

Dwelling Energy Assessment Procedure (DEAP)

Survey Guide

Version 4.0.1

Ireland's official method for surveying dwellings for Building
Energy Ratings

May 2022



DEAP Survey Guide

Version 4.0.1

DEAP is the official procedure for the calculation of energy performance of dwellings in Ireland for the purposes of producing Building Energy Ratings (BER).

This document describes the DEAP survey methodology for dwellings. The DEAP Manual, which describes the assessment methodology for dwellings, must be followed alongside this document. BER assessors, building designers and other users should ensure that they are using the latest version of these documents and accompanying software. Information and updates will be published on the SEAI website at <https://www.seai.ie/energy-in-business/ber-assessor-support/deap/>.

Full BER surveys are to be carried out for:

- New Dwelling-Final assessments;
- Existing dwelling assessments;
- New Dwelling-Provisional assessments of partially completed dwellings.

New Dwelling-Provisional ratings published prior to the commencement of construction do not require a site survey.

A BER Assessor is required to act with integrity and diligence to ensure that each BER assessment is executed competently, in an independent manner, and in accordance with the Regulations, the BER Assessor's Code of Practice and all other directions issued by SEAI. In this regard, a BER Assessor is responsible for ensuring that, within reason, the data compiled and inputted to SEAI-approved calculation software and all other related and recorded calculations, are an accurate representation of all characteristics relevant to the energy performance of the building and are capable of being verified as such in any subsequent monitoring and compliance processes commenced by SEAI.

Change Log

Section	Change
4.4 Guidance on DEAP entries and documentary evidence upload	Change in wording in line with DEAP 4 requirements and Assessor code of practice.
Guidance on data entry items – DEAP software tab: "Cooling"	Additions for space cooling system entry

Sustainable Energy Authority of Ireland

SEAI is Ireland's national energy authority investing in, and delivering, appropriate, effective and sustainable solutions to help Ireland's transition to a clean energy future. We work with the public, businesses, communities and the Government to achieve this, through expertise, funding, educational programmes, policy advice, research and the development of new technologies.

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1. Introduction

This guide is designed to assist Building Energy Rating (BER) assessors to carry out BER assessments on dwellings using the Dwelling Energy Assessment Procedure (DEAP) software. This guide must be used in conjunction with the DEAP Manual when BER assessors are filling out the DEAP Survey Form¹ (Appendix I). The DEAP Survey Form must be used on-site to record the survey data required to complete a BER assessment for a dwelling.

This guide indicates the necessary supporting data or evidence required when completing BER assessments on dwellings, particularly when using values other than the defaults listed in Appendix S of the DEAP Manual. Defaults from DEAP Appendix S are only to be used where evidence of non-defaults have been sought and are unavailable. Use of substantiated non-defaults is encouraged as it will result in a more accurate BER grade for the dwelling.

In addition, BER assessors are required to adhere to the BER assessor's Code of Practice at all times.

This DEAP Survey Guide is expected to be updated at regular intervals or as necessary. Up-to-date versions can be downloaded [here](#).

When conducting a dwelling survey, BER assessors must comply with the Safety, Health and Welfare at Work Act 2005 and regulations under that Act, as well as all other applicable health and safety legislation, regulations, codes and guidelines. It is the BER assessor's duty to make himself or herself familiar with the relevant health and safety rules, to exercise due diligence during the survey, and to prevent unreasonable risk of harm or injury. Please refer to the Health and Safety Authority website for further information, available [here](#).

BER assessors are solely responsible for undertaking dwelling surveys in a safe manner. The BER assessor should under no circumstances expose himself or herself, or any other person, to unnecessary risks of harm or injury in conducting a dwelling survey. The BER assessor must be mindful at all times of health and safety issues. Where the BER assessor has reason to believe that obtaining any of the information set out in this document, the DEAP manual or any other guidance provided by SEAI may involve such risks, the BER assessor need not and must not attempt to obtain that information.

SEAI and its agents accept no liability or responsibility for any damage, injury, death, breach of contract or negligence in respect of any dispute, claim, or cause of action arising out of, or in relation to, any BER assessment.

All dwelling surveys are expected to be non-invasive. Nothing in this document, the DEAP manual, or any other guidance provided by SEAI, shall be understood as requiring invasive surveys. Where, despite this, a BER assessor or their client carries out invasive surveys, this is carried out at the BER assessor's own and the householder's risk and is not required by SEAI.

If invasive survey methods are used to demonstrate an applicable non-default U-value, then, while these methods are not required in the DEAP methodology, they can be considered as a source of supporting evidence. This supporting evidence for each relevant exposed surface must clearly indicate that the non-default U-value being specified is appropriate for the building element in question.

¹ BER assessors may use a survey form of their own format provided all the information contained in the SEAI-issued survey form is retained with the BER assessment.

2. Survey documentation and equipment

A number of items should be brought to the survey site including:

Documentation:

- DEAP manual;
- DEAP survey guide;
- DEAP survey form (ref. Appendix I);
- Pencil, paper and eraser;
- Graph paper (for sketching dwelling plans and elevations);
- Dwelling architectural drawings or specifications, or both.

Equipment:

- Measuring tape (recommended minimum length of 10 metres). Electronic measuring devices may be used, provided all measurements are accurate and the equipment is properly calibrated. Appendix S of the DEAP manual sets out further detail on acceptable levels of accuracy when performing BER assessments for existing dwellings.
- Ruler;
- Calculator;
- Directional compass;
- Flashlight;
- Camera with flash;
- Key for electricity meter and key for gas meter (standard tools will not open gas or electricity meters);
- Ladder;
- Personal protective equipment as necessary.

3. Data gathering

For all data gathered, supporting evidence may be required as detailed in this section. Prior to publication of a BER, the DEAP software 'Evidence' tab requires upload of evidence, as detailed in Section 4. 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. The list of supporting evidence detailed in this section is for guidance purposes and will be added to over time. Other methods/supporting data may be considered by SEAI on a case-by-case basis, as they arise. Specific queries related to the acceptability of supporting data should be directed to the BER Helpdesk.

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 or specifications and comments related to various aspects of the site survey.

Prior to performing a site survey for a BER assessment, BER assessors should contact the client to ensure that access will be granted to the heating system at the time of the survey. In particular, access to group heating system boilers may be restricted unless it has been arranged prior to the site visit. If access still cannot be gained and information is not available from plans/specifications, then the defaults listed in the DEAP manual (Appendix S and Table 4) should be used.

NB: Definitions in the DEAP manual must be followed at all times.

3.1. External survey

An initial survey of the outside of the dwelling is very useful. Information which can be gathered through this external survey is as follows:

- External measurements to establish the overall footprint of the dwelling. External measurements must be converted to internal measurements before calculating floor area and heat loss areas. An external wall length is converted to an internal wall length by subtracting the wall thickness of the adjoining wall at both ends.
- Establishing ventilation features such as number of vents, extract fans and sheltered sides.
- Assessing age band indications, such as meter box date information.
- Wall construction is often evident where the meter box has been fitted.
- Confirming the orientation of the dwelling using a directional compass.
- Identifying the presence of renewables such as heat pumps, PV, solar thermal collectors, etc.
- Assessing over shading on solar collectors, windows, etc.

3.2. Internal survey

An initial walk around inside the dwelling is very useful and will assist in determining the following information:

- Confirming heat loss envelope elements such as ground floor type(s), wall types, window variations and in completing survey sketches for each floor, wall and other element types.
- Assessing age band indications such as date stamp in the gap within double/triple glazing.
- Confirming the ventilation as indicated from outside the dwelling. Checking that no vents have been blocked and identifying the type of controls (if any) on the vents.

- Identifying thermal mass composition, i.e. external wall, internal partitions, floors. Appendix S and Table 11 of the DEAP manual provide guidance on thermal mass.
- Average storey height for each dwelling storey.

3.3. Dwelling sketches and architectural drawings

A sketch of the dwelling plans must be completed as part of the survey. Sketches, combined with the survey form and other evidence as outlined in this document, must provide enough data to complete a BER assessment using the DEAP software. Where architectural drawings (dwelling plans/elevations) are available, these can be used instead of sketches provided any differences between the architectural drawings and actual measurements taken on site are noted on the architectural drawings by the BER assessor. The dimensions entered in the DEAP assessment should reflect the actual measurements taken during the dwelling survey.

As a guide, the sketches/drawings should at least indicate the following:

- Extensions;
- Different wall types, floor types, and roof types;
- Dimensions (total floor area, wall thickness, floor height, heat loss areas);
- Living area and its dimensions;
- Unheated spaces – identifying walls between heated and unheated space;
- Sheltered sides (indicating distance, height and width of sheltering objects and adjacent properties);
- Openings:
 - Door types, dimensions and orientations (with estimate of percentage glazing);
 - Window dimensions and orientations;
 - Type(s) of glazing (e.g. single glazed, double glazed, any information about filling or glazing type);
 - Opening frame type(s) (PVC, wood, metal and estimate of thermal break, if it can be determined);
 - Estimated gap between panes, if it can be determined;
 - Over shading estimate on each opening.

3.4. Room-by-room survey

Each room must be checked for the following:

- Total fixed light bulb count and type of each light bulb. Additional data is collected for DEAP where lighting design is known: lamp power, lamp types and efficacy (if known). This additional lighting design information must be used where available for both new and existing dwelling assessments.
- Properties of openings as outlined in Section 3.3.
- Ventilation;
- Living room area (for the appropriate room);
- Heat sources and controls (including TRVs and programmers);
- Identify baths and showers, including type of showers (electric/mixer, pumped/not pumped, vented/unvented), flow restrictors.

This information must all be recorded in the DEAP Survey Form (Appendix I) or sketch

3.5. Attic space survey

Some useful dwelling compositional properties can be determined during the survey of the attic space:

- Evidence of wall construction;
- Roof insulation thickness (for insulation on the ceiling).

Particular attention must be paid to health and safety issues when accessing attic spaces.

3.6. DEAP survey tips

During the dwelling survey, assessors should bear in mind the following tips to help expedite the survey process and reduce the likelihood of errors:

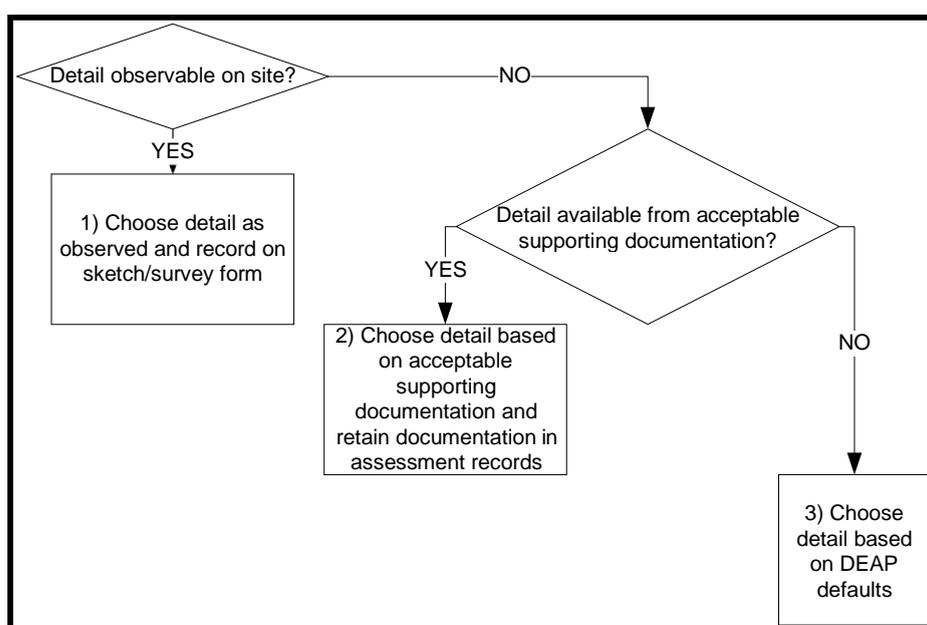
- Open doors to establish element lengths. This can reduce the number of measurements needed.
- Ask the homeowner for knowledge on works and extensions.
 - The homeowner may have useful information on extensions to existing dwellings or other works which have been carried out. Supporting evidence (either photographic or documentary) regarding extension existence and age must be produced.
 - **The assessor should also ask the homeowner if they know of any work which has been done on the dwelling which is likely to impact on the DEAP assessment.** While the word of the homeowner in itself is not sufficient supporting evidence, it will help the assessor to determine if they should aim to use non-default data with the aid of appropriate supporting evidence as detailed in this document.
- Check with local/planning authorities for information on dwelling age (see below).
- Double-check dimensions – eliminate fundamental errors.
 - Do floor areas appear correct based on a walk around of the dwelling?
 - Do floor areas for different storeys make sense in relation to each other?
 - Is there enough heat loss roof area to cover at least the largest floor area?
 - Check survey form entries against sketches/plans. Do they match?
- Ensure that any equipment used during the survey is functioning correctly:
 - Bring spare batteries for any digital equipment such as laser measuring devices, electronic compass or data storage devices.
 - In establishing the orientation of dwelling, take several readings with a compass and ensure that there is no interference from any electrical devices or metal objects.

4. Guidance on supporting evidence

Generally, the default values in DEAP are conservative and must be used unless non-defaults can be supported through other documentation or evidence captured on site. For example, the BER assessor should assume basic on/off heating controls unless they observe and collect evidence of zoning, timers, thermostats, etc.

The following diagram illustrates the order of priority for each data item in a BER assessment:

1. The actual data observed on site takes precedence.
2. Where the data item is not observable, it should be detailed using documentary evidence. Documentary evidence must be retained with the assessment records.
3. Where the data item is not observable on site or via documentary evidence, then a default is used.



This order of priority must be borne in mind for all parameters entered in the DEAP software.

Photographs (or scans/copies if feasible) must be taken of documentation such as bills, invoices, receipts, dwelling specifications (see Section 4.1) and uploaded as detailed in Section 4.4. All copies of supporting evidence and documentation should be clear and legible.

Guidance on the use of supporting evidence to enable the entry of non-default data into the different tabs in the DEAP software is given in tabular form in Section 4.4. All items relevant to the dwelling must be recorded in the DEAP survey form as supporting evidence. Additional forms of supporting evidence are also identified, e.g. photographs, etc. Assessors are advised to replicate pages of the survey form if there is insufficient space in the four pages included in the original format. In addition, assessors should use more than one row in the room-by-room record if any room requires additional space (e.g. several types of light bulb in a single room).

4.1 Signoff of construction drawings and specifications

Where plans and specifications are being used as substantiating evidence the approach outlined in this

section should be followed.

Reports/drawings/specifications must provide enough detail for the DEAP entry in question.

Further detail on the level of information needed and other supporting documentation required is given in Section 4.2.

As stated in the previous section, information gathered on site takes precedence, so if what is found on site contradicts reports/drawings/specifications, the information gathered on site should be used.

4.1.1 New dwelling final and existing dwelling extensions

Reports of works or as-built drawings/specifications must be signed off by the person responsible for building regulation compliance sign-off. For example:

- Architect;
- Engineer;
- Assigned certifier

Construction drawings/specifications signed off as-built by one of the parties above are deemed to be equivalent to as-built drawings/specifications.

For new buildings/extensions that opt out of building control and do not have an architect, engineer or assigned certifier for the project, non-default data must be supported by sufficient documentation in the form of invoices, photographs taken during construction, and drawings.

Receipts and invoices must be clearly related to the specific dwelling address and display the date the work was carried out or the date the product was supplied.

Quotations are not acceptable as supporting evidence.

4.1.2 New build provisional assessments

Design drawings/specifications for the proposed dwelling must be signed off by at least one of the following for the dwelling in question:

- Architect;
- Engineer;
- Developer/builder/contractor;
- BER assessor's client.

4.1.3 Existing dwelling refurbishment

Renovation works often do not involve a design professional, so may not have a full set of plans or specifications documenting the works. Where available, reports/drawings/specifications signed off by the architect/assigned certifier/engineer can be used as substantiating evidence.

Where renovation works are supported by an SEAI grant, the Declaration of Works (DOW) signed off by the contractor can be used as substantiating evidence to support the thickness of insulation and area of insulation installed.

Alternatively, signed off reports, invoices or a signed letter head provided by the contractor responsible for the works can be used as substantiating evidence.

Receipts and invoices (for retrofitted insulation, for example) must be clearly related to the specific

dwelling address and display the date the work was carried out or the date the product was supplied.

Quotations are not acceptable as supporting evidence.

4.2 Summary of required documentary evidence for fabric

All stated non-default U-values must be accompanied by calculations carried out to the relevant standards and these should be uploaded to DEAP, along with supporting specifications and certificates.

DEAP Section 3 and BR443 detail the relevant standards for U-value calculations. Software packages used for U-value calculations must adhere to these relevant standards.

It is the responsibility of the assessor to check that U-value calculations provided by a 3rd-party are correct and adhere to the relevant standards.

In an existing dwelling or new-provisional BER assessment, where a non-default U-value is being used, DEAP Tables 12a and 12b may be used to give thermal conductivity of common insulation materials and building materials. For new-final assessments, DEAP Table 12b may not be used.

4.2.1 *New final assessments*

Acceptable evidence for fabric in new-final dwellings with building regulations compliance sign-off:

- On-site evidence takes precedence;
- Support with as-built drawings/specs detailing materials and thicknesses. As-built drawings signed off by the architect, engineer or assigned certifier;
- Photographs of installation;
- NSAI agrément certificates for insulation conductivity or other certified sources;
 - If no agrément/certified data is available, default U-values should be used;
- Conductivity for materials other than insulation (e.g. plaster, brickwork, render, etc.) from DEAP Table 12a, TGD L Appendix A, BR443 or CIBSE Guide A.

Acceptable evidence for fabric in new-final dwellings without building regulations compliance sign-off:

- On-site evidence takes precedence;
- Support with as-built drawings/specs detailing materials and thicknesses. This must be supported by photographic evidence during construction/ invoices for materials;
- Photographs of installation;
- Invoices of materials must be clearly related to the specific dwelling address and display the date of delivery or installation, as appropriate;
- NSAI agrément certificates for insulation conductivity or other certified sources
 - If no agrément/certified data is available, default U-values should be used;
- Conductivity for materials other than insulation (e.g. plaster, brickwork, render, etc.) from DEAP Table 12a, TGD L Appendix A, BR443 or CIBSE Guide A.

4.2.2 *New provisional assessments*

Acceptable evidence for fabric in new-provisional dwellings:

- Specification/drawing detailing materials/parameters to be used in element construction;
- Specs/drawings must be signed off by developer/engineer/architect/client;
- NSAI agrément certificates for insulation conductivity or other certified sources:

- If no agrément/certified data available, DEAP Table 12b or CIBSE Guide A can be used for insulation thermal conductivity;
- Conductivity for materials other than insulation (e.g. plaster, brickwork, render etc.) from DEAP Table 12a, TGD L Appendix A, BR443 or CIBSE Guide A.

4.2.3 Existing dwelling assessments

- U-value calculation may use the thermal resistance of original construction (based on the default U-value) plus the thermal resistance of the retrofitted insulation.
- Acceptable documentary evidence for fabric in existing BERs. Parameters demonstrated as follows:
 - Site evidence takes precedence;
 - Photos of installation are useful to support the installed insulation type/area;
 - Insulation thickness demonstrated from grant DOW,

or

 - Insulation type/thickness/areas demonstrated using Invoice/receipt/ signed letter head from contractor showing:
 - Address of dwelling;
 - Insulation thickness and type;
 - Area of building element covered;
- NSAI agrément certificates for insulation conductivity or other certified sources:
 - If no agrément/certified data available, DEAP Table 12b or CIBSE Guide A can be used for insulation thermal conductivity;
- Conductivity for materials other than insulation (e.g. plaster) from DEAP Table 12a, TGD L Appendix A, BR443 or CIBSE Guide A.

If assessors are unsure they have enough supporting evidence, they should contact the BER Helpdesk for guidance.

4.3 Data Protection note on collecting supporting evidence

Supporting documentary evidence, as referred to in Section 8 of the Code of Practice, forms part of the BER data file and is collected for the purpose of completing and supporting BER assessments.

Documentary evidence has the potential to contain personal data.

Under GDPR, personal data is data that relates to or can identify an individual, either by itself or together with other available information. Examples of personal data include a person's name, contact details, bank details, and/or other personally identifying information (such as personal or family photographs, certificates, etc.) that may be used to identify an individual.

Special category personal data (sensitive personal data) is defined in the GDPR and can include any symbols or items that can identify the racial or ethnic origin, political opinions, religious or philosophical beliefs (e.g. religious symbols or statues) and any items that can identify a person's health or sexual orientation.

When collecting documentary evidence and/or uploading supporting evidence to DEAP, BER assessors must endeavour to only collect information necessary for the completion of the BER assessment and avoid the collection of any unnecessary personal data or sensitive information. Eliminating the collection of any unnecessary personal or sensitive data will reduce the risk of a data breach.

BER assessors should ensure that they comply with their obligations under data protection regulations and ensure any information obtained for the BER assessment is processed, maintained, used, shared and stored in a secure manner, as is set out in Section 10 of the Code of Practice.

4.3.1 Collecting photographic evidence

BER assessors should avoid the collection of personal or sensitive data when collecting photographic evidence of a dwelling. As per Section 5 of the Code of Practice, before taking any internal or external photographs, assessors must ensure there is no personal data within the frame, and if so, omit it from the photograph. If this is not possible, assessors should redact any personal data from images before uploading to DEAP.

4.3.2 Storage and use of supporting evidence

As per Section 1 and 10 of the Code of Practice, BER assessors are responsible for ensuring that supporting evidence is collected, processed, stored and used in a safe and secure manner, and is only used for the purposes for which it was collected, namely, for the completion of a BER assessment. DEAP supports the storage of BER assessment data in accordance with data protection. BER assessors must adopt additional secure storage systems for any assessment information which may be processed or stored outside of DEAP.

4.3.3 Types of personal data

The table below provides further guidance on types of personal data.

Data type	Example	Required for BER	Notes
Personal data related to the dwelling	<ul style="list-style-type: none"> • Property address • Eircode • MPRN 	Yes	This information is required for the completion and publication of a BER assessment. BER assessors should be aware that this information may be used to identify an individual and can be considered personal data. As such, BER assessors should ensure that they comply with their obligations under data protection regulations and ensure this information is processed, maintained, used and stored in a secure manner.
Personal data related to an individual (homeowner / occupant)	<ul style="list-style-type: none"> • Name • Phone number • Email address • Bank details • Payment information (e.g. cost of services offered) 	No	<p>In cases where the supporting documentation collected contains personal data relating to an individual (e.g. the homeowner/occupant), this data must be removed prior to uploading to DEAP. This information is not required for the completion of a BER assessment.</p> <p>It is sufficient to 'black-out' any personal data on scanned/uploaded documents. Alternatively, software and mobile tools are readily available for editing and redacting personal data from electronic versions of supporting evidence before uploading them to DEAP.</p> <p>Please note, contact information provided for professional or business purposes is not considered personal data and does not need to be redacted.</p>
Special category personal data	<p>Data which may identify</p> <ul style="list-style-type: none"> • Religious beliefs • Ethnic origins • Political opinions • Health information • Sexual orientation 	No	The processing of special category data is prohibited unless the data subject has given their explicit consent before processing begins or the processing is authorised by law, for example, to protect the interests of a data subject, to comply with employment legislation or for reasons of public interest.

4.4. Guidance on DEAP entries and documentary evidence

In relation to a published BER assessment, the BER assessors' Code of Practice details the requirement to retain and upload evidence to DEAP.

- The following key evidence is required to be uploaded to DEAP. Supporting documentation/photos for dwelling/extension age (where available)
- Any documentation/photos to support all non-default values including the following where applicable
 - Building fabric values and air permeability test
 - Lighting design
 - Space and water heating appliances
 - Designer/installer sign-off sheet
 - Water heating – manufacturers declared loss, low water usage, shower flow rates
 - Mechanical ventilation system
 - Renewables

Bear in mind the Data Protection requirements in Section 4.3 when collecting/uploading data.

Please note, this does not represent the total evidence an assessor is required to retain to substantiate a published BER in accordance with section 8 of the Code of Practice.

The table below provides guidance on acceptable supporting evidence for DEAP entries. For each entry, the table outlines the type of evidence that is required to support the entry.

5. Guidance for data entry items

DEAP software tab: 'Dwelling details'		
Data entry item	Guidance	Documentary evidence
MPRN number	The MPRN can be found on the electricity bill for the dwelling. In the absence of electricity bills, the MPRN may be printed in the electricity meter box or can be sourced from the ESB. The MPRN lookup facility in the DEAP software should be used to confirm that the MPRN is correct.	<ul style="list-style-type: none"> N/A
Property address	<p>It is critical that BER assessors make every effort to ensure that they have the correct postal address for the dwelling being assessed. It is up to the assessor to make sure they publish the rating under an accurate postal address.</p> <p>The address should allow for unique identification of the property in so far as possible, and in such a way that prospective purchasers or renters (or their agents) will be satisfied that the rating before them in fact relates to the property in question. This is a duty of care which assessors owe to their clients. Any ambiguity in addresses should be eliminated or assessors run the risk that a rating will be revoked and will thereafter need to be republished with a satisfactory address.</p> <p>Assessors should confirm the postal address with the building owner. In addition, there are several tools available to assist assessors in verifying the postal address, as outlined below.</p> <ul style="list-style-type: none"> Eircode finder: If not provided by the client, assessors should source the Eircode of the property based on its location. Make sure to include the Eircode in the BER assessment. This resource should also be used to verify the address if the Eircode is available. Meter Point Reference Number (MPRN): The Meter Point Reference Number (MPRN) is a unique reference allocated to the house by the ESB. It can be found on the household electricity bill. Through the NAS, assessors are provided with access to the ESB's database to look up the MPRN address and help ensure the rating is being published for the correct dwelling. The MPRN is generally reliable, however there can 	<ul style="list-style-type: none"> N/A

	<p>be situations where there may be an issue with the address stored in the MPRN database. For example, in the case of new developments, the address given to the ESB may have been the address used during the construction phase and may be out of date. If there are significant differences between the MPRN address and the postal address inserted in DEAP, the</p>	
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	<p>assessor must publish the rating under the most accurate address. The address associated with the MPRN is as defined by ESB Networks.</p> <ul style="list-style-type: none"> • Other utility bills: Other utility bills, such as gas bills, can be another useful reference point. • An Post: An Post provides an address verification service. The maximum number of searches allowed is 15 per day. • GeoDirectory: The GeoDirectory is a database (a joint An Post and Ordnance Survey initiative) containing the address and map coordinates of over 1.7 million addresses including every building in the Republic of Ireland. The database is updated by An Post postal workers, with official updates released on a quarterly basis. The GeoDirectory offers services such as a GeoAddress Locator which could be used to confirm dwelling addresses. • Phonebook: The Eir phonebook can be helpful in confirming an address if you have the name of the owner and the county they reside in. 	
Dwelling type	<p>External photos of the dwelling must be taken to indicate dwelling type. Any adjoining dwellings must also be shown in the dwelling photos so that the dwelling type may be correctly determined. The photograph must be marked or outlined so that the dwelling can be identified and distinguishable from the adjacent properties.</p>	<ul style="list-style-type: none"> • External photos of all elevations (also relevant for stylistic evidence of dwelling age)

<p>Dwelling and extensions age</p>	<p>The dwelling age is an essential data point, particularly as it is a basis for many values entered in DEAP when using defaults. When determining the age of the dwelling or extensions, preference is given to the use of legal documents such as commencement notices and planning notices.</p> <p>The following resources should be visited when investigating dwelling or extension age:</p> <ul style="list-style-type: none"> • Check with Local Authority or An Bord Pleanála; • http://maps.osi.ie/publicviewer/ shows maps from 2005, 2000, 1995; <p>If legal documents are not available, use evidence from at least two of the following:</p> <ul style="list-style-type: none"> • Stylistic evidence - check for similar on Irish section of Tabula • Plates on dwelling/development showing year of construction; 	<p>Where available:</p> <ul style="list-style-type: none"> • Copy of relevant documentation confirming year of construction • Photo of age plate • Photo of age stamp within glazing • Photo of electricity meter age
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	<ul style="list-style-type: none"> • Age on the electricity meter; • Year of glazing printed between panes or on concealed edge of frame. Open the window/door to check; • Homeowner knowledge – retained in writing. <p>If dwelling age evidence conflicts, err on the side of caution and choose the older age. option. Similar methods must be applied when determining the age of extensions.</p> <p>Where an older building is converted into apartments, the age band can be based on the refurbishment date if they have been refurbished to meet the new dwelling standards as set out in the building regulations at the time of refurbishment. Where this is the case, the assessor should obtain confirmation of this to support the use of the later age band in DEAP.</p> <p>Renovation or partial renovation of a house may not be subject to the extant building regulations and should have an age band based on the original building’s age.</p>	
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<p>Is there an extension?</p>	<p>Identifying an extension in an existing dwelling may well make a significant improvement in the BER result for the dwelling.</p> <p>Where sufficient evidence is available to support the extension age, use the age of the extension rather than the original dwelling age when entering building elements included in the extension.</p> <p>There are several potential indicators as to the existence and area covered by the extension - this list is not exhaustive but is useful when seeking to identify an extension:</p> <ul style="list-style-type: none"> • Homeowner knowledge • Different windows to the original dwelling • Different roof type to the original dwelling • Different radiators to the original dwelling • Different room height to the original dwelling • Different natural ventilation (such as background wall/window vents) to the original dwelling 	<ul style="list-style-type: none"> • Sketch/drawings/photographs indicating location and extent of extension <p>Where available:</p> <ul style="list-style-type: none"> • Copy of relevant documentation confirming year of construction • Photo of age plate • Photo of age stamp within glazing • Photo of electricity meter age
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	<ul style="list-style-type: none"> • Change in rendering from the original dwelling • The presence of two heating systems may indicate the existence of an extension. <p>The same guidance applies for evidencing the age of the extension as provided under 'Dwelling and extensions age' should be used. Where this cannot be provided, the age of the extension(s) should be defaulted to the same as the main part of the dwelling. The rationale should be recorded on the survey form or sketch, e.g. insufficient evidence to confirm extension age, therefore defaulted to age of main part of the dwelling</p>	
Purpose of rating	<p>The client should indicate the purpose of the rating to the BER assessor. This will be one of:</p> <ul style="list-style-type: none"> • New dwelling for owner occupation; • Sale; • Private letting; • Social housing letting; • Grant support; • Major renovation (see TGD L 2019 Section 2.3); • Other. 	N/A
Comment box	<p>The comment boxes in the DEAP survey form (and DEAP software) should be used to describe unusual aspects of the dwelling such as retrofitted insulation, extensions, renewables installed and so on.</p>	N/A

DEAP software tab: 'Building'		
Building: floors		
Data entry item	Guidance	Documentary evidence
Storey heights	Relevant floor-to-ceiling heights should be measured on site (or taken from drawings for provisional ratings). Floor thicknesses between storeys should be taken from drawings where available, measured on site, or may be taken from defaults, particularly for existing dwellings (see DEAP manual Appendix S).	<ul style="list-style-type: none"> • Sketches/drawings showing relevant dimensions
Living area	Follow DEAP manual guidance using living area recorded in dwelling sketches or architectural drawings.	<ul style="list-style-type: none"> • Sketches/drawings showing relevant dimensions and room types.
Floor areas	Dwelling sketches or architectural drawings must contain details of floor dimensions.	<ul style="list-style-type: none"> • Sketches/drawings showing relevant dimensions.
Room in roof floor areas	Dwelling sketches or architectural drawings must contain details of floor dimensions. DEAP software can be used to auto-calculate room in roof heat loss areas for existing dwellings.	<ul style="list-style-type: none"> • Sketches/drawings showing relevant dimensions.
Heat loss floor U-values	<p>It is unlikely that there will be enough visible information available on site to support a non-default U-value.</p> <p>In general, the main evidence to record during the site survey (for default and non- default floors) are the area, perimeter lengths and relationship to adjoining spaces (exposed, semi-exposed, heated, etc.). These variables must be recorded or available on sketches/drawings as appropriate to the floor type.</p> <p>Non-default U-value</p> <p>Where sufficient supporting evidence is available, a non-default U-value must be used following the guidance provided in Sections 4. A U-value calculation is mandatory for non-default floor U-values.</p>	<ul style="list-style-type: none"> • Sketches/drawings showing relevant dimensions and adjoining space type (e.g. heated/exterior/unheated). <p>For non-default U-values:</p> <ul style="list-style-type: none"> • U-value calculation; • As-built drawings/specifications (signed off by the architect, engineer, or assigned certifier) stating the

	<p>When using documentary evidence, the documentation must indicate the type and thickness of installed insulation and other layers in the building element and that the entire heat loss surface has achieved the non-default U-value.</p> <p>Default U-value</p> <p>Where there is insufficient information available to calculate U-values, then defaults from DEAP Appendix S should be used as indicated in Section 4 above.</p>	<p>type & thickness of insulation installed,</p> <p>or:</p> <p>Copies of invoices with detailed description of materials (e.g. insulation type, thickness, and quantity),</p> <p>or:</p> <p>Report of works signed off by contractor showing area of surface insulated, insulation thickness and type;</p> <ul style="list-style-type: none"> • Insulation certification; • Photographs (e.g. showing insulation type and thickness), where available.
Building: roofs		
Roof area	<p>Internal areas must be measured on site and recorded using dwelling sketches or architectural drawings.</p>	<p>Sketches/drawings showing relevant dimensions.</p>
Heat loss roof U-values	<p>It may be possible to gather information on site in relation to the dwelling roofs and this information must be used where available.</p> <p>Ensure insulation depth is established by taking the average of a number of measurements.</p> <p>Different U-values (e.g. significantly different depths or materials) must be treated as separate roofs in DEAP.</p> <p>Where insulation is not accessible, documentary evidence of type and thickness of installed insulation and other layers in the building element in question must be used where available.</p>	<ul style="list-style-type: none"> • Photographs (e.g. showing insulation type/thickness) where available; <p>For non-default U-values:</p> <ul style="list-style-type: none"> • U-value calculation; • As-built drawings/specifications (signed off by the architect, engineer, or assigned certifier) stating the type & thickness of insulation installed, <p>or:</p> <p>Copies of invoices with detailed description of materials (e.g. insulation type, thickness, and</p>

	Copies of documentation must be kept with the records for the assessment. When	quantity), or: Declaration of works for SEAI grant schemes
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	<p>using documentary evidence, the documentation must indicate that the entire heat loss surface has achieved the non-default U-value.</p> <p>Where there is insufficient information available to calculate U-values, then defaults from DEAP Appendix S must be used as indicated in Section 4 above.</p>	<p>showing area of surface insulated, insulation thickness and type,</p> <p>or:</p> <p>Report of works signed off by contractor showing area of surface insulated, insulation thickness and type;</p> <ul style="list-style-type: none"> • Insulation certification; • Photographs (e.g. showing insulation type and thickness), where available.
Building: walls		
Wall area	<p>Internal areas must be measured and recorded using dwelling sketches or architectural drawings.</p>	<ul style="list-style-type: none"> • Sketches/drawings showing relevant dimensions
Heat loss wall U-values	<p>It may be possible to gather information on site in relation to the dwelling walls and wall type and this information must be used where available.</p> <p>A filled cavity wall may show drill marks above, below and to the sides of each window and spread out across larger wall sections. These marks are typically filled with mortar. If using the presence of these marks as evidence of cavity wall fill insulation, they must be visible on each facade for which the filled cavity wall U-value is to be applied.</p> <p>To substantiate a non-default U-value for a cavity wall, the assessor can measure thickness of retrofitted cavity fill insulation at meter box, in accordance with Section S6.1 of the DEAP manual.</p> <p>Where insulation is not accessible, documentary evidence of type and thickness of installed insulation and other layers in the building element in question should be used where available.</p> <p>When using documentary evidence, the documentation must indicate that the</p>	<ul style="list-style-type: none"> • Photographs (e.g. showing insulation type/thickness) where available; <p>For non-default U-values:</p> <ul style="list-style-type: none"> • U-value calculation; • As-built drawings/specifications (signed off by the architect, engineer, or assigned certifier) stating the type & thickness of insulation installed; <p>or:</p> <p>Copies of Invoices with detailed description of materials (e.g. insulation type, thickness, and quantity);</p> <p>or:</p> <p>Declaration of works for SEAI grant schemes showing area of surface insulated, insulation thickness and type;</p>

	entire heat loss surface has achieved the non-default U-value.	or: Report of works signed off by contractor showing
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	<p>Where there is insufficient information available to calculate U-values, then defaults from DEAP Appendix S must be used as indicated in Section 4 above.</p> <p>For opaque curtain walling please refer to heat loss window U-values.</p> <p>If the wall type is unidentifiable you must assume that the wall type is 'unknown'.</p>	<p>area of surface insulated, insulation thickness and type;</p> <ul style="list-style-type: none"> • Insulation certification; • Documentary evidence, such as agrément certificate, to support emissivity of air gap where non-default (low emissivity) is used; • Photographs (e.g. showing insulation type and thickness), where available.
Building: windows and doors		
Door area	<p>Doors should be measured on site, although for existing dwellings, assessors may use the default values given in DEAP unless it is obvious that they are not applicable.</p> <p>Measured door areas are recorded as openings on the DEAP survey form and may also be shown on sketches or architectural drawings.</p> <p>When using the default door area, double doors are input as two doors in the DEAP software.</p>	<p>Sketches/drawings;</p> <ul style="list-style-type: none"> • Survey form showing relevant dimensions.
Door U-value	<p>The default door U-values in DEAP Table 6a must be used unless proven otherwise by photographs and certificates of thermal performance.</p> <p>Table 6 in the DEAP manual provides details on how to determine the U-value of a partially glazed door.</p>	<ul style="list-style-type: none"> • Photographs (e.g. showing door type, make/model); <p>For non-default U-values:</p> <ul style="list-style-type: none"> • Documentary evidence of door type installed, and • U-value certification. •

<p>Window U-value and solar transmittance</p>	<p>Non-default U-values for windows</p> <p>Window U-values and g-values (total solar energy transmittance) should be obtained from certified data or calculated to standards outlined in the DEAP manual. Both U-values and g-values are needed when supplying non-default data.</p> <p>For light transmittance, only the values in Table 6b are to be used.</p>	<p>Non-default U-values:</p> <ul style="list-style-type: none"> • Photographs (e.g. showing frame/glazing), and/or: • Confirmation of window type/glazing specification installed through as-built drawings/specifications or invoices;
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	<p>Normally, the frame factors (representing the glazed fraction of the window) in Table 6c are used. However, manufacturer values are permitted as long as they are representative of the actual windows installed.</p> <p>Default U-values for windows</p> <p>Default values from Table 6a or Table S9 may be used when certified data is not available.</p> <p>DEAP Section 3.2 outlines how default window U-values and solar transmittance values are obtained in the absence of certified data.</p>	<ul style="list-style-type: none"> U-value and solar transmittance certification. <p>Default U-values:</p> <ul style="list-style-type: none"> Details of glazing and frame type recorded on survey form; Representative photographs of the window, gap between glazing, manufacturer's stamp can be used as supporting evidence.
Window area	<p>On-site measurements must be recorded on dwelling sketches/architectural drawings or the survey form. The recorded detail must be sufficient to be able to identify the location of the window in the dwelling. For example, if using the survey form to record dimensions, cross reference to the sketch using W1 / W2 / W3 andsoon.</p> <p>Drawings should distinguish between transparent and opaque elements.</p>	<ul style="list-style-type: none"> Sketches/drawings;Survey form showing relevant dimensions.
Window over shading	<p>Over shading of a window is an estimate of the sky which is blocked when viewed outwards from the centre point of the window in question.</p> <p>In borderline cases where the assessor is unsure of the appropriate over shading category, the more conservative option should be chosen.</p>	<ul style="list-style-type: none"> Representative photographs demonstrating level of over shading.
Window orientation	<p>The window orientation must be recorded on the dwelling sketches/survey form or architectural drawings.</p> <p>In establishing the orientation of dwelling, take several readings with a compass and ensure there is no interference from electrical devices or metal objects.</p>	<ul style="list-style-type: none"> Sketches/drawings showing window orientation, or: Survey form indicating orientation.

<p>Windows/doors draught stripping</p>	<p>Double/triple glazed windows usually have draught stripping – this should be confirmed on site and recorded on the survey form. If draught stripping is fitted to single glazed windows, photographic evidence must be taken to support this.</p> <p>Note: Draught stripping as a percentage is based on the number of openable sections rather than the number of windows, e.g. a window may have more than one openable section or no openable sections.</p>	<ul style="list-style-type: none"> • Photographs showing any draught stripping recorded for single glazed openings, doors and attic hatches • Survey form record of draught-stripping.
<p>Building: rooms and global factors</p>		
<p>Thermal bridging factor</p>	<p>Detailed guidance on the use of default and non-default thermal bridging factors is given in Appendix K of the DEAP manual for new and existing dwellings.</p> <p>Any y-value other than 0.15 requires supporting documentation.</p>	<ul style="list-style-type: none"> • Drawings and schedule identifying: <ul style="list-style-type: none"> ○ All junctions; ○ All key junctions; ○ Junction lengths (where a non-default y-value is used); • ACDs/certified details for all key junctions; • y-value calculation where a non-default y-value is used.
<p>Thermal mass category</p>	<p>For new dwellings, use DEAP Table 11 and indicate the overall thermal mass category on the DEAP survey form.</p> <p>Calculations to determine the overall mass category via the derivation of the "AmAf" value must be held on file.</p> <p>The overall thermal mass category is one of low; medium-low; medium; medium-high or high.</p> <p>For existing dwellings, follow Table S10 in Appendix S or Table 11 of the DEAP manual and indicate the thermal mass of walls and floors in the DEAP survey form or on sketches/drawings.</p> <p>Where a building element comprises more than one thermal mass, e.g. masonry internal walls on ground floor with timber stud on the 1st floor,</p>	<ul style="list-style-type: none"> • Any calculations used to derive the thermal mass category (e.g. if using the AmAf approach) including sketches/drawings highlighting thermally heavy elements. • Survey form indicating thermal mass of building elements.

	sufficient information should be recorded to determine the areas of each thermal mass type (Table 11 or Table S10) or allow an informed decision of which is predominant where Table S10 is used.	
Rooms	Optional information on each room type, the storey in which it exists. Room names are recorded in the 'Rooms' tab.	<ul style="list-style-type: none">• Sketches/drawings showing room names/types.

DEAP software tab: 'Ventilation'		
Ventilation: Infiltration due to openings		
Data entry item	Guidance	Documentary evidence
Count of chimneys	Follow guidance in the DEAP manual. As per Section 2.1 of the DEAP manual, the specified ventilation rate for chimneys (and open flues) "includes an allowance for the associated permanent vent for air supply, so this vent should not be entered separately".	<ul style="list-style-type: none"> • Photos of chimney openings and fireplaces; • Survey form indicating number of chimneys.
Count of open flues	The DEAP manual must be followed as it distinguishes between open flues, chimneys and room sealed appliances.	<ul style="list-style-type: none"> • Photos of open flues and associated appliances; • Survey form indicating number of open flues.
Intermittent fans and background / passive vents	Pay close attention to Section 2.2 of the DEAP manual in relation to trickle vents, controllable vents and permanently open vents. The minimum open area of 3,500mm ² equates to an (open) circle of 67mm diameter.	<ul style="list-style-type: none"> • Photos of typical wall/window background vent; • Photos of intermittent fans; • Survey form indicating number of vents/fans.
Flueless combustion room heaters	See Ventilation section in DEAP Manual	<ul style="list-style-type: none"> • Photos of flueless vents and associated appliances; • Survey form record.

<p>Draught lobby</p>	<p>Sketch/architectural drawings and/or photograph required as supporting evidence for draught lobby in accordance with Section 2.4 of the DEAP manual.</p> <p>Where a draught lobby is being entered as “Yes” in DEAP, ensure sufficient detail is recorded on the sketch/drawings and/or survey form and/or photographs to support all criteria necessary to meet the requirements to be a draught lobby.</p> <p>Note: Apartments with access via an enclosed stairwell or corridor should be classified as having a draught lobby.</p>	<ul style="list-style-type: none"> • Sketch/ architectural drawings with dimensions, and/or: Photographic evidence.
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Ventilation: Structural air tightness		
<p>Pressure test (a.k.a. permeability test)</p>	<p>Clear copy of pressure test certificate (with legible text) with:</p> <ul style="list-style-type: none"> • Air tightness test result; • Relevant test standard; • Address of dwelling, and • Date of pressure test; <p>Test data must be from an individual or organisation with relevant accreditation.</p> <p>For new buildings in compliance with 2019 building regulations, an air permeability test must be carried out on ALL new dwellings.</p> <p>For new buildings in compliance with previous regulations, development/ site drawings must be provided showing the dwellings tested in compliance with Part L and dwellings not tested where backstop applies.</p> <p>Alterations to the dwelling envelope subsequent to pressure test render that test certificate invalid.</p>	<ul style="list-style-type: none"> • Copy of pressure test certificate for dwelling. • For backstop, copy of pressure test certificates within development and copy of development plan showing dwellings tested.
<p>Structure type</p>	<p>Photographic evidence may be provided to show structure type.</p> <p>Where the wall type is unknown, assume the structure type is masonry.</p> <p>Detail from dwelling plans and/or specifications may also be used in determining the structure type.</p>	<ul style="list-style-type: none"> • Photographic evidence showing structure type where available; and/or: Plans/specifications indicating structure type.

Solid/suspended ground floors	<p>Floor types must be clearly recorded on the sketch plan and/or survey form.</p> <p>For suspended floors, assume unsealed unless it can be proven otherwise. See DEAP manual for further detail.</p> <p>Photograph of underfloor vents on dwelling facades may demonstrate suspended timber floor</p> <p>Where more than one type of ground floor is present, the sketch plan / drawings</p>	<ul style="list-style-type: none">• Sketch/architectural drawings with dimensions (if appropriate);• Survey form;• Photographs of underfloor vents on facades where applicable.
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(contd)	must clearly identify dimensions and the locations of the different types, e.g. suspended floor to living room, remainder solid.	
Attic hatches and draught stripping	Record presence of attic hatches and detail of whether they are draught stripped. Attic hatches include crawl space access doors through knee walls for room in roof constructions.	<ul style="list-style-type: none"> • Photos of attic hatch draught-stripping. • Sketch / drawings showing location of attic hatches and record of draught stripping status and/or: • Survey form record.
Sheltered sides	Follow Section 2.5 of the DEAP manual when determining the number of sheltered sides. Sheltered sides must be shown on sketches/architectural drawings (indicating distance, height and width of sheltering objects and adjacent properties). Photographs can be used in support of the above.	<ul style="list-style-type: none"> • Sketch/drawings/ satellite image depicting aerial view of dwelling showing sheltered sides and relevant parameters. • Photographs (optional).
Ventilation: method		
Whole house mechanical ventilation	<p>For mechanical ventilation systems, record make, model and type of ductwork to support the use of non-default SFP and heat exchanger efficiency. Photographs of the centralised unit in place and the nameplate on the unit provide good support of the make and model (if it is safe to take these photographs).</p> <p>For balanced, whole-house mechanical ventilation systems with heat recovery, record whether system ductwork outside the dwelling envelope is insulated and the type and thickness of insulation. This may be recorded onsite or obtained from installer specification documents.</p> <p>For exhaust air heat pumps, the unit air flow rate (m³/h) is also recorded from the Ecodesign technical data sheet.</p>	<ul style="list-style-type: none"> • Photographic evidence to record make, model and configuration/ducting of mechanical ventilation system. • If the unit is inaccessible, then dwelling specifications, invoices or receipts may be uploaded to support the make/model of the ventilation system. • Photographs or specification of ductwork insulation for heat recovery system where ductwork is outside of thermal envelope.

DEAP software tab: 'Space heating'		
Space heating: controls and responsiveness		
Data entry item	Guidance	Documentary evidence
Heating systems properties, emitter type and controls	<p>Follow guidance in the DEAP manual. Representative photographs of heating system (e.g. radiators, underfloor, warm-air, electric storage heaters, air conditioning (ducted and non-ducted) system, etc) and controls (such as TRVs, zone valves, room thermostats, cylinder thermostats, timers, and any other relevant controls) must be taken.</p> <p>Details must be recorded on the DEAP survey form.</p>	<ul style="list-style-type: none"> • Photographs of relevant heating controls; • Photographs of emitters (radiators, underfloor heating manifold, etc); • Survey form.
Group scheme	Select as defined in the DEAP manual. A heating system supplying more than one dwelling is regarded as a group scheme.	<ul style="list-style-type: none"> • Photographs of heat sources; • Survey form.
Space heating: pumps and fans		
Central heating pump	<p>Follow guidance in the DEAP manual. Details must be recorded on the DEAP survey form relating to central heating pumps distributing heat to space heating emitters. Calculations for non-default central heating pump power as per Table 4f may be carried out if enough information is available.</p> <p>Efficiency data for central heating pump power can be obtained from pump energy labels as detailed in DEAP Table 4f</p> <p>Also, record presence of room thermostat on heating system and details of pump location (inside or outside dwelling area being assessed).</p>	<ul style="list-style-type: none"> • Photographs of relevant heating controls; • Calculations and photos of energy labels supporting non-default central heating pump power; • Survey form.
Oil boiler fuel pumps (contd)	<p>Follow guidance in the DEAP manual. It is likely that an oil boiler will contain an internal fuel pump. There may be another external fuel pump, and this must be accounted for. Details must be recorded on the DEAP survey form.</p> <p>Also, record presence of room thermostat on heating system and details of pump location (inside or outside dwelling area being assessed).</p>	<ul style="list-style-type: none"> • Photographs of relevant heating controls; • If there is no oil boiler fuel pump, record detail on how this is demonstrated to be absent (as per DEAP manual guidance); • Survey form.

Gas boiler flue fan	Follow guidance in the DEAP manual. It is likely that a gas boiler will have a gas boiler flue fan. Details must be recorded on the DEAP survey form.	<ul style="list-style-type: none">• Photograph of flue fan;• If there is no gas boiler flue fan, record detail on how this is demonstrated to be absent (as per DEAP manual guidance).
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<p>Warm air heating or fan coil radiators present?</p>	<p>Follow guidance in the DEAP manual. Warm air may be installed as an alternative to radiators or underfloor heating.</p> <p>Warm air heating should not be selected to represent heat recovery systems as related fan power is already accounted for in ventilation tab. Fan coil radiators have an electric fan to distribute heat to the room from the radiator.</p> <p>The electric fan on fan coil radiators is recorded in the DEAP space heating pumps and fans tab.</p> <p>Details must be recorded on the DEAP survey form.</p>	<ul style="list-style-type: none"> • Survey form record; • Photographs of heat emitters.
<p>Space and water heat sources</p>		
<p>Main space and water heating system</p>	<p>DEAP manual rules apply when determining heating system efficiencies. Details must be recorded on the DEAP survey form.</p> <p>Photographs of the heating system (e.g. boiler, heat pump, etc) must be taken to support data inputs.</p> <p>Photographs of nameplates with make and model number can also be taken to support non-default efficiencies.</p> <p>Heating system manuals or installation certificates can also be copied and used as supporting data.</p> <p>In the absence of supporting data, default efficiencies in Table 4a/4b in DEAP manual must be used.</p>	<ul style="list-style-type: none"> • Photographs of heating system(s) and nameplates showing make/model; • Information from manuals / installation documents used as supporting evidence; • Information used to support non-default efficiency, as outlined in DEAP manual (e.g. Ecodesign data, ISO EN 16147 data and designer/installer sign-off sheet for heat pumps, accredited test certificates, etc); • For non-default flow temperatures for heat pumps, heating design sheet & radiator technical data sheets.

<p>Secondary heating system</p>	<p>DEAP manual rules apply when determining secondary heating system efficiencies. Details must be recorded on the DEAP survey form.</p> <p>Photographs of the secondary heating system (e.g. room heater, etc) must be taken to support data inputs.</p> <p>Photographs of nameplates with make and model number can also be taken to support non-default efficiencies.</p> <p>Heating system manuals or installation certificates can also be copied and used as supporting data.</p> <p>In the absence of supporting data, default efficiencies in Table 4a/4b in DEAP manual must be used</p>	<ul style="list-style-type: none"> • Photographs of secondary heating system and nameplates showing make/model; • Information from manuals / installation documents / certificates used as supporting evidence.
<p>Fuel data</p>	<p>Details must be recorded on the DEAP survey form.</p> <p>If a solid fuel burner can burn more than one type of fuel, follow Section 10.3.3 of the DEAP manual in determining the correct fuel type.</p>	<ul style="list-style-type: none"> • Any documentation used to support choice of fuel(s) such as heating system product operation/warranty.
<p>Group heating scheme</p>	<p>A bill showing evidence of charging based on heat consumed</p> <p>Documentary evidence confirming the % load from the group heating provider or system designer, etc., is also acceptable.</p> <p>Details must be recorded on the DEAP survey form.</p>	<ul style="list-style-type: none"> • Bill(s) from group heating scheme; • Documentary evidence of load percentage from group heating provider or system designer where applicable; • Documentary evidence of models/ efficiency etc. of heat sources.
<p>District heating scheme</p>	<p>A bill showing evidence of a district heating scheme is required to support the data inputs.</p> <p>Documentary evidence from the district heating provider or system designer is also acceptable.</p> <p>Details must be recorded on the DEAP survey form.</p>	<ul style="list-style-type: none"> • Bill(s) from group heating scheme; • Documentary evidence from group heating provider or system designer.

Distribution loss factor for group heating schemes	<p>The age of the dwelling is required here.</p> <p>Supporting data / documentation from the service provider is also required for group heating schemes.</p> <p>See DEAP Appendix C1.1. Details must be recorded on the DEAP survey form.</p>	<ul style="list-style-type: none"> • Data/documentation from service provider; • Calculations supporting derivation of distribution factor according to DEAP C1.1 if relevant.
Combined Heat and Power (CHP) for group or individual heating system	<p>DEAP Appendix N applies. Details must be recorded on the DEAP survey form. Where available, efficiency data is taken from test reports based on a national standard or the CHP Directive 2004/8/EC. Photographs of the CHP system must be taken to support data inputs.</p>	<ul style="list-style-type: none"> • Photographs of CHP system and nameplates showing make/model; • Information from manuals / installation documents / certification used as supporting evidence.

DEAP software tab: 'Water Heating'		
Water heating: options and storage		
Data entry item	Guidance	Documentary evidence
Distribution losses y/n	Generally, the answer will be 'yes'. If entering 'no', evidence must be provided (for example, representative photographs of instantaneous heaters at hot water taps).	Photographs of heaters at hot taps if selecting 'no'.
Storage losses y/n	Generally, the answer will be 'yes'. If entering 'no', evidence must be provided (for example, representative photographs of an instantaneous combi-boiler without storage).	Photographs of instantaneous water heating or instantaneous combi-boiler if selecting 'no'.
Supplementary electric water heating in summer y/n	Follow guidance in DEAP manual Section 4.6. Representative photographs of heating controls must be taken (such as switch or timer separating space and water heating, or manual isolation valves for the space heating).	Photographs of relevant heating controls.
Combi-boiler y/n	Common indicators to look for include: <ul style="list-style-type: none"> • Make and model of the boiler. • There may be no storage outside of boiler. • The boiler is likely to have two sets of flow/return pipes. One set for space heating and one set for hot water. • A combi boiler could have an internal store. • The relevant supporting data must be recorded on the DEAP survey form. 	Photograph of heat source showing make/model.
Storage temperature factors	Follow guidance in DEAP manual. Representative photographs of heating controls must be taken (such as water heating timer and/or cylinder thermostat).	Photographs of relevant heating controls.

Shower types, flow restrictors, Wastewater Heat Recovery systems (WWHR), baths	Follow guidance in the DEAP manual. Details must be recorded on the DEAP survey form. Retain photographs of flow restrictors and WWHR systems.	<ul style="list-style-type: none"> • Photographs of shower types and bath, if present; • Photographs of flow restrictors and WWHR including make/model (or evidence from specification / receipts, etc., where inaccessible).
Water storage volume	<p>Assessors must record the water storage volume and how that volume was determined.</p> <p>Follow DEAP Table 2a to derive the hot water storage volume. Height and width of the storage volume should not include the insulation thickness. The means by which the water storage volume was derived must be detailed in assessment records. Key dimensions (height/diameter) must be recorded on the sketch plan/ drawings and/or survey form.</p> <p>The volume stated on labels/nameplates can be used where:</p> <ul style="list-style-type: none"> • It has a CE-marking and states the relevant standard; or, • It has a reference to the relevant EcoDesign or Energy Labelling Directive. 	<ul style="list-style-type: none"> • Calculations where applicable; • Photographs of hot water storage, showing label if present; • Sketch / drawings and/or survey form with records of key dimensions.
Insulation type and thickness of the water storage volume	<p>Hot water storage insulation type/thickness must be measured on site or derived from labels on the storage volume or product documentation. Measure insulation thickness where accessible and record the details on the DEAP survey form. Otherwise use defaults in Appendix S of the DEAP manual.</p> <p>Details are to be recorded on the DEAP survey form. Alternatively, please follow the rules in Appendix S of the DEAP manual.</p>	<ul style="list-style-type: none"> • Photographs of hot water storage, showing label if present or use specification/receipts of installation; • Sketch / drawings and/or survey form recording insulation type and thickness.
Is hot water storage indoors or in group heating scheme?	This is set to 'yes' if the majority of the installed hot water storage as entered under the DEAP "water heating" tab is within the dwelling heat loss envelope and is therefore contributing to the dwelling's heat gains. It is also set to 'yes' if the hot water storage is part of a group heating scheme.	<ul style="list-style-type: none"> • Photographs of hot water storage; • Sketch / drawings and/or survey form recording location of hot water storage.

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Primary circuit loss type	It may be difficult to show evidence of primary circuit insulation between all pipes from heat source to the hot water storage volume. Dwelling specification or retrofit works documentation may be used as supporting evidence. The default is that primary pipework is uninsulated.	<ul style="list-style-type: none"> • Photographs of relevant heating controls and insulated pipework where visible; • Documentary evidence supporting non-visible insulated pipework.
Water heating: solar		
Solar thermal panels	Photographic evidence of existence and layout of solar panels must be taken to support the data inputs. Installation and manual documentation or product labelling should be sought. If available, a copy of relevant documentation must be taken. Determine make and model where possible. Solar panels on the dwelling may be listed on the HARP database or certified data may be obtainable.	<ul style="list-style-type: none"> • Photographs of solar collectors; • Documentary evidence of collector make/model if available; • Sketch/drawings and/or survey form recording solar panel details.
Aperture area of solar panels	Use data from HARP where available. Alternatively, data may be obtained from certified data. If relying on defaults, follow Appendix S Table S11 and Appendix H in the DEAP manual.	<ul style="list-style-type: none"> • Certified data if not on HARP.
Zero loss collector efficiency	Data must be recorded on the DEAP survey form.	
Collector heat loss coefficient		
Annual solar radiation	Refer to Appendix H. Tilt and orientation needs to be established and then Table H2 in DEAP is used. This data must be recorded on the DEAP survey form. Record orientation/tilt/over shading on sketches/drawings.	<ul style="list-style-type: none"> • Sketches/drawings showing orientation/tilt/over shading; • Survey form.
Solar collector over shading, orientation and tilt	Follow Appendix S Table S11 and Appendix H, Table H3 in DEAP. This data must be recorded on the DEAP survey form. Record orientation/tilt/over shading on sketches/drawings.	<ul style="list-style-type: none"> • Sketches/drawings showing orientation/tilt/over shading; • Survey form.

Dedicated solar storage	Follow guidance in Appendix H. For combined cylinder, measure below boiler/heat pump coil pipes. Volume and location of pipes may also be available from water storage datasheets. This data must be recorded on the DEAP survey form.	<ul style="list-style-type: none">• Datasheets and photographs of hot water storage labels, or: use specification / receipts of installation.• Calculations where relevant.
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Water heating: heat source (if not same as space heat source)
<p>For water heat source, see approach for entries under ‘space heating’ tab above. Data is entered separately for water heating source if not the same as space heating source.</p>

DEAP software tab: ‘Cooling’		
Data entry item	Guidance	Documentary evidence
Fixed cooling system	<p>Follow DEAP Manual guidance. Fixed cooling may be provided by an air conditioning system or heat pump system. When a warm air heat pump is present (for example air-to-air, brine-to-air, etc.), it is assumed that this also provides cooling (i.e. it is reversible), unless evidence is available to confirm that the cycle cannot be reversed.</p> <p>For hydronic heat pumps (for example using radiators or underfloor heating), it should be assumed that there is no cooling present, unless otherwise specified by the design/installer sign-off. If the BER assessor comes across other evidence indicating that a hydronic system may be reversible and used for cooling, they should contact the helpdesk for specific advice. As in the case of reversible warm air systems, unless evidence can be sourced to substantiate the SEER entry, the default value should be used.</p> <p>Photographs of the cooling system (for example heat pump, air conditioning) must be taken to support data inputs.</p> <p>The heat pump designer/installer sign-off sheet must be completed for systems using heat pump technology (heat pumps and air conditioning systems).</p> <p>Photographs of nameplates with make and model can also be taken to</p>	<ul style="list-style-type: none"> • Photographs of cooling system(s) and nameplates showing make/model • Information from manuals/installation documents used as supporting evidence • Information used to support non-default Seasonal Energy Efficiency Ratio (SEER) as outlined in DEAP manual (for example Ecodesign data, EN14825 accredited test data) and designer/installer sign off sheet for heat pumps • Where applicable, evidence that the warm air heat pump cannot provide cooling with 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.

	<p>support non-default efficiencies.</p> <p>Cooling system manuals or installation certificates can be copied and used as supporting data.</p> <p>In the absence of supporting SEER data, default SEER as per the DEAP manual may be used.</p>	
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DEAP software tab: 'Lighting'		
Data entry item	Guidance	Documentary evidence
<p>(Lighting design unknown) Number and type of each lamp is recorded</p>	<p>Follow DEAP manual guidance, particularly Appendix L.</p> <p>Data gathered during the dwelling survey must be recorded on the survey form, dwelling sketches or architectural drawings.</p>	<ul style="list-style-type: none"> • Survey form indicating bulb types and numbers of bulbs; • Representative photos of bulb types.
<p>Lighting design known (Lighting design information)</p>	<p>Additional lighting design information is to be kept on file by the assessor where available and should include the following information:</p> <ul style="list-style-type: none"> • Lighting plan: drawings for the dwelling indicating the location of all fixed light fittings. • Lighting schedule: this should document the bulb used in each of the fixed light fittings identified in the lighting plan. • Supporting technical documentation: non-default data can only be used where there is supporting documentation indicating the bulb power (in watts) and bulb efficacy (in lumens/watts). Documentation for bulb efficacy should meet the normal requirements of DEAP, so it should be either: <ul style="list-style-type: none"> ○ Manufacturer's documentation with a CE-marking and stating a relevant test standard, or: ○ A test report from a test centre that is accredited to test to the relevant standard. • Confirmation of installation in accordance with the above documentation from by an architect, engineer or assigned certifier. 	<ul style="list-style-type: none"> • Information recorded for 'number and type of each lamp' as above. • Documentation as specified demonstrating wattage and efficacy of bulbs. Includes sign-off as specified.

DEAP software tab: 'Renewables'		
Data entry item	Guidance	Documentary evidence
Renewables 1/2/3	<p>Follow guidance in DEAP Appendices M and Q. This section does not include technologies already specifically dealt with in the DEAP methodology (such as ventilation heat recovery, solar thermal for hot water, instantaneous wastewater heat recovery, CHP, heat pumps, wood fuel boilers).</p> <p>Retain photographs of installation, documentation supporting the installation and product performance parameters as well as sketches/drawings of installation aspects impacting performance.</p> <p>Where PV panels are installed on the roof of an apartment building, and if the PV output goes to particular individual flats, the annual output is credited to the flats concerned. An inverter is needed for each flat with a PV electricity supply. Note that electricity supplied to common areas in a development is not considered in DEAP assessments.</p>	<ul style="list-style-type: none"> • Photographic evidence of installed system showing nameplates where possible; • Documentary evidence of installation, product manuals; • Documentary evidence supporting performance (e.g. performance data for PV panels, swept area of onsite turbines, etc.); • Sketches/drawings showing orientation/tilt/over shading for PV; • For PV panels on apartment developments, evidence of the presence of the inverter and PV installed for each apartment; • Sketches/drawings showing height and tallest nearby objects for onsite turbines.

This is available as a separate file:

Excel format: <https://www.seai.ie/home-energy/building-energy-rating-ber/support-for-ber-assessors/domestic-ber-resources/deap4-software/DEAP-Survey-Form.xlsx>

PDF format: <https://www.seai.ie/home-energy/building-energy-rating-ber/support-for-ber-assessors/domestic-ber-resources/deap4-software/DEAP-Survey-Form.pdf>

w: <https://www.seai.ie/energy-in-business/ber-assessor-support/deap/>

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