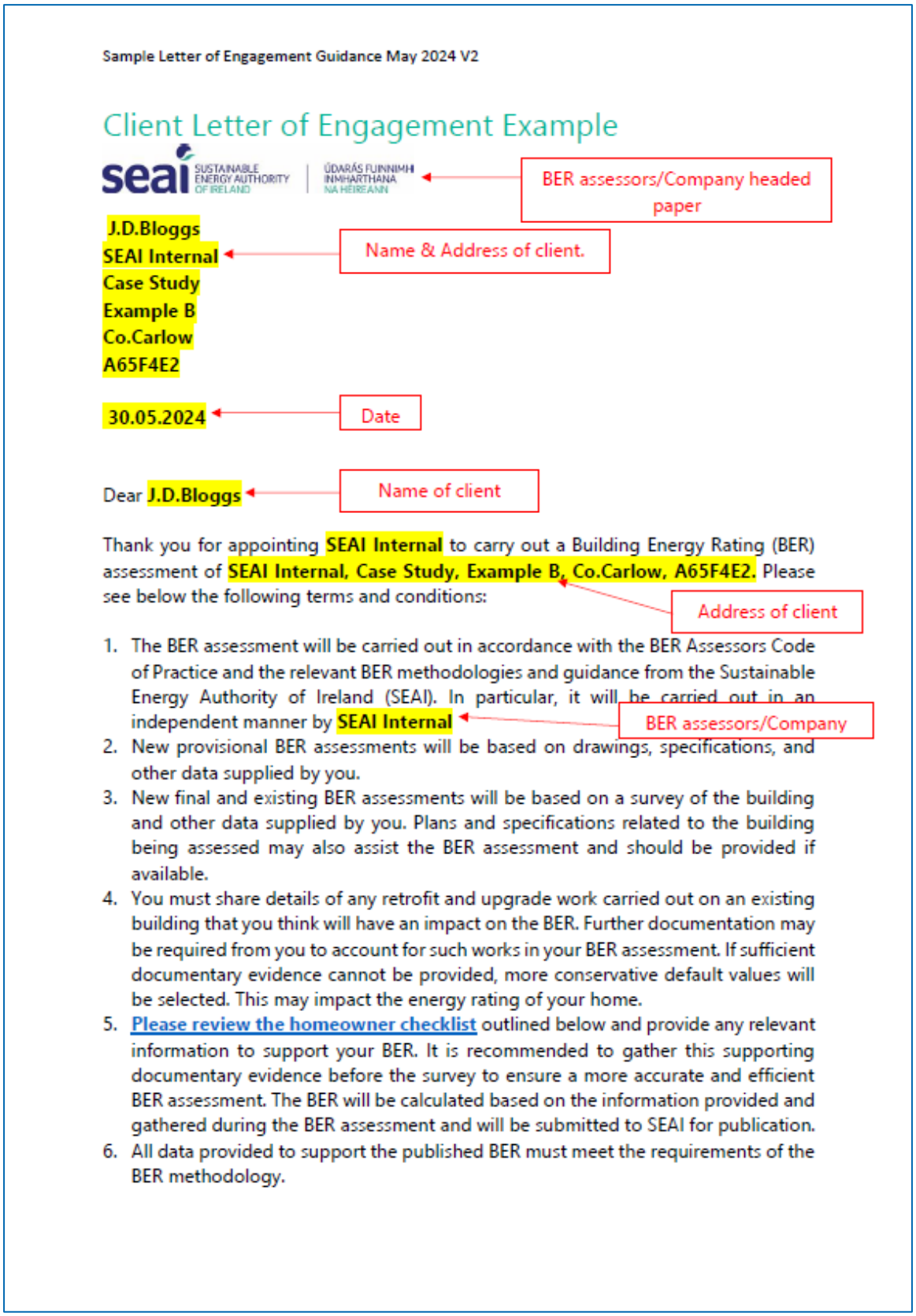
Lighting
There is a mix of lighting types – LED/CFL/ and Incandescent.

Renewables
There are **NO** Renewables present.

Retrofit Works.
The main external walls on the original dwelling have been externally wrapped, Extension walls where newly built as 300mm cavity.

3. Letter of Engagement

The letter of engagement outlines the agreement and conditions between the Assessor and the Homeowner, it also provides the homeowner with important information on what details/documents will be required by the Assessor in order to provide a BER that best represents their dwelling. The letter of engagement should be provided and signed prior to the assessment taking place, this could be emailed to the client prior to visiting the dwelling along with the Homeowner Checklist.



Sample Letter of Engagement Guidance May 2024 V2

Client Letter of Engagement Example

seai SUSTAINABLE ENERGY AUTHORITY OF IRELAND | ÚDARÁS FUINNIMH INMHARTHANA NA HÉIREANN

BER assessors/Company headed paper

J.D.Bloggs
SEAI Internal
Case Study
Example B
Co.Carlow
A65F4E2

Name & Address of client.

30.05.2024

Date

Dear J.D.Bloggs

Name of client

Thank you for appointing SEAI Internal to carry out a Building Energy Rating (BER) assessment of SEAI Internal, Case Study, Example B, Co.Carlow, A65F4E2. Please see below the following terms and conditions:

Address of client

1. The BER assessment will be carried out in accordance with the BER Assessors Code of Practice and the relevant BER methodologies and guidance from the Sustainable Energy Authority of Ireland (SEAI). In particular, it will be carried out in an independent manner by SEAI Internal
2. New provisional BER assessments will be based on drawings, specifications, and other data supplied by you.
3. New final and existing BER assessments will be based on a survey of the building and other data supplied by you. Plans and specifications related to the building being assessed may also assist the BER assessment and should be provided if available.
4. You must share details of any retrofit and upgrade work carried out on an existing building that you think will have an impact on the BER. Further documentation may be required from you to account for such works in your BER assessment. If sufficient documentary evidence cannot be provided, more conservative default values will be selected. This may impact the energy rating of your home.
5. Please review the homeowner checklist outlined below and provide any relevant information to support your BER. It is recommended to gather this supporting documentary evidence before the survey to ensure a more accurate and efficient BER assessment. The BER will be calculated based on the information provided and gathered during the BER assessment and will be submitted to SEAI for publication.
6. All data provided to support the published BER must meet the requirements of the BER methodology.

BER assessors/Company

7. Under SI 243/2012, the BER data file may be made available to (i) the BER assessor that carried out the relevant BER assessment (or their employer), (ii) a BER assessor undertaking any subsequent BER assessment of the relevant building (or their employer) or (iii) the relevant building owner (or an agent acting on behalf of the owner) via a BER assessor. The 'BER data file' is an electronic file that contains a report on the outcome of a BER assessment of a particular building, which is completed by a BER assessor and provided to SEAI to notify it of the record to be made or updated on the BER register in respect of that particular building and includes any calculations and related data or documents accompanying that report.
8. Copies of all information and documentation that you supply to me in connection with this application (whether requested by me/us or otherwise) will become the property of SEAI.
9. **We/I** will maintain confidentially and appropriate security measures in dealing with personal data. BER assessors are not permitted to make any disclosures to other parties with the limited exceptions to these requirements being the disclosure of information required by law and disclosure to SEAI or its authorised officers.
10. Any personal data collected as a part of the BER assessment or provided to SEAI will be processed in accordance with the provisions of applicable data protection law in force in Ireland (including Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 and the Data Protection Act 2018 as may be amended from time to time). You can find my/our privacy notice here **insert BER assessor/employer privacy notice.** For information on how SEAI processes your personal data please visit the SEAI website https://www.seai.ie/publications/BER-Privacy-Notice.pdf .
11. **SEAI Internal** ~~and SEAI shall have no responsibility for any loss or damage that~~ may arise from the Building Energy Rating assessment BER assessors/Company
12. The methodology used for the BER assessment incorporates standard occupancy assumptions and a range of technical judgments on the energy efficiency of various building components and attributes. A BER may change over time due to many factors including deterioration or modification to the building, or an update to the BER calculation methodologies or the documentation available to support inputs at the time of the assessment. As a result, an energy rating is only a guide to the overall energy efficiency of a building. In practice, energy efficiency is highly dependent on how occupants use the building.
13. Registered BER Assessors have an ongoing responsibility to ensure the accuracy and independence of the BER certificates they issue. For that purpose, in some instances, your BER may be selected by SEAI for an audit and an auditor may be required to visit the site for an inspection. You or the owner or subsequent owner of the building may be requested to facilitate the audit. If you decide not to facilitate such a request, SEAI may decide to revoke the relevant BER Certificate.
14. The fee for the BER Assessment will be **€insert amount** ~~including~~ VAT. This fee is inclusive of all costs including payment to SEAI for publication of the BER assessment. Cost

Please confirm your agreement with this Letter of Engagement by signing the acceptance form below and returning it before the BER assessment.

I **Any Assessor** are happy to accept this assignment based on the above terms and conditions.

Assessor Name and signature

Yours sincerely,

BER Assessor signature

BER Assessor name

Client Acceptance of Letter of Engagement

Name of client

Assessor Name

I/We, J.D.Bloggs agree to appoint insert **Any Assessor** to carry out a BER assessment of **SEAI Internal, Case Study, Example B, Co.Carlow, A65F4E2.**

Name & Address of building

I/We acknowledge that I/we have been requested by the BER Assessor to provide documentation (if available) on any energy-related works that were carried out on the dwelling that may affect the BER assessment.

I/We wish to provide the following information to support the BER assessment (leave blank if unknown):

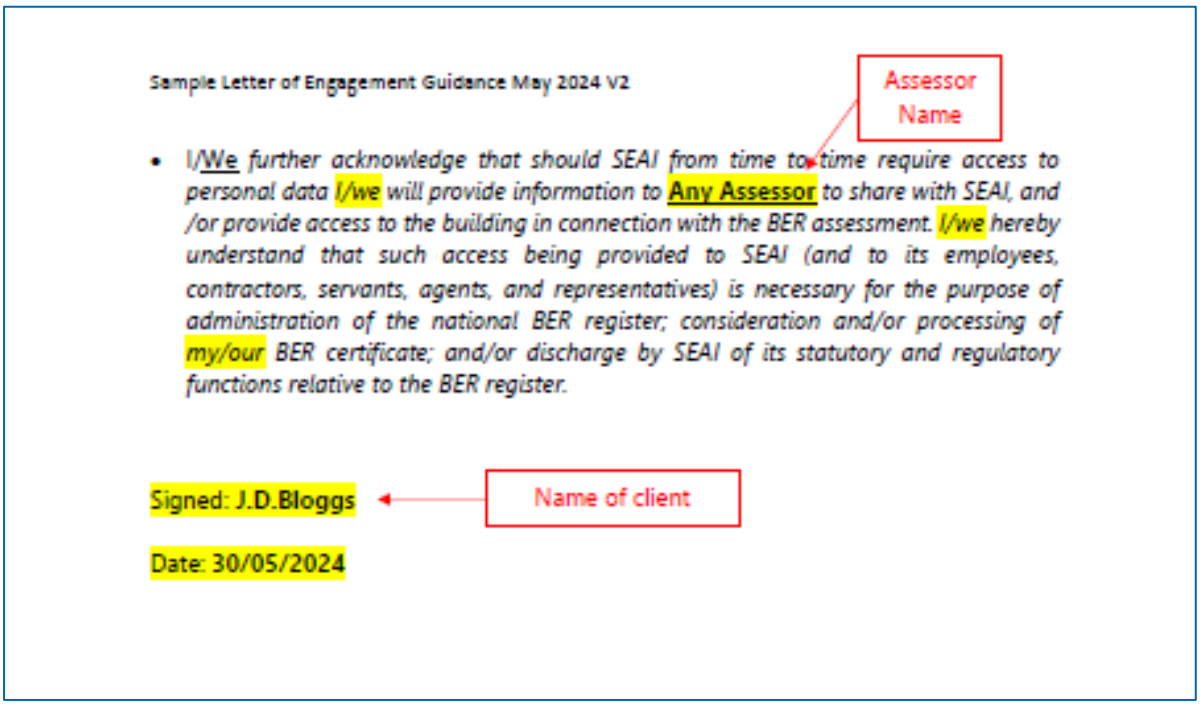
Construction year of original dwelling: **1950**

Dwelling Age

Construction year of any/each extension: **2010**

Extension Age if applicable

- *I/We accept that any supporting information I/we provided the BER Assessor is accurate and confirm that I/we acknowledge and accept the above terms and conditions outlined in this Letter of Engagement.*
- *I/We confirm that I/we have read the enclosed checklist and understand what is required of me/us to undertake this BER assessment.*



4. Homeowner Checklist

The Homeowner checklist was developed to assist homeowners in preparing for the BER prior to the BER assessors site visit, it helps the homeonwer in determining what documention and information to have to hand in order to streamline the assesment and publishing process. If the homeowner is not already familiar with this document, It is advisable prior to the assessor visiting the dwelling to bring this document to the homeowners attention possibiliy including it with the letter of engagement.

1	***Step 1 – Engaging your assessor*** ***Use this checklist to engage your chosen BER assessment***	✓
1.1	***Quote received and agreed and Letter of Engagement in place with BER assessor.***	
1.2	***Confirm your postal address and Eircode.*** *These will appear on your BER certificate.*	
1.3	***Confirm your MPRN.*** *You will find your Meter Point Reference Number (MPRN) on a household electricity bill.*	
1.4	***Discuss checklist (below) in advance with your BER assessor*** *BER assessor can address any queries you may have on the documentation.*	
1.5	***Ensure all home improvements are complete before scheduling your survey.*** *Request all documentation of completed works from your contractor.*	
1.6	***Let your assessor know if you wish to discuss the BER result before publication.***	

Step 2 – Prepare the relevant paperwork for your BER assessment
Before your BER Assessor visits your home, you will need to prepare for your BER assessment. This includes gathering documentary evidence for works done on your home, to ensure you are receiving the most accurate BER rating.
Having all your documents and paperwork prepared prior to your BER assessment will significantly reduce the time it takes to receive your BER Certificate and Advisory Report.

In the absence of relevant documents, your BER assessor will be required to use default values, which are conservative estimates of the performance of certain aspects of your home. This may result in your home receiving a lower BER rating. Using this checklist will help minimise the use of default values to calculate your BER.

2	***Step 2 – Prepare the relevant paperwork for your BER assessment*** ***Use this checklist to ensure you have all the required documents (if applicable to you) which will ensure a more accurate BER assessment rating.***	✓.
2.1	***Age of Construction*** *Proof of the year the house was built and proof of the age of any extensions added to the house (if applicable) for example:* • *Legal documents such as planning notice/commencement notice or* • *OSI maps for maps from 2005, 2000, 1995 or* • *Homeowner confirmation in writing*	
2.2	***Plans or specifications of the house (if available)***	
2.3	***Details of any insulation upgrade works installed (if applicable)*** • *As-built drawings/specifications (signed off by the architect, engineer or assigned certifier stating the type & thickness of insulation installed or* • *Copies of invoices with detailed description of materials (e.g. insulation type, thickness and quantity) or* • *Report of works signed off by a contractor showing the area of surface insulated, insulation thickness and type or* *Photographs showing insulation type and thickness*	
2.4	***Details of any window upgrade works (if applicable)*** • *Photographs (e.g., showing frame/glazing),* • *Confirmation of window type/glazing specification installed through As-Built Drawings/ Specifications or Invoices* • *Certification of the U-value and solar transmittance in the form of the Declaration of Performance or other appropriate accredited certification such as NSAI WEP (Window Energy Performance) scheme or BFRC.*	
2.5	***Details of any door upgrade works (if applicable)*** • *Documentary evidence of door type installed, and* • *Certification of the U-value in the form of the Declaration of Performance or other appropriate accredited certification.*	
2.6	***Results of any air tightness tests completed (if applicable)*** *Ensure that the test was carried out by a registered air tightness tester, an individual or organisation competent to do so (NSAI or INAB accreditation for example).*	
2.7	***Information on the heat pump installed (if applicable)*** • *Information used to support non-default efficiency (e.g. Ecodesign data, EN 16147 data and designer/installer sign-off sheet for heat pumps, accredited test certificates, etc.);* • *Where Ecodesign documentation is used, an additional declaration from the manufacturer is needed for the use of parameters not required to be included in Ecodesign Product Information.* • *For non-default flow temperatures for heat pumps, heating design sheets & radiator technical data sheets*	

Step 3 – Prepare your home for your BER assessment

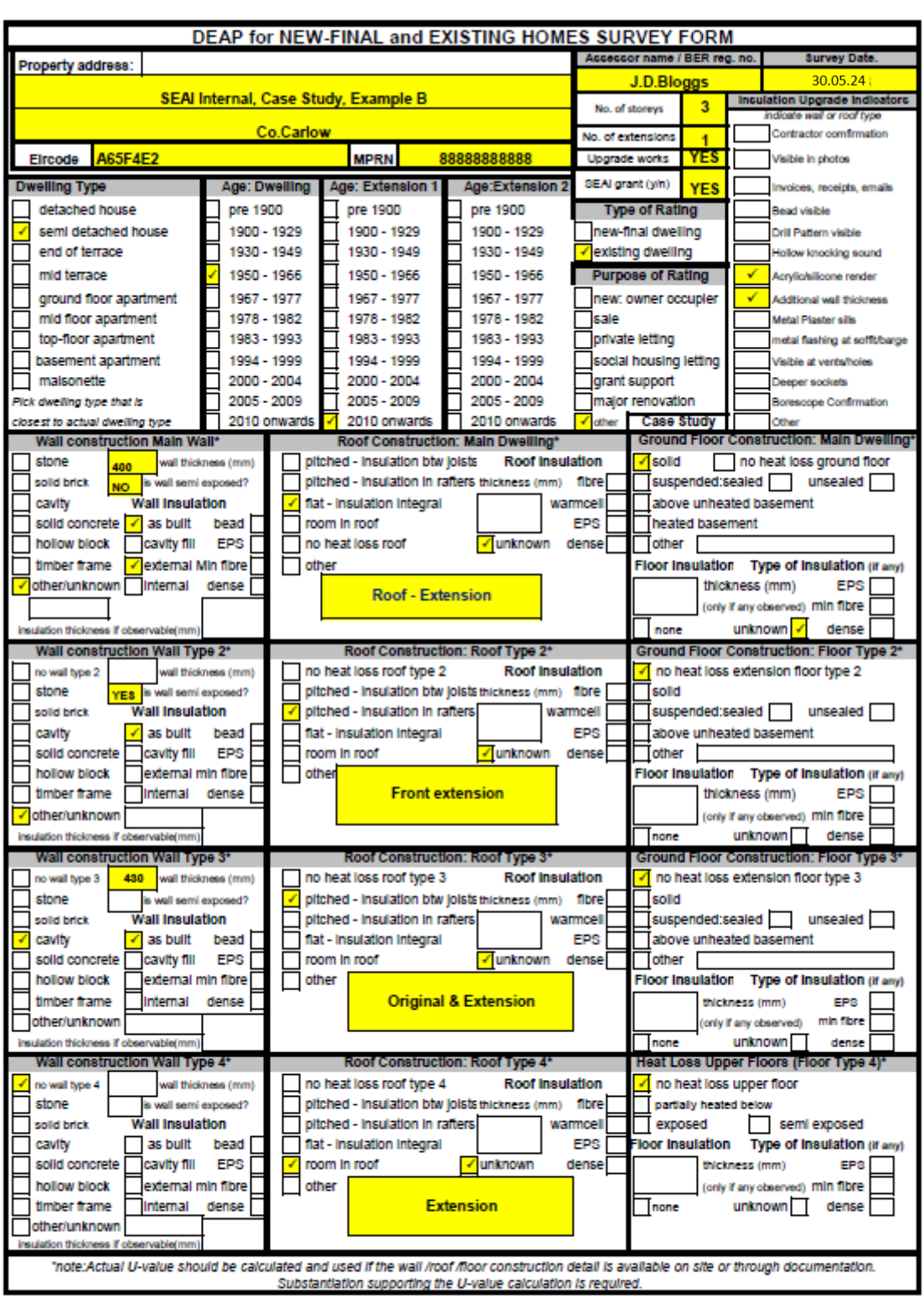
What should I expect when a BER Assessor calls to my home?
Your BER is calculated based on the amount of energy your home requires for space heating, hot water heating, ventilation, the building fabric, and lighting. To complete this calculation, your BER Assessor will need to collect information on various aspects of your home.
To collect this information, your BER Assessor will need access to all areas of your home including the attic, lighting systems, ventilation, meter cupboards, heating systems and controls, hot press and all doors and windows.
During the BER assessment, you BER Assessor will collect information which will include several calculations, measurements, and photographic evidence of each of these aspects of your home.

3	***Step 3 – Prepare your home for your BER assessment*** ***Use this checklist to ensure your assessor can obtain all the information needed while in your home***	✓.
3.1	***Ensure all areas in your house are unlocked and accessible including attic and garage.***	
3.2	***Ensure any outdoor buildings containing heating appliances are unlocked and accessible.***	
3.3	***Identify the areas in your home that have been extended or upgraded***	
3.4	***Identify the heating system and heating controls***	
3.5	***Ask your assessor if the documentation you have provided is sufficient to fully take account of all of your upgrades.*** *It may be the case that the documentation did not meet the requirements. This may provide you with an opportunity to source further documentation.*	

4	***Step 4 – Post BER*** ***Use this checklist to ensure your following the completion of your BER***	✓.
4.1	***Retain a copy of all documentation supporting the inputs in your BER*** *This is a record of all upgrades in your home and is important documentation. You may need this evidence for future BERs.*	
4.2	***Check your published BER*** *You can check your published BER and download a copy of your BER certificate and advisory report here.*	
4.3	***Contact your BER assessor if you have any questions regarding your published BER or advisory report***	

5. Survey Form

The DEAP Survey Form (Appendix I) assists BER Assessors in ensuring that they have gathered all the necessary data during the survey. This includes data regarding the dimensions, building age, building fabric elements, relevant items per room, heating system(s), hot water services, heating controls and lighting. This will generally be accompanied by dwelling sketches, architectural drawings and/or specifications and comments related to various aspects of the site survey.



DEAP for NEW-FINAL and EXISTING HOMES SURVEY FORM

Property address: SEAI Internal, Case Study, Example B, Co.Carlow
Eircode: A65F4E2 MPRN: 88888888888
Assessor name / BER reg. no.: J.D.Bloggs
Survey Date: 30.05.24
No. of storeys: 3
No. of extensions: 1
Upgrade works: YES
SEAI grant (y/n): YES

Dwelling Type: detached house; semi detached house; end of terrace; mid terrace; ground floor apartment; mid floor apartment; top-floor apartment; basement apartment; maisonette. Pick dwelling type that is closest to actual dwelling type
Age: Dwelling: pre 1900; 1900 - 1929; 1930 - 1949; 1950 - 1966; 1967 - 1977; 1978 - 1982; 1983 - 1993; 1994 - 1999; 2000 - 2004; 2005 - 2009; 2010 onwards
Age: Extension 1: pre 1900; 1900 - 1929; 1930 - 1949; 1950 - 1966; 1967 - 1977; 1978 - 1982; 1983 - 1993; 1994 - 1999; 2000 - 2004; 2005 - 2009; 2010 onwards
Age:Extension 2: pre 1900; 1900 - 1929; 1930 - 1949; 1950 - 1966; 1967 - 1977; 1978 - 1982; 1983 - 1993; 1994 - 1999; 2000 - 2004; 2005 - 2009; 2010 onwards; other
Type of Rating: new-final dwelling; existing dwelling
Purpose of Rating: new: owner occupier; sale; private letting; social housing letting; grant support; major renovation; Case Study
Insulation Upgrade Indicators (indicate wall or roof type): Contractor confirmation; Visible in photos; Invoices, receipts, emails; Bead visible; Drill Pattern visible; Hollow knocking sound; Acrylic/silicone render; Additional wall thickness; Metal Plaster sills; metal flashing at soffit/barge; Visible at vents/holes; Deeper sockets; Borescope Confirmation; Other

Wall construction Main Wall*: stone; solid brick; cavity; solid concrete; hollow block; timber frame; other/unknown. wall thickness (mm): 400. is wall semi exposed?: NO. Wall Insulation: as built; cavity fill; external; internal. bead; EPS; Min fibre; dense. Insulation thickness if observable(mm)
Roof Construction: Main Dwelling*: pitched - insulation btw joists; pitched - insulation in rafters; flat - insulation integral; room in roof; no heat loss roof; other. Roof Insulation thickness (mm); fibre; warmcell; EPS; dense; unknown. Roof - Extension
Ground Floor Construction: Main Dwelling*: solid; no heat loss ground floor; suspended:sealed; unsealed; above unheated basement; heated basement; other. Floor Insulation thickness (mm) (only if any observed); Type of Insulation (if any): EPS; min fibre; dense; none; unknown

Wall construction Wall Type 2*: no wall type 2; stone; solid brick; cavity; solid concrete; hollow block; timber frame; other/unknown. wall thickness (mm); is wall semi exposed?: YES. Wall Insulation: as built; cavity fill; external; internal. bead; EPS; min fibre; dense. Insulation thickness if observable(mm)
Roof Construction: Roof Type 2*: no heat loss roof type 2; pitched - insulation btw joists; pitched - insulation in rafters; flat - insulation integral; room in roof; other. Roof Insulation thickness (mm); fibre; warmcell; EPS; dense; unknown. Front extension
Ground Floor Construction: Floor Type 2*: no heat loss extension floor type 2; solid; suspended:sealed; unsealed; above unheated basement; other. Floor Insulation thickness (mm) (only if any observed); Type of Insulation (if any): EPS; min fibre; dense; none; unknown

Wall construction Wall Type 3*: no wall type 3; stone; solid brick; cavity; solid concrete; hollow block; timber frame; other/unknown. wall thickness (mm): 430. is wall semi exposed?. Wall Insulation: as built; cavity fill; external; internal. bead; EPS; min fibre; dense. Insulation thickness if observable(mm)
Roof Construction: Roof Type 3*: no heat loss roof type 3; pitched - insulation btw joists; pitched - insulation in rafters; flat - insulation integral; room in roof; other. Roof Insulation thickness (mm); fibre; warmcell; EPS; dense; unknown. Original & Extension
Ground Floor Construction: Floor Type 3*: no heat loss extension floor type 3; solid; suspended:sealed; unsealed; above unheated basement; other. Floor Insulation thickness (mm) (only if any observed); Type of Insulation (if any): EPS; min fibre; dense; none; unknown

Wall construction Wall Type 4*: no wall type 4; stone; solid brick; cavity; solid concrete; hollow block; timber frame; other/unknown. wall thickness (mm); is wall semi exposed?. Wall Insulation: as built; cavity fill; external; internal. bead; EPS; min fibre; dense. Insulation thickness if observable(mm)
Roof Construction: Roof Type 4*: no heat loss roof type 4; pitched - insulation btw joists; pitched - insulation in rafters; flat - insulation integral; room in roof; other. Roof Insulation thickness (mm); fibre; warmcell; EPS; dense; unknown. Extension
Heat Loss Upper Floors (Floor Type 4)*: no heat loss upper floor; partially heated below; exposed; semi exposed. Floor Insulation thickness (mm) (only if any observed); Type of Insulation (if any): EPS; min fibre; dense; none; unknown

*note:Actual U-value should be calculated and used if the wall /roof /floor construction detail is available on site or through documentation. Substantiation supporting the U-value calculation is required.

Total Floor Areas, Heat Loss Floor Areas, Gross Heat Loss Wall Areas, Gross Heat Loss Roof Areas, Storey Heights* (Internal dimensions only)

	Storey height (m)	Total floor area (m^2)	Heatloss Floor 1 Area (m^2)	Heatloss Floor 2 Area (m^2)	Heatloss Floor 3 Area (m^2)	Heatloss Floor 4 Area (m^2)	Heatloss Perimeter (m)	Heatloss Wall 1 Area (m^2)	Heatloss Wall 2 Area (m^2)	Heatloss Wall 3 Area (m^2)	Heatloss Wall 4 Area (m^2)	Heatloss Roof 1 Area (m^2)	Heatloss Roof 2 Area (m^2)	Heatloss Roof 3 Area (m^2)	Heatloss Roof 4 Area (m^2)
Ground / Lowest Floor	2.64	116.8	49.6				7.6	41.49	12.04	66.78		37.14	21.37	12	3.2
First / Next Floor	2.76	61.33		18.74			13.34								32/1.8RIR
Second / Next Floor	1.8	32			46.46		21.47								
Third / Next Floor															
Basement															

living area (m^2)	room in roof area (m^2)	perimeter/total ground floor (PA) ratio			% draughtstripping	Lighting design known (yes/no)? If yes, keep Wattage /Lumens proof on file.	Thermal mass	light	med	heavy
15.8	82.81	F type#1: 0.16	F type#2: 0.68	F type#3: 0.48	100%	NO	external wall		✓	
							floor		✓	
							separating walls			✓
							internal walls	✓		
							Overall thermal mass		MEDIUM	

Room by Room record (use more than 1 row for a room if required)

	OPENING DATA										ROOM DATA					
Room	Opening	opening dimensions (W x H or m^2)	Glazing details	Frame	Gap	over shading	direction	Wall / roof type	# of openable windows/ doors / attic hatches?	# windows/ doors/ hatches with draught stripping	Chimney or Flueless	Open Flues	Fans / vents	Rads with or w/o TRVs?	Number of fixed lights	What type of fixed lights? Use more than 1 row if needed
Living	W1	3.68	D	PVC	12mm	Aver.	SW	Wall	2	2				UFH	1	CFL
HALL	D1	1.91	18%	PVC	6mm	Aver.	SW	Wall	1	1				UFH	6	LEDs
	W2x2	1.729	D	PVC	12mm	Aver.	SW	Wall	0	0						
BD1	W3	2.64	D	PVC	12mm	Aver.	SW	Wall	1	1				UFH	6	LEDs
	D2	1.83	28%	PVC	12mm	Aver.	SW	Wall	1	1						
Shower	W4	0.57	D	PVC	12mm	MTAver.	NW	Wall	1	1				UFH	3	LEDs
Plant Room	W5	0.81	D	PVC	12mm	MTAver.	NW	Wall	1	1				UFH	4	LEDs
	D3	1.77	27%	PVC	12mm	MTAver.	NW	Wall	1	1						
Kit-Diner	W8	2.48	D	PVC	12mm	Aver.	NE	Wall	2	2			1	UFH	16	2 Ino.
	W7	6.48	D	M	12mm	Aver.	NE	Wall	1	1				UFH		11 LEDs
	RLx3	9.32	R	W/PVC	6mm	VL	Horiz	Roof	0	0				UFH		3 CFL
Sitting Room												1		UFH	1	CFL
BD4	W8&W9	2.28	W	PVC	12mm	Aver.	SW	Wall	2	2				UFH	1	CFL
Landing	W10	1.15	W	PVC	12mm	Aver.	SW	Wall	1	1				UFH	1	CFL
BD3	W11	1.14	W	PVC	12mm	Aver.	SW	Wall	1	1				UFH	1	CFL
Bath	W12	1.08	W	PVC	12mm	Aver.	NE	Wall	1	1				UFH	6	LEDs
BD2	W13	2.83	W	PVC	12mm	Aver.	NE	Wall	1	1				UFH	1	CFL
BD6	RLx3	2.43	R	W/PVC	6mm	VL	Horiz	Roof	3	3				UFH	4	LEDs
Store	RL	0.83	R	W/PVC	6mm	VL	Horiz	Roof	1	1				UFH	4	LEDs
TOTALS		44.63							21	21	0	1	1		55	44 LED 9 CFL 2 INC

** Gross areas have to be converted to net heat loss areas when entered into DEAP program by subtracting door and window areas from each wall type*

Ventilation Factors

NO — draught lobby on main entrance
NO — pressure test results available
N/A — If yes, enter adjusted result (ac/h)
N/A — Is there uninsulated ducting on MVHR system outside dwelling envelope?
2 — number of sides sheltered
N/A — Pressure test result reference number

- [x] natural ventilation
- [ ] positive input ventilation from loft
- [ ] positive input ventilation from outside
- [ ] whole house extract ventilation
- [ ] balanced whole-house mech. ventilation without heat recovery
- [ ] balanced whole-house mechanical ventilation with heat recovery
- [ ] exhaust air heat pump (EAHP) ____ air flow rate for EAHP (m^3/h)

DEAP manual contains guidance on using non default SFP and efficiency for mechanical ventilation units as well as identifying the air flow rate in EAHPs.

Mech. ventilation system details if available (e.g. model&number, along with # of rooms from which air is extracted and use of flexible/rigid ducting)

Lighting summary (total number of each bulb type from room by room record)

____ #Linear flourescent	9 #CFL	____ #Halogen lamps
44 #LED	____ #Halogen LV	2 #Incandescent/ unknown

Space heating system (general information)

Primary Heating System
- [ ] radiator system
- [ ] storage heaters
- [x] underfloor
- [ ] warm air
- [ ] room heaters only
- [ ] community
- [ ] fan coil radiators
- [ ] other (describe briefly):

Secondary Heating System
- [ ] no secondary system
- [ ] radiator system
- [ ] storage heaters
- [ ] underfloor
- [ ] warm air
- [x] room heaters only
- [ ] fan coil radiators
- [ ] other (describe briefly):

Primary Heating Fuel
- [ ] mains gas
- [ ] bulk LPG
- [ ] bottled LPG
- [ ] heating oil
- [x] electricity
- [ ] heat from CHP
- [ ] bioethanol
- [ ] other:
- [ ] housecoal
- [ ] anthracite
- [ ] smokeless
- [ ] peat briquettes
- [ ] sod peat
- [ ] wood pellets
- [ ] wood chips
- [ ] biodiesel

Secondary Heating Fuel
- [ ] no secondary system
- [ ] mains gas
- [ ] bulk LPG
- [ ] bottled LPG
- [ ] heating oil
- [ ] electricity
- [ ] heat from CHP
- [x] bioethanol
- [ ] other:
- [ ] housecoal
- [x] anthracite
- [x] smokeless
- [ ] peat briquettes
- [ ] sod peat
- [ ] wood pellets
- [ ] wood chips
- [ ] biodiesel

Gas / Oil / LPG Boilers [ ] primary [ ] secondary

Boiler type
- [ ] standard
- [ ] combi
- [ ] condensing
- [ ] back boiler
- [ ] CPSU
- [ ] range cooker
  - [ ] single burner
  - [ ] twin burner

Flue type
- [ ] open
- [ ] balanced
- [ ] fan assisted

Mounting
- [ ] wall
- [ ] floor

Age
- [ ] 1998 or later
- [ ] pre 1998
- [ ] oil: pre 1985
- [ ] gas/ LPG pre 1979

Ignition
- [ ] auto
- [ ] permanent pilot

Manufacturer / make / model number

Solid Fuel Boilers [ ] primary [ ] secondary
- [ ] open fire + back boiler
- [ ] closed room heater + back boiler
- grate: [ ] rectangular [ ] trapezium
- [ ] manual feed boiler
- [ ] auto feed boiler
- [ ] range cooker boiler with integral oven
- [ ] independent oven
- [ ] biomass boiler
- [ ] wood chip / pellet boiler

MF / AF boiler in heated space? [ ]

Manufacturer / make / model number

Comments on heating system
If the heat pump differs from the options listed, enter details here

Electric Boilers [ ] primary [ ] secondary
- [ ] direct acting
- [ ] dry core
- [ ] CPSU
- [ ] water storage
- [ ] dry core / water storage in heated space

Electric Storage Heaters [ ] primary [ ] secondary
- [ ] modern / slimline
- [ ] convector
- [ ] integrated storage / direct acting (inc. room stat)
- [ ] fan assisted
- [ ] old (pre-1980) large volume

Control options
- [ ] manual charge control
- [ ] automatic / weather dependent
- [ ] Celect-type

Gas Room Heaters [ ] primary [x] secondary
- [ ] pre 1980
- [ ] coal effect - sealed flue
- [ ] coal effect - open to chimney
- [x] flueless
- [ ] condensing
- [ ] back boiler (no rads)
- [ ] other (none of above)

Front
- [ ] open-fronted
- [ ] glass-fronted

Flue type
- [ ] open
- [ ] balanced
- [ ] fan assisted

Warm Air Systems [ ] primary [ ] secondary

Ducted or Stub Ducted
- [ ] on - off
- [ ] modulating

Other Features (tick all that apply)
- [ ] fan assisted
- [ ] condensing
- [ ] with flue heat recovery

Age
- [ ] 1998 or later
- [ ] pre 1998

Other types
- [ ] Room heater with in floor ducts
- [ ] Electric electricaire

Oil Room Heaters [ ] primary [ ] secondary
- [ ] room heater / range
- [ ] room heater/range with boiler (no rads)

Age
- [ ] pre 2000
- [ ] 2000 or later

Solid Fuel Room Heaters [ ] primary [x] secondary
- [ ] open fire in grate
- [ ] open fire with backboiler (no rads)
- [x] closed room heater
- [ ] closed room heater with backboiler (no rads)
- [ ] stove (pellet-fired)
- [ ] flueless bioethanol

Comments on cooling system
If the heat pump differs from the options listed, enter details here

Individual CHP? [ ]
____ % heat from CHP

CHP efficiencies
____ Electrical %
____ Thermal %
Fuel ____

Heat Pumps / cooling [x] primary [ ] secondary
- [ ] air-to-air
- [x] air-to-water
- [ ] air-conditioner
- [ ] ground-to-air
- [ ] ground-to-water
- [ ] Exhaust-air heat pump
- heat pump includes auxiliary electric heater [ ]
- [ ] water-to-air
- [ ] water-to-water

Manufacturer / make / model number: Ochsner Air basic 211 C11B - ELW

Electric Room Heaters [ ] primary [ ] secondary
- [ ] panel, convector, or radiant heater
- [ ] fan heater

Secondary heating make / manufacturer/model number: Henley

Heating system (Domestic Hot Water)

Primary Hot Water System

- [x] from primary heating system
- [ ] electric immersion
- [ ] electric instantaneous
- [ ] gas instant: single point
- [ ] gas instant: multi point
- [ ] gas circulator pre 1998
- [ ] gas circulator 1998 or later
- [ ] backboiler / kitchen range
- [ ] gas
- [ ] oil
- [ ] SF

If instantaneous combi boiler: [ ] keep hot facility controlled by [ ] timeclock [ ] no timeclock

If storage combi: store volume [ ] <55 litres [ ] >= 55 litres

Hot Water Cylinder, Insulation and Controls — [x] cylinder [ ] combi [ ] CPSU [ ] thermal store

[ ] no access

Insulation: [ ] no insulation [ ] lagging jacket [x] factory fitted

375 capacity (litres) / or dimensions

50 insulation thickness (mm)

primary pipework insulated [ ]

Controls: cylinder thermostat [x] independent timer [x] storage is outdoors [ ]

Cylinder volume/dimensions does not include insulation thickness

Supplementary Summer Hot Water

- [ ] not applicable
- [x] electric heater present for supplementary hot water heating*

**only if space heating and water heating cannot be separated and main water heating isn't electric. See DEAP manual*

Solar Water Heating System [ ] Yes [x] No

[ ] evacuated tube [ ] flat plate, glazed [ ] flat plate unglazed

solar collector area (m^2) [ ] area is "gross" area [ ] area is "aperture area

overshading: [ ] very little (<20%) [ ] modest (20-60%) [ ] significant (61-80%) [ ] heavy (>80%)

dedicated solar storage volume (litres)

contained within combined cylinder

contained within separate cylinder

orientation tilt°

Solar panel make and model:

Comments on water heating system

Oshaner Europa
333 Genius Air Heat Pump

Showers and baths

[Y] Bath in dwelling (y/n)? [ ] Is water use target (hot and cold) 125 l/p/d (y/n)?

Shower #	Is flow rate known? (y/n)	Shower type: Electric/ Unvented/ Vented/ Vented+pump	Flow restrictor? (y/n)	Flow rate (if known)?	WWHR efficiency and utilisation factor	
1	N	MIXER-VENTED	N	N		
2	N	MIXER-VENTED	N	N		
3						
4						
5						

Heating system (Controls)

Heating Controls (tick all that apply)

- [ ] no controls
- [x] programmer / timeclock
- [x] room thermostat number 20
- [ ] TRV's % rads with TRVs
- [ ] bypass
- [ ] load compensator
- [ ] weather compensator
- [x] full zone control
- [ ] boiler energy management system
- [ ] delay start thermostat
- [ ] boiler interlock
- [ ] appliance thermostat
- [ ] appliance timeclock

Underfloor heating (UFH)

- [ ] in insulated timber floor
- [ ] in screed
- [ ] in concrete
- [ ] whole house UFH
- [ ] Partial UFH including living area
- [ ] Partial UFH not including living area

Pumps

1 How many central heating pumps for space heating?

Central heating pump(s) outdoors [ ]

0 How many oil boiler fuel pumps?

Oil fuel pump(s) outdoors [ ]

0 How many gas boiler flue fans?

Comments on Heating Controls

Group Heating

Distribution Loss Factor and charge method

- [ ] pre 1991 full flow mid-high temp: not pre-insulated
- [ ] pre 1991 full flow low temp: pre-insulated
- [ ] 1991 or later variable flow mid temp: pre-insulated
- [ ] 1991 or later variable flow low temp: pre-insulated

See DEAP C1.1 for dist. loss factor derivation method

consumption charged: flat rate [ ] linked to use [ ]

Heating system #1

efficiency %

proportion of group heating %

Fuel type of heating system

Make and model of heating system

Heating system #2

efficiency %

proportion of group heating %

Fuel type of heating system

Make and model of heating system

CHP / Waste Heat

% heat from CHP (or power station)

- [ ] power station
- [ ] CHP

CHP efficiencies

Electrical %

Thermal %

Fuel

Any other comments or details on assessment including items observed which affect the rating but not shown elsewhere on survey form/sketches.

6. Checklist of external dwelling photographs

DEAP SURVEY FORM - EXTERNAL PHOTOS

Please note: This sample list is only a recommendation of images required as evidence for inputs in your assessment and is not exhaustive. You should capture any additional photographs you consider necessary to support an entry in DEAP.
Where possible avoid capturing personal information or redact before uploading to DEAP

Photos of Dwelling Type
- ☑ Each elevation
- ☑ All extensions
- ☐ Adjoining buildings/ apartments/balconies
- ☐ Any external buildings incl. in assessement
- ☐ Compass showing the orientation of the dwelling

Photos supporting Age of Construction
- ☑ ESB/GAS Meter
- ☐ Name plate displaying year of build
- ☑ Stylistic evidence
- ☑ Glazing age printed between panes

Photos of Floor Types
- ☐ External vents to support suspended floors

Photos of Roofs
- ☑ Each roof type
- ☐ Solar array (PV or thermal)

Photos of Wall Types
- ☑ Each wall type
- ☐ Wall thickness at openings
- ☑ Wall type visible from meter box interior
- ☐ Cavity insulation drill pattern visible
- ☐ Cavity bead insulation visible
- ☑ External insulation (additional thickness at boundary, acrylic/silicone render, sills)

Photos of Window Types
- ☑ Each frame type, glazing type, date stamps, glazing spacer bars

Photos of Door Types
- ☑ All external door types
- ☑ Full door/window/panel unit if integrated (helps with measurement details)

Photos of Ventilation
- ☑ Ventilation covers visible externally
- ☑ Any chimneys
- ☑ Any flue types

Photos of Space Heating
- ☑ Outside boiler/heat pump unit
- ☑ Boiler/heat pump make & model
- ☐ Any flue types & condensing outlet
- ☐ Any indicators of fuel types
- ☑ Any frost sensors / weather compensators

Photos of Cooling
- ☐ Photograph(s) of outside unit

Photos of Renewables
- ☐ Installed PV/solar thermal system
- ☐ Wind Turbine system
- ☐ Micro-generation system

photograph name plates if possible

Personal Data
- ☑ Redact any personal images if captured
- ☑ Redact any personal information if captured
- ☑ Redact any vehicle reg plates if captured

Photos of Apartment Lobbies
- ☐ Heat emitters in corridors/lobbies
- ☐
- ☐

Photos of Porches/ Garages
- ☐ Door between porch/garage & house
- ☐ Heaters in porch/garage
- ☐ Lights in porch/garage

7. Checklist of internal dwelling photographs

DEAP SURVEY FORM - INTERNAL PHOTOS

Please note: This sample list is only a recommendation of images required as evidence for inputs in your assessment and is not exhaustive. You should capture any additional photographs you consider necessary to support an entry in DEAP.
Where possible avoid capturing personal information or redact before uploading to DEAP

Photos supporting Age of Construction
- ☐ ESB/GAS Meter (if inside)
- ☐ Stylistic evidence
- ☑ Glazing age printed between panes
- ☑ Indicators of extensions

Photos supporting Floor types
- ☑ Changes of floor types
- ☑ Changes in floor levels
- ☐ Layers of floor build-up during construction

Photos of Roof Space
- ☐ Each roof type
- ☐ Insulation type, location (on ceiling or slope) showing depth measurement
- ☐ Any lights in the attic spaces
- ☐ Any ventilation systems within roof space
- ☐ Ducting type rigid/semi rigid
- ☐ Knee wall internal make-up and any insulation
- ☐ Draught-proofing on any attic doors/hatches

Photos of Wall Types
- ☐ Wall thickness measurement at openings
- ☐ Any indicators of internal insulation upgrade
- ☐ Layers of wall build-up during construction

Photos of Windows
- ☑ Type of Frames,
- ☐ Number of openings
- ☑ Glazing spacer bars & information stamps
- ☐ Draught-proofing of single-glazed frames

Photos of Doors
- ☑ All external door types
- ☐ Full door/window/panel unit if integrated (helps with measurement details)

Photos of Ventilation
- ☑ Internal vent covers & any closing mechanism
- ☐ Non-closeable vents
- ☐ Chimneys / dampers
- ☑ Open flues
- ☐ Vents for flueless combustion room heater
- ☐ Intermittent fans
- ☐ Ventilation system and any name plates
- ☐ Ducting type rigid/semi rigid & insulation

Photos of space heating
- ☑ Indoor boiler/heat pump unit & name plate
- ☑ Any room thermostats/sensors
- ☑ Programmer/timer capturing make/model
- ☑ Any control applications
- ☑ Central heating pump and any energy label for non-default central heating pump power
- ☐ Heat emitters (radiators, panel heaters)
- ☐ TRVs
- ☐ Flow switch
- ☑ Any room heaters Solid fuel/Gas/Oil/Electric & integrated controls
- ☐ Range/cooker with boiler
- ☑ Motorised valves
- ☑ Underfloor heating manifold

Photos of water heating
- ☑ Indoor boiler/heat pump unit & name plate
- ☑ Programmer/timer capturing make/model
- ☑ Any SEPARATE water heating timer
- ☑ Hot water storage type, showing label if present
- ☐ lagging jacket with thickness measurement
- ☐ factory fitted insulation with thickness measurement at pipe connections
- ☐ Any instantaneous water heater
- ☐ Immersion heater
- ☐ Cylinder thermostat
- ☐ Insulated primary pipework
- ☑ Bath
- ☑ Shower types
- ☐ flow restrictors and
- ☐ Waste water heat recovery with make/model

Photos of Cooling
- ☐ Cooling system(s) and nameplates

Photos of Lighting
- ☑ Different bulb types

Photos of Renewables
- ☐ PV invertor & controls
- ☐ Solar powered pump

8. Evidence checklist for non-default values

EVIDENCE CHECKLIST FOR NON-DEFAULT VALUES IN DEAP

This checklist is developed to assist you in checking you have collected the required information to support your BER. It is not exhaustive. Refer to the DEAP Manual & Survey Guide for more detailed information.

Survey Documents

- [x] Letter of engagement
- [x] Completed survey form
- [x] Sketches/drawings with all relevant elevations, measurements, openings, sheltered sides etc.

Dwelling & Extension age

- [ ] A copy of legal documents
- [ ] Commencement notice from NBCO BCMS
- [x] Homeowner knowledge in writing

For each Floor Type

- [ ] **New-build** - As-built drawings/specifications (signed off by the architect, engineer, or assigned certifier) stating the type & thickness of insulation installed or copies of Invoices with detailed description of materials (insulation type, thickness, quantity)
- [ ] **Existing** - Contractor sign-off stating the type & thickness of insulation installed & area insulated or copies of invoices with detailed description of materials (insulation type, thickness, quantity)
- [ ] Insulation certificate
- [ ] U-value calculation

For each Roof Type

- [ ] **New-build** - As-built drawings/specifications (signed off by the architect, engineer, or assigned certifier) stating the type & thickness of insulation installed or copies of Invoices with detailed description of materials (insulation type, thickness, quantity)
- [ ] **Existing** - Contractor sign-off stating the type & thickness of insulation installed & area insulated or copies of invoices with detailed description of materials (insulation type, thickness, quantity)
- [ ] Insulation certificate
- [ ] U-value calculation

For each Wall Type

- [ ] **New-build** - As-built drawings/specifications (signed off by the architect, engineer, or assigned certifier) stating the type & thickness of insulation installed or copies of Invoices with detailed description of materials (insulation type, thickness, quantity)
- [ ] **Existing** - Contractor sign-off stating the type & thickness of insulation installed & area insulated or copies of invoices with detailed description of materials (insulation type, thickness, quantity)
- [ ] Where the information above is not available, but evidence of upgrade works is measurable and observable, onsite indicators may be used as listed in Table 4.1 of DEAP Survey Guide
- [ ] Insulation certificate
- [ ] U-value calculation

For each Window Type

- [ ] Confirmation of window type/glazing specification installed (As-built drawings/ specifications or invoices)
- [ ] U-value and solar transmittance certification

For each Door Type

- [ ] Invoice or written confirmation from the supplier/manufacturer of door type installed
- [ ] U-value Certification

Thermal bridging factor (<0.15)

- [ ] Signed confirmation by the Design Certifier that the dwelling is designed in accordance with the ACDs and by the Assigned Certifier that the dwelling was constructed in accordance with the design OR

  If a "Declaration of Intention to Opt Out of Statutory Certification" is provided, assigned confirmation by the building owner that the dwelling is designed in accordance with the ACDs and that the dwelling was constructed in accordance with the design

  OR
  - [ ] Drawings & schedule identifying all key junctions
  - [ ] Drawings/sketches identifying all key junction lengths (where y-value is calculated)
  - [ ] ACDS/details for all key junctions

  And
- [ ] y-value calculation where a calculated y-value is used.

EVIDENCE CHECKLIST FOR NON-DEFAULT VALUES IN DEAP

This checklist is developed to assist you in checking you have collected the required information to support your BER. It is not exhaustive. Refer to the DEAP Manual & Survey Guide for more detailed information.

Air-tightness

- ☐ Air-pressure test result with the following details
  - ☐ Air tightness test result
  - ☐ Relevant test standard
  - ☐ Address of dwelling
  - ☐ Date of pressure test
  - ☐ Details of registered individual/organisation

Mechanical Ventilation System

- ☐ Evidence to support non-default performance data including make/model where available
- ☐ If the unit is inaccessible, then specifications, invoices or receipts stating the make/model
- ☐ Sign-off for configuration/ducting

Space Heating

- ☑ Photos/sign-off/manuals of make & model of heating appliances
- ☐ Documentation stating capability of programmer/remote sensors/apps

Non-default flow temperature for heat pump

- ☐ Designer/installer sign-off sheet
- ☐ Heating design sheet
- ☐ Radiator specifications with additional calculations if applicable

Water Heating

- ☐ Photos/sign-off/manuals of make & model of heating appliances
- ☐ Documentation stating capability of programmer/remote sensors/apps
- ☐ Confirmation of non-default shower flow rates including presence of flow restrictors including make/model (or evidence from specification / receipts, etc., where inaccessible)
- ☐ Confirmation of waste-water heat recovery performance including make/model (or evidence from specification/receipts, etc.)
- ☐ Confirmation of manufacturer's declared loss of installed storage cylinder
- ☐ Evidence to support low water usage (less than 125 l/p/d)
- ☐ Evidence to support insulated pipework
- ☐ Evidence to support solar water heating

Cooling

- ☐ Photos or confirmation of cooling appliance installed
- ☐ Evidence of non-default Seasonal Energy Efficiency Ratio (SEER) (e.g. Ecodesign data, EN14825 accredited test data)
- ☐ Designer/installer sign off sheet for heat pump.

Where applicable, evidence that the warm air heat pump does not provide cooling

- ☐ Details of how the function has been disabled or is not available in the product, with specific references to manufacturer's instruction manuals. This must be signed-off at commissioning by the same installer filling out the Designer/Installer sign-off form.

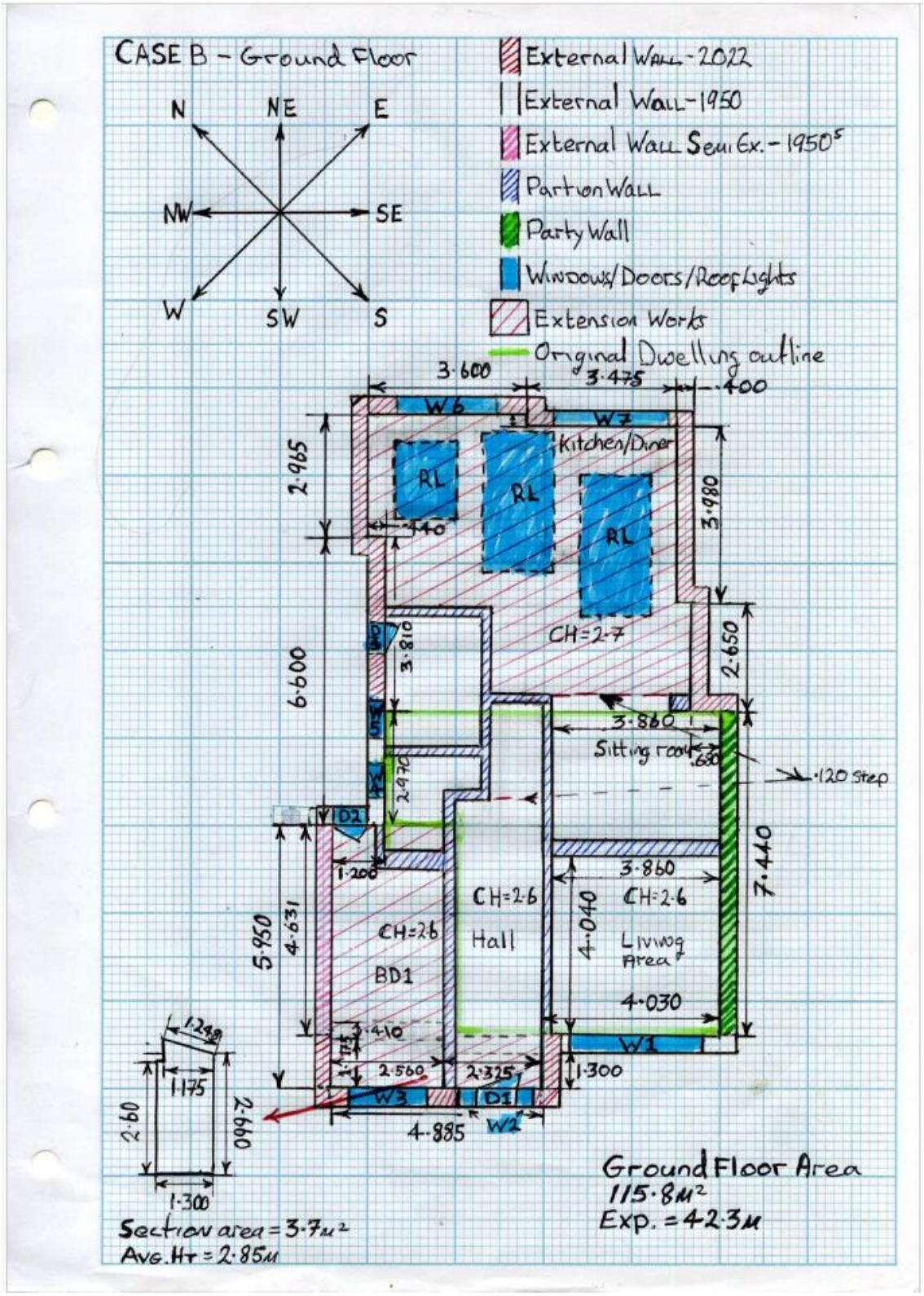
Lighting Design Known

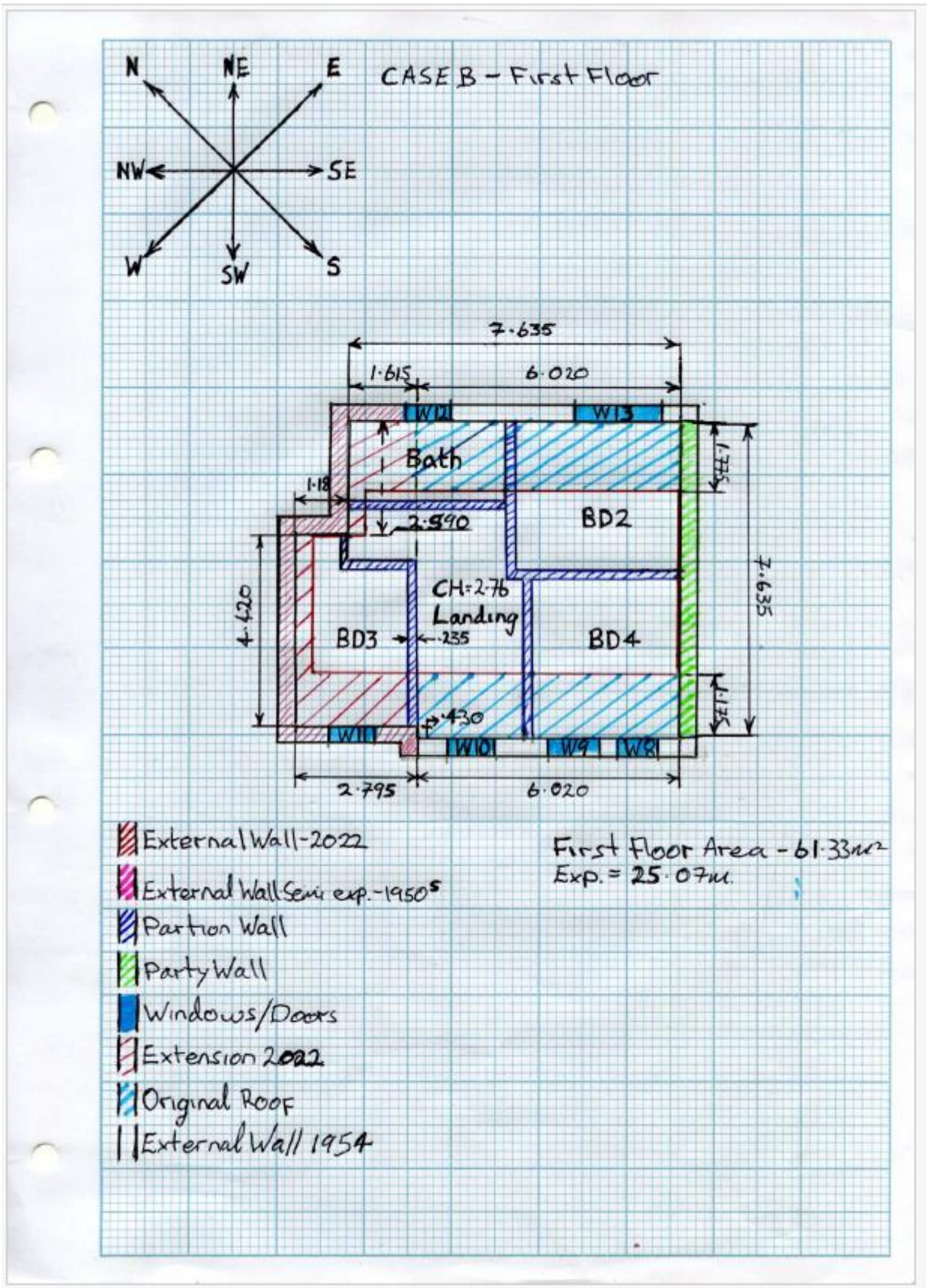
- ☐ Drawings showing the **lighting plan** for the dwelling indicating the location of all fixed light fittings
- ☐ **Lighting schedule** stating the bulb used in each of the fixed light fittings identified in the lighting plan
- ☐ Documentation stating the **Bulb Power** (in Watts) and **Bulb Efficacy** (in Lumens/Watt) - manufacturer's documentation with a CE-marking stating relevant test standard, or test report from a test centre that is accredited to test to the relevant test standard.
- ☐ Confirmation of installation in accordance with the above documentation from by an Architect, Engineer or Assigned Certifier.

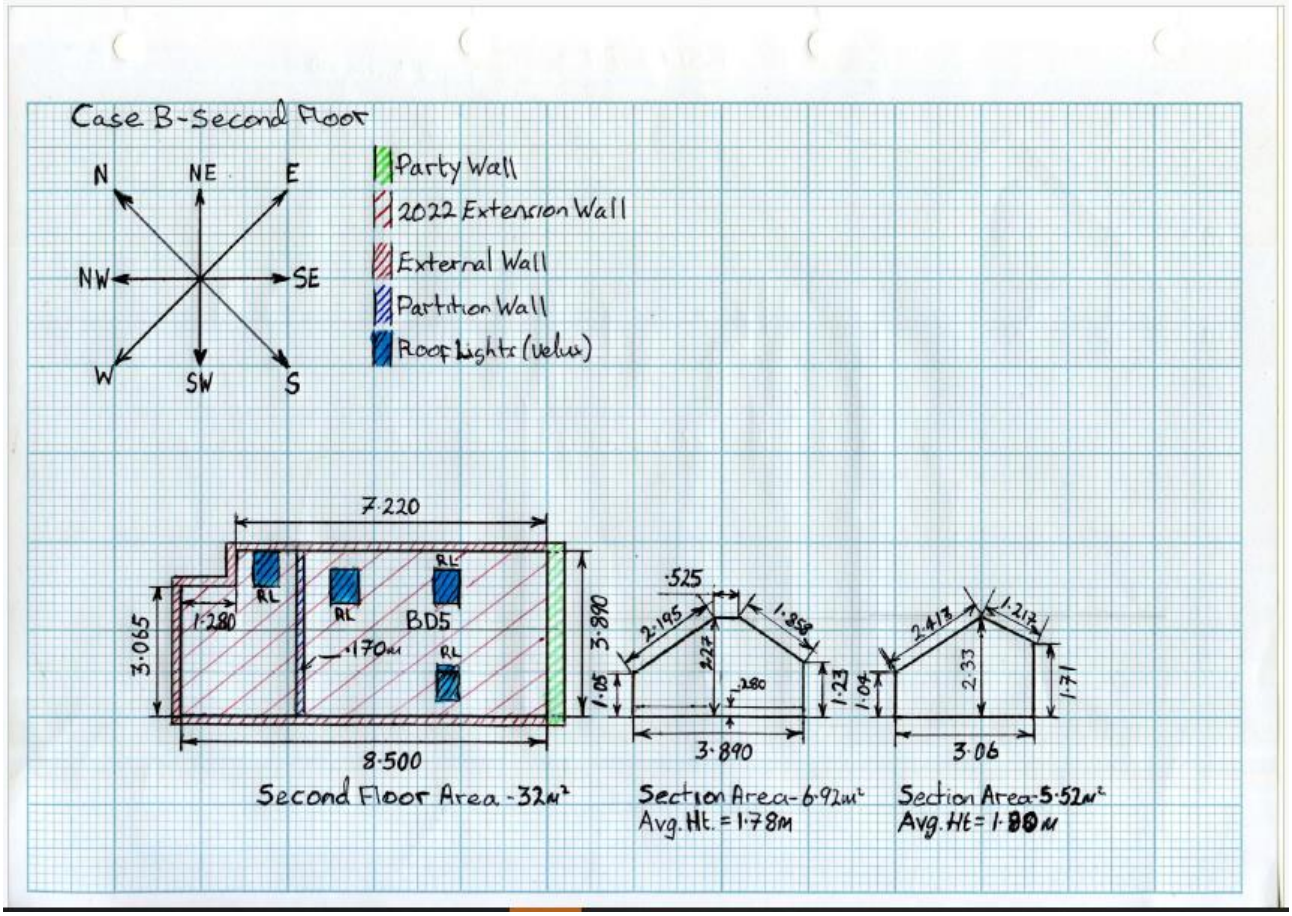
Renewables

- ☐ Photos/manuals of make & model of system installed
- ☐ Confirmation of performance data for PV panels, swept area of onsite turbines, etc.
- ☐ Sketches/drawings showing orientation/tilt/over shading for PV
- ☐ Evidence of the presence of the inverter and PV installed for each apartment in apartment development Sketches/drawings showing height and tallest nearby objects for onsite turbines

9. Plans – Drawing




N
NE
E
NW
SE
W
SW
S
CASE B – First Floor
7·635
1·615
6·020
W12
W13
Bath
1·18
2·990
BD2
SEE 1
7·635
4·420
CH=2·76
Landing
BD3
·235
BD4
·430
W11
W10
W9
W8
2·795
6·020
External Wall-2022
External Wall Semi exp.-1950s
Partion Wall
Party Wall
Windows/Doors
Extension 2022
Original Roof
External Wall 1954
First Floor Area - 61·33m²
Exp. = 25·07m.


Case B-Second Floor
N
NE
E
NW
SE
W
SW
S
Party Wall
2022 Extension Wall
External Wall
Partition Wall
Roof Lights (velux)
7.220
8.500
3.065
3.890
1.280
1.170m
RL
BD5
1.08
.525
2.195
1.858
2.27
.280
1.23
3.890
2.473
1.213
2.33
1.04
1.71
3.06
Second Floor Area - 32m²
Section Area - 6.92m²
Avg. Ht. = 1.78m
Section Area - 5.52m²
Avg. Ht = 1.80m

10.External Photo Evidence

Building external


Front 1


Front 2


Front 3

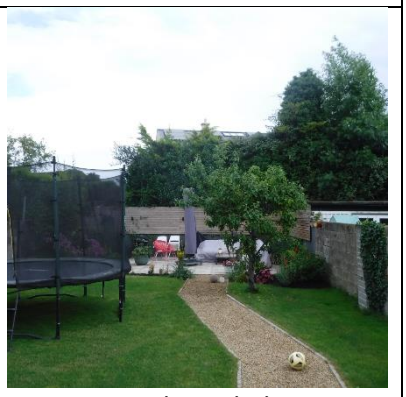

Front 4


Front 5


Front 6 EWI


Front 7 EWI


Back of house


Rear garden - sheltering


ESB meter


Meter Cabinet


Sheltered side

 Side North	 Side south	

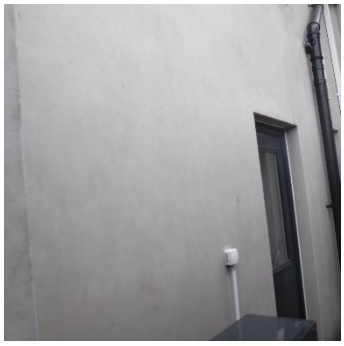
11. Roof photos

 Insulation label	 Insulation type	 Roof External

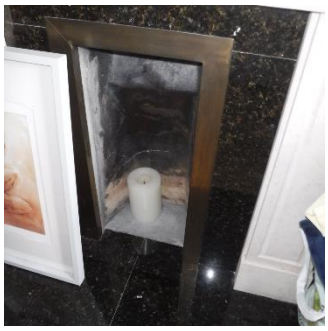
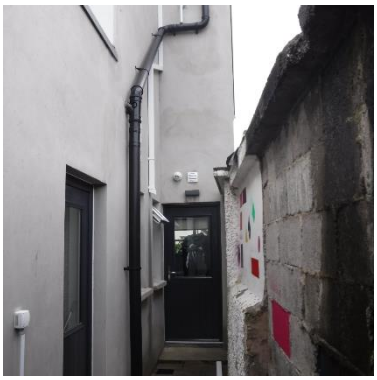
12. Wall photos

 EWI around windows	 Wall of extension	 Evidence of EWI

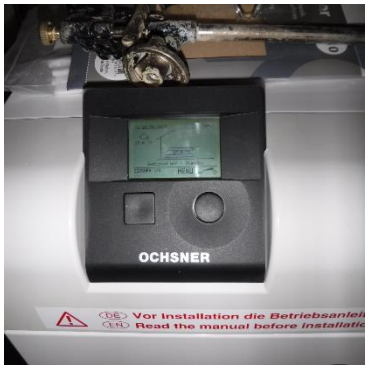
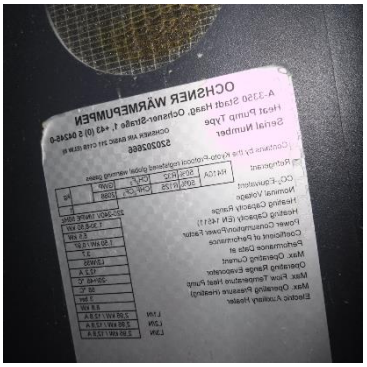
13.Windows & Doors photos

 Door front	 Glazing 1	 Glazing 2
 Door inside	 Glazing 3	 Plantroom door
 Rooflight Plate		

14. Ventilation photos

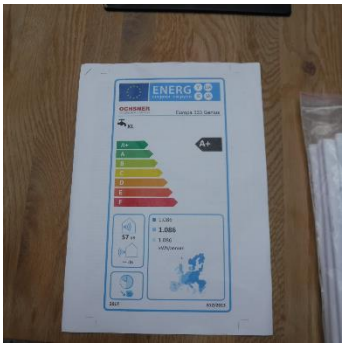
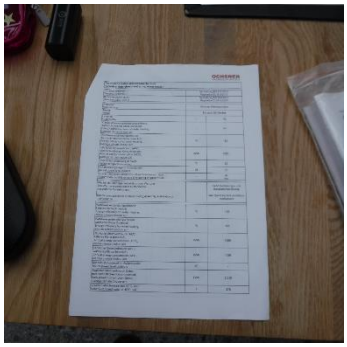
 chimney restriction	 Fireplace	 Kitchen extract
 Bathroom extract	 Wall vent 1	 Wall vent 2
 Wall vent 3	 Wall vent 4	 Wall vent bed 1

15.Space Heating photos

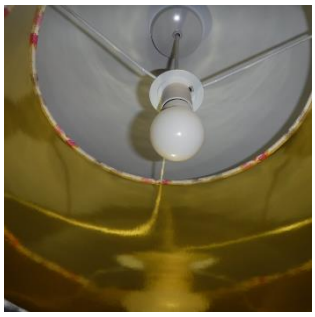
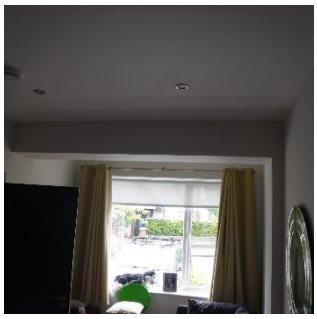
 CRH internal	 CRH Make	 Flueless gas fire
 Flueless gas fire	 Bio ethanol for Flueless	 Heat Pump
 HP Controls	 HP label	 HP label
 HP ODU make	 HP ODU Model	 HP software ver.

 Programmer Z1	 Programmer Z2	 Programmer Z3
 Programmer Z4	 Programmer Z5	 Programmer Z6
 Programmer Z7	 Temp. Sensor 1	 Temp. Sensor 2
 Temp. Sensor 3	 Temp. Sensor 4	

16. Water Heating photos

 Shower mixer	 Mixer shower head	 Mixer shower
 Shower mixer head	 Bath	 DHW programmer
 DHW plate	 DHW pressure vessel	 DHW tank
 DHW Tank ERP Label	 Plant room	 TDS of DHW tank

17.Lighting photos

 Unknown/ default incandescent	 LED	 LED
 LED		

18.Dwelling Report

seai SUSTAINABLE ENERGY AUTHORITY OF IRELAND

Dwelling Details Report
Date report created: 01/03/2024
Page 1/15

Property details

MPRN		**Shared MPRN**	
BER Number		**BER number assigned to shared dwelling**	N/A
Address line 1	SEAI internal	**Type of Rating**	Existing Dwelling
Address line 2	Case study	**Purpose of Rating**	Other
Address line 3	Example B	**Building Regulations**	None
County	Co. Carlow	**Planning Reference**	
Eircode	A65F4E2	**Date of Plans**	
Dwelling Type	Semi-detached house	**Assessor Name**	SEAI Internal
Year of construction	1954	**Assessor Number**	
Dwelling Extension	Yes	**Date of Assessment**	17/01/2024
Storeys	3	**Assessor Comments**	SEAI Internal
		Assessor Description	Example B

Dimension details

	Area [m^2]	Height [m]	Volume [m^3]
Ground floor	115.80	2.64	305.71
First floor	61.33	2.76	169.27
Second floor	0.00	0.00	0.00
Third and other floors	0.00	0.00	0.00
Room in Roof	32.00	1.80	57.60
Totals	209.13		532.58

Living Area	15.60 m^2
Living Area Percentage	7.46 %

Ventilation details

	Number	Air Change Rate [m3/h]
Chimneys	0	0.00
Open Flues	1	20.00
Fans & vents	1	10.00
Flueless combustion room heaters	0	0.00

Manufacturer	N/A
Model	N/A

Has a permeability test been carried out	No	Is there a draught lobby on main entrance?	No
Infiltration rate due to structure [ac/h]	0.60	Draught lobby air change [ac/h]	0.05
Intermediate infiltration rate	0.71	Openings infiltration [ac/h]	0.11
Number of sides sheltered	2	Structure type	Masonry
Adjusted infiltration rate [ac/h]	0.60	Is there a suspended wooden ground floor?	No
Effective air change rate [ac/h]	0.68	Windows/doors/attic hatches draught stripped [%]	100.00
Ventilation heat loss [W/K]	119.55	Ventilation method	Natural ventilation
Adjusted result of air permeability test [ac/h]	0.00	How many wetrooms (inc. kitchen)? Is the vent. ducting flexible/rigid/both?	N/A
Specific fan power [W/(l/s)]	0.00	Is MVHR ducting uninsulated where outside of insulated envelope?	N/A
Heat exchanger efficiency [%]	0.00	Adjusted heat exchanger efficiency	0.00
Electricity for ventilation fans [Kwh/y]	0.00		
Heat gains from ventilation fans [W]	0.00		

Building Elements - Floors

Type	Description	U/F Heating	Include in compliance check	In Roof	Age Band	Exposed Perimeter [m]	Area [m^2]	U-Value [W/m^2K]	Heat Loss (AU) [W/K]
Ground Floor - Solid	Original floor	Yes	No	No	1950 - 1966	7.5	49.60	0.46	22.82
Ground Floor - Solid	Extension to the front	Yes	No	No	2010 onwards	13.34	19.74	0.27	5.33
Ground Floor - Solid	Extension to the rear	Yes	No	No	2010 onwards	21.47	46.46	0.25	11.62
Non-Heat Loss Floor	First floor	N/A	No	No	1950 - 1966	N/A	61.33	0.00	0.00
Non-Heat Loss Floor	2nd Floor	N/A	No	Yes	2010 onwards	N/A	32.00	0.00	0.00
Total area [m^2]									209.13

Building Elements - Roofs

Type	Description	Include in compliance check	Insulation Thickness [mm]	Age Band	Area [m^2]	U-Value [W/m^2K]	Heat Loss (AU) [W/K]
Room in Roof - Insulated on side		No		2010 onwards	82.81	0.22	18.22
Pitched Roof - Insulated on Ceiling		No		1950 - 1966	21.37	2.30	49.15
Pitched Roof - Insulated on Ceiling	Extension	No		2010 onwards	12.00	0.22	2.64
Pitched Roof - Insulated on Rafter	Extension	No		2010 onwards	3.20	0.22	0.70
Flat Roof	Extension	No		2010 onwards	37.14	0.22	8.17
Total area [m^2]							156.52

Building Elements - Walls

Type	Description	Wall is semi-exposed	Include in compliance check	Age Band	Area [m^2]	U-Value [W/m^2K]	Heat Loss (AU) [W/K]
Unknown	Original wall insulated on the outside - Table 1 Site Default	No	No	1950 - 1966	41.49	0.33	13.69
Unknown	Adjacent to Unheated garage	Yes	No	1950 - 1966	12.04	1.38	16.58
300mm Cavity	Extension Walls	No	No	2010 onwards	96.78	0.27	26.13
Total area [m^2]							150.31

Building Elements - Doors

Count	Type	Description	Draught Stripped	Area [m^2]	U-Value [W/m^2K]	Heat Loss (AU) [W/K]
1	Solid exposed door	Bedroom BD1	Yes	1.83	3.00	5.49
1	Solid exposed door	Front Door	Yes	1.91	3.00	5.73
1	Solid exposed door	Plant Room	Yes	1.77	3.00	5.31
Total area [m^2]						5.51

Building Elements - Windows

Count	Glazing Type	Frame Type	Frame Factor	Solar Transm.	In Roof	Over shading	Orient.	Area [m^2]	U-value [W/m^2K]
1	Double-glazed, air filled	Wood/PVC	0.700	0.760	No	Average or Unknown	Southwest	7.01	2.80
1	Double-glazed, air filled	Wood/PVC	0.700	0.760	No	More Than Average	Northwest	0.57	2.80
1	Double-glazed, air filled	Wood/PVC	0.700	0.760	No	Average or Unknown	Northeast	2.83	2.80
1	Double-glazed, argon filled (low-E, en = 0.15, hard coat)	Wood/PVC	0.700	0.720	No	Average or Unknown	Southwest	5.51	2.00
1	Double-glazed, argon filled (low-E, en = 0.15, hard coat)	Wood/PVC	0.700	0.720	No	More Than Average	Northwest	0.61	2.00
1	Double-glazed, argon filled (low-E, en = 0.15, hard coat)	Wood/PVC	0.700	0.720	No	Average or Unknown	Northeast	3.54	2.00
1	Double-glazed, argon filled (low-E, en = 0.15, hard coat)	Wood/PVC	0.700	0.720	Yes	Very Little	Horizontal	9.32	2.00
1	Double-glazed, argon filled (low-E, en = 0.15, hard coat)	Wood/PVC	0.700	0.720	Yes	Very Little	Horizontal	3.26	2.00
Total area [m^2]									32.65

Heat loss details

Total glazed area [m^2]	32.65	Glazing ratio	0.07
Total glazed heat loss [W/K]	69.54	Summer solar gain [W/m^2]	1945.33
Total effective collection area [m^2]	12.79	Total element area [m^2]	460.787
Total plane heat loss [W/K]	261.11	Thermal bridging factor [W/m^2K]	0.1500
Fabric heat loss [W/K]	330.23	Total heat loss [W/K]	449.78
Per m2	2.15		

Lighting and Internal Gains

Lighting Design Calculation Method	Bulb type only	Average Efficacy [lm/W]	64.87
Fixed lighting provision [klmh/y]	5183.30	Top up lighting requirement [klmh/y]	0.00
Energy required for fixed lighting [kWh/y]	142.52	Energy required for top up lighting [kWh/y]	0.00
Energy required for portable lighting [kWh/y]	217.04		
Basic energy consumption for lighting [kWh/y]	1247.07	Water heating (In watts [W])	144.70
Annual energy used for lighting [kWh/y]	359.56	Occupants (In watts [W])	150.69
Internal gains from lighting during heating season [kWh/hs] (In watts [W])	275.06 (47.16)	Mechanical ventilation (In watts [W])	0.00
Lighting (In watts [W])	47.16	Heat loss to the cold water network (In watts [W])	-41.12
Appliance and cooking (In watts [W])	345.22	Net internal gains (In watts [W])	646.65

Lights

Count	Name	Description	Type	Efficiency	Power [W]
2	Default Incandescent		Incandescent	11.20	
53	Default LED/CFL		LED/CFL	66.90	

Water heating details

Are there distribution losses?	Yes	Is supplementary electric water heating used in summer?	N/A
Are there storage losses?	Yes	Is there a combi boiler?	No
Is there a solar water heating system?	No	Total hot water demand [kWh/y]	2672.66
Standard number of occupants	3.01	Temperature factor unadjusted	0.89
Number of mixer showers	2	Temperature Factor Multiplier	0.81
Number of electric showers	0	Hot water storage loss factor [kWh/l d]	0.00
Number of baths	1	Volume factor	0.00
Daily hot water use [Litres/d]	170.44	Combi-boiler electricity consumption [kWh/y]	0.00
Hot water energy reqs. at taps [kWh/y]	2271.76	Adjusted storage loss [kWh/y]	473.63
Distribution losses [kWh/y]	400.90	Adjusted primary circuit loss [kWh/y]	0.00
Water storage volume [Litres]	375.00	Heat gains from water heating system [W]	144.70
Is manufacturers declared loss factor available?	Yes	Output from supplementary heater [kWh/y]	0.00
Declared loss factor [kWh/d]	1.80		
Manufacturer and Model name	Ochsner Europa 333 Genius		
Insulation type	N/A		
Insulation thickness [mm]	N/A		

Type of mixer shower	Flow restriction	Flow rate [l/min]	HW usage [l/day]	WWHRS Manufacturer/Model	WWHRS efficiency	WWHRS Utilisation Factor	Energy Savings [kWh/yr]
Unvented hot water system	No	11.000		Any / Any			
Total :			95.27				0.00

Combi-boiler Type	None	Output from main water heater [kWh/y]	3146.30
Combi-boiler loss [kWh/y]	0.00	Annual Heat gains from water heating system [kWh/y]	1267.57
Keep Hot facility	None	WWHRS input to main system [kWh/y]	0.00
Storage Loss	473.63	WWHRS input to supplementary system [kWh/y]	0.00
Storage Type	Heat pump with integral hot water storage / Integrated thermal store and gas-fired CPSU		
Primary Circuit loss type	None		
Primary circuit loss [kWh/y]	0.00	Heat Pump Type of DHW	Integral Hot Water Storage
Is hot water storage indoors or in group heating system	Yes		

Net space heat demand

Required temp. during heated hours	21.00	**Length of one unheated period [h]**	8
Required temperature rest of dwelling	18.00	**Unheated periods per week**	14
Living area percentage	7.46	**Heat use during heating season [kWh/y]**	15277.31
Required mean internal temperature [°C]	18.22	**Heat use for full year [kWh/y]**	15936.39
Thermal mass category of dwelling	Medium		

	Utilisation factor	**Intermittent heating**
Internal heat capacity of dwelling [per m²]	0.20	0.11
Internal heat capacity [MJ/K]	41.83	23.00

Space heat demand details

Month	Mean Ext. Temp [°C]	Adj. Int. Temp [°C]	Heat Loss [W]	Heat Use [kWh]	Gain/Loss Ratio	Utilisation Factor	Heat Use [W]	Useful Gains [W]	Solar Gain [W]
January	5.3	16.20	4901	2907	0.20	0.99	3907	994	358
February	5.5	16.23	4825	2385	0.27	0.98	3550	1275	656
March	7.0	16.46	4256	1972	0.40	0.95	2651	1605	1044
April	8.3	16.67	3763	1318	0.58	0.89	1831	1932	1520
May	11.0	17.09	2739	587	0.95	0.75	789	1950	1953
June	13.5	17.48	1791	193	1.46	0.58	267	1524	1964
July	15.5	17.80	1033	43	2.40	0.39	58	975	1834
August	15.2	17.75	1147	70	2.01	0.46	93	1053	1653
September	13.3	17.45	1867	354	1.01	0.73	492	1375	1248
October	10.4	17.00	2967	1209	0.49	0.92	1625	1341	810
November	7.5	16.54	4067	2149	0.27	0.98	2985	1082	459
December	6.0	16.31	4635	2749	0.21	0.99	3695	940	304

Space Heating

Type	Space Heating Standard	Fuel	Design flow temp[°C]	Daily Operation [h]	SH Seasonal eff.	WH Seasonal eff.	Heats water	Source
Heat pumps	I.S. EN 14825	Electricity	35	16	447.47	0	N/A	Assessor

Model			Air Basic 211 C11B
Manufacturer			OCHSNER
Back Up Space Heater Fuel	N/A	**Back Up Space Heater Efficiency [%]**	N/A
Back Up Water Heater Fuel	N/A	**Back Up Water Heater Efficiency [%]**	N/A

Room heaters	N/A	Biofuel	0	0	90	90	N/A	SEAI

Model			Any
Manufacturer			Any
Back Up Space Heater Fuel	N/A	**Back Up Space Heater Efficiency [%]**	N/A

Dist. System Losses and Gains

Temperature adjustment [°C]	0	Additional heat emissions due to non ideal control and responsiveness [kWh/y]	421.04
Heating system control category	2		
Heating system responsiveness category	1	Gross heat emission to heated space [kWh/y]	6834.72
Mean internal temperature during heating hours [°C]	18.93	Mean internal temperature [°C]	17.22

	Number present	Boiler controlled by thermostat	Inside dwelling	Electricity consumption [kWh/y]	Heat gain [W]
Central heating pumps	1	Yes	Yes	130	10
Oil boiler pumps	0	No	No	0	0
Gas boiler flue fan	1			45	
Warm air heating or fan coil radiators present	No			0	0
Totals				175	10

Note: Wet central heating systems are likely to have one or more central heating pumps.

Gains from fans and pumps associated with space heating system [kWh/y]	58	Is there underfloor heating on the ground floor?	No
Average utilisation factor, October to May	0.92	U-Value of ground floor [W/m^{2}K]	0.00
Useful net gain [kWh/y]	53	Fraction of heating system output from ground floor	0.67
Net heat emission to heated space [kWh/y]	6781	Additional heat loss via envelope element [kWh/y]	0.00
Annual space heating requirement [kWh/y]	6781		

Heating System Test data: I.S. EN 14825

Heat Pump Type Air to Water

Test Condition - Low (35°C)

	A (88%) -7°C	B (54%) 2°C	C (35%) 7°C	D (15%) 12°C	E* (100%) TOL
Source	A-7	A2	A7	A12	A-20
Sink	W34	W30	W27	W24	W35
Heating Capacity (kW)	6.90	5.70	8.00	10.20	6.20
Coefficient of Performance (kW/kW)	2.69	4.23	5.01	5.27	2.45

Test Condition - Medium (55°C) *

	A (88%) -7°C	B (54%) 2°C	C (35%) 7°C	D (15%) 12°C	E* (100%) TOL
Source	A-7	A2	A7	A12	A-20
Sink	W52	W42	W36	W30	W55
Heating Capacity (kW)	4.80	5.00	5.50	7.20	4.10
Coefficient of Performance (kW/kW)	1.86	2.65	4.06	4.81	1.50

Dist. System Losses and Gains

Temperature adjustment [°C]	0	Additional heat emissions due to non ideal control and responsiveness [kWh/y]	872.53
Heating system control category	3		
Heating system responsiveness category	2	Gross heat emission to heated space [kWh/y]	16149.84
Mean internal temperature during heating hours [°C]	18.22	Mean internal temperature [°C]	16.89

	Number present	Boiler controlled by thermostat	Inside dwelling	Electricity consumption [kWh/y]	Heat gain [W]
Central heating pumps	1	Yes	Yes	130	10
Oil boiler pumps	0	No	No	0	0
Gas boiler flue fan	0			0	
Warm air heating or fan coil radiators present	No			0	0
Totals				130	10

Note: Wet central heating systems are likely to have one or more central heating pumps.

Gains from fans and pumps associated with space heating system [kWh/y]	58	Is there underfloor heating on the ground floor?	Yes
Average utilisation factor, October to May	0.93	U-Value of ground floor [W/m^{2}K]	0.34
Useful net gain [kWh/y]	54	Fraction of heating system output from ground floor	0.40
Net heat emission to heated space [kWh/y]	16096	Additional heat loss via envelope element [kWh/y]	265.27
Annual space heating requirement [kWh/y]	16361		

Energy Requirements: Individual Heating Systems

Manufacturer name			OCHSNER
Model name			Air Basic 211 C11B
Brand name			N/A
Model Qualifier			N/A
Indoor unit identifier			N/A
Outdoor unit identifier			N/A
Efficiency of main heating system [%]	447.47	**Fraction of heat from secondary system**	0.10
Efficiency adjustment factor	1.00	**Efficiency of secondary system [%]**	90
Adjusted efficiency of main heating system [%]	447.47	**Energy required for main heating system [kWh/y]**	3290.66
Product index number	N/A	**Energy required for secondary heating system [kWh/y]**	1794.43
Manufacturer's reference number	N/A	**Low temperature test condition (35°C)**	N/A
Appliance ID	N/A	**Intermediate temperature test condition (45°C)**	N/A
Rated air flow rate [m^3/h]	N/A	**Medium temperature test condition (55°C)**	N/A
		High temperature test condition (65°C)	N/A

Fraction of main space and water heat from CHP	N/A	**Efficiency adjustment factor**	1.0000
Heat demand from CHP	0.0	**Adj. efficiency of main water heating system [%]**	278.08
Efficiency of main water heating system [%]	278.08	**Water Heating Efficiency [%]**	155
Manufacturer name	OCHSNER	**Energy req. for main water heater [kWh/y]**	1980.01
Model name	Europa 333 Genius	**Energy req. for secondary water heater [kWh/y]**	0.00
Heat Pump Type	Air to Water		
Water Heating Standard	I.S. EN 16147		

	Fuel Type	Primary energy conversion factor	CO_2 emission factor
Main space heating system	Electricity	1.75	0.224
Secondary space heating system	Bioethanol from renewable sources only	1.34	0.064
Main water heating system	Electricity	1.75	0.224
Supplementary water heating system	Electricity	0.00	0.000
Cooling System	None	0.00	0.000
Pumps, fans	Electricity	1.75	0.224
Energy for lighting	Electricity	1.75	0.224

CHP data

Heat output from CHP [kWh/y]	0.00	**CHP Fuel type**	N/A
Electrical efficiency of CHP		**Energy delivered to CHP [kWh/y]**	0
Heat efficiency of CHP		**Electrical output from CHP [kWh/y]**	0

Summer internal gains

Dwelling volume [m^3]	532.583	Total gains in summer [W]	2591.97
Effective air change rate for summer period [ac/h]		Temperature increment due to gains [°C]	7.85
Ventilation heat loss coefficient [W/K]	0.00	Summer mean external temperature [°C]	15
Fabric heat loss coefficient [W/K]	330.23	Heat capacity parameter	0.20
Heat loss coefficient under summer conditions [W/K]	330.23	Temperature increment related to thermal mass [°C]	0.60
Total Solar Gain for Summer Period [W]	1945.33	Threshold internal temperature [°C]	23.45
Internal gains [W]	646.65		

Results

	Delivered energy [kWh/y]	Primary energy [kWh/y]	CO_2 emissions [kgCO_2/y]
Main space heating system	3291	5759	737
Secondary space heating system	1794	2405	115
Main water heating system	1131	1980	253
Supplementary water heating system	0	0	0
Cooling	0	0	0
Pumps and fans	130	228	29
Energy for lighting	360	629	81
CHP input (individual heating systems only)	0	0	0
CHP electric output (individual heating systems only)	0	0	0
Renewable and energy saving technologies			
Energy produced and saved	0	0	0
Energy consumed by the technology	0	0	0
Total	6706	11000	1215
Per m^2 floor area	32.07	52.60	5.81
Energy Rating	A3		

19.BER Cert

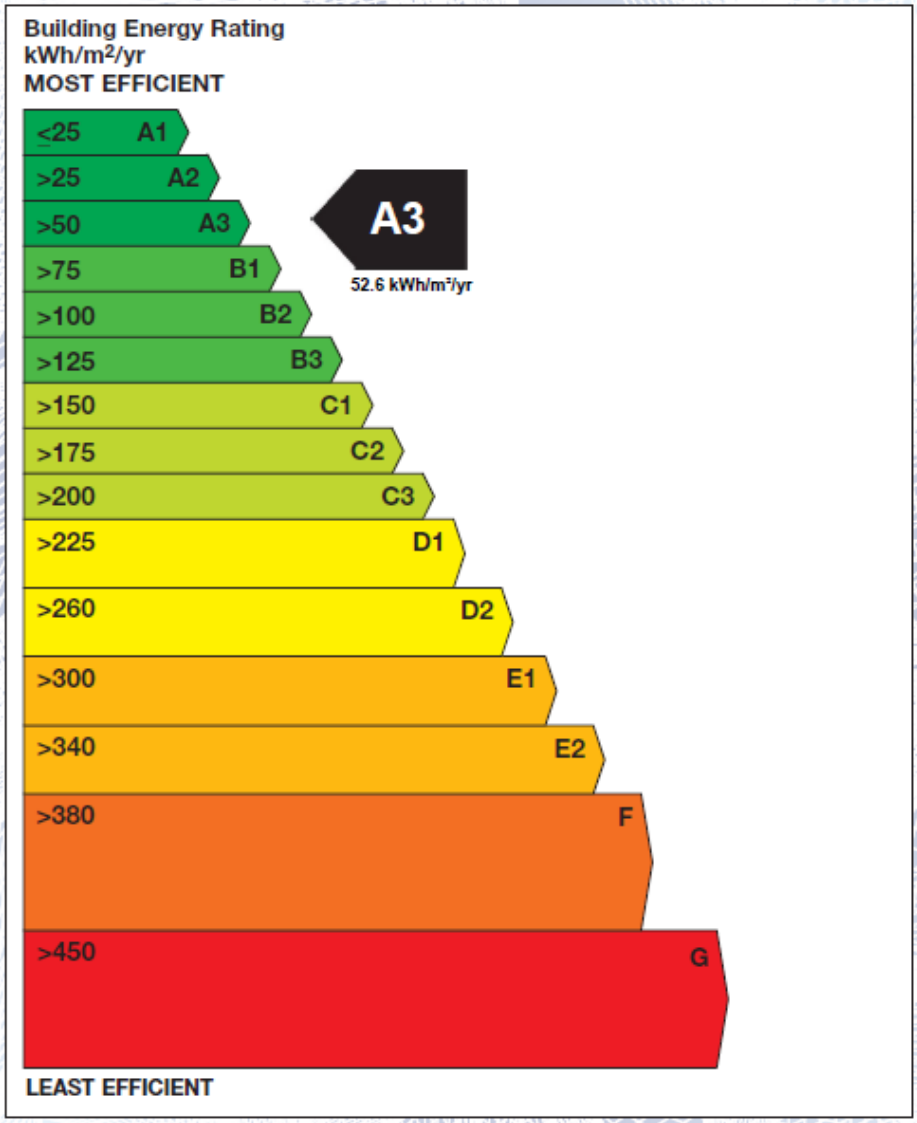
Building Energy Rating (BER)

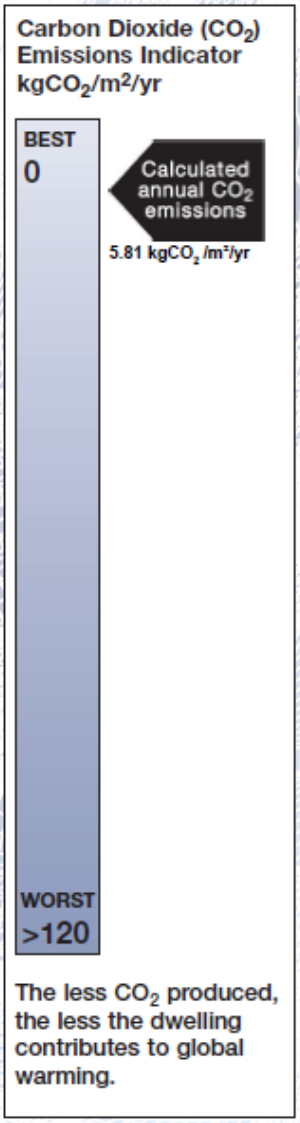
BER for the building detailed below is: A3

Address	SEAI INTERNAL CASE STUDY EXAMPLE B CO. CARLOW
Eircode	EIRCODE NOT AVAILABLE
BER Number	
Date of Issue	01/03/2024
Valid Until	01/03/2034
Assessor Number	
Assessor Company No	

The Building Energy Rating (BER) is an indication of the energy performance of this dwelling. It covers energy use for space heating, water heating, ventilation and lighting, calculated on the basis of standard occupancy. It is expressed as primary energy use per unit floor area per year (kWh/m^2/yr).

'A' rated properties are the most energy efficient and will tend to have the lowest energy bills.





The less CO_2 produced, the less the dwelling contributes to global warming.

IMPORTANT: This BER is calculated on the basis of data provided to and by the BER Assessor, and using the version of the assessment software quoted below. A future BER assigned to this dwelling may be different, as a result of changes to the dwelling or to the assessment software.

DEAP Version: 4.1.0

20. Advisory Report

Home Energy Upgrade Advisory Report

BER No. 6

Your Home's Energy Performance Potential

Potential with upgrades

Loss of heat from your home

NOW	POTENTIAL
Good	Good

An upgrade package to stop losing money on your energy bill

Your BER assessor has recommended a package of upgrades that will raise your home's energy performance.

Energy Performance of your home	NOW	POTENTIAL
Roofs	Poor	Good
Walls	Good	Good
Windows	Fair	Good
Floor	Good	No Upgrade
Space heating	Very Good	No Upgrade
Water heating	Very Good	No Upgrade
Renewables	Very Good	Very Good

GRANTS AVAILABLE?

subject to availability, terms and conditions

For further information visit www.seai.ie/grants or call 01 8082100

Compare your home's performance | Before and after upgrades

Your home's current **energy performance**	NOW A3

Your home's potential **energy performance**	POTENTIAL A2

Benefits of upgrading your home

INCREASE your home's value

INCREASE your home's comfort

REDUCE your energy bills

SAVE

CO_2 TONNES 0.6

= the same as planting **43 tree(s) each year**

To find out more visit **www.seai.ie**

seai SUSTAINABLE ENERGY AUTHORITY OF IRELAND

Home Energy Upgrade Advisory Report

Your journey from BER A3 **to** BER A2

Your BER assessor has recommended a package of energy upgrades that maximise the energy performance of your home. The recommendations are for guidance only and can be completed at your own discretion.
The recommendations are just one potential pathway to an improved BER and it is open to you to discuss alternative packages with your professional advisors.

Package of energy upgrades to save money, make your home more comfortable and protect the environment

Recommended Package of Energy Upgrades	Cost (Approx.)[3]	Grant Available [4]	Comfort
External doors 1.4 W/m^{2}K average U-Value [1, 2]	€ € € €	✔	★ ★ ★ ☆ ☆
Roof insulation; pitched (at ceiling) 0.16 W/m^{2}K, pitched (on slope) 0.20 W/m^{2}K, room in roof (on side) 0.20 W/m^{2}K, flat 0.22 W/m^{2}K average U-Value [1, 2]	€ € € €	✔	★ ★ ★ ★ ☆
Wall insulation 0.35 W/m^{2}K average U-Value [1, 2]	€ € € €	✔	★ ★ ★ ★ ☆
Windows double glazing 1.4 W/m^{2}K average U-Value [1, 2]	€ € € €	✔	★ ★ ★ ★ ☆
Solar Photovoltaic (PV) electricity System 2kWp.	€ € € €	✔	N/A

1. *Major Renovation is defined in the Building Regulations Part L Technical Guidance Document and means the renovation of a dwelling where more than 25 % of the surface of the dwelling envelope undergoes renovation. Where a dwelling undergoes a major renovation, the energy performance of the whole dwelling should be improved to the cost optimal level by achieving a B2 or by implementing the energy performance improvements as set out in the Building Regulations Part L Technical Guidance Document.*
2. *This energy upgrade will reduce your home's heat loss and is an important first step to improving the energy efficiency of your home.*
3. *Investment Cost Legend:*
   - € *< 5,000*
   - €€ *5,000 - < 15,000*
   - €€€ *15,000 - < 30,000*
   - €€€€ *30,000 - 50,000*
4. *A grant for this type of upgrade is available at the time of publication of this report. Grant availability is subject to eligibility criteria and should be checked to see if the works to your own home meet the eligibility criteria. Eligibility criteria are subject to change.*

GRANTS AVAILABLE?

✔

subject to availability, terms and conditions

For further information visit www.seai.ie/grants or call 01 8082100

Home Energy Upgrade Advisory Report

Start your journey to upgrade your home

If you're not ready for the maximum SEAI grant, consider picking one or two energy upgrades, selecting areas with the poorest performance.

GRANT APPLICATION

To start your application today visit
www.seai.ie/grants

Simple energy upgrades - quick, cheap, easy

Lighting
Correct lighting levels are essential for visual comfort, safety and for aesthetic effects. Fit efficient electric lighting and maximise the use of daylight.

Potential impact of the **recommended energy upgrades**

Energy upgrade	Now		Potential	
	Value	Energy Efficiency	Value	Energy Efficiency
Home Heat Loss Indicator (HLI)[1]	2.151 W/(K·m^2)	Good	1.713 W/(K·m^2)	Good
External doors (average U-Value[2])	3.000 W/m^{2}K	Poor	1.400 W/m^{2}K	Very Good
Roof insulation (average U-Value[2])	0.504 W/m^{2}K	Poor	0.207 W/m^{2}K	Good
Wall insulation (average U-Value[2])	0.375 W/m^{2}K	Good	0.293 W/m^{2}K	Good
Windows double glazing (average U-Value[2])	2.255 W/m^{2}K	Fair	1.400 W/m^{2}K	Good
Solar Photovoltaic (PV) electricity System 2kWp.	N/A	N/A	1,718 kWh/y	N/A
Lighting	64.87 Lm/W	Very Good	66.90 Lm/W	Very Good
Renewable Energy Ratio (RER)	62%	Very Good	79%	Very Good

1. The Home Heat Loss Indicator (HLI) is a summary of the overall performance of the home. It includes all the fabric and ventilation upgrades listed in the table
2. A U-value is a measure of the heat loss through the building fabric. The higher the U-value, the greater the heat loss
3. Primary energy efficiency is the efficiency divided by the primary energy conversion factor
4. Indicators are based on the average elemental U-values in the BER and where partial upgrades occur, average U-values may remain above the optimum U-value.

Home Energy Upgrade Advisory Report

Your Home's Details

Home Address

SEAI INTERNAL CASE STUDY EXAMPLE B CO. CARLOW, EIRCODE NOT AVAILABLE

House Details

Year of construction: 1954
Dwelling type: Semi-detached house
Total floor area: 209.13 m^2

About the Home Energy Upgrade Advisory Report

This document is a first step to assist you in engaging with a professional to determine suitable energy upgrades for your home.

It was prepared by a BER assessor using general assumptions and information from your BER assessment. The improvement in the BER has been estimated based on the assumption of certain values for energy upgrades and is provided as an indicator only.

This document is for information only and does not constitute professional or legal advice. The homeowner waives and releases any and all claims against SEAI and/or the BER assessor arising from the contents of this advisory report.

Use this document to:

Better understand how your home performs and how to make it more comfortable and affordable to run.

Provide information on home energy upgrades to discuss further with a professional or contractor.

Identify small simple steps you can take to improve the comfort of your home, if grant supported works aren't suitable for you right now.

Start the grant application process with SEAI, who may have substantial support available.

Recommended Energy Upgrades

The recommendations contained within your advisory report have been generated based on the data inputs contained within your BER assessment. SEAI recommends you seek professional advice and use suitably qualified installers to assess the suitability of the recommendations for your own particular home.

SEAI and the BER assessor accept no responsibility for and give no guarantees, undertakings or warranties concerning the accuracy, completeness or fitness-for-purpose of the information contained herein and do not accept any liability whatsoever arising from the contents hereof.

Further information on upgrading your home is available in **S.R. 54:2014 Code of Practice for the Energy Efficient Retrofit of Dwellings**, available from www.nsai.ie.

Building Regulations

The aim of the building regulations is to provide for the safety and welfare of people in and about buildings. Where applicable, works should be completed in accordance with the relevant Building Regulations. The primary responsibility for compliance with the requirements of the Building Regulations rests with the designers, builders and owners of buildings. Technical Guidance Documents for the Building Regulations and other supporting documents are available from the Department of Housing, Local Government and Heritage website at www.housing.gov.ie.

Costs

The investment cost indicators are guidelines only. Actual costs will vary depending on house size, specification and market conditions. Cost indicators may be calculated based on a partial upgrade if some sections of the building element are already adequately insulated.

Please consider the environment before printing this document.

BER Privacy Notice: www.seai.ie/publications/BER-Privacy-Notice.pdf

Ventilation

Care should always be taken to ensure sufficient levels of ventilation in each room. Signs of inadequate ventilation are persistent condensation and mould growth and should be addressed in the first instance. It is important not to permanently close or cover over air vents as they are required to provide ventilation. Further guidance on ventilation provision when carrying out retrofit works is available in Section 10 Ventilation of S.R. 54:2014 Code of Practice for the Energy Efficient Retrofit of Dwellings.

Radon

Radon gas at high concentration causes lung cancer and is estimated to be responsible for 300 cases per annum in Ireland. Retrofitting provides an opportunity to test for, and remediate for, radon, where indicated. A radon test is low cost and non-disruptive. The only way to know if a home has a radon issue is to test. Further information on radon, including testing, is available on the EPA website www.epa.ie.

Heat producing Appliances

It is important to ensure that there is an adequate air supply to all heat producing appliances e.g. any fixed appliance (including a cooker or an open fire) which is designed to burn solid fuel, oil, bio-fuel or gas and to provide permanent ventilation for all non-room sealed combustion appliances. Useful health and safety information can be found on the Carbon Monoxide safety website: www.carbonmonoxide.ie. Further guidance on air supply for heat producing appliances is available in Section 7 and Section 10 Ventilation of S.R. 54:2014 Code of Practice for the Energy Efficient Retrofit of Dwellings.

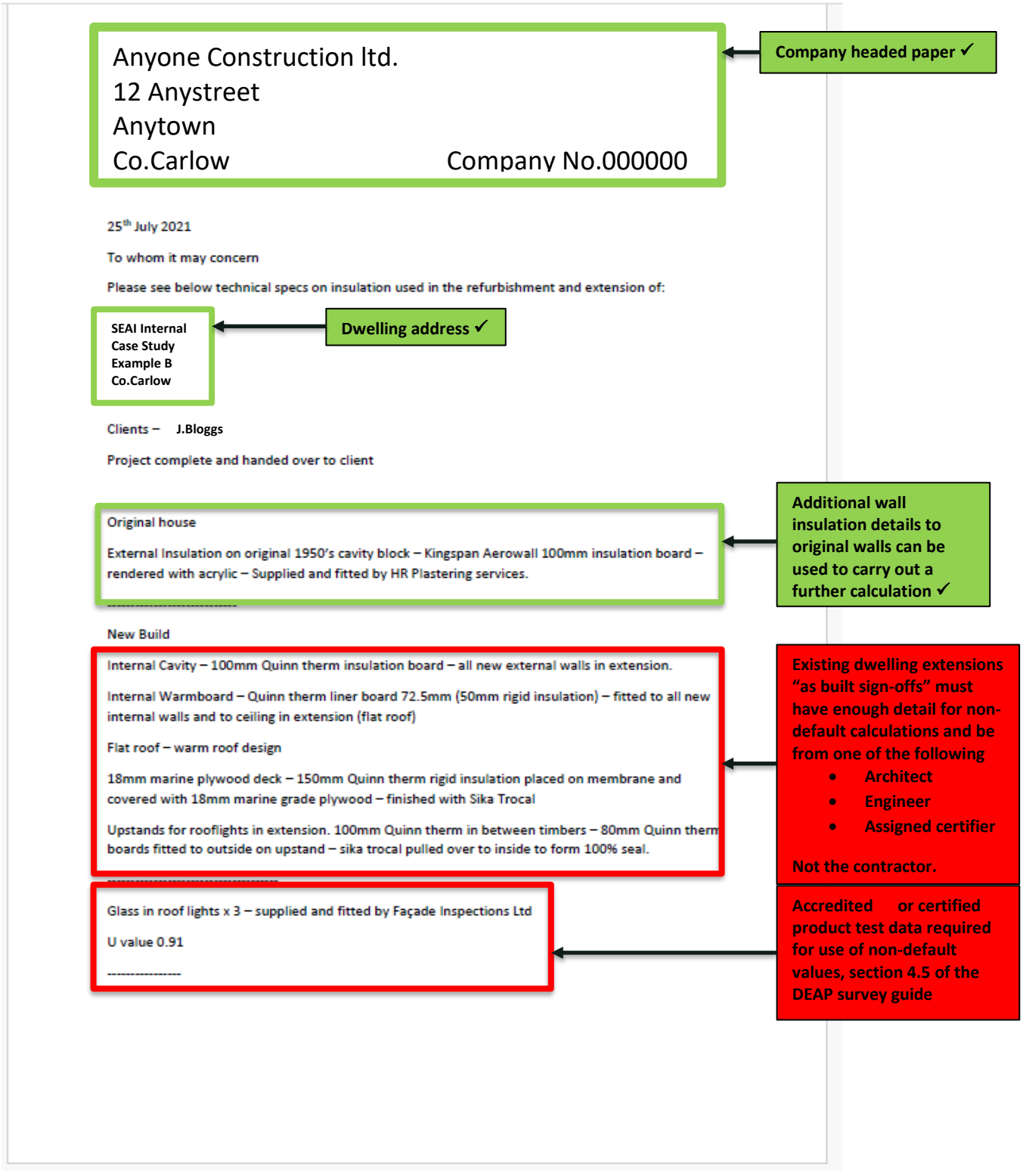
Evidence for BER

Documentary evidence of energy upgrades is required for your BER and should be retained and provided to your BER assessor to ensure the energy performance uplift is captured in your BER. Your BER Assessor can advise you on documentary evidence requirements. Further information is available on https://www.seai.ie/home-energy/building-energy-rating-ber/.

21. Homeowner Documentation

BER Assessors should endeavour to gather as much data, photographs, sketches, plans and supporting evidence as possible (and indeed practicable) to increase the likelihood of an accurate survey and assessment which will stand up to auditing by SEAI. Section 4 of the DEAP survey guide provides guidance on supporting evidence.
The following documents were provided by the homeowner in relation to aspects of the dwelling renovations, however not all the information was acceptable for the use of Non-default values, each page has highlighted both acceptable and not acceptable information through-out.

Contractor letter



Anyone Construction ltd.
12 Anystreet
Anytown
Co.Carlow Company No.000000

Company headed paper ✓

Attic

80mm Quinn therm rigid board between rafters – joints taped and sealed with 100mm Aluminium foil.

72.5mm (50mm rigid insulation) Quinn therm liner board fitted to attic ceiling and exterior facing walls.

Floors

Ground level – hard core on radon barrier – reinforced concrete slab

150mm Quinn therm floor insulation on sand – covered with clear PVC membrane– covered with 75mm screed. UFH pipes throughout

Upstairs – UFH throughout – ceramic boards with 15mm pipe – foil underneath – low heat resistant covering.

Existing dwelling extensions "as built sign-offs" must have enough detail for non-default calculations and be from one of the following

- Architect
- Engineer
- Assigned certifier

Not the contractor.

Sliding Aluminium Doors

Finish
Single or dual colour, marine quality polyester powder coat as standard **
U Value
1.5 W/m²K using a 1.0 centre pane
Air
Class 4, 600Pa
Water
Class E, 750Pa
Wind
Class 4, 1800Pa

Composite Doors – supplied by Superseal (NI)

Glazed Door U Value – 0.98, Glazed sidelights U value 1.1

Windows – double glazed – overall U value 1.0 - all original replaced

Accredited or certified product test data required for use of non-default values, section 4.5 of the DEAP survey guide

Mr.Anybody

Director *J. Anybody*

Window label

Some windows may have attached a product label, these can be useful in determining the make and model of the window to enable the assessor to procure the correct accredited certified test data for the window installed. The above label is an example of a label image taken during the BER survey, although there is some information, the label is lacking the actual product type details, **the actual purpose of this particular label is to assist the homeowner in choosing the correct blinds, this label is not linked to the DOP.**

1. Window manufacturer – Keylite ✓
2. CE marked labelling system with relevant test standard - ✓
3. Product size, this relates to the blind product code, as does the QR code - X
4. Serial code – This serial code is to assist the homeowner in buying blinds - X

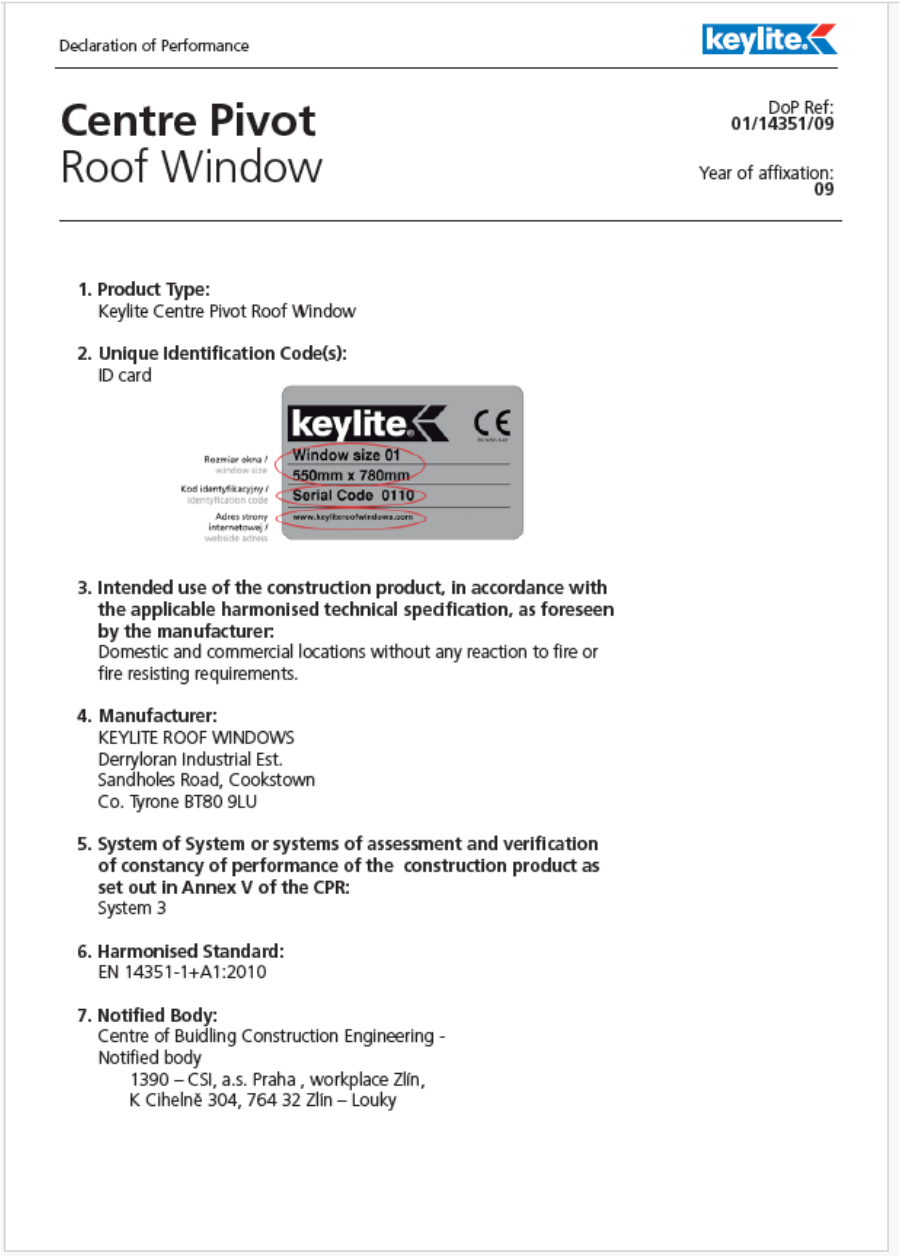
***This label is a good example of not linking the window with the following DOP**

Declaration of Performance

A Declaration of Performance (DoP) issued for CE marked products is acceptable for DEAP assessments provided the following requirements are met:

- The DoP must display the relevant standard for the product in question as referenced in the DEAP methodology 10
- The DoP must show the relevant performance data for use in DEAP in sufficient detail for the data to be used in DEAP.
- The product must have a CE mark with the DoP reference number; the CE mark would typically be on the product itself, associated literature or product packaging; a copy of the CE mark showing the DoP number along with a copy of the DoP itself must be retained by the BER assessor as supporting evidence.

*As can be seen from the product , there is no DoP reference number linking the window with the Dop, therefore the assessor is left with no alternative but to use defaults.



Declaration of Performance

keylite

Centre Pivot
Roof Window

DoP Ref:
01/14351/09

Year of affixation:
09

1. **Product Type:**
   Keylite Centre Pivot Roof Window

2. **Unique Identification Code(s):**
   ID card

3. **Intended use of the construction product, in accordance with the applicable harmonised technical specification, as foreseen by the manufacturer:**
   Domestic and commercial locations without any reaction to fire or fire resisting requirements.

4. **Manufacturer:**
   KEYLITE ROOF WINDOWS
   Derryloran Industrial Est.
   Sandholes Road, Cookstown
   Co. Tyrone BT80 9LU

5. **System of System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V of the CPR:**
   System 3

6. **Harmonised Standard:**
   EN 14351-1+A1:2010

7. **Notified Body:**
   Centre of Buidling Construction Engineering - Notified body
   1390 – CSI, a.s. Praha , workplace Zlín,
   K Cihelně 304, 764 32 Zlín – Louky

Declaration of Performance

keylite.

Centre Pivot
Roof Window

DoP Ref:
01/14351/09

Year of affixation:
09

8. Declared Performance:

Centre Pivot Roof Window				Harmonised technical specification EN 14351-1:2006+A1:2010	
Essential characteristics	Performance			§	NB #
Glazing Type	Thermal	Hi-Thermal	Krypton Triple Glazed		
Resistance to wind load	Class C4 (1)	Class C4 (1)	Class C4 (1)	4.2	1390
Resistance to snow load	4H-20, Ar-4TM (2)	4H-18, Ar-33.1 (2)	4H-10,Kr-4-8,Kr-4 (2)	4.3	-
Reaction to fire	npd	npd	npd	4.4.1	-
External fire performance	npd	npd	npd	4.4.2	-
Water tightness	Class - E 1050	Class - E 1050	Class - E 1050	4.5	1390
Impact resistance	Class 2-300mm	Class 2-300mm	Class 2-300mm	4.7	1390
Load-bearing capacity of safety devices	Pass	Pass	Pass	4.8	1390
Acoustic performance	32 (-1;-2) dB	36 (-1;-2) dB	32 (-1;-2) dB	4.11	2253
Thermal transmittance	1,3 W/m²K	1,3 W/m²K	1,0 W/m²K	4.12	1390
Solar factor	0.63	0.63	0.53	4.13	2253
Light transmittance	0.80	0.80	0.71	4.13	2253
Air permeability	Class 3	Class 3	Class 3	4.14	1390

(1) For window width > 1340mm or window height > 980mm: NPD
(2) H - External Toughened Glazing Pane
(3) NPD - No performance determined

9. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 8.

This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Date:
14.08.2014

Signed:

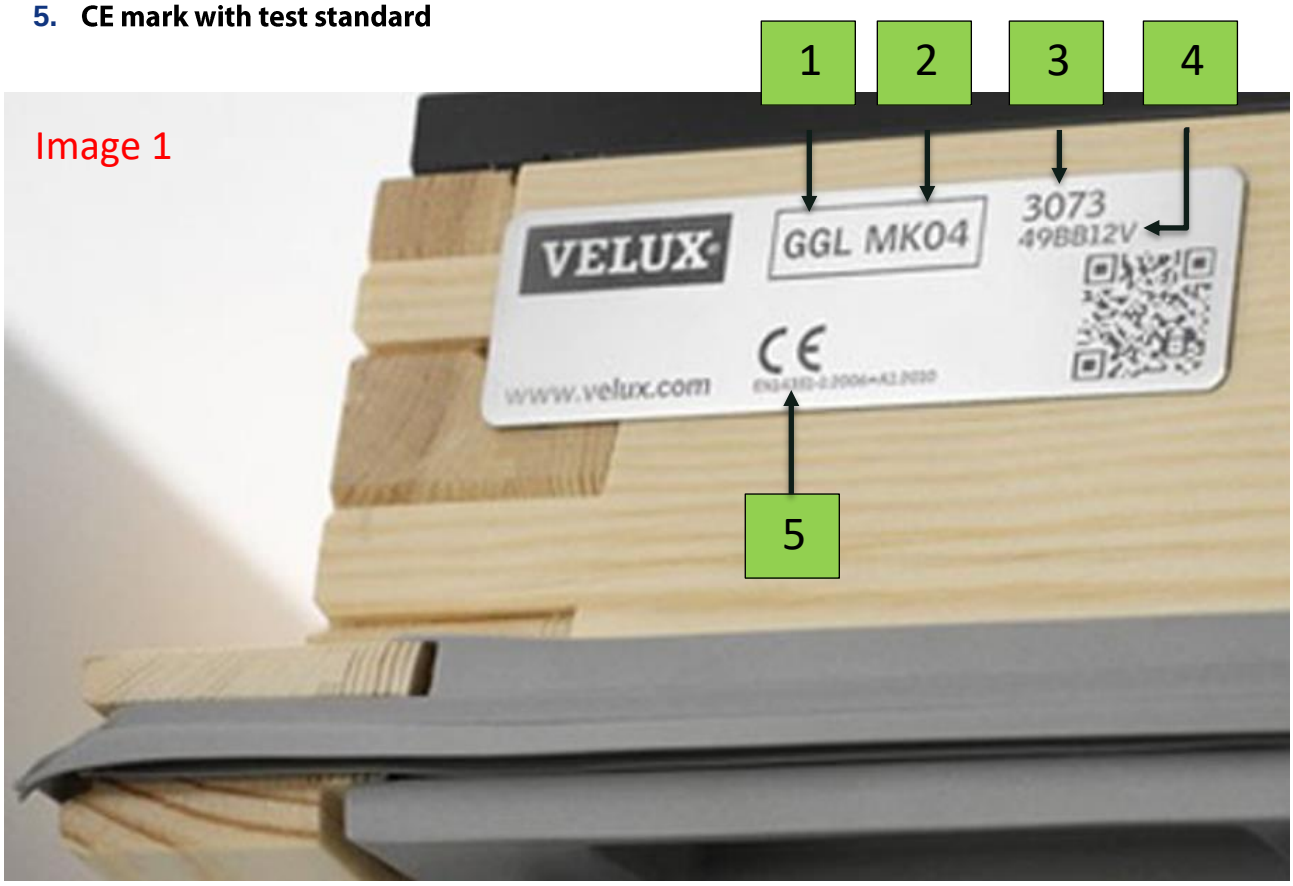
Andy Neal
(Operations Director)

Example of an acceptable Labelling and DoP system

***The following is only an example of the Velux labelling system, please note that there are no Velux windows in this dwelling or assessment.*

Image 1

1. **Window Type**
2. **Size**
3. **Variant**
4. **Production code**
5. **CE mark with test standard**

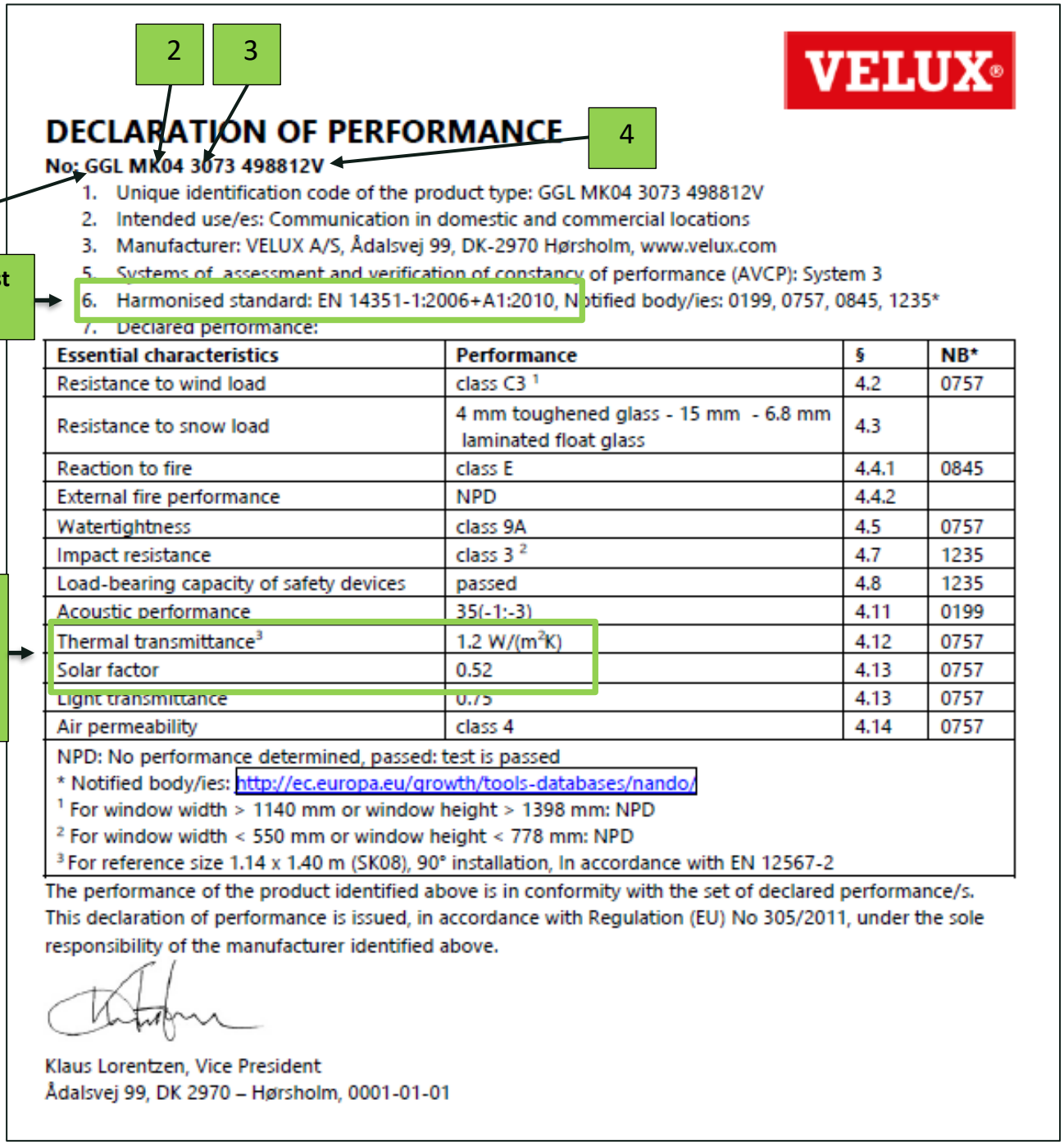


Points 1-4 are required to obtain the relevant DoP on the manufacturer's website, this DoP can then be downloaded and saved with an assessment that has the applicable window installed for use of non-default values.

Below is the relevant DoP for the window label above, for continuity points of reference 1 to 4 between the window and the DoP have been highlighted.

Declaration of Performance – DoP

This Velux DoP page, came as a download with 2-pages, page 1 is the Dop and page 2 is the CE mark technical product label linked to the DoP, it is the label having the same performance information with the addition of a CE mark that would be affixed to the product of product packaging. the addition of the CE mark on page 2 would enable this page to standalone without page 1.



The acceptability of this page is based around the CE marking, the CE marking indicates conformity with the standard

VELUX®

CE 13	GGL MK04 3073 498812V Communication in domestic and commercial locations	Harmonised standard: EN 14351-1:2006+A1:2010

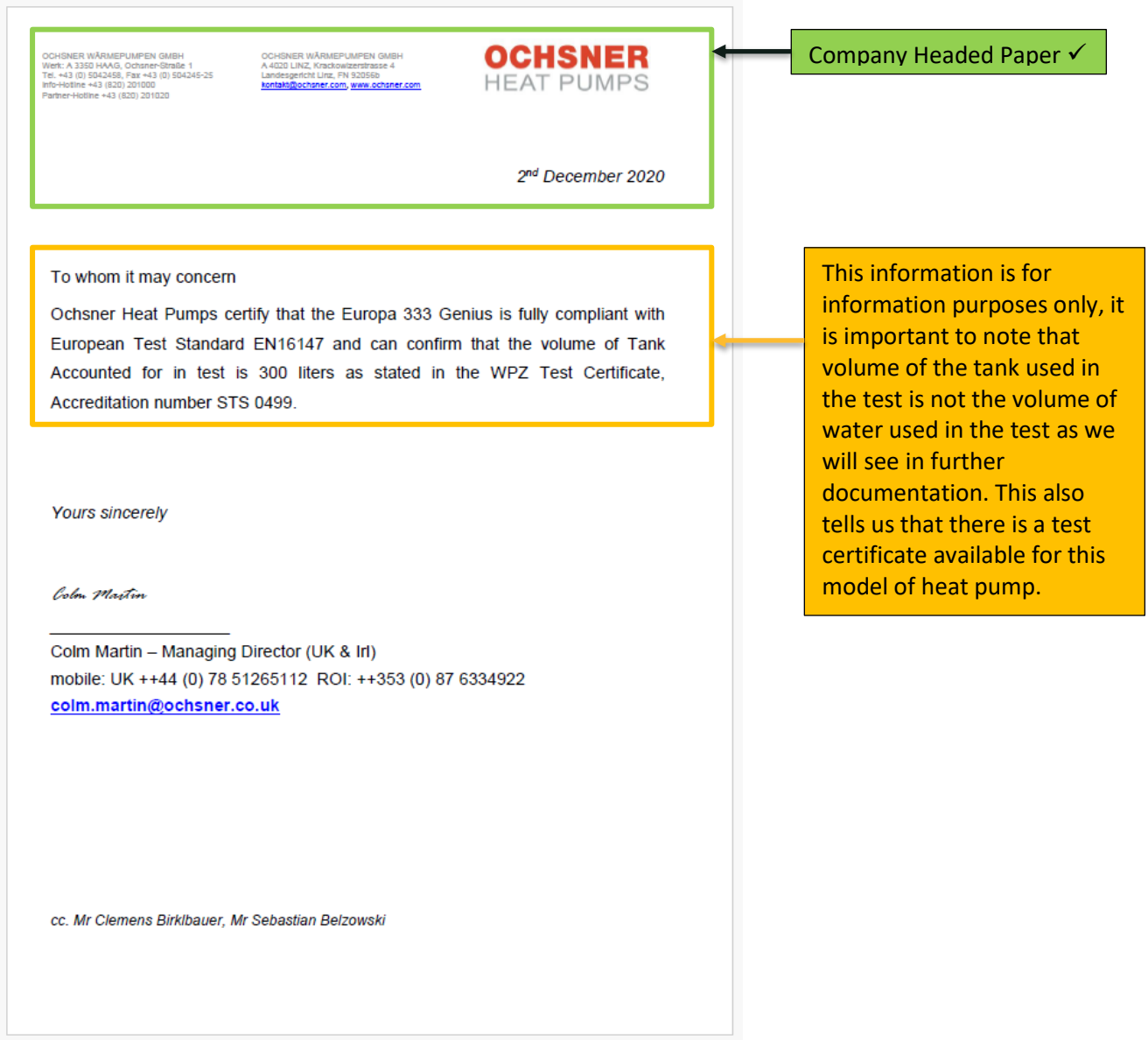
Essential characteristics	Performance	§	NB*
Resistance to wind load	class C3 [1]	4.2	0757
Resistance to snow load	4 mm toughened glass - 15 mm - 6.8 mm laminated float glass	4.3	
Reaction to fire	class E	4.4.1	0845
External fire performance	NPD	4.4.2	
Watertightness	class 9A	4.5	0757
Impact resistance	class 3 [2]	4.7	1235
Load-bearing capacity of safety devices	passed	4.8	1235
Acoustic performance	35(-1;-3)	4.11	0199
Thermal transmittance[3]	1.2 W/(m²K)	4.12	0757
Solar factor	0.52	4.13	0757
Light transmittance	0.75	4.13	0757
Air permeability	class 4	4.14	0757

NPD: No performance determined, passed: test is passed
* Notified body/ies: http://ec.europa.eu/growth/tools-databases/nando/
[1] For window width > 1140 mm or window height > 1398 mm: NPD
[2] For window width < 550 mm or window height < 778 mm: NPD
[3] For reference size 1.14 x 1.40 m (SK08), 90° installation, In accordance with EN 12567-2

Heat Pump documentation

For use of non-default data for heatpump systems certified accredited test data is required, that is either in the form of Eco design data or certified accredited test data from a certified accredited test centre, accredited to test to the required test standards as listed in the DEAP manual Appendix G.

The following are the documents supplied by the homeowner from the installer for the space and water heating systems, it is a good example of been given various documents some of which are or not useful or useable for values in the DEAP assessment. On each page there are prompts to the useable information and the reason why it can be used.



OCHSNER WÄRMEPUMPEN GMBH
Werk: A 3350 HAAG, Ochsner-Straße 1
Tel. +43 (0) 5042458, Fax +43 (0) 504245-25
Info-Hotline +43 (820) 201000
Partner-Hotline +43 (820) 201020

OCHSNER WÄRMEPUMPEN GMBH
A 4020 LINZ, Krackowizerstrasse 4
Landesgericht Linz, FN 92066b
kontakt@ochsner.com, www.ochsner.com

OCHSNER
HEAT PUMPS

Company Headed Paper ✓

2nd December 2020

To whom it may concern

Ochsner Heat Pumps certify that the Europa 333 Genius is fully compliant with European Test Standard EN16147 and can confirm that the volume of Tank Accounted for in test is 300 liters as stated in the WPZ Test Certificate, Accreditation number STS 0499.

This information is for information purposes only, it is important to note that volume of the tank used in the test is not the volume of water used in the test as we will see in further documentation. This also tells us that there is a test certificate available for this model of heat pump.

Yours sincerely

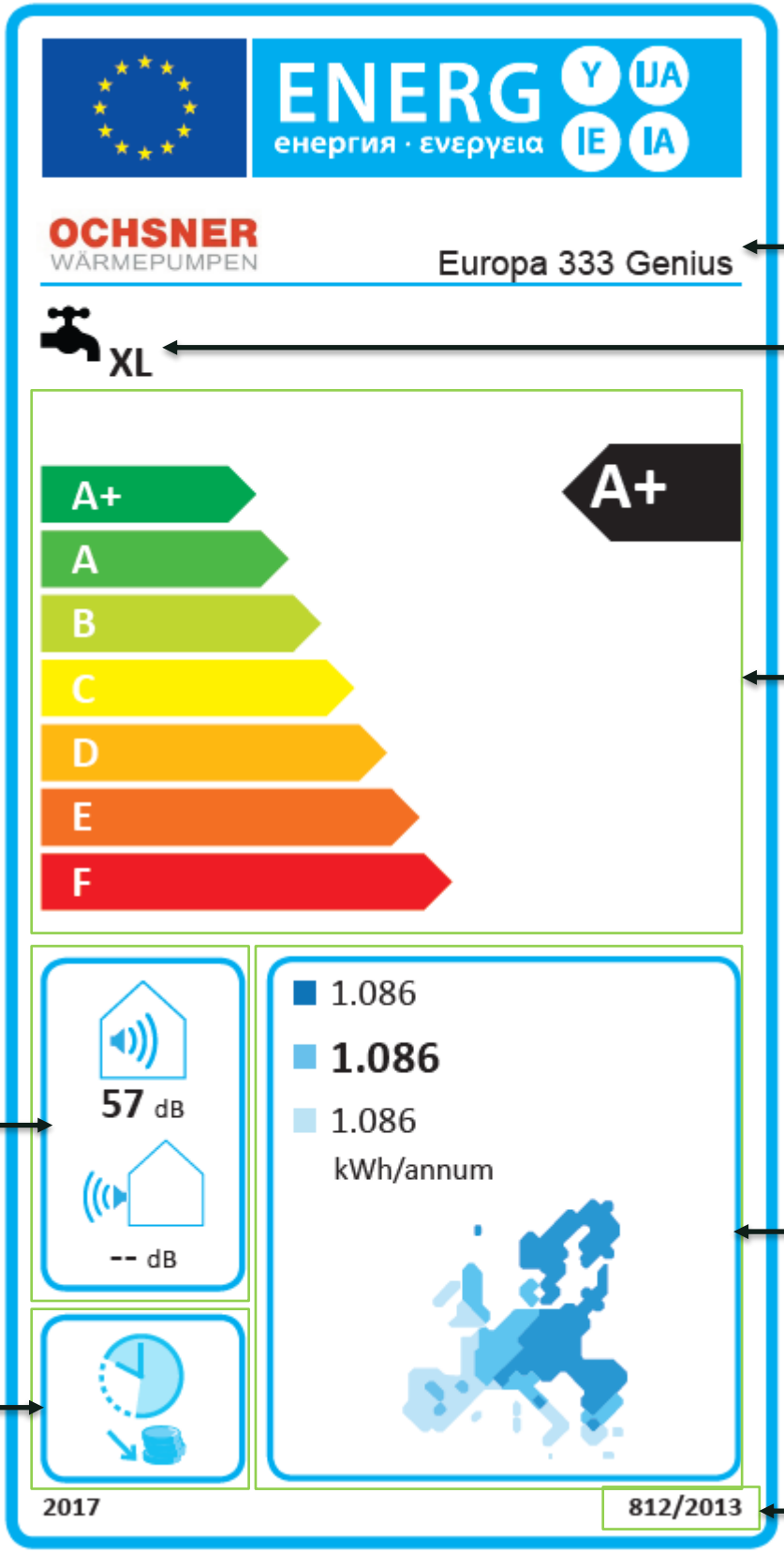
Colm Martin

Colm Martin – Managing Director (UK & Irl)
mobile: UK ++44 (0) 78 51265112 ROI: ++353 (0) 87 6334922
colm.martin@ochsner.co.uk

cc. Mr Clemens Birklbauer, Mr Sebastian Belzowski

Energy Label

The Energy label is a starting point to determine that the Heat pump in question has eco design data available.



Brand Name and Model details

Load profile

Energy efficiency scale rating, 'A' rated products being the most energy efficient

Products Energy consumption for each climate zone,

Regulation details

Sound power level indoor and out.

Suitable for operation during off-peak periods

Technical data sheet

The technical data sheet must be relevant to the unit installed, the first aspect to look for is the required directive for that appliance type, in this case its for water heaters and hot water storage tanks, this is governed by both EU 812/2013 and EU 814/2013, this allows the assessor to use the relevant information contained within that document.

OCHSNER
WÄRMEPUMPEN

Technische Daten Warmwasserbereiter Technical data sheet heat pump water heater		
Richtline 2010/30/EU Directive 2010/30/EU	Verordnung EU 812/2013 Regulation EU 812/2013	
Richtlinie 2009/125/EC Directive 2009/125/EC	Verordnung EU 814/2013 Regulation EU 814/2013	
Hersteller Manufacturer	Ochsner Wärmepumpen	
Modell Model	**Europa 333 Genius**	
Lastprofil Load profile	-	XL
Klasse Warmwasserbereitungseffizienz, durchschnittliches Klima (Innenluft) Energy efficiency class hot water heating, average climate (indoor air)	-	A+
Warmwasserbereitungseffizienz, durchschnittliches Klima (Innenluft) Energy efficiency hot water heating, average climate (indoor air)	%	155
Jährlicher Stromverbrauch (AEC) durchschnittliches Klima (Innenluft) Annual energy consumption (AEC), average climate (indoor air)	kWh	1086
Temperatureinstellung ab Werk Default temperature setting	°C	52
Schallleistungspegel in Innenräumen Sound power level indoors	dB	57
Ausschließlicher Betrieb zu Schwachlastzeiten möglich Water heater is able to work only during off-peak hours	-	ja yes
Alle bei der Montage, Installation oder Wartung des Warmwasserbereiters zu treffenden besonderen Vorkehrungen. Special precautions to be taken during assembly, installation or maintenance		siehe Bedienungs- und Installationsanleitung see operating and installation instructions
Warmwasserbereitungseffizienz kälteres Klima (Innenluft) Energy efficiency hot water heating, colder climate (indoor air)	%	155
Warmwasserbereitungseffizienz wärmeres Klima (Innenluft) Energy efficiency hot water heating, warmer climate (indoor air)	%	155
Jährlicher Stromverbrauch (AEC) kälteres Klima (Innenluft) Annual energy consumption (AEC), colder climate (indoor air)	kWh	1086
Jährlicher Stromverbrauch (AEC) wärmeres Klima (Innenluft) Annual energy consumption (AEC), warmer climate (indoor air)	kWh	1086
Schallleistungspegel im Außenbereich Sound power level outdoors	dB	-
Täglicher Stromverbrauch Qelec, durchschnittliches Klima (Innenluft) Daily power consumption Qelec, average climate (indoor air)	kWh	5,010
Volumen Mischwasser bei 40°C, V40 Volume of mixed water at 40°C, V40	l	375

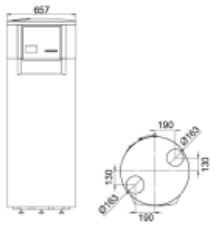
This data sheet is a standalone document without the required Eco design information, it may be useful in determining the system dynamics, however the data is not useable for input in a DEAP assessment.

OCHSNER HEAT PUMPS | MULTIFUNCTIONAL APPLIANCES

EUROPA 333 GENIUS

MULTIFUNCTIONAL APPLIANCE
AIR/EXHAUST AIR HEAT PUMP WITH 300 L TANK

ORDER NUMBER: 110280
SERIES: EUROPA
TF MAX. 65°C



APPLIANCE DATA

Dimensions (diameter x height)	[mm]	650 x 1850
Type		Compact
Weight	[kg]	165
Electronic controller		Tiptronic Plus S (touchscreen)
Casing colour		Tiger white 29/11299/grey RAL 7016

SPECIFICATION

Phase/nominal voltage/frequency	[~]/[V]/[Hz]	1/220-240/50
Fuse protection (tripping curve "C")	[A]	13
Max. operating current	[A]	10,20
Starting current	[A]	18,00
Sound power level/sound pressure level (at 1 m distance)	[dBA]	57.90 / 49.00

PERFORMANCE FIGURES (EN 16147 / A20)

Load profile		XL
Coefficient of performance (COP)		3,82
Heat-up time		6h 42min
Max. usable amount of water	[l]	375
Reference DHW temperature	[°C]	52,10
Average heating output	[kW]	2,18
Average power consumption	[kW]	0,52
SCOPw (VDI 4650-1:2016)		4,73

DHW TANK

Nominal capacity	[l]	300
Permissible operating pressure	[bar]	6
Material		Enamelled steel
Thermal insulation		Rigid PU foam (50 mm)
Sacrificial anode		1 x 5/4" mains current anode
Standby heat loss	[W]	99

ELECTRIC BOOSTER HEATER

Type		Submersible heat exchanger
Number	[pcs]	2
Output	[kW]	1 x 0.7 (fixed), 1 x 0.7 (variable)

BOOSTER HEATER COIL

Type		Smooth tube 3/4"
Permissible operating pressure	[bar]	4
Permissible operating temperature of heating medium	[°C]	90
Coil surface area	[m²]	1,40

CONDENSER

Type		Rollbond
Material		Aluminium
Max. refrigerant operating pressure	[bar]	25
Application range	[°C]	65
Heat transfer medium		Water

REFRIGERANT CIRCUIT

Refrigerant		R134a
Refrigerant charge	[kg]	1,10

COMPRESSOR

Type		Rotary piston
Output levels		1
Start type		Direct
Voltage/frequency	[V]/[Hz]	220-240 / 50

FAN

Type		Radial fan
Number	[pcs]	1
Voltage/frequency	[V]/[Hz]	220-240 / 50
Power consumption	[W]	85
Max. operating current	[A]	0,70
Unrestricted air flow	[m3/h]	192-711
Infinitely variable		built-in
External pressure	[Pa]	80

EVAPORATOR

Type		Air/finned tube
Material		Copper/ aluminium
Number	[pcs]	1
Defrost technology / frost protection shutdown		Hot gas
Max. refrigerant operating pressure	[bar]	27
Operating temperature min.	[°C]	-10
Operating temperature max.	[°C]	+40

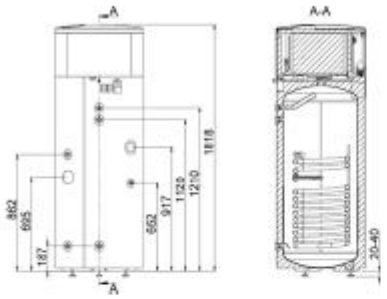
OCHSNER heat pumps are domestic appliances in accordance with the Machinery Directive.

Status: 20190725

www.ochsner.com

This data sheet is a standalone document without the required Eco design information, it may be useful in determining the system dynamics, however the data is not useable for input in a DEAP assessment.

EUROPA 333 GENIUS / HOT WATER HEAT PUMPS



PRODUCT DATA ErP: EUROPA 333 GENIUS

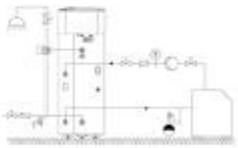
LOAD PROFILE		XL		
		COLDER	MEAN	HOTTER
ηWH		120	120	120
Annual power consumption	kWh/a	1324	1324	1324
Temperature setting in delivered condition	°C		62	
Sound power internal	dB		57	
Smart grid ready (operation only in off-peak periods is possible)			Yes	

Tiptronic Plus S controller with touchscreen for easy operation:

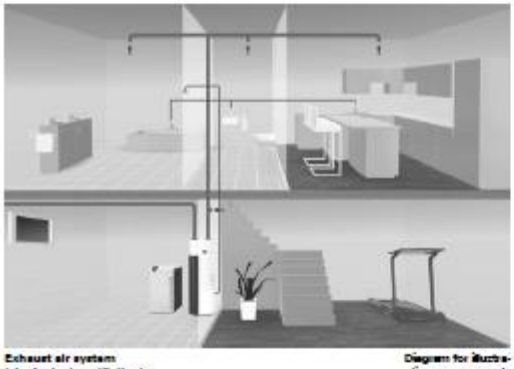
- Selectable anti-legionella mode
- Real time clock
- Speed control and time program for ventilation function
- Defrost function for use at temperatures down to -10°C
- Incl. solar control for on-site solar thermal system
- Smart grid function and Modbus communication

EUROPA 333 Genius with solar

EUROPA 333 Genius with boiler



EXAMPLES OF APPLICATION



Exhaust air system (single-duct ventilation).
Exhaust air from bathroom, WC and kitchen to outside

Diagram for illustrative purposes only

Installation in laundry room
DHW heating from ambient air, drying of room

Diagram for illustrative purposes only

Cooling of pantry/storeroom

Diagram for illustrative purposes only

Status: 20180725

www.ochsner.com

Technical data sheet

The technical data sheet must be relevant to the unit installed, the first aspect to look for is the required directive for that appliance type, in this case its for water heaters and hot water storage tanks, this is governed by both EU 812/2013 and EU 814/2013, this allows the assessor to use the relevant information contained within that document.

OCHSNER
WÄRMEPUMPEN

Calculation sheet ErP for OCHSNER heat pumps

to Commission Delegated Regulation (EU) Nr. 812/2013

OCHSNER Europa 333 Genius

Type of heat pump		Air / Exhaust air
Load profile	[-]	XL
P_{stby}*	[W]	27
Q_{ref}*	[kWh]	19.11
Q_{elec}*	[kWh]	5.01
k	[-]	0.23
Qcor	[kWh]	-0.15
CC	[-]	2.5
SCF	[-]	0
smart	[-]	0
Reference hot water Temp.	[°C]	51.9
Stand-by heat loss tank	[W]	75

$$Q_{cor} = -k \cdot 24h \cdot P_{stby}$$

$$\eta_{wh} = \frac{Q_{ref}}{CC \cdot Q_{elec} \cdot (1 - SCF \cdot smart) + Q_{cor}}$$

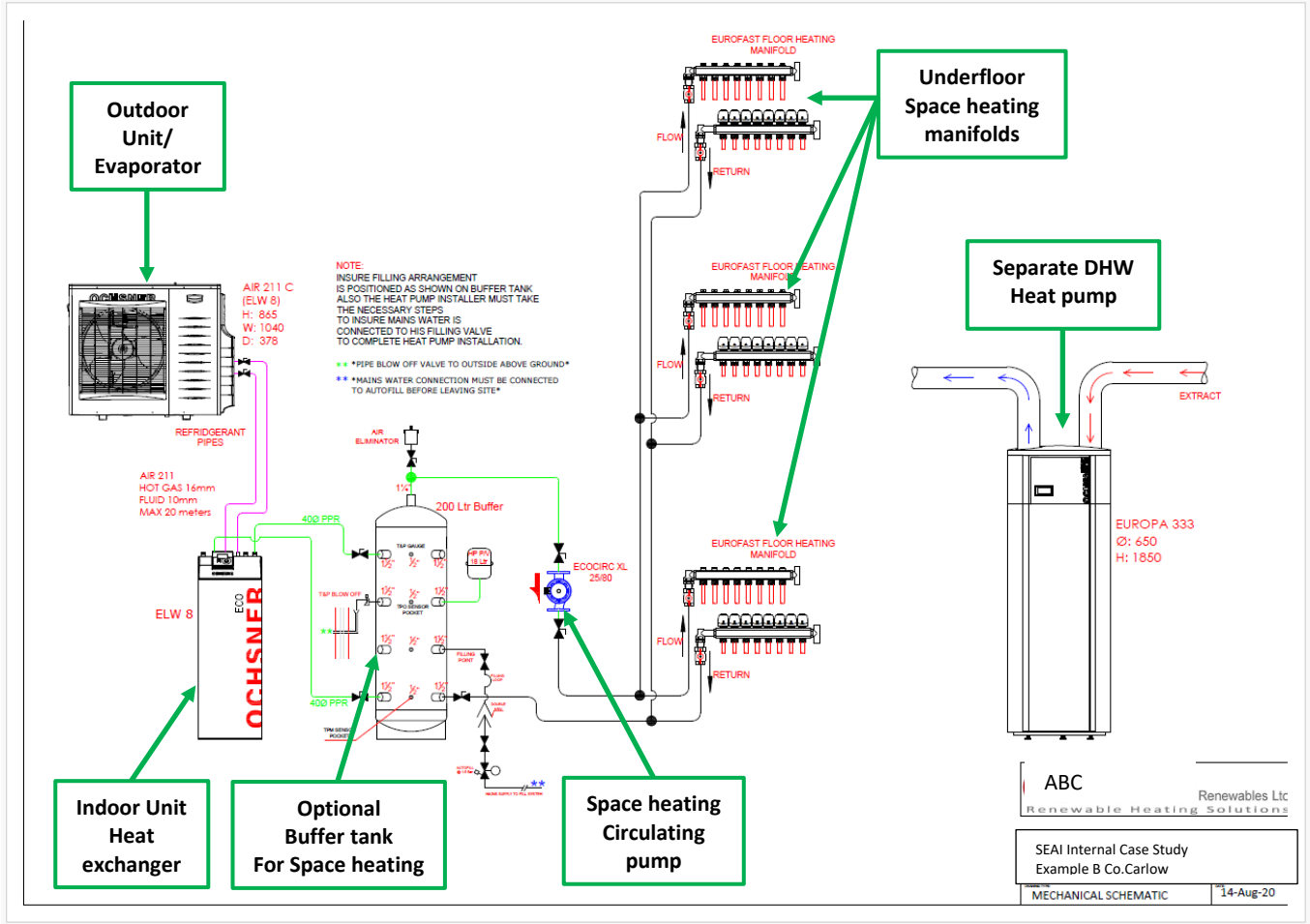
$$AEC = 0{,}6 \cdot 366 \cdot \left(Q_{elec} \cdot (1 - SCF \cdot smart) + \frac{Q_{cor}}{CC} \right)$$

A+		Colder	Average	Warmer
η_{WH}		155	155	155
Annual energy consumption	[kWh]	1086	1086	1086

* values measured according to EN 16147 at WPZ Buchs (CH), Test No. B-110-16-10

19.04.2018

This mechanical schematic sheet is a standalone document; it may be useful in determining the system dynamics specific to the dwelling being assessed.

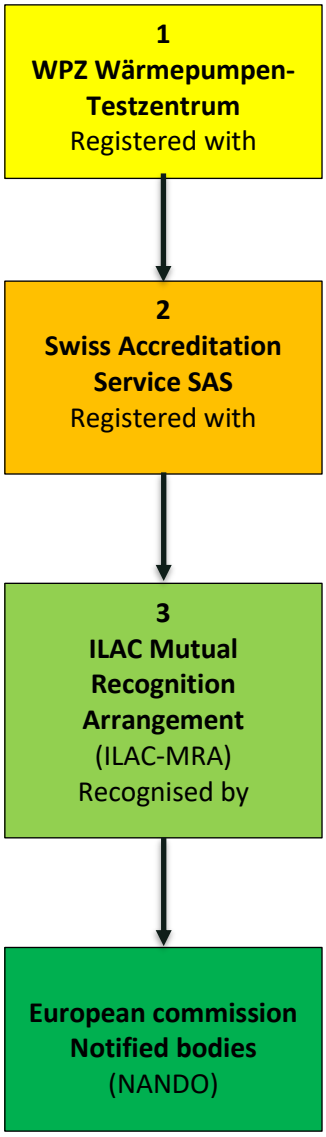


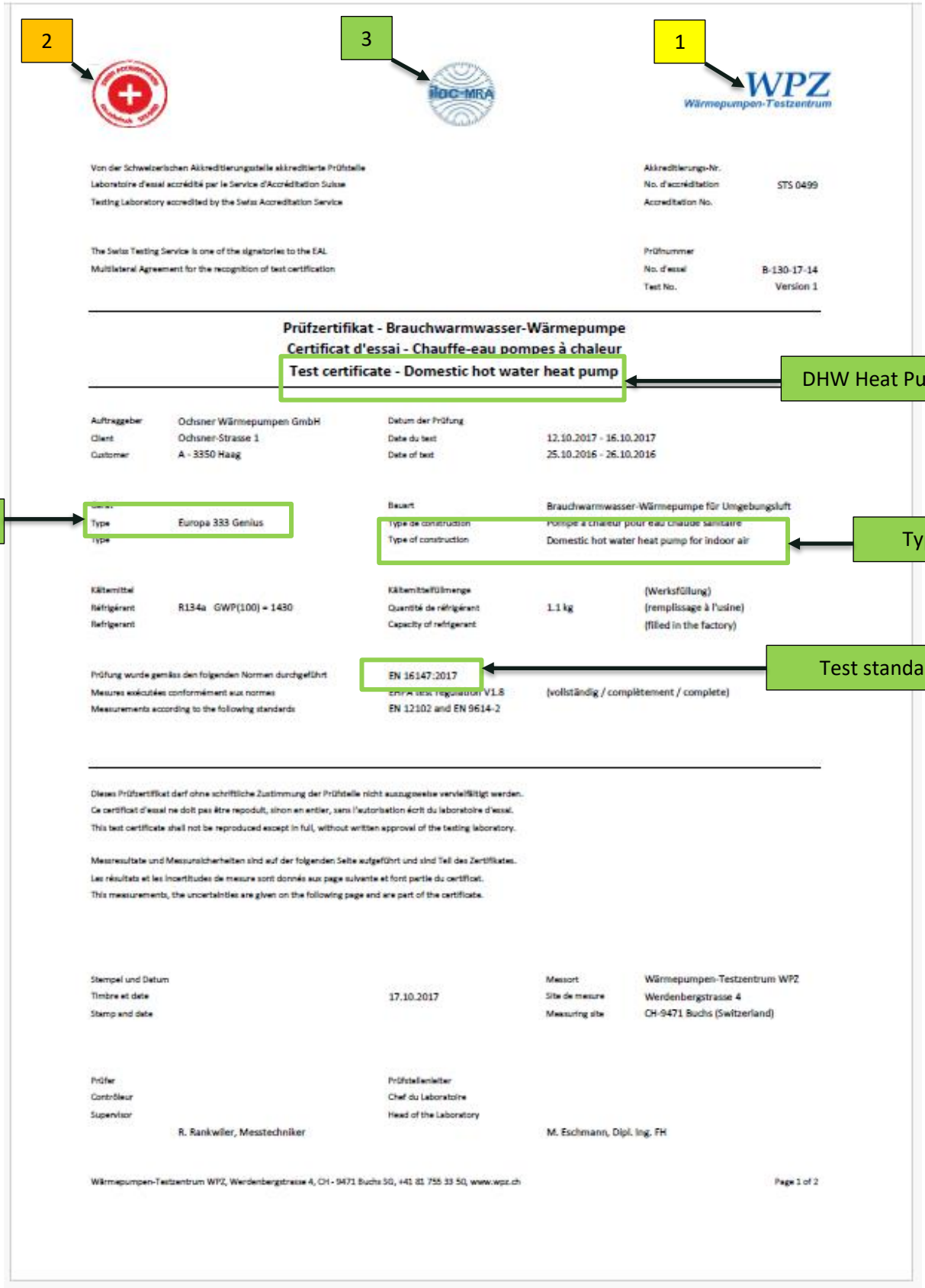
Certified accredited test data from an accredited test centre accredited to test to the standard

Any validation with a test certificate should start with the test certificate itself to determine what company it is coming from, who they are accredited with?, is that accreditation acceptable?, what standard they are testing to?, and are there useable test values as per the DEAP requirements?.

On reviewing the cert we can see that it is from a company called **"WPZ Wärmepumpen-Testzentrum"**, they are a Swiss company, being a Swiss company they are initially accredited by the **"Swiss Accreditation Service SAS",** this can be seen HERE , although Switzerland is a European country, it is not part of the European union, however **Swiss Accreditation Service SAS** is part of the "**ILAC Mutual Recognition Arrangement**" HERE ,ILAC MRA is recognised within the European commission Notified bodies website (NANDO) HERE , therefore this cert once it has usable values as per DEAP guidance can be used.

Cert verification





2

3

1

WPZ
Wärmepumpen-Testzentrum

Von der Schweizerischen Akkreditierungsstelle akkreditierte Prüfstelle
Laboratoire d'essai accrédité par le Service d'Accréditation Suisse
Testing Laboratory accredited by the Swiss Accreditation Service

Akkreditierungs-Nr.
No. d'accréditation STS 0499
Accreditation No.

The Swiss Testing Service is one of the signatories to the EAL
Multilateral Agreement for the recognition of test certification

Prüfnummer
No. d'essai B-130-17-14
Test No. Version 1

Prüfzertifikat - Brauchwarmwasser-Wärmepumpe
Certificat d'essai - Chauffe-eau pompes à chaleur
Test certificate - Domestic hot water heat pump

DHW Heat Pump test✓

Auftraggeber Client Customer	Ochsner Wärmepumpen GmbH Ochsner-Strasse 1 A - 3350 Haag	Datum der Prüfung Date du test Date of test	12.10.2017 - 16.10.2017 25.10.2016 - 26.10.2016
Type Type	Europa 333 Genius	Bauart Type de construction Type of construction	Brauchwarmwasser-Wärmepumpe für Umgebungsluft Pompe à chaleur pour eau chaude sanitaire Domestic hot water heat pump for indoor air
Kältemittel Réfrigérant Refrigerant	R134a GWP(100) = 1430	Kältemittelfüllmenge Quantité de réfrigérant Capacity of refrigerant	1.1 kg (Werksfüllung) (remplissage à l'usine) (filled in the factory)
Prüfung wurde gemäss den folgenden Normen durchgeführt Mesures exécutées conformément aux normes Measurements according to the following standards	EN 16147:2017 EHPA test regulation V1.8 EN 12102 and EN 9614-2	(vollständig / complètement / complete)	

Model✓

Type✓

Test standard ✓

Dieses Prüfzertifikat darf ohne schriftliche Zustimmung der Prüfstelle nicht auszugsweise vervielfältigt werden.
Ce certificat d'essai ne doit pas être reproduit, sinon en entier, sans l'autorisation écrit du laboratoire d'essai.
This test certificate shall not be reproduced except in full, without written approval of the testing laboratory.

Messresultate und Messunsicherheiten sind auf der folgenden Seite aufgeführt und sind Teil des Zertifikates.
Les résultats et les incertitudes de mesure sont donnés aux page suivante et font partie du certificat.
This measurements, the uncertainties are given on the following page and are part of the certificate.

Stempel und Datum Timbre et date Stamp and date	17.10.2017	Messort Site de mesure Measuring site	Wärmepumpen-Testzentrum WPZ Werdenbergstrasse 4 CH-9471 Buchs (Switzerland)
Prüfer Contrôleur Supervisor	R. Rankwiler, Messtechniker	Prüfstellenleiter Chef du Laboratoire Head of the Laboratory	M. Eschmann, Dipl. Ing. FH

Reference hot water temperature ✓

Water volume used in test ✓

Storage volume ✓

Declared Load profile ✓

WPZ Wärmepumpen-Testzentrum

Prüfergebnisse / Résultats du test / Test results

B-130-17-14 / Version 1

Aufheizzeit Durée de mise en température Heating up time	h:min	06:44	Aufheizenergieaufnahme Energie absorbée pour la mise Heating up energy input	kWh	3.52	rel. Luftfeuchtigkeit rel. humidité rel. humidity	%	59.5
Bezugswarmwassertemperatur Température de l'eau chaude Reference hot water temperature	°C	52.1	Kaltwassertemperatur Température de l'eau froide Cold water temperature	°C	10.0	Quellentemperatur Source température Source temperature	°C	20.0
max. nutzbare Warmwassermenge Quantité max. d'eau chaude utilisable max. useful volume of heat water	l	375	Elektrische Verlustleistung Perte de puissance électrique Standby power input	W	28	Entnahmezyklus Débits de soutirage Tapping cycle	-	XL
Nutzbare Heizenergie total Energie calorifique utile total Total useful heat energy	kWh	19.21	Elektrische Energie total Energie électrique total Total electrical energy	kWh	5.11	COP	-	3.76
Daten / Données / Data Speichervolumen Volume chauffe-eau Volume of storage tank	l	300	Thermostattemperatur Température de thermostat Temperature of thermostat	°C	53	Speichertemperatur température de chauffe-eau storage tank temperature	°C	20

Prüfbedingung / Condition d'essai / Test condition: A20 / W10-53 (60% r.H.)

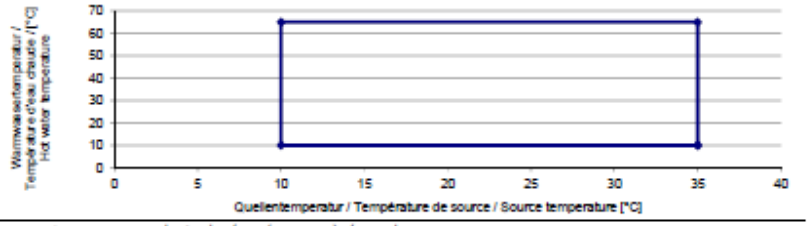
Brauchwarmwasser-Wärmepumpe für Umgebungsluft / Domestic hot water heat pump for indoor air

Einsatzgrenzen / Limites d'utilisation / Warranted usage limits

Temperaturbedingungen / Conditions du température / Temperature conditions

A10 / W10-65

A35 / W10-65



Sicherheitsprüfung / Essai de sécurité / Safety test	EN 16147 clause 6.8.2	bestanden / passé avec succès / passed
	EN 16147 clause 6.8.3	bestanden / passé avec succès / passed
	EN 16147 clause 6.8.4	bestanden / passé avec succès / passed

Schallleistungspegel / Niveau de puissance acoustique / Sound power level

Innenmessung / Mesure intérieure / Indoor measurement: dB(A) 58.5

Elektrische Messung / Mesures électriques / Electrical Measurement

max. Anlaufstrom / Courant démarrage max. / max. starting current: I_LRT [A] -

Bemerkung / Remarque / Remark

- Mit Kanalanschluss kann laut Hersteller auch bei A-5 / W10-65 gemessen werden

This data sheet is a standalone document without the required Eco design information, it may be useful in determining the system dynamics, however the data is not useable for input in a DEAP assessment.

EUROPA 333 Genius

Air/exhaust air hot water heat pump

Appliance data

Air inlet temperature	A20
Load profile	XL
Coefficient of performance (COP)	3,82
Heat-up time	6h 42min
Max. usable amount of water	375 l
Reference DHW temperature	52,1 °C
Average heating output	2,18 kW
Average power consumption	0,52 kW
SCOPw (VDI 4650-1:2016)	4,73
Dimensions (height x diameter)	1838x657 mm
Weight (excl. packaging)	124 kg

Energy efficiency (average climate zone)

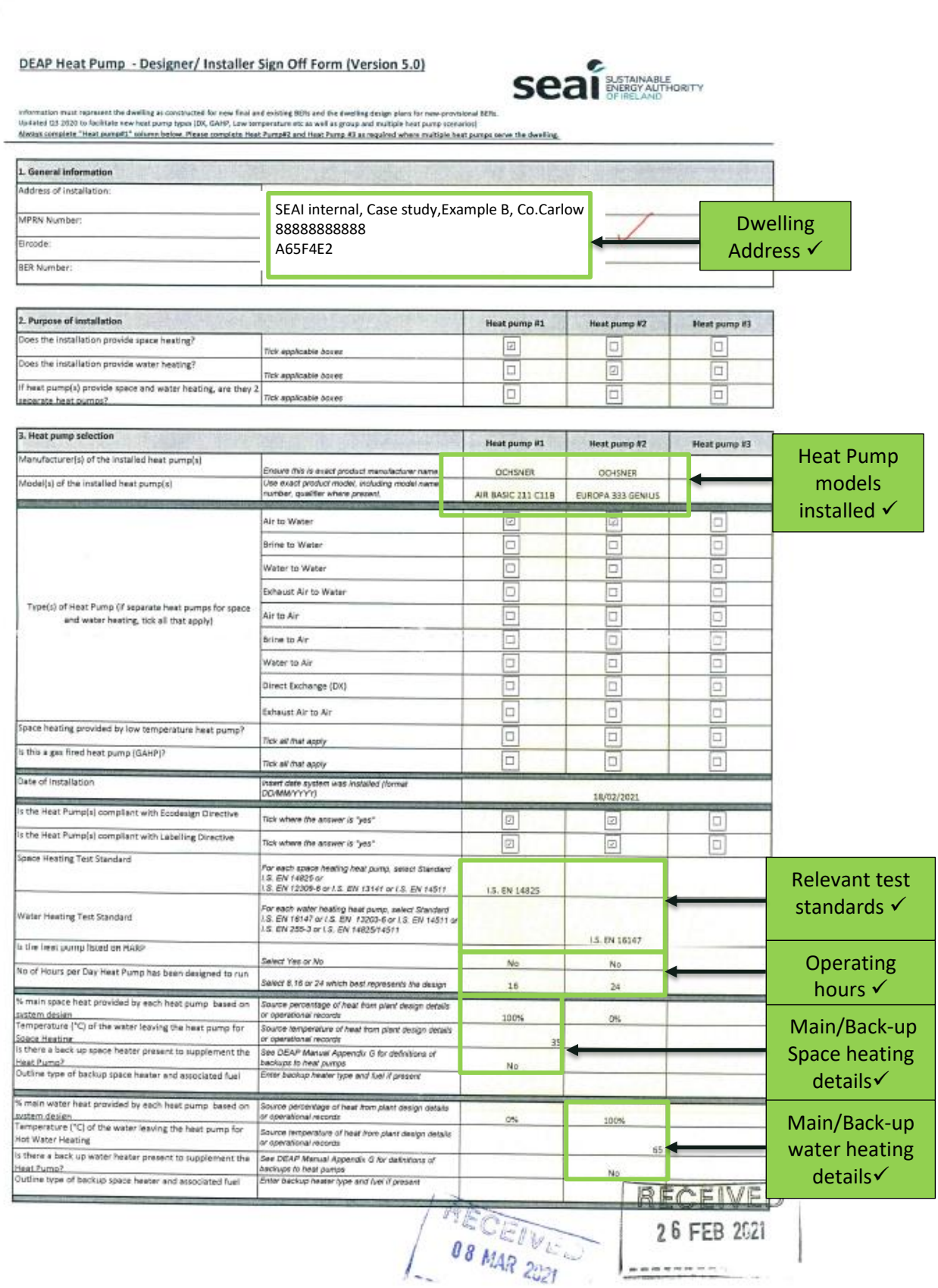
Energy efficiency class (F to A+)	A+
Load profile	XL

Electrical data

Phases/nominal voltage/frequency	1/~220-240/50 ~/V/Hz

Designer installer sign-off form

This sign-off form is required for any heat pump that comes under Ecodesign, EN14825 or EN16147. It must be completed and signed by the designer or installer of the heat pump system in the home that is being assessed.



DEAP Heat Pump - Designer/ Installer Sign Off Form (Version 5.0)

seai SUSTAINABLE ENERGY AUTHORITY OF IRELAND

Information must represent the dwelling as constructed for new final and existing BERs and the dwelling design plans for new provisional BERs.
Updated Q3 2020 to facilitate new heat pump types (DX, GAHP, Low temperature etc as well as group and multiple heat pump scenarios)
Always complete "Heat pump#1" column below. Please complete Heat Pump#2 and Heat Pump #3 as required where multiple heat pumps serve the dwelling.

1. General information	
Address of installation:	SEAI internal, Case study,Example B, Co.Carlow
MPRN Number:	88888888888
Eircode:	A65F4E2
BER Number:	

Dwelling Address ✓

2. Purpose of installation		Heat pump #1	Heat pump #2	Heat pump #3
Does the installation provide space heating?	Tick applicable boxes	☑	☐	☐
Does the installation provide water heating?	Tick applicable boxes	☐	☑	☐
If heat pump(s) provide space and water heating, are they 2 separate heat pumps?	Tick applicable boxes	☐	☐	☐

3. Heat pump selection		Heat pump #1	Heat pump #2	Heat pump #3
Manufacturer(s) of the installed heat pump(s)	Ensure this is exact product manufacturer name	OCHSNER	OCHSNER	
Model(s) of the installed heat pump(s)	Use exact product model, including model name/ number, qualifier where present.	AIR BASIC 211 C11B	EUROPA 333 GENIUS	
Type(s) of Heat Pump (if separate heat pumps for space and water heating, tick all that apply)	Air to Water	☑	☑	☐
	Brine to Water	☐	☐	☐
	Water to Water	☐	☐	☐
	Exhaust Air to Water	☐	☐	☐
	Air to Air	☐	☐	☐
	Brine to Air	☐	☐	☐
	Water to Air	☐	☐	☐
	Direct Exchange (DX)	☐	☐	☐
	Exhaust Air to Air	☐	☐	☐
Space heating provided by low temperature heat pump?	Tick all that apply	☐	☐	☐
Is this a gas fired heat pump (GAHP)?	Tick all that apply	☐	☐	☐
Date of Installation	Insert date system was installed (format DD/MM/YYYY)	18/02/2021		
Is the Heat Pump(s) compliant with Ecodesign Directive	Tick where the answer is "yes"	☑	☑	☐
Is the Heat Pump(s) compliant with Labelling Directive	Tick where the answer is "yes"	☑	☑	☐
Space Heating Test Standard	For each space heating heat pump, select Standard I.S. EN 14825 or I.S. EN 12309-6 or I.S. EN 13141 or I.S. EN 14511	I.S. EN 14825		
Water Heating Test Standard	For each water heating heat pump, select Standard I.S. EN 16147 or I.S. EN 13203-6 or I.S. EN 14511 or I.S. EN 255-3 or I.S. EN 14825/14511		I.S. EN 16147	
Is the heat pump listed on HARP	Select Yes or No	No	No	
No of Hours per Day Heat Pump has been designed to run	Select 8,16 or 24 which best represents the design	16	24	
% main space heat provided by each heat pump based on system design	Source percentage of heat from plant design details or operational records	100%	0%	
Temperature (°C) of the water leaving the heat pump for Space Heating	Source temperature of heat from plant design details or operational records	35		
Is there a back up space heater present to supplement the Heat Pump?	See DEAP Manual Appendix G for definitions of backups to heat pumps	No		
Outline type of backup space heater and associated fuel	Enter backup heater type and fuel if present			
% main water heat provided by each heat pump based on system design	Source percentage of heat from plant design details or operational records	0%	100%	
Temperature (°C) of the water leaving the heat pump for Hot Water Heating	Source temperature of heat from plant design details or operational records		65	
Is there a back up water heater present to supplement the Heat Pump?	See DEAP Manual Appendix G for definitions of backups to heat pumps		No	
Outline type of backup space heater and associated fuel	Enter backup heater type and fuel if present			

Heat Pump models installed ✓

Relevant test standards ✓

Operating hours ✓

Main/Back-up Space heating details✓

Main/Back-up water heating details✓

RECEIVED 26 FEB 2021

RECEIVED 08 MAR 2021

Is heat pump source preconditioned?	*Select "Yes" if heat pump source is preheated by another heat source other than exhaust air or ambient energy (e.g. a heat pump or boiler etc)*	No	No	
Is the Heat Pump part of a Group Heating Scheme	*Select "yes" if this heat pump also heats other dwellings*	No	No	

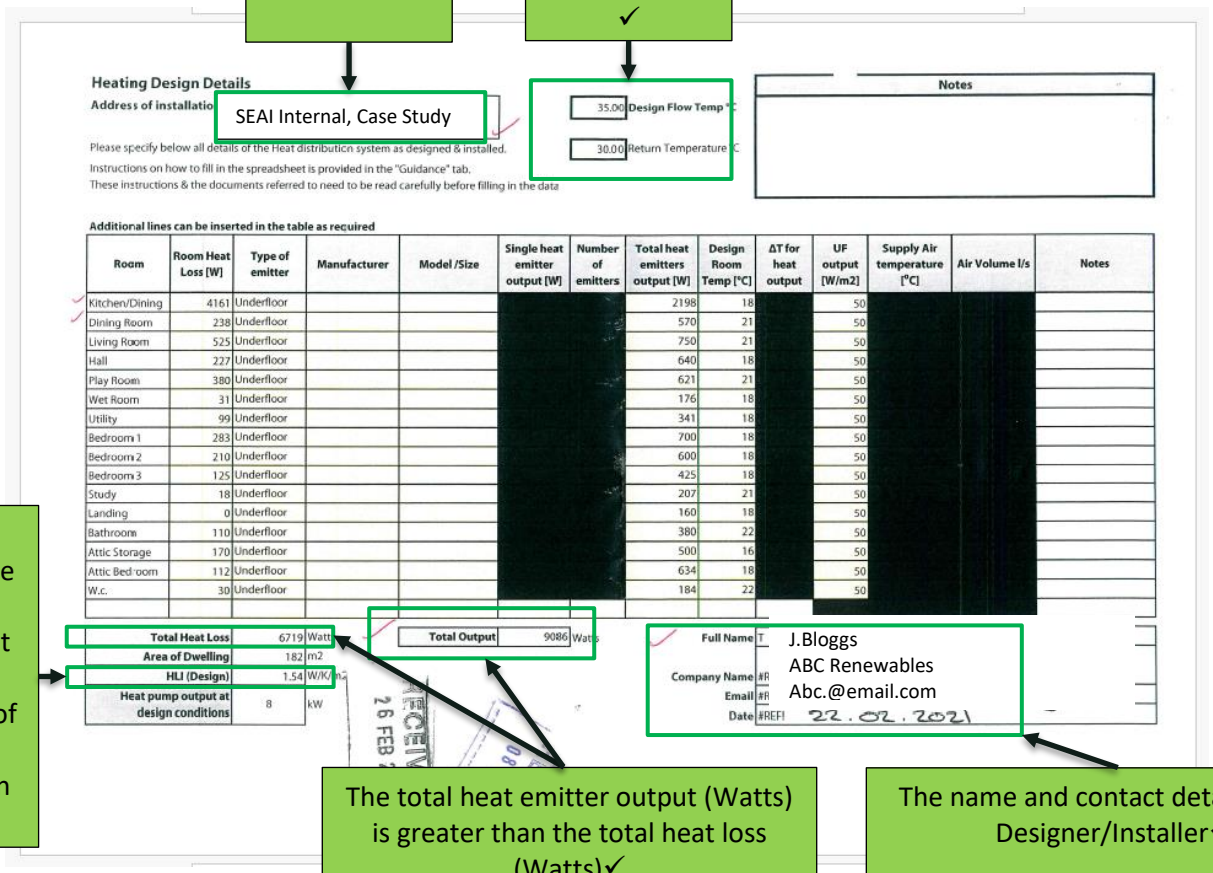
4. Heat Emitter Design		
Is there one or more radiators present	No	*Select Yes or No*
Is there one or more fan coil units present	No	*Select Yes or No*
Is there underfloor heating present	Yes	*Select Yes or No*
Is there warm air supply from the heat pump	No	*Select Yes or No*
Has a load / weather compensation been installed?	Yes	*Select Yes or No*
Provide details of zone, temperature and time control installed?	Individual Zone Control	*Input number of heating zones, thermostats, etc*
Temperature (°C) of the water leaving the heat pump system when supplying space heating based on full heating system design conditions and at the design external temperature? (Note this can not be greater than Max. temperature for individual heat pumps)	35	*Input temperature in degrees celcius*

Heat Emitter design details✓

5. Hot Water System		Heat pump #1	Heat pump #2	Heat pump #3
Maximum flow temperature (°C) of the heat pump system while providing hot water (by heat pump only) based on certified data	*For up to three heat pumps: Input temperature in degrees celcius, please provide supporting documentation.*		65	
Type of DHW Store	*For up to three heat pumps: Input the type of store present, no store, integral store or separate store*		Integral Hot Water Storage	
Manufacturer(s) of the installed DHW Store (s)	*Ensure this is exact product manufacturer name*		OCHSNER	
Model(s) of the installed DHW Store(s)	*Use exact product model, including model name, number, qualifier where present.*		EUROPA 333 GENIUS	
Is there an integral immersion or electric element present capable of providing hot water	*For up to three heat pumps: Select Yes or No*		No	

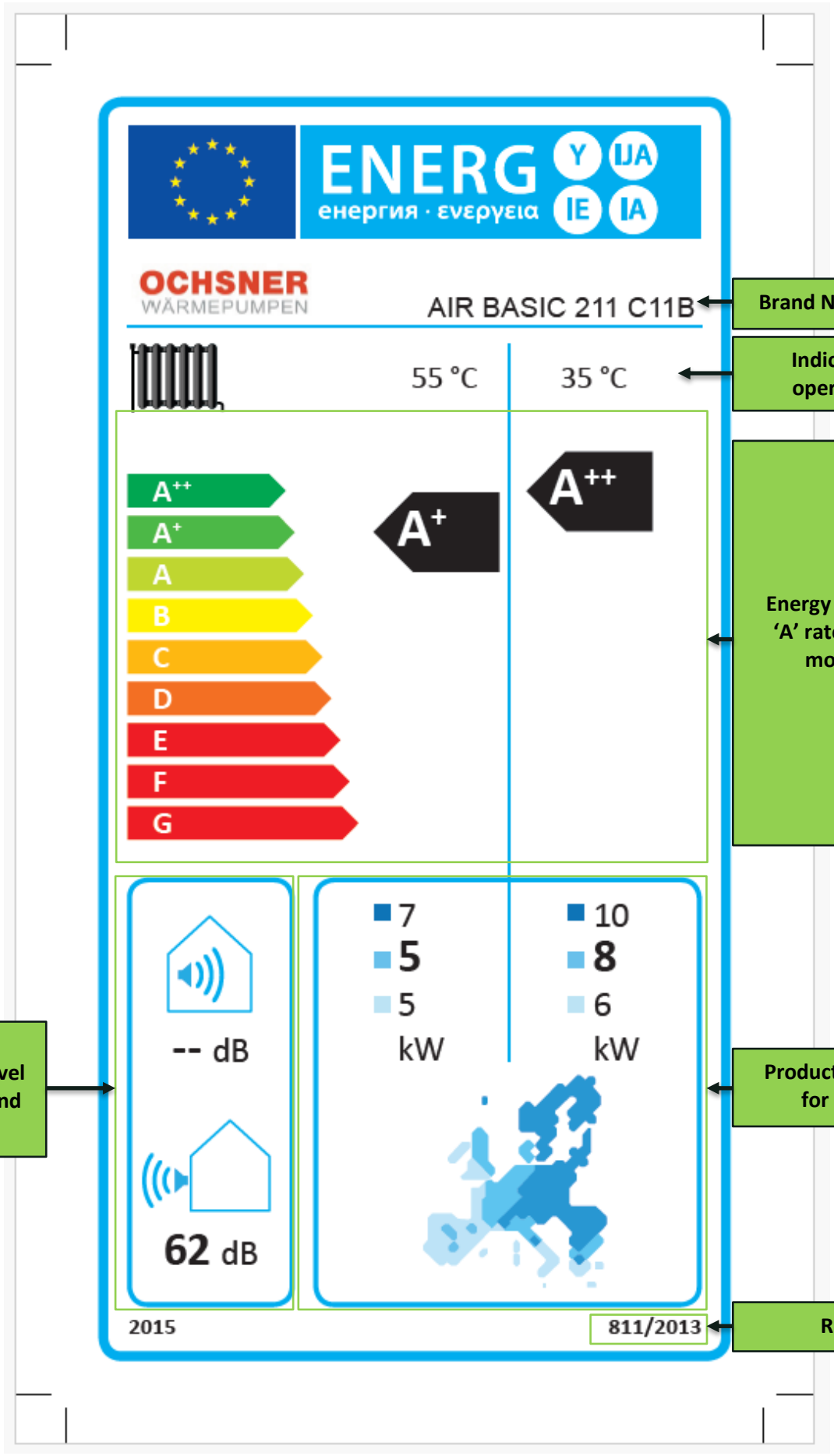
Hot water system design details✓

6. Confirmation				
I confirm that I am authorised to complete this certificate on behalf of the client and I confirm that: (i) For New Final and Existing BERs, the heating installation at the premises whose address is shown above has been designed and installed in accordance with the information provided; (ii) For Provisional BERs, the heating design at the premises whose address is shown above is in accordance with the information provided. (iii) the design included a heat loss calculation for every room of the building that is heated by the installation; (iv) For New Final or Existing BERs, the installation conforms to the design; (v) controls have been installed and set correctly.	Yes			*Select Yes or No*
Full name:	J.Bloggs			*Enter name of person completing signoff form.*
Company name:	ABC Renewables			*Enter company name of person completing signoff form.*
Email Address:	Abc.@email.com			*Enter email of person completing signoff form.*
Job title:	J.Bloggs			*Enter job title of person completing signoff form.*
Signature:				*Designer/installer signature*
Date:	22/02/2021			*DD/MM/YYYY*


Installation Address ✓
Design flow & return Temperature ✓
Heating Design Details
Address of installatio
SEAI Internal, Case Study
Please specify below all details of the Heat distribution system as designed & installed.
Instructions on how to fill in the spreadsheet is provided in the "Guidance" tab.
These instructions & the documents referred to need to be read carefully before filling in the data
35.00 Design Flow Temp °C
30.00 Return Temperature °C
Notes
Additional lines can be inserted in the table as required
Room
Room Heat Loss [W]
Type of emitter
Manufacturer
Model /Size
Single heat emitter output [W]
Number of emitters
Total heat emitters output [W]
Design Room Temp [°C]
ΔT for heat output
UF output [W/m2]
Supply Air temperature [°C]
Air Volume l/s
Notes
Kitchen/Dining 4161 Underfloor 2198 18 50
Dining Room 238 Underfloor 570 21 50
Living Room 525 Underfloor 750 21 50
Hall 227 Underfloor 640 18 50
Play Room 380 Underfloor 621 21 50
Wet Room 31 Underfloor 176 18 50
Utility 99 Underfloor 341 18 50
Bedroom 1 283 Underfloor 700 18 50
Bedroom 2 210 Underfloor 600 18 50
Bedroom 3 125 Underfloor 425 18 50
Study 18 Underfloor 207 21 50
Landing 0 Underfloor 160 18 50
Bathroom 110 Underfloor 380 22 50
Attic Storage 170 Underfloor 500 16 50
Attic Bedroom 112 Underfloor 634 18 50
W.c. 30 Underfloor 184 22 50
Total Heat Loss 6719 Watt
Area of Dwelling 182 m2
HLI (Design) 1.54 W/K/m2
Heat pump output at design conditions 8 kW
Total Output 9086 Watts
Full Name J.Bloggs
Company Name ABC Renewables
Email Abc.@email.com
Date 22.02.2021
The HLI stated on the heating design sheet should be within 10% of the HLI calculated in DEAP✓
The total heat emitter output (Watts) is greater than the total heat loss (Watts)✓
The name and contact details of the Designer/Installer✓

Energy Label

The Energy label is a starting point to determine that the Heat pump in question has eco design data available



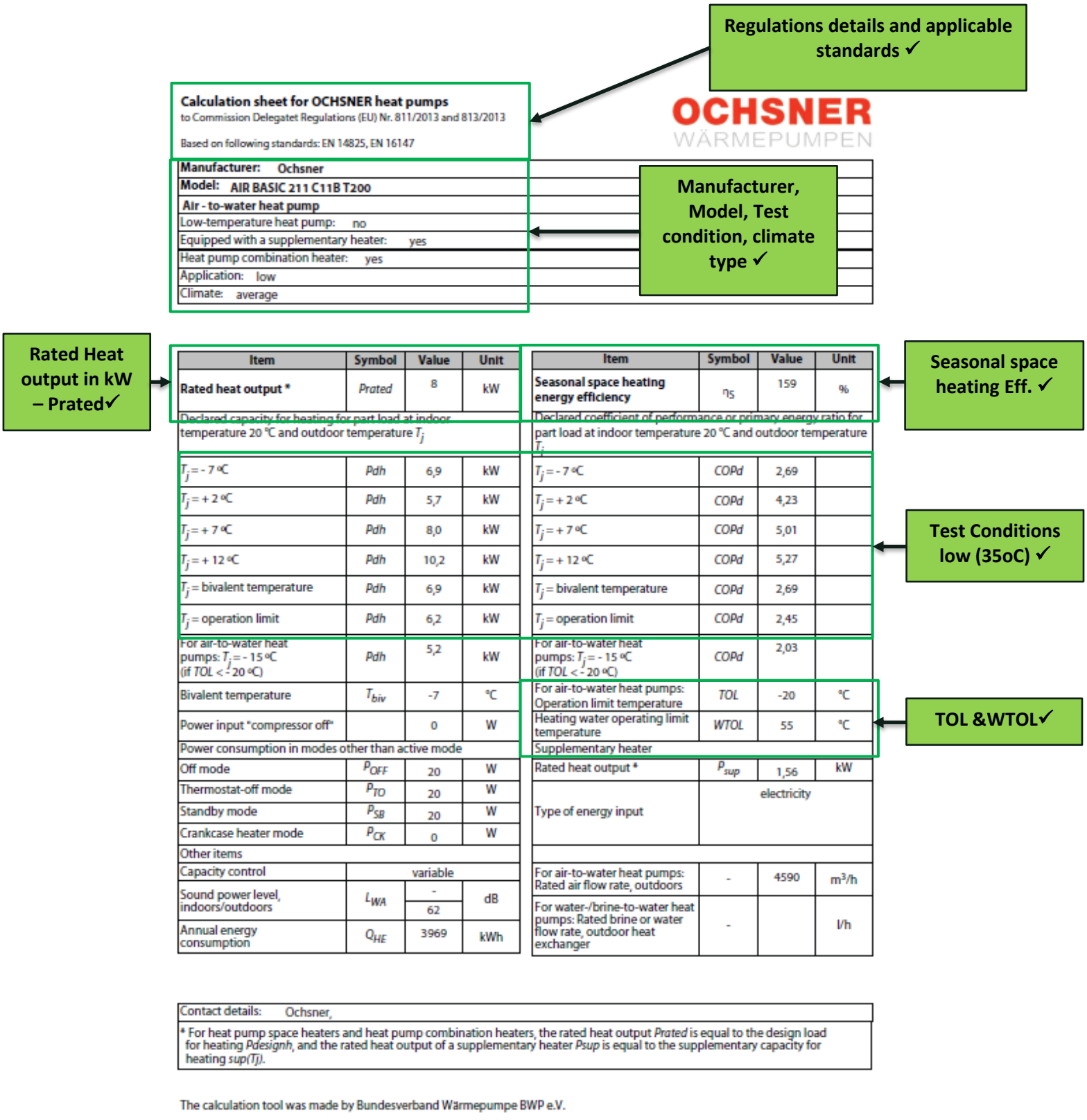
Eco design data

The Eco design data is required for Heat pumps manufactured and on the market after 26 September 2015, Where a heat pump is installed in a dwelling from 26 September 2015, BER assessors must work on the basis that the heat pump make/model complies with the Energy Labelling and Ecodesign Regulations unless the manufacturer or supplier provides documentary evidence to support the reasoning for - compliance. This applies to:

o All new-final and new-provisional domestic BER assessments;

o All existing dwelling assessments with the heat pump installed after 26th September 2015.

Further information can be found in the DEAP manual Appendix G.



Eco design data

This document is for the Test conditions - Medium
**Although this Heat pump is being used only for Space heating in this assessment, it has the capability of providing DHW, therefore it is worth noting for information purposes the EN16147 data at the bottom of the document.

Calculation sheet for OCHSNER heat pumps
to Commission Delegatet Regulations (EU) Nr. 811/2013 and 813/2013

Based on following standards: EN 14825, EN 16147

OCHSNER WÄRMEPUMPEN

Manufacturer:	**Ochsner**
Model:	**AIR BASIC 211 C11B T200**
Air - to-water heat pump	
Low-temperature heat pump:	no
Equipped with a supplementary heater:	yes
Heat pump combination heater:	yes
Application:	medium
Climate:	average

Item	Symbol	Value	Unit
Rated heat output *	*Prated*	5	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j			
T_j = - 7 °C	*Pdh*	4,8	kW
T_j = + 2 °C	*Pdh*	5,0	kW
T_j = + 7 °C	*Pdh*	5,5	kW
T_j = + 12 °C	*Pdh*	7,2	kW
T_j = bivalent temperature	*Pdh*	4,8	kW
T_j = operation limit	*Pdh*	4,1	kW
For air-to-water heat pumps: T_j = - 15 °C (if *TOL* < - 20 °C)	*Pdh*	3,3	kW
Bivalent temperature	T_{biv}	-7	°C
Power input *compressor off*		0	W
Power consumption in modes other than active mode			
Off mode	P_{OFF}	20	W
Thermostat-off mode	P_{TO}	20	W
Standby mode	P_{SB}	20	W
Crankcase heater mode	P_{CK}	0	W
Other items			
Capacity control		variable	
Sound power level, indoors/outdoors	L_{WA}	- / 62	dB
Annual energy consumption	Q_{HE}	3941	kWh

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_S	110	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T_j			
T_j = - 7 °C	*COPd*	1,86	
T_j = + 2 °C	*COPd*	2,65	
T_j = + 7 °C	*COPd*	4,06	
T_j = + 12 °C	*COPd*	4,81	
T_j = bivalent temperature	*COPd*	1,86	
T_j = operation limit	*COPd*	1,50	
For air-to-water heat pumps: T_j = - 15 °C (if *TOL* < - 20 °C)	*COPd*	1,02	
For air-to-water heat pumps: Operation limit temperature	*TOL*	-20	°C
Heating water operating limit temperature	*WTOL*	55	°C
Supplementary heater			
Rated heat output *	P_{sup}	1,23	kW
Type of energy input		electricity	
For air-to-water heat pumps: Rated air flow rate, outdoors	-	4590	m³/h
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-		l/h

For heat pump combination heater			
Declared load profile	-	L	-
Annual electricity consumption	AEC	1155	kWh

Water heating energy efficiency	ηw	73	%
Reference hot water temperature	h	53	°C
Volume of hot water storage tank		168	Litres
Standby heat loss		1,9	kWh/d

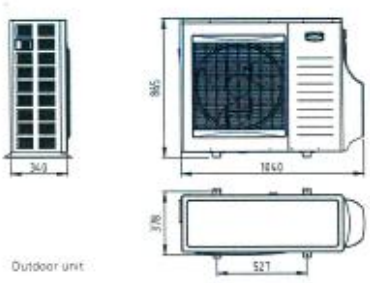
EN 16147 test data✓

Contact details:	Ochsner,

* For heat pump space heaters and heat pump combination heaters, the rated heat output *Prated* is equal to the design load for heating *Pdesignh*, and the rated heat output of a supplementary heater *Psup* is equal to the supplementary capacity for heating *sup(Tj)*.

The calculation tool was made by Bundesverband Wärmepumpe BWP e.V.

Product Data



Outdoor unit

MULTI TOWER **ALL IN ONE**
Fully equipped

- DHW tank, 168 l
- Buffer tank, 100 l, heating / cooling
- 3-way switching valve for DHW heating and/or defrosting
- Safety valve
- Electric auxiliary heater 8.8 kW
- Flow meter for safety monitoring and heat quantity measurement for heating / cooling / DHW heating
- Air vent valve
- High efficiency energy saving circulation pump
- Plate heat exchanger / condenser
- Drain and fill valve
- Pressure maintaining device (DEV), on site

PRODUCT DATA **ErP: AIR BASIC 211 C11B T200**

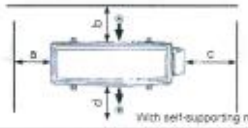
		COLDER	MEAN	HOTTER
LOW TEMPERATURE	A++		35°C	
ηs		133	159	180
Energy consumption	[kWh]	6997	3969	1602
P rated	[kW]	10	8	5
SCOP		3.41	4.04	4.59
MEDIUM TEMPERATURE	A+		55°C	
ηs		97	110	138
Energy consumption	[kWh]	7285	3941	1741
P rated	[kW]	7	5	5
SCOP		2.50	2.82	3.53
DHW	B		T200	
ηWH		66	73	84
Energy consumption	[kWh]	1263	1156	1002
Draw-off profile			L	
Tank losses	[W]		79	

		Indoor	outdoor
Sound power level	[dBA]	-	63
Controller class with room remote control	VI	Controller contribution [%]	4.0
Controller class without room remote control	II	Controller contribution [%]	2.0

AIR BASIC 211 C11B T200 / AIR

	Max. connection length	Max. height differential
AIR BASIC 211 C11B T200	L ≤ 20	Hmax ≤ 15

Observe minimum clearances

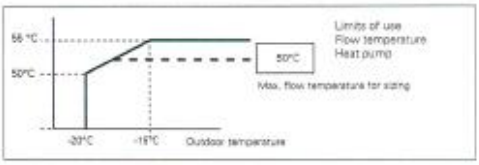


Minimum clearances	AIR BASIC 211 C11B T200
a	> 20 cm
b	> 10 cm
c	> 70 cm
d	> 1.50 m

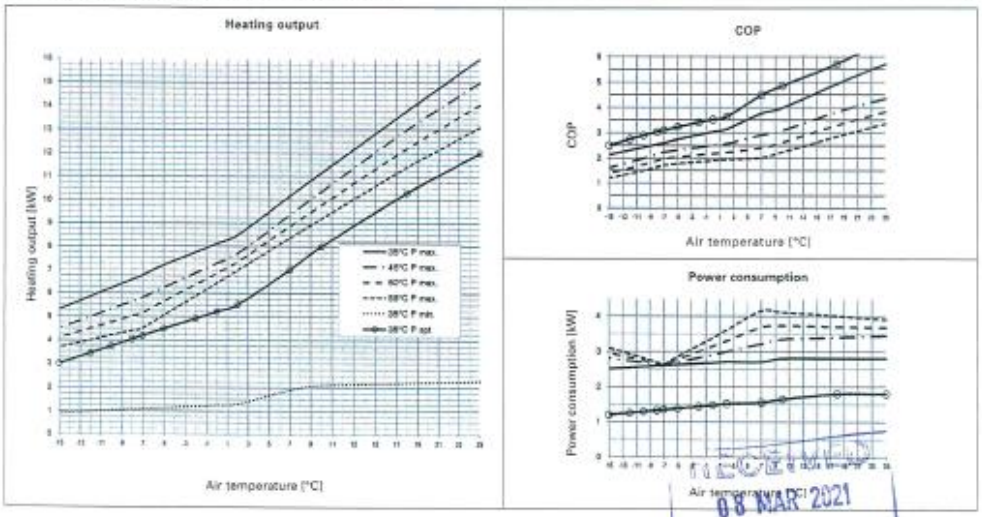
With self-supporting mounting, noise levels will be higher!

LIMITS OF USE AIR BASIC 211 C11B T200

Outdoor temperature/max. heat pump flow temperature	A-10/W55°C A-15/W55°C A-20/W50°C
Underfloor heating (-15°C / 35°C)	YES
Radiators (-15°C / 60°C)	YES
Radiators (-15°C / 60°C)	NO
Domestic hot water	YES



PERFORMANCE CURVES AIR BASIC 211 C11B T200



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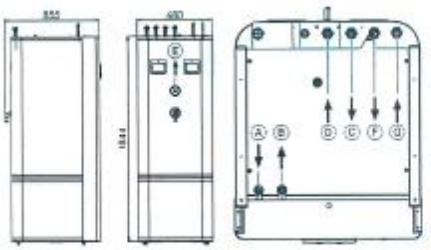
Status: 2019-05-21

OCHSNER HEAT PUMPS | AIR

AIR BASIC 211 C11B T200

AIR/WATER HEAT PUMP
INCL. VERTICAL SPLIT EVAPORATOR

ORDER NUMBER: 285930
SERIES: T200
TF MAX. 55 °C
SPLIT



Indoor unit
(A) Refrigerant line LL (liquid line) (B) Refrigerant line HG (hot gas line) (C) FL heating/cooling 1" (D) RTN heating/cooling 1"
(E) DHW circulation 1/2" (F) DHW 1" (G) Cold water 1"

APPLIANCE DATA

Dimensions of outdoor unit HxWxD	[mm]	895x1040x340
Dimensions of indoor unit HxWxD	[mm]	1908x680x871
Hydraulic connection	[inch]	1" union nut
Weight of outdoor unit	[kg]	66
Weight of indoor unit	[kg]	203 / 471
Casing colour		Tiger white 28/11289/grey RAL 7016

HEATING MODE PERFORMANCE FIGURES (to EN 14511)

Standard point A10/W35		
Heating output range	[kW]	1.90 - 11.20
Total heating output/power consumption	[kW]	8.00 / 1.70
COP		4.70
Operating point A7/W35		
Heating output range	[kW]	1.90 - 10.20
Total heating output/power consumption	[kW]	7.03 / 1.60
COP		4.40
Standard point A2/W35		
Heating output range	[kW]	1.30 - 8.50
Total heating output/power consumption	[kW]	6.59 / 1.80
COP		3.70
Standard point A-7/W35		
Heating output range	[kW]	1.20 - 6.80
Total heating output/power consumption	[kW]	4.22 / 1.40
COP		3.00
Operating point A-10/W35		
Heating output range	[kW]	1.00 - 6.20
Total heating output/power consumption	[kW]	3.75 / 1.30
COP		2.90
Operating point A2/W50		
Heating output range	[kW]	1.30 - 7.30
Total heating output/power consumption	[kW]	5.40 / 2.50
COP		2.20

COOLING MODE PERFORMANCE FIGURES

Operating point A35/W18		
Cooling capacity range	[kW]	1.80 - 11.10
Nominal cooling capacity	[kW]	7.90
Total nominal power consumption	[kW]	2.60
Energy efficiency ratio EER at nominal output		3.00

SPECIFICATION

Phases/nominal voltage/frequency Outdoor unit, controller	[~]/[V]/[Hz]	1/230/50
Phases/nominal voltage/frequency Electric immersion heater	[~]/[V]/[Hz]	3/400/50 or 1/230/50
Electric immersion heater internal	[kW]	9.0 (2.95/2.95/3.95)
Output factor cos φ		0.97
Fuse protection (tripping curve "C")	[A]	16
Max. operating current	[A]	12.20
Max. starting current, compressor	[A]	15.00 / 25.00*
Sound power/sound pressure level (at 1 m distance), indoor level	[dBA]**	- / -
Sound power/sound pressure level (at 10 m distance), outdoor unit	[dBA]	62.0 / 34.0

CONDENSER

Type		Plate heat exchanger
Material		Stainless steel 1.4301
Max. refrigerant operating pressure	[bar]	43
Max. heat transfer medium operating pressure	[bar]	3
Heat transfer medium temperature differential	[K]	5
Application range	[°C]	55
Heat transfer medium		Water
Test pressure	[bar]	59
Heat transfer medium flow rate	[m³/h]	1.43
Internal pressure differential	[mbar]	80
Flow meter FM standard	Internal	built-in
Circulation pump heat sink WNA	Internal	Yonos Para HPS15/7.5
Residual head I WNA external, incl. FM	[mbar]	430

REFRIGERANT CIRCUIT

Refrigerant		R410A
Defrost technology		Hot gas
Refrigerant charge	[kg]	2.15

COMPRESSOR

Type		Rotary piston
Output levels		Infinitely variable
Speed	[rpm]	900-5700
Voltage/frequency	[V]/[Hz]	230/50

FAN

Type		axial
Number	[pce]	1
Voltage/frequency	[V]/[Hz]	230/50
Power consumption	[W]	70

EVAPORATOR

Unit type		built-in
Type		Finned tube
Number	[pce]	1
Air flow rate	[m³/h]	4590
Application range min./max.	[°C]	-20 / 35

Only possible with buffer tank
*Starting current, compressor with locked rotor
**Sound pressure level measured in a free field; sound power levels measured at max. nominal speed

Status: 2019-05-21

OCHSNER HEAT PUMPS | AIR

AIR BASIC 211 C11B G1-1

(ELW 8)

AIR/WATER HEAT PUMP

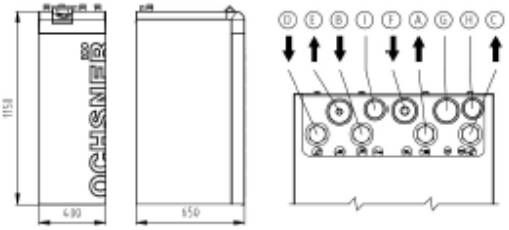
INCL. VERTICAL SPLIT EVAPORATOR

ORDER NUMBER: 285610

SERIES: G1-1

TF MAX. 55 °C

SPLIT



Indoor unit

(A) FL heating/cooling (B) RTN heating/cooling (C) FL DHW charging (D) RTN DHW charging (E) Refrigerant line LL (liquid line)
(F) Refrigerant line HG (hot gas line) (G) Controller 230 V (H) booster heater 400 V/230 V (I) Sensor < 12 V

APPLIANCE DATA

Dimensions of outdoor unit HxWxD	[mm]	865x1040x340
Dimensions of indoor unit HxWxD	[mm]	1150x400x650
Hydraulic connection	[inch]	1"
Weight of outdoor unit	[kg]	66
Weight of indoor unit	[kg]	75
Casing colour		Tiger white 29/11299/grey RAL 7016

HEATING MODE PERFORMANCE FIGURES (to EN 14511)

Standard point A10/W35		
Heating output range	[kW]	1.90 - 11.20
Total heating output/power consumption	[kW]	8.00 / 1.70
COP		4.70
Operating point A7/W35		
Heating output range	[kW]	1.90 - 10.20
Total heating output/power consumption	[kW]	7.00 / 1.60
COP		4.40
Standard point A2/W35		
Heating output range	[kW]	1.30 - 8.50
Total heating output/power consumption	[kW]	5.50 / 1.50
COP		3.70
Standard point A-7/W35		
Heating output range	[kW]	1.20 - 6.80
Total heating output/power consumption	[kW]	4.20 / 1.40
COP		3.00
Operating point A-10/W35		
Heating output range	[kW]	1.00 - 6.20
Total heating output/power consumption	[kW]	3.70 / 1.30
COP		2.90
Operating point A2/W50		
Heating output range	[kW]	1.30 - 7.30
Total heating output/power consumption	[kW]	5.40 / 2.50
COP		2.20

COOLING MODE PERFORMANCE FIGURES

Operating point A35/W10		
Cooling capacity range	[kW]	1.80 - 11.10
Nominal cooling capacity	[kW]	7.90
Total nominal power consumption	[kW]	2.60
Energy efficiency ratio EER at nominal output		3.00
Operating point A35/W12		
Cooling capacity range	[kW]	1.60 - 10.00
Nominal cooling capacity	[kW]	7.00
Total nominal power consumption	[kW]	2.50
Energy efficiency ratio EER at nominal output		2.80
Operating point A35/W7[1]		
Cooling capacity range	[kW]	1.40 - 9.10
Nominal cooling capacity	[kW]	6.20
Total nominal power consumption	[kW]	2.40
Energy efficiency ratio EER at nominal output		2.60

SPECIFICATION

Phases/nominal voltage/frequency Outdoor unit, controller	[~/V/Hz]	1/230/50
Phases/nominal voltage/frequency Electric immersion heater	[~/V/Hz]	3/400/50 or 1/230/50
Electric immersion heater internal	[kW]	8.8 (2.95/2.95/2.95)
Output factor cos φ		0.97
Fuse protection (tripping curve "C")	[A]	16
Max. operating current	[A]	12.20
Max. starting current, compressor	[A]	15.00 / 25.00*
Sound power/sound pressure level (at 1 m distance), indoor unit	[dBA]**	- / -
Sound power/sound pressure level (at 10 m distance), outdoor unit	[dBA]**	62.0 / 34.0

CONDENSER

Type		Plate heat exchanger
Material		Stainless steel 1.4301
Max. refrigerant operating pressure	[bar]	43
Max. heat transfer medium operating pressure	[bar]	3
Heat transfer medium temperature differential	[K]	5
Application range	[°C]	55
Heat transfer medium		Water
Test pressure	[bar]	59
Heat transfer medium flow rate	[m³/h]	1.43
Internal pressure differential	[mbar]	80
Flow meter FM standard	Internal	built-in
Circulation pump heat sink WNA	Internal	Yonos Para HPS15/7.5
Residual head I WNA external, incl. FM	[mbar]	430

REFRIGERANT CIRCUIT

Refrigerant		R410A
Defrost technology		Hot gas
Refrigerant charge	[kg]	2.15

COMPRESSOR

Type		Rotary piston
Output levels		Infinitely variable
Speed	[rpm]	900-5700
Voltage/frequency	[V]/[Hz]	230/50

FAN

Type		axial
Number	[pcs]	1
Voltage/frequency	[V]/[Hz]	230 / 50
Power consumption	[W]	70

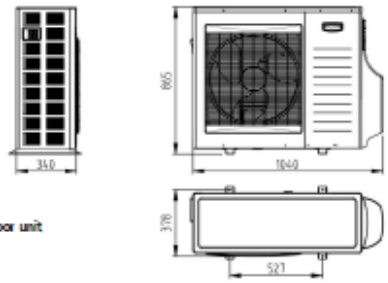
EVAPORATOR

Unit type		built-in
Type		Finned tube
Number	[pcs]	1
Air flow rate	[m³/h]	4590
Application range min./max	[°C]	-20 / 35

Only possible with buffer tank
*Starting current, compressor with locked rotor
**Sound pressure level measured in a free field, sound power levels measured at max. nominal speed

OCHSNER heat pumps are domestic appliances in accordance with the Machinery Directive.

Status: 20190521



Outdoor unit

RECOMMENDED ACCESSORIES

Heat pump buffer tank	PU200 (optional)	30 l/kW, P min. at A20
DHW tank	SP300	30 l/kW at L2/W35
3-way switching module	built-in	
External PHE for DHW heating	PHE 2007 as of SP300	Primary 1" / 35 mbar Secondary 1" / 39 mbar

Application	Booster heater output
Bivalent **parallel**	Sizing according to calculated value (offer program), but with minimum 50% of building heat load
Bivalent **partial parallel**	Sizing to 100% of building heat load
Bivalent **alternative**	Sizing to 100% of building heat load

	Max. connection length	Max. height differential
AIR BASIC 211 C11B G1-1	L ≤ 20	Hmax ≤ 15

PRODUCT DATA ErP: AIR BASIC 211 C11B G1-1

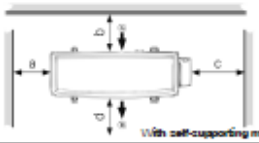
		COLDER	MEAN	HOTTER
LOW TEMPERATURE	A++		35°C	
ηs		133	189	180
Energy consumption	[kWh	6997	3969	1602
P rated	[kW]	10	8	6
SCOP		3.41	4.84	4.59
MEDIUM TEMPERATURE	A+		55°C	
ηs		97	110	138
Energy consumption	[kWh	7285	3941	1741
P rated	[kW]	7	6	5
SCOP		2.50	2.82	3.53
DHW	B		SP300	
ηWH		69	76	87
Energy consumption	[kWh	2067	1939	1639
Draw-off profile			XL	
Tank losses	[W]		84	

		Indoor		outdoor
Sound power level	[dBA]	-		62
Controller class with room remote control		VI	Controller contribution [%]	4.0
Controller class without room remote control		II	Controller contribution [%]	2.0

LIMITS OF USE AIR BASIC 211 C11B G1-1

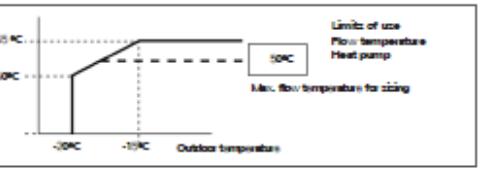
Outdoor temperature/max. heat pump flow temperature	A-15/W55°C A-20/W50°C
Underfloor heating (-15°C / 35°C)	YES
Radiators (-15°C / 50°C)	YES
Radiators (-15°C / 60°C)	NO
Domestic hot water	YES

Observe minimum clearances

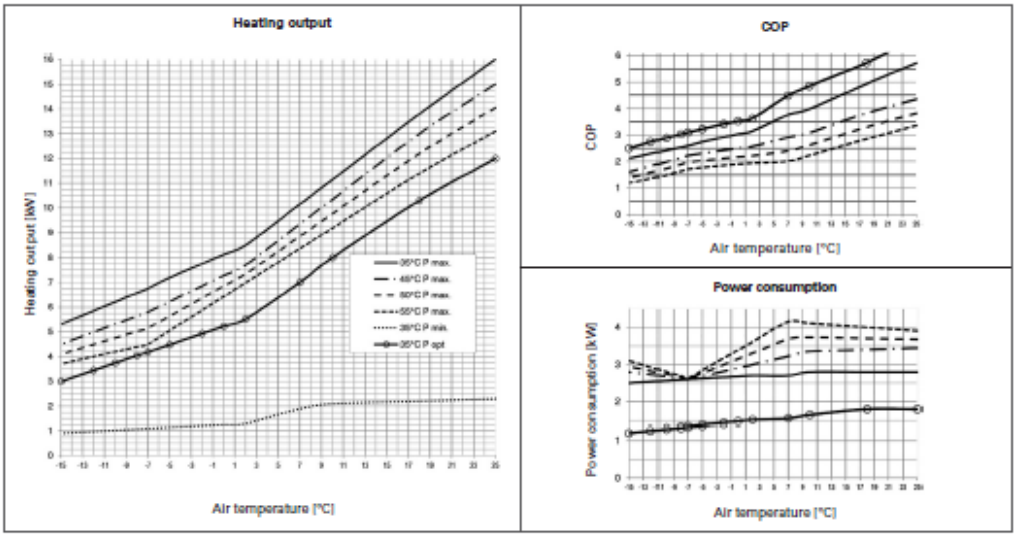


Minimum clearances	AIR BASIC 211 C11B G1-1
a	> 20 cm
b	> 10 cm
c	> 70 cm
d	> 1.80 m

With self-supporting mounting, noise levels will be higher!



PERFORMANCE CURVES AIR BASIC 211 C11B G1-1



Status 20190521