



SUSTAINABLE
ENERGY
AUTHORITY OF
IRELAND

Better Energy Programmes

Technical Assessment Process for BEH Heat Pump System Grants

Version 1.0 2018



Technical Assessment Process for BEH Heat Pump System Grants

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Technical Assessment Process for BEH Heat Pump System Grants

1 Introduction

1.1 Outline of the grant and the Technical Advisor

The installation of Heat Pump Systems is funded by SEAI under the Better Energy Homes programme. One of the requirements for a dwelling to qualify for a grant for Heat Pump Systems is that the energy performance of the dwelling fabric is suitable for Heat Pump System installation. SEAI aims for installed Heat Pump Systems to be as efficient and effective as is feasible.

To make this possible, an independent Technical Advisor, who is registered with SEAI, is engaged by the homeowner as part of the application process. The Technical Advisor guides the homeowner on the energy performance of the dwelling, particularly on the suitability of the dwelling for a heat pump system based on the dwelling's heat loss. They also provide the homeowner with independent guidance on measures necessary to ensure that the dwelling fabric heat loss is lowered to an acceptable level for a heat pump system to perform effectively and efficiently.

1.2 Purpose of this document

This document defines the role of the SEAI-Registered Technical Advisor and their work in carrying out Technical Assessments as part of the Better Energy Homes grant process. The document includes details for Technical Advisor registration, guidance on the requirements of the role, Code of Conduct, Quality Assurance and Disciplinary Procedures as well as outlining the Technical Assessment Form.

1.3 Amendments to this document

SEAI reserves the right, from time to time, to review and amend this document. Technical Advisors shall be made aware of any such amendments to this document by email or by way of an update displayed on the Better Energy Homes section of SEAI's website. For the most up-to-date version of this document, Technical Advisors should visit SEAI's website at www.seai.ie/betterenergyhomes.

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2 Role of the Technical Advisor

As part of the application process for BEH Heat Pump System grants, the Technical Advisor is engaged by the homeowner to advise on the energy performance of the dwelling. Technical Advisors are registered by SEAI based on the minimum registration requirements detailed in Section 2.3. The Technical Advisor guides the homeowner on the suitability of the dwelling for a heat pump system, particularly from a heat loss perspective using SEAI's Dwelling Energy Assessment Procedure (DEAP).

If the dwelling heat loss is too high, the dwelling will not qualify for a Better Energy Homes Heat Pump System grant. In this instance, the Technical Advisor provides the homeowner with independent guidance in a Technical Assessment, detailing any upgrades needed to reduce the heat loss to the requisite amount. The Technical Assessment form is submitted to SEAI on completion and is signed by the homeowner and Technical Advisor. There is no fee payable to SEAI for submission of the Technical Assessment form.

The Technical Assessment is based on SEAI's Dwelling Energy Assessment Procedure (DEAP), as used for calculating domestic Building Energy Ratings¹. Submission of the Technical Assessment is a mandatory precursor to the Heat Pump System grant application process. Depending on homeowner requirements, the Technical Advisor may provide further guidance and support to the homeowner in respect of subsequent fabric and Heat Pump System upgrades, and may also carry out the required BER assessment after all grant measures are complete. However, all work carried out as an SEAI registered Technical Advisor is subject to the independence requirements and professional conduct requirements detailed in Sections 2.1 and 2.2, respectively.

All queries related to Better Energy Homes or the Technical Advisor Role should be directed to the Better Energy Homes Helpdesk. All queries related to BER/DEAP only should be directed to the Building Energy Rating Helpdesk:

Better Energy Homes		Building Energy Rating
Phone	01-8082100	Lo-call 1890 734 237
Email	info@betterenergyhomes.ie	info@ber.seai.ie
WWW	www.seai.ie/grants/home-grants/better-energy-homes	www.seai.ie/energy-ratings/building-energy-rating-ber

¹ <https://www.seai.ie/energy-in-business/ber-assessor-support/deap/>

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2.1 Independence of the Technical Advisor

Technical Advisors are required to act in an independent and transparent manner at all times when fulfilling the role detailed in this document. Technical Advisors are prohibited from carrying out a Technical Assessment on or providing related guidance and support in relation to a dwelling:

- a) which is owned by them or by any Connected Person, or
- b) which, at the time of carrying out or submitting the Technical Assessment to SEAI, or within the subsequent 12 months, is to be sold or let by them or a Connected Person in their capacity as a sales or letting intermediary,
- c) where the Technical Advisor would be assessing energy improvement works carried out by him/her or a Connected Person within the preceding 12 months,
- d) in any other circumstances in which they have a material financial interest in the outcome of the Technical Assessment and/or the said guidance or support, other than the fee charged for the Technical Assessment and guidance services.

It is a matter for each Technical Advisor to take adequate steps to ensure that a building on which they carry out a Technical Assessment is / will not be sold or let by them or a Connected Person at the time of carrying out or submitting the Technical Assessment or within the subsequent 12 months.

The following definitions and related provisions in the BER/DEC Assessors Code of Practice² also apply to Technical Advisors: “Connected Person”; “owned”; “management of independence”; and “SEAI’s Reserved Rights and Powers” . However, for clarity, the “Annual Declaration of Independence” required to be completed by BER/DEC Assessors is only applicable to their work as a BER Assessor.

In all cases, where a Technical Advisor is publishing BER Assessments, the BER Assessors Code of Practice and Quality Assurance Disciplinary Procedure apply to them as a BER Assessor and to the published BER Assessment.

In addition to the requirement above, Technical Advisors cannot be employed by companies that provide Quality Assurance and/or administrative services to the Better Energy Homes Programme.

2.2 Professional Conduct of the Technical Advisor

In addition to the rules detailed in Section 2.1 above, several other facets of the BER/DEC Assessors Code of Practice must be adhered to in carrying out the role of a Technical Advisor. Those sections that apply to the role of a Technical Advisor are as follows:

- Technical Advisors must ensure that data compiled and inputted to Technical Assessments is accurate and that the published BER used to calculate the Heat Loss Indicator (“HLI”) at the time of the Technical Assessment and the proposed HLI and associated upgrades accurately reflects the dwelling as it stands.
- Technical Advisors must retain all data used in calculating the current HLI and expected HLI following proposed upgrades in the Technical Assessment. SEAI reserve the right to request this data. This includes supporting evidence, photographs and calculations detailed in the DEAP methodology and DEAP Survey Guide. This applies regardless of whether the BER assessment used in calculating the current HLI was published by the Technical Advisor or by another BER Assessor.

² <https://www.seai.ie/energy-in-business/ber-assessor-support/>

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- SEAI reserves the right to accept or revoke Technical Assessments either at the time of submission or any time thereafter, regardless of the registration status of the Technical Advisor.
- The same conditions as per the BER Assessors Code of Practice on “Indemnification of the Sustainable Energy Authority of Ireland and Insurance” all apply to Technical Advisors. In addition, the insurance requirements specified must extend to the Technical Advisor’s work as an SEAI Registered Technical Advisor for the Better Energy Homes grants programme.
- The Technical Advisor (and his/her Principal) shall indemnify SEAI against all actions, proceedings, claims or demands whatsoever arising out of or in connection with:
 - The negligent or otherwise wrongful act or omission on the part of the Technical Advisor;
 - A breach by the Technical Advisor of any of the rules set out by SEAI pertaining to the role of the Technical Advisor or the Better Energy Homes Programme;
 - Any other consultancy service or advice provided by the Technical Advisor in respect of the energy efficiency of buildings or otherwise.
- The confidentiality and data protection requirements detailed in the BER Assessor’s Code of Practice apply to the Technical Advisor role. Specifically, to keep confidential the identity of clients and Technical Assessment records, and to obtain the consent of the client to hold discussions with third parties concerning Technical Assessment records.
- Technical Advisors shall manage their affairs to ensure that a high level of service is delivered to their clients. Prior to commencing any Technical Assessment work for clients, the Technical Advisor must provide in writing to the client at least the following:
 - A description of the proposed services
 - A quotation of the proposed cost (including VAT and expenses)
- Costs of services are a matter for agreement between the Technical Advisor and client.
- Conditions from the BER Assessor’s Code of Practice pertaining to visiting a client’s building, agreeing dates of site visits, and identification at the time of the site visit, all apply to Technical Assessments and the Technical Advisor’s role therein.
- Rules on advertising and sales promotion detailed in the BER Assessor’s Code of Practice apply to the work carried out as a Technical Advisor.
- If any dispute arises between a Technical Advisor and SEAI or a third party, the Technical Advisor shall take all reasonable steps to endeavour to find a resolution. SEAI has procedures to deal with complaints, disputes and appeals and copies of these procedures are available on SEAI’s website or from SEAI on request.
- SEAI will hold on file details of Technical Advisor registration and their Technical Assessments carried out. SEAI can provide a Technical Advisor with details held pertaining to their registration or Technical Assessments on request. Similarly, SEAI can provide a homeowner with details of Technical Assessments of dwelling(s) owned by that homeowner.
- Conditions in the BER Assessor’s Code of Practice describing SEAI’s Whistle-blower Policy also apply to the role of the Technical Advisor.
- SEAI reserves the right to issue directions to Technical Advisors from time to time in relation to the matters set out in this document..

Sanctions arising from breaches of requirements of Technical Advisors are detailed in Section 6 of this document. It should be noted that working as a Technical Advisor does not waive or reduce any of the BER Assessor’s obligations detailed in the BER Code of Practice.

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As always, Technical Advisors must adhere to the rules and regulations of the BER/DEC Assessors Code of Practice when carrying out and publishing BER Assessments. BER Assessors are not precluded from registering or operating as BER Assessors if they are not also a Registered Technical Advisor.

2.3 Registration Requirements for the Technical Advisor

SEAI maintains and publishes a list of current registered Technical Advisors on the SEAI website. The Technical Advisor registration process is free and is renewed every three years.

To successfully register as a Technical Advisor, you must:

- 1) Be a currently registered Domestic BER Assessor.
 - a. If you are not a currently registered Domestic BER Assessor or your Domestic BER Assessor registration has lapsed or been suspended for any reason, you may not register or practice as a Technical Advisor until your Domestic BER Assessor registration is re-activated.
 - b. Registered Technical Advisors will be de-registered in cases where their Domestic BER Assessor Registration is lapsed/suspended until the Domestic BER Assessor Registration is re-activated.
 - c. The BER Assessor registration number is also used as the Technical Advisor registration number.
- 2) Have attended a Technical Advisor (Heat Pump Systems) workshop as required by SEAI. Records of attendance at these workshops are maintained by SEAI.
- 3) Confirm that you have maintained the same insurance levels as specified in the BER/DEC Assessors Code of Practice for Professional Indemnity, Public Liability and Employers Liability and that these insurances cover your activities as an SEAI Registered Technical Advisor for Better Energy Homes as well as for your activities as a Registered BER Assessor.
- 4) Have read and understood the required reference documents listed in Table 4 of this document.
- 5) Fill out and submit the Technical Advisor Registration Form available on the SEAI website or on request from the Better Energy Homes Helpdesk.
- 6) Satisfy the qualification requirements in Table 1 below or demonstrate membership of the professional organisations at the levels listed in Table 2 below.

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NFQ Level 7 Degree in one of the following	NFQ Level 7 Degree where min. two subjects below covered for min. two semesters each
<ul style="list-style-type: none"> • Architecture • Architectural Technology • Building Services Engineering • Building Surveying • Civil Engineering • Electrical Engineering • Mechanical Engineering • Quantity Surveying 	<ul style="list-style-type: none"> • Architecture • Architectural Technology • Building Construction / Technology • Building Design • Building Energy Performance • Building Services Engineering • Building Surveying • Civil Engineering • Electrical Engineering • Mechanical Engineering • Quantity Surveying

Table 1: Minimum Educational Requirements for Technical Advisor Registration

Professional Body	Eligible Grades
Chartered Institution of Building Services Engineers (CIBSE)	<ul style="list-style-type: none"> • Fellow (FCIBSE) • Member (MCIBSE) • Associate (ACIBSE) • Graduate member
Chartered Institute of Architectural Technologists (CIAT)	<ul style="list-style-type: none"> • Chartered Architectural Technologists (MCIAT) • Associate Member (ACIAT) • Technician (Architectural Technician)
Chartered Institute of Building (CIOB)	<ul style="list-style-type: none"> • Fellow Member (FCIOB) • Chartered Member (MCIOB) • Incorporated Member (ICIOB) • Associate Member (ACIOB)
Energy Institute	<ul style="list-style-type: none"> • Fellow (FEI) Chartered Engineer (CEng) • Incorporated Engineer (IEng) Chartered • Energy Manager Member (MEI) • Chartered Energy Engineer
Engineers Ireland (EI)	<ul style="list-style-type: none"> • Fellow (CEng FIEI) • Associate (AMIEI) • Chartered Engineer (CEng MIEI) • Ordinary Member (MIEI)
Royal Institute of the Architects of Ireland (RIAI)	<ul style="list-style-type: none"> • Fellow (FRIAI) • Member (MRIAI) • Architectural Technician Member (RIAI Arch. Tech)
Society of Chartered Surveyors (SCS)	<ul style="list-style-type: none"> • Chartered Quantity Surveyor Chartered Building Surveyor

Table 2: Minimum Professional Body Membership Requirements for Technical Advisor Registration

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3 Heat Pump System Grant and Technical Assessment Process Overview

The overall application process for Heat Pump System grants is shown below. In summary, it shows the following broad steps:

- 1) Carry out a Technical Assessment of the dwelling using a Registered Technical Advisor. More details in Figure 2 below.
- 2) Carry out the measures identified in the technical assessment (if any) to bring the dwelling heat loss down to the required level. Details of how to obtain any applicable fabric upgrade grants are available on SEAI's website.
- 3) Proceed with Heat Pump System grant application and Heat Pump System installation process.
- 4) BER Assessor carries out post works BER assessment and checks that HLI and Heat Pump System efficiency requirements are met for post works BER Declaration Of Works (DOW).
- 5) If the Heat Pump System grant requirements are not met, the homeowner should engage the same or another Technical Advisor to identify necessary works to remedy the shortcomings. Alternatively, the homeowner can proceed to submit the DOW as is, and forego his/her application for the Heat Pump System grant. The homeowner/Technical Advisor must notify SEAI of the approach being taken regardless.

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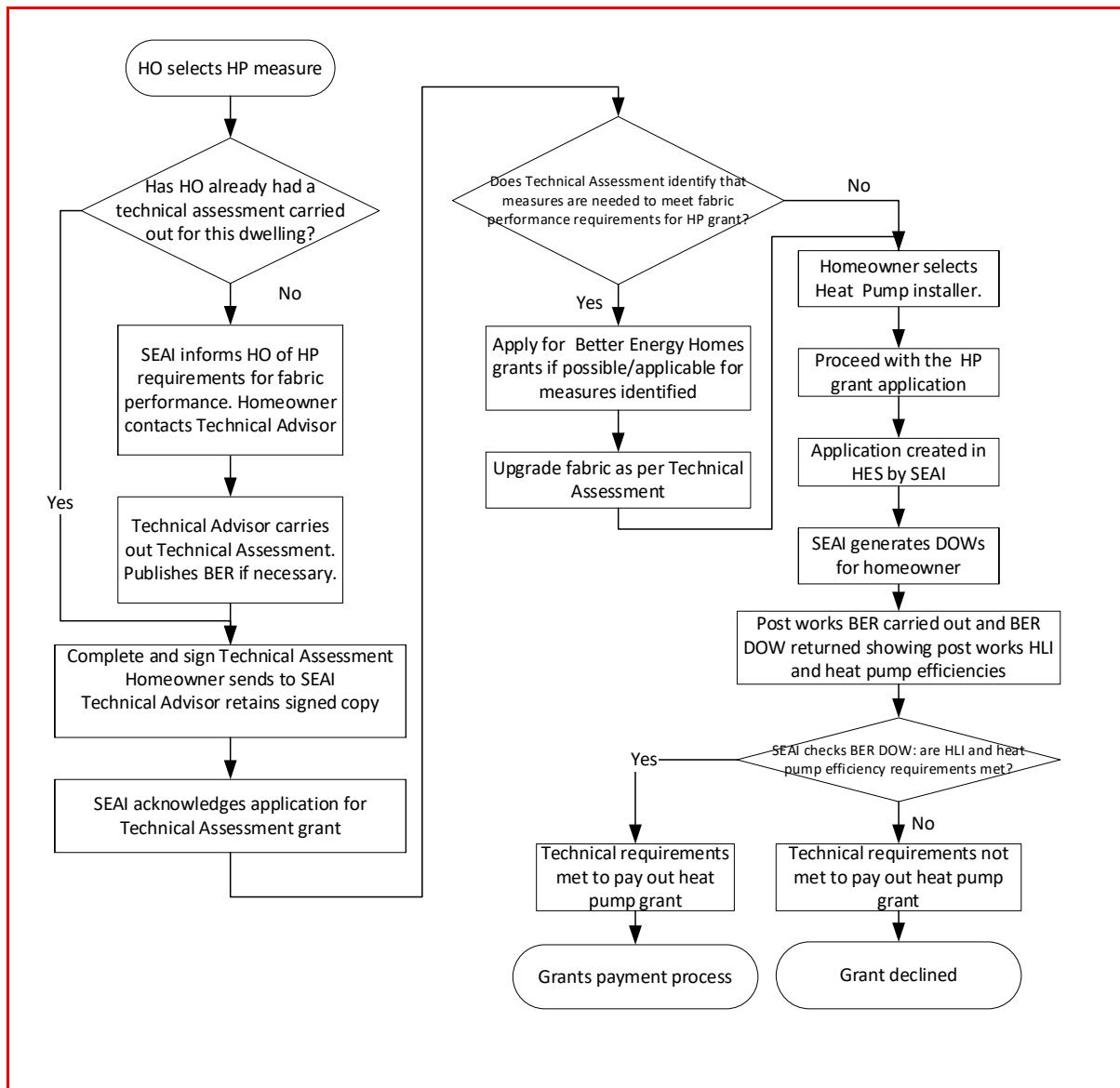


Figure 1: Overall Heat Pump System Grant Process

Technical Assessment Process for BEH Heat Pump System Grants

The Technical Assessment process referenced in Figure 1 is detailed further in Figure 2. The Technical Advisor carries out the following steps once engaged by the homeowner:

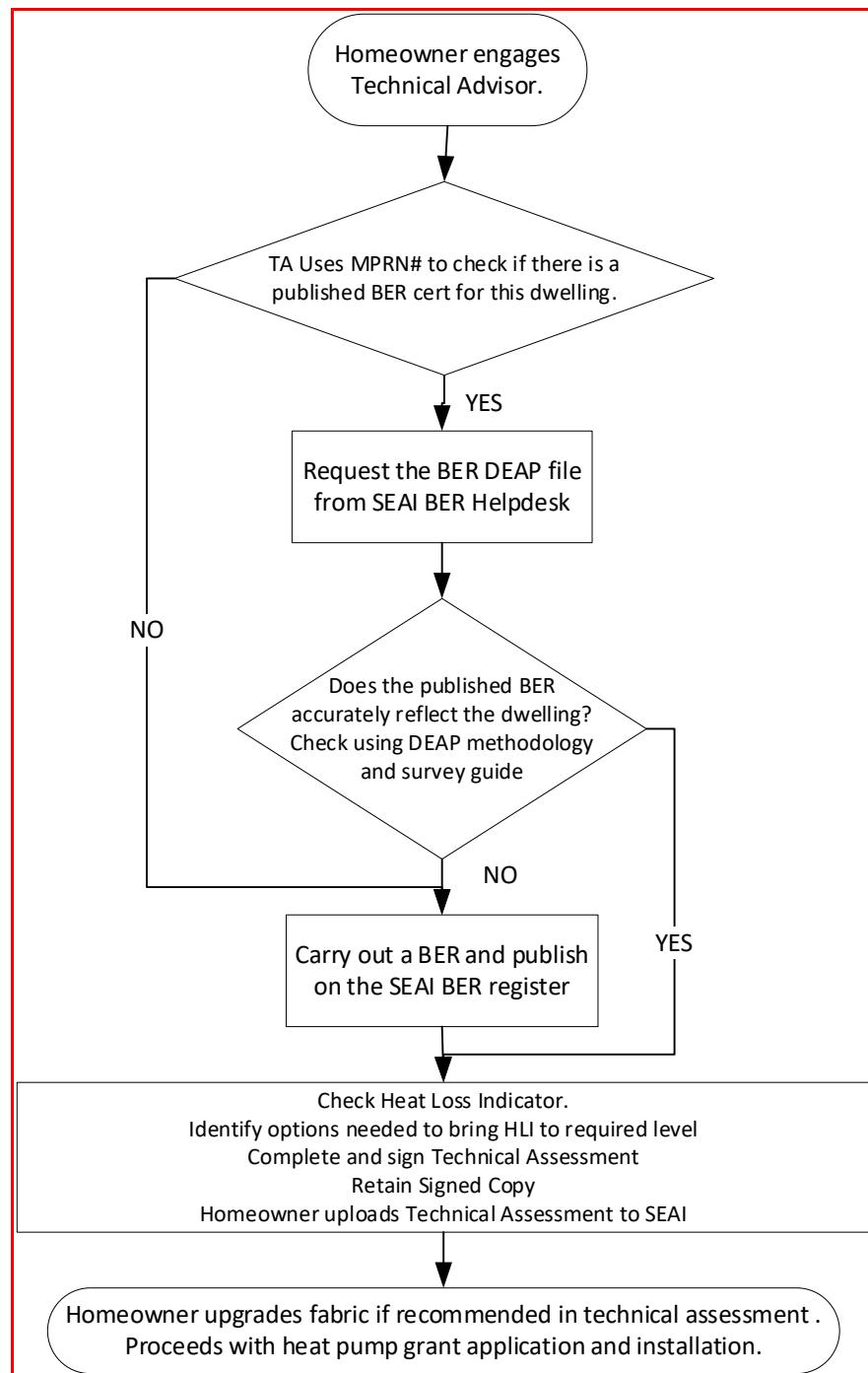


Figure 2: Technical Assessment Process

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4 Total Heat Loss Requirement and the Dwelling BER

4.1 What is the Heat Loss Indicator?

Domestic heat pump heating systems are most efficient when they operate in a dwelling with low fabric and ventilation heat losses. This enables them to operate at lower space heating distribution temperatures and to meet most or all the space and water heat demand. Therefore, it is a prerequisite for the installation of a Heat Pump System funded by the Better Energy Homes programme for the dwelling to have a suitably low level of fabric and ventilation heat loss.

The metric used to determine if the dwelling has sufficiently low fabric and ventilation heat loss is the **Heat Loss Indicator (HLI)**. Heat Pump Systems will only be eligible for the Better Energy Homes Grant when installed in dwellings meeting the following condition:

$$HLI \leq 2 \text{ W/K m}^2$$

Figure 3: HLI Limit when applying for Heat Pump System grant

The HLI is based on the total of the fabric and ventilation loss for the dwelling divided by the total floor area. It is calculated by the DEAP software based on a DEAP assessment accurately reflecting the dwelling at the time of the Technical Assessment. Figure 2 details that the Technical Advisor will either obtain an already-existing BER assessment accurately reflecting the current dwelling or carry out and publish a BER assessment. It is the responsibility of the Technical Advisor to ensure that the BER assessment they are using to determine the HLI accurately reflects the dwelling as it stands based on the DEAP methodology and supporting evidence requirements therein. The Technical Advisor must retain the evidence and calculations used in verifying the BER being used to derive the HLI.

The HLI is the Total Heat Loss per m² of dwelling floor area. The screenshot below from DEAP 3.2.1 shows it as Building Elements -> Heat Loss Results -> Total Heat Loss per m². The HLI in the example below is 1.89W/K.m² and therefore meets the requirement.

Building element characteristics						
	Floors	Roofs	Walls	Doors	Windows	Heat loss results
Summary: Windows						
Total area [m ²]	50	Glazing ratio	0.105			
Heat loss [W/K]	121.84					
Effective collecting area [m ²]	18.43					
Summary: Building fabric						
Total element area (includes glazed area) [m ²]	341.85					
Total heat loss via plane elements [W/K]	216					
Factor for thermal bridging [W/m ² K]	0.1500					
Fabric heat loss [W/K]	267					
Total heat loss [W/K]	378	Per m ² [W/K m ²]	1.89			

Figure 4: HLI in DEAP V3.2.1

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The screenshot shows the DEAP4 software interface for a building assessment. The left panel displays 'Assessment' data, including:

- Dimensions:**

	Value (m ²)	Height (m)
Storey 1	148.500	2.377
Storey 2	0.000	0.000
Storey 3	0.000	0.000
Other storeys	0.000	0.000
Roof	42.525	1.910
- Living area:** Dwellingage (m²) = 27.33
- Area Totals:**

Total Floor Area (m ²)	82.900
Total Wall Area (m ²)	201.600
Total Door Area (m ²)	12.240
Total Roof Area (m ²)	161.500
Total Glazing Area (m ²)	29.900
Total Window Area (m ²)	14.950
Dwelling volume (m ³)	199.000
- Heat Loss (Windows):** Glazing Ratio = 0.076
- Heat Loss (Building Fabric):**

Total Element Area (Includes Glazing Area) (m ²)	265.390
Total Heat Loss from Plane Elements (W/K)	241.20
Fabric Heat Loss (W/K)	201.09
Total Heat Loss (W/K)	225.91
Total Heat Loss Per m ² (W/Km ²)	5.20

The right panel shows 'Your Input' and 'Calculations by DEAP based on your inputs' sections, which are mostly collapsed.

Figure 5: HLI in DEAP4

Once the Technical Advisor checks the HLI against the required maximum value (2.00), they will either

- Find that the requirement in Figure 3 has been met and record this in the Technical Assessment form. There is no mandatory requirement for upgrade recommendations in this instance.
OR:
- Find that the requirement in Figure 3 has not been met. In this case, the Technical Advisor will detail fabric improvement options available to the homeowner to achieve the HLI requirement, outlining pros and cons of each approach. The Technical Advisor decides with the homeowner the best resulting options to achieve the HLI requirement and details these in the Technical Assessment Form as described below in Section 5.1.

5 Technical Assessment Process and Supporting the Homeowner

The aim of the Technical Assessment Process is to identify any changes needed to reduce dwelling heat loss to a level where the heat pump system can operate efficiently and effectively. The Technical Advisor's role is to provide independent technical expertise for the homeowner to achieve this goal.

At a minimum, the Technical Advisor must ensure that:

- They have adhered to the guidance in this document.
- There is a published BER accurately reflecting the dwelling on the BER register before works commence. They must carry out and publish a BER assessment if necessary to achieve this and follow the DEAP methodology and BER/DEC Assessors Code of Practice in doing so.
- They have checked the HLI against the limit in Figure 3.
- They have provided the homeowner with a report explaining the different options to achieve the HLI requirement, outlining the typical cost differences and pros/cons of these options. This report will be used by the homeowner and Technical Advisor to identify the option most acceptable to the homeowner, including practical and economic considerations as well as ensuring the HLI will be achieved. For example, such a report would weigh up the pros and cons of several routes to achieving the HLI requirement such as opting for external wall insulation compared to adding insulation to a roof with window upgrade, and also compared to more extensive airtightness measures with floor insulation upgrade.
- The measures they have outlined to the homeowner are genuinely achievable in the dwelling. This may require a more in-depth survey by the Technical Advisor or other third party.
- They have completed the Technical Assessment Form as per Section 5.1 setting out the necessary measures to best achieve the HLI requirement in Figure 3. All relevant sections of the Technical Assessment form must be completed including signatures of the homeowner and Technical Advisor.
- They retain a signed copy of the Technical Assessment Form on file for their record. Similarly, they must retain a copy of the advisory report issued to the homeowner explaining the options identified in the Technical Assessment Form. A copy of this file must be submitted to SEAI if requested.
- They retain all relevant files and calculations used to confirm that the published BER accurately reflects the dwelling in its current state, and all files and calculations used in deriving a proposed HLI during the Technical Assessment process. SEAI may request these files at any time as part of the Quality Assurance of the Better Energy Homes Programme.
- Retain all relevant files used to publish BERs before or after upgrades are carried out. This is as required under the BER/DEC Assessors Code of Practice.
- They explain to the homeowner what is meant by the measures detailed in the completed Technical Assessment Form. To do this successfully, the Technical Advisor must familiarise themselves with the requirements of any Better Energy Homes grant funded fabric upgrades the homeowner may avail of as well as key standards and regulations applicable to home renovation and energy efficient upgrades. The reference documents listed in Table 4 of this document must be reviewed in this regard. Key aspects are to:
 - Understand minimum requirements for grant aided measures;
 - Advise the homeowner what to ask contractors prior to engaging them for works; and
 - Advise the homeowner how to use the Technical Assessment Form to specify the works required to achieve the HLI to contractors.

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- They advise the homeowner on the fundamentals of a heat pump system installation. This is also outlined in the Heat Pump System Guide for Homeowners (See Table 4) but it is useful to describe to the homeowner how the system would typically work, the need to reduce distribution temperatures and heat losses, operation of domestic hot water etc.
- In cases where the Technical Assessment submitted to SEAI is invalidated for any reason, discuss this with the homeowner and:
 - Review the assessment, correct errors if necessary, re-sign and re-submit it to SEAI, and clarify any changes made to the proposed upgrades, so the homeowner can relay these changes to their contractors; or
 - If the Technical Advisor who prepared the initial Technical Assessment is no longer able to revise and resubmit the Technical Assessment (e.g. if their registration has been de-activated), make themselves available to the homeowner and any new Technical Advisor engaged to provide the evidence and calculations supporting the initial invalidated Technical Assessment, so the homeowner can obtain a revised Technical Assessment as easily and as speedily as possible.

5.1 Technical Assessment Form

The Technical Assessment Form is available as a Microsoft Excel file with editable entry fields or as a PDF. It must be signed by the homeowner and Technical Advisor before submission to SEAI. The form consists of several sections outlined as follows:

- (i) Administrative information. This section is mandatory.
 - Homeowner name and address
 - Dwelling address, year of construction and total floor area
 - Technical Advisor name and BER Assessor ID number.
 - Overall cost of delivering the service including advice, Technical Assessment and, if carried out, a BER publication prior to works. The cost of the BER post works is not to be included in this figure. SEAI do not charge a fee for submission of Technical Assessments. Note that publication of pre- and post-works BER assessments does incur the normal BER publication fees under the BER programme.
 - Dwelling ID numbers including MPRN number and published BER assessment number
 - Homeowner signature, date and declaration
- (ii) Technical advisor declaration
 - Confirmation of BER accurately reflecting the dwelling in its current state.
 - Current value of Heat Loss Indicator and projected HLI following recommended works, shown to 2 decimal places. The projected value will be the same as the current value if no works are recommended by the Technical Advisor.
 - Confirmation that they have carried out the tasks required of the Technical Advisor
 - Declaration of interests
 - Technical advisor signature and date
- (iii) Specification of measures required to achieve the Heat Loss Indicator requirement shown in Figure 3, necessary for Heat Pump System grant eligibility. Several facets of fabric and ventilation losses can be addressed here, with the current condition and proposed upgrade specified in each case. The DEAP methodology must be used to derive all relevant default and non-default values, with supporting evidence/calculations for current and proposed post-upgrade values retained by the Technical Advisor. Definition of the terms below are as per the DEAP methodology.

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- Upgrades to walls, roof and floors with the following details per element to be upgraded. This sheet MUST be included more than once if there are more than one wall or roof or floor types to be upgraded:
 - Description of the wall/roof/floor being upgraded.
 - Which wall/roof/floor number is this? For example, if it is the first of 3 walls, enter "1".
 - How many walls/roofs/floors to be upgraded? For example, if it is the first of 3 walls, enter "3".
 - Specified upgrade eligible for Better Energy Homes Grant? Applies to roofs and walls only
 - Element type
 - Insulation type, thickness and thermal conductivity
 - U-value
 - Area of element being upgraded and total dwelling heat loss area for this element type
- Upgrades to windows and doors including the following. This sheet MUST be included more than once if there are more than one grouping of windows or doors to be upgraded. However, multiple windows can be combined into a single table (called a group of windows) to reduce the need for multiple tables. Similarly, multiple doors can be combined into a single table:
 - Description of the grouping of windows/doors being upgraded
 - Which window or door grouping is this? For example, if it is the first group of windows or doors of 3, enter "1"
 - How many groups of doors or windows are to be upgraded? For example, if it is the first group of windows or doors of 3, enter "3".
 - Glazing type (single/double/triple/door)
 - Frame type
 - Glazing gap
 - Solar transmittance
 - Orientations included in this group. This could include several orientations in a single grouping if, for example, all windows in the dwelling were of the same type.
 - Area
- Number of openings
 - Chimneys and flueless combustion room heaters
 - Open flues
 - Intermittent fans and passive vents
 - Draught lobby on main entrance
- Structural air tightness
 - Structure type
 - Suspended wooden ground floor
 - Percentage of windows and doors draught stripped
 - Other proposed measures to improve structural air tightness
 - Number of sheltered sides
 - Air pressure test result (option to specify a result required after upgrades).
- Ventilation method
 - Description of any proposed mechanical ventilation system including ductwork, efficiency and Specific Fan Power where relevant. This would also

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include the mechanical ventilation component in a Heat Pump System (e.g. Exhaust Air Heat Pump) if such a system is being recommended.

A note on structural air tightness, mechanical ventilation systems and air tightness testing

It is not mandatory to carry out an air tightness test before or after the fabric upgrades. However, if measures are recommended to improve structural air tightness such as servicing windows, taping junctions or sealing leakages SEAI strongly advise that an intended air tightness result is specified and that this is checked via an air-tightness test for the post works BER and HLI verification. Otherwise the benefits of the structural air tightness measures will not contribute towards the improved HLI and may result in the final HLI not meeting the required limit shown in Figure 3.

Furthermore, mechanical ventilation systems, although not mandatory in houses for which the Heat Pump System grant is being sought, can improve the BER and HLI. However, they are not as efficient or effective in a house with poor air tightness and can impact negatively on the BER grade and HLI and even result in the HLI not being met. See Section 7 for references to relevant regulations and standards to be met including maintaining high internal air quality in a retrofitted dwelling.

5.2 Additional services carried out by Technical Advisors

SEAI does not preclude Technical Advisors from providing services additional to the minimum requirements set out above, should the homeowner and Technical Advisor agree to do so. However, SEAI requests, in such cases, that Technical Advisors will comply with the requirements of professional conduct and independence in this document, follow SEAI technical guidance available on the SEAI Website, and any applicable regulations and standards.. Fees for these services are not part of the Technical Assessment Process costs documented in the Technical Assessment Form and are to be agreed between the homeowner and Technical Advisor. Such additional services might include but are not limited to the following:

- advice on energy upgrades to the house not impacting the HLI such as lighting upgrades, additional renewable technologies, heat distribution (albeit much of this will be covered by the heat pump system designer).
- advice during fabric upgrades to ensure measures specified in the Technical Assessment Form and the required HLI will be achieved.
- advice during heat pump system design to verify Heat Pump System grant requirements are being met.
- the Post Works BER assessment and associated Declaration of Works (DOW). This is **mandatory** as part of the grants process and would typically be expected to be carried out by the Technical Advisor although a different BER Assessor to the Technical Advisor could carry it out. The Post Works BER is necessary to check that the installed heat pump system meets the grant requirements prior to issuing of funds.
- advice on additional measures not essential to achieve the HLI requirement. Technical Advisors are expected to provide homeowners with good advice to help identify effective measures to reduce energy usage in the home.

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6 Quality Assurance and Disciplinary Procedure for the Technical Assessment Process

6.1 Quality Assurance Procedure

The following table details SEAI's Quality Assurance Procedure for the Technical Assessment Process.

Error ID	Description	Sanction under Technical Assessment Process	Other action to be carried out by SEAI
Is it acceptable to submit Technical Assessment Form?			
1	No BER published for this dwelling before Technical Assessment submitted to SEAI or published BER does not accurately reflect dwelling undergoing Technical Assessment	Invalidate Technical Assessment.	Notify homeowner and Technical Advisor of invalidated Technical Assessment
2	Technical assessment form submitted when Technical Advisor or BER Assessor registration not active		
Technical Assessment Form content			
3	Homeowner name or contact details missing or incorrect	Invalidate Technical Assessment if not corrected within 28 days of request.	Notify homeowner and Technical Advisor of invalidated Technical Assessment Request corrected technical assessment form from Technical Advisor. Satisfactory response must be received within 28 days.
4	Dwelling address, contact details or BER number missing or incorrect		
5	Technical Advisor name or BER Assessor number missing or incorrect		
6	Information missing from Technical Advisor Declaration: <ul style="list-style-type: none"> a) Missing confirmation that BER accurately reflects dwelling in current state or b) Current HLI missing or c) No confirmation they have carried out tasks required of Technical Advisor 		
7	Costs of Technical Advisor work missing		
8	HLI projected post-upgrade value is <ul style="list-style-type: none"> a) missing (if upgrades required) or 		

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	b) not meeting required HLI requirement for Heat Pump System grant eligibility or c) not an accurate reflection of HLI based on measures recommended in Technical Assessment form		
9	Checkbox showing whether measures required or not isn't filled out in Technical Assessment		
10	Details missing from fabric improvement measures		
11	Technical Assessment incorrectly advises of dwelling's grant eligibility for specified measures.		
12	Signature or date missing for homeowner or Technical Advisor	Professional Conduct	
13	Technical Advisor contravenes independence requirements.	Terminate Technical Advisor Registration. Invalidate Technical Assessment(s), as necessary.	Notify Technical Advisor. Notify homeowners of invalidated Technical Assessment(s), where appropriate.
14	Technical Advisor breaches professional conduct clauses in this document.		
Quality Assurance/Quality Control Process: Additional checks			
15	Quality issues with either pre or post-upgrade BER carried out by Technical advisor	See BER Quality Assurance and Disciplinary Procedure ("QADP")	See BER QADP. SEAI may invalidate the Technical Assessment if the pre-upgrade BER is revoked.
16	Technical Advisor fails to submit their copy of Technical Assessment or files/calculations used in derivation thereof within 28 days of SEAI request.	Terminate Technical Advisor Registration. Invalidate Technical Assessment(s) as necessary.	Notify Technical Advisor. Notify homeowners of invalidated Technical Assessment(s), where appropriate.
17	Post Works BER does not meet HLI requirements and/or heat pump system efficiency requirements	Heat Pump System Grant application suspended until a published BER for the dwelling shows Heat Pump System grant requirements as met or grant offer expires.	Notify Technical Advisor and homeowner. Homeowner to re-engage the/a Technical Advisor to identify shortcomings and advise on how to meet heat pump system grant requirements, or to forego the heat pump system and technical assessment grant.

Table 3: Technical Assessment Process: Quality Assurance Procedure

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6.2 Desk Checks and Reviews [INSERT PROVISIONS CONCERNING AUDIT PROCESS]

Desk checks of the Technical Assessment Forms will be carried out routinely to confirm that basic requirements are met. Detailed reviews of Technical Assessments may be carried out as required. Selection for review will be determined at random or on the basis of the desk-check outcomes. As part of the review procedure, Technical Advisors may be asked to submit all data, calculations and documentation related to the Technical Assessment under review. The information submitted will be analysed in the context of all other information on the grant application available to SEAI, and the outcome of the review will be communicated to the Technical Advisor.

6.3 Sanctions and appeals

On being notified of an invalidated Technical Assessment or the deregistration of a Technical Advisor, the Technical Advisor can appeal to SEAI, within 14 days of the date of issue of the said notification. Any such appeal must include any evidence or factors which demonstrate that the notification is incorrect. Evidence that should have reasonably been submitted in the first instance may be deemed unacceptable on appeal.

Where an appeal is received by SEAI within 14 days of notification, SEAI will not invalidate the Technical Assessment / deregister the Technical Advisor until the appeal so submitted has been considered and a final decision made by SEAI on the matter.

Where no appeal is received by SEAI within 14 days of notification, a final decision will be made by SEAI to invalidate the Technical Assessment / deregister the Technical Advisor.

Where a Technical Advisor has been deregistered following the Quality Assurance Procedure detailed in Table 3 above, they may be required to resit the SEAI workshop for Technical Advisors referenced in Section 2.3 above prior to applying for re-registration. In extraordinary cases of repeated serious non-compliances, as defined in 6.4 deregistered Technical Advisors may not be permitted to resit the said workshop or apply to re-register as a Technical Advisor. Deregistration of a Technical Advisor's registration does not impact upon his/her BER Assessor Registration status, where that is otherwise active.

6.4 Summary sanctions and appeals

Notwithstanding the Quality Assurance Procedure detailed in Table 3 above, SEAI reserves the right, in administering the Better Energy Homes programme and protecting consumers, to suspend or terminate summarily the registration of a Technical Advisor in circumstances involving serious non-compliance with the requirements detailed in this document, on the following grounds:

- a) Failure by a Technical Advisor to attend a course of training or mentoring if required by SEAI or to complete satisfactorily such a training course or mentoring period;
- b) Failure by a Technical Advisor to comply with a direction issued by SEAI in accordance with this document;

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- c) Failure by a Technical Advisor to carry out a Technical Assessment in a fit and proper manner, or failure to maintain or provide satisfactory data, documentation or records of any such assessment;
- d) The committing, or aiding the committing by a Technical Advisor of a contravention of the rules set out in this document; or
- e) The forming of an opinion by SEAI that a Technical Advisor has ceased to be capable of performing his or her functions in accordance with this document properly and efficiently.

Such circumstances involving serious non-compliance may include one or more of the following:

- Knowingly providing false information in or in support of a Technical Assessment;
- Repeated failure to ensure that a Technical Assessment includes an accurate assessment of the dwelling HLI in its current form and upgrades to bring the HLI to the required level;
- Carrying out a Technical Assessment clearly in breach of the requirements in this document;
- Failure to carry out an inspection on the dwelling when conducting the Technical Assessment;
- Undertaking works as a Technical Advisor when either the Technical Advisor registration or Domestic BER Assessor Registration is not active, suspended or deregistered;
- Bringing the Better Energy Homes programme into disrepute;
- Completing Technical Assessments using another Technical Advisor's registration details;
- Failure to inform the client that the Technical Assessment has been invalidated by SEAI if directed to do so by SEAI;
- Carrying out Technical Assessments using procedures, methodologies or software not approved by SEAI;
- Fraudulently altering documentation pertaining to a Technical Assessment.

Where, having regard to all the circumstances of the case, SEAI decides to proceed with a summary de-registration of the Technical Advisor, it will formally notify the relevant Technical Advisor of its preliminary decision, the proposed disciplinary action and reason for the same. Upon receiving the notification, the Technical Advisor can appeal as per section 6.3 Sanctions and Appeals.

In circumstances where the Technical Advisor is an employee and his/her Principal is involved in serious non-compliance with the requirements set out in this document, SEAI reserves the right to de-register the Principal. In such cases, the registration of all Technical Advisors working for the Principal may be revoked. Notification will be made in writing.

7 Required Reference Documents for Technical Advisors

Technical Advisors are required to read and familiarise themselves with the reference documents detailed in Table 4 below to ensure delivery of an effective and informed service to homeowners. An outline of the most relevant content to be considered by Technical Advisors is also included below, for ease of reference.

Document and link	How is it relevant to Technical Advisor	Key sections
Better Energy Homes Homeowner Guides		
Insulation grant homeowner guides	Details the basics of different insulation measures as well as case studies. These documents should be read by the homeowner, but the Technical Advisor will	<ul style="list-style-type: none">• Benefits and types of insulation• Case studies• Outline of technical considerations such as maintaining adequate ventilation etc

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	be well placed to assist them in understanding insulation measures.	<ul style="list-style-type: none"> • Questions for the homeowner to ask their insulation contractor • How to obtain the grant and measures
<u>Homeowner's guide to ventilation</u>	Although not funded by Better Energy Homes grants, home fabric/services upgrades offer a good opportunity to ensure the dwelling also has adequate ventilation.	<ul style="list-style-type: none"> • Benefits of ventilation • Options for background, permanent, purge and extract ventilation
<u>Heat Pump System homeowner guide</u>	This document helps the homeowner understand what a heat pump system is. The Technical Advisor will help the homeowner understand the benefits of heat pump technology using this document.	<ul style="list-style-type: none"> • Benefits of heat pumps • How heat pump systems work • Types of heat pump systems • Guidelines for choosing your heat pump • Importance of good insulation • Questions for the homeowner to ask the heat pump supplier, designer and installer • How to obtain the grant and measures
<u>Solar thermal and heating controls homeowner guides</u>	Useful information on other energy saving measures. NB homes availing of the Heat Pump System grant will not eligible for the BEH heating controls grant at or after the time of application for the Heat Pump System grant.	<ul style="list-style-type: none"> • Benefits of heating controls and determining if they're necessary • Types of heating controls • Benefits and types of solar thermal systems • Questions to ask your heating controls installer • How to obtain the grant and measures
<u>How to apply for Better Energy Homes grants</u>	Overview of the grant process	<ul style="list-style-type: none"> • Decide which measure to undertake • Identify a registered contractor • Apply for the grant • Get the works done • Getting paid

Better Energy Homes Contractors Technical Documentation

	Reference for Registered Contractors carrying out works supported by SEAI's Better Energy Homes, Better Energy Warmer Homes and Better Energy Partners programmes. It sets out the general competence, standards and specifications that Contractors must possess, and adhere to, in carrying out works under these programmes. Technical Advisors must understand if the measure they are recommending will meet the requirements of the Better Energy Homes programme, so the homeowner will know what type and level of funding they can apply for and which measures will not be grant-aided.	<ul style="list-style-type: none"> • Ventilation – understanding potential implications of retrofit measures on internal air quality and condensation. • Planning and protected structures – verifying that measures being recommended in the Technical Assessment aren't precluded by specific planning controls. • Specific measures: Competency and standards. Key information in this section includes the following, with a useful summary table given in Appendix 2 of the Code of Practice: <ul style="list-style-type: none"> ○ Relevant building regulation impacts ○ Reference to other relevant standards, such as SR54 (see below) ○ Insulation product specifications and certification ○ Whole house insulation requirements ○ U-values required for grant eligibility ○ Solar contribution required from Solar Thermal BEH funded measures ○ Useful guidance on measures not covered under Better Energy Homes but likely to reduce the HLI (e.g. floor insulation upgrades) such as draught proofing, window/door replacement, stove installation etc. • Section on heat pumps under the Better Energy Homes programme detailing:
<u>Code of Practice and Technical Specification</u>		

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		<ul style="list-style-type: none"> ○ Required installer competence ○ HLI requirements for Better Energy Homes Heat Pump System funding ○ Product and installation requirements ○ Minimum test efficiencies and efficiency requirements in the final DEAP assessment ○ Relevant standards and guidance documents ○ Documentation requirements
BER Assessor Guidance		
<u>BER DEAP Manual and Survey Guide</u>		<p>As well as understanding these documents for the purposes of publishing the pre- and post-works BERs, the Technical Advisor will refer to these documents particularly when:</p> <ul style="list-style-type: none"> ● Verifying the pre-BER accurately reflects the dwelling in its pre-grant state. ● Checking the HLI before works ● Quantifying the impacts of proposed measures on the HLI and identifying the most impactful measures in reducing dwelling heat losses ● Understanding the impact of heat losses, heat demand and hot water on heat pump system performance ● Checking post-works BER HLI and heat pump system performance
<u>DEAP Methodology for Heat Pumps</u>		

Table 4: Essential Reading for Technical Advisors

In addition to the above, SEAI considers that the following documents are useful for Technical Advisors to understand requirements applicable to measures they are recommending in more detail. These documents are extensively referenced in the Better Energy Homes Code of Practice and Technical Specification document outlined in Table 4 above:

- [S.R. 54 Code of Practice for Energy Efficient Retrofit of Dwellings](#)
- [Building Regulations various parts Technical Guidance Documents](#)