



BER Assessors – Dwellings Technical Bulletin

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The archive of previous bulletins is available on the [SEAI website](#).

1 BER Quality Assurance

The quality of service delivery by BER Assessors is central to the reputation and effectiveness of the BER scheme, both for the purposes of fulfilling legal obligations to building owners and in stimulating action to improve the energy performance of buildings. That quality of service has two key dimensions: competence and conduct.

As the Issuing Authority responsible for the BER scheme, and as part of an overall suite of provisions governing the registration and performance of BER Assessors, SEAI has in place a quality assurance system for BER Assessors, and a related disciplinary procedure. Through this system and procedure, SEAI will maintain a strong focus on monitoring the technical performance and professional conduct of BER Assessors, and taking appropriate corrective action. This policy is designed to serve the interests of clients for BER services and of all reputable BER Assessors.

The [Quality Assurance system and The Disciplinary Procedure](#), effective since the 1st May 2010, outlines the key elements and processes of the Quality Assurance System and of the Disciplinary Procedure for BER Assessors. It applies equally to BER Assessors operating in either the domestic or non-domestic buildings sector. Disciplinary sanction can arise from audits or complaints. Audits can be selected on either a random or targeted basis at SEAI's discretion.

Audit Selection:

As stated in Section 15 (Monitoring and Compliance) of the [Code of Practice](#), SEAI shall not be required to show cause for the selection of any BER assessment or BER Assessor for audit and where a particular BER assessment or BER Assessor is selected for audit, no implication shall be drawn that SEAI has cause for concern about the accuracy of that BER assessment or of the integrity or competence of the relevant BER Assessor or principal.

Audit Process

Auditing is a key tool through which quality control of BER Assessors is implemented. The aim of the BER Audit Programme is to identify technical, procedural or system faults in a timely manner so that:

- Any errors identified can be corrected or other appropriate action taken in relation to published assessments;
- Such faults are avoided in future through feedback directly to the BER Assessor concerned and to other BER Assessors as appropriate through the relevant communication channels; and
- Such faults are avoided in future through disciplinary action as appropriate.

It is required that a BER Assessor responds to SEAI within 28 days from the issuing of notification of an audit request. It is important that Assessors carefully review an audit request which is sent to the Assessor registered email address as failure to respond to an audit request results in penalty points.

Audit Status:

Audits completed to date since 1st May 2010 comprise of Data Review Audits, Desk Review Audits and Documentation and Practice audits selected on both a random and targeted basis. Selection of BER Assessors/ assessments for audit is on both a targeted and a random basis, and is at three sequential levels of progressively increasing intensiveness as detailed in Section 1.3 in the [Quality Assurance system and The Disciplinary Procedure](#).

The following is the breakdown of audit completed under the [Quality Assurance system and The Disciplinary Procedure](#).

Audit Type	Audits Completed
Data Review	1493
Desk Review	33
Documentation and Practice	18

Figure 1 below illustrates the breakdown of audit findings.

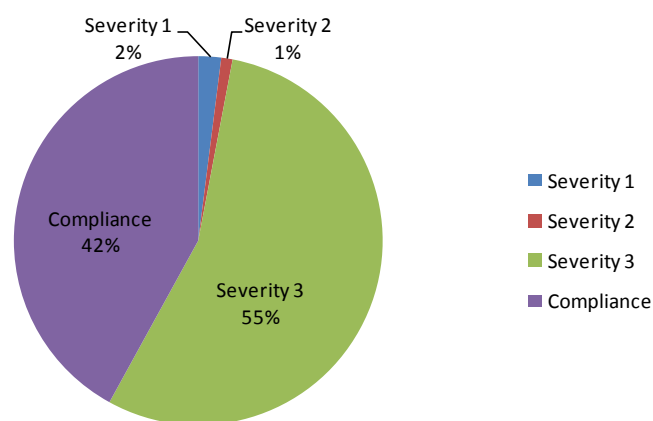


Figure 1: Severity of audit non-compliance for all audits

- **Severity 1:** A non-compliance that has a high potential to compromise the fundamental integrity of the BER scheme, damage public confidence or otherwise negatively impact the reputation of the scheme. Such a breach incurs 3 penalty points.
- **Severity 2:** A non-compliance that is significant but, while not acceptable, is unlikely, on its own, to affect the reputation of the BER scheme. Such a breach incurs 2 penalty points.
- **Severity 3:** A non-compliance that is less significant and would not affect the reputation of the BER Scheme. Such a breach incurs 1 penalty point.

Audit Findings:

The core role of the BER Quality Assurance System is to monitor and ensure widespread operational compliance by BER Assessors with the Code of Practice and the relevant technical methodology. The system will thus help to assist BER Assessors in the effective discharge of their duties and to ensure the accuracy of assessments. The following are the most common findings relating to each audit type to date:

Data Review Findings (High volume, desk based audits on single BER assessments):

Issue	Examples of errors and further guidance
No response to the audit request by the required deadline.	Each audit request will be issued along with a deadline date. Assessors must respond to the request for audit data by the deadline date.
Incorrect Building Type entered.	<ul style="list-style-type: none"> • Mid-floor apartment recorded as a top-floor apartment. • Top-floor apartment recorded as a mid-floor apartment. A mid-floor apartment has a floor above and below.
Assessor details not completed on the DEAP Survey form.	The DEAP Survey Form has an entry for BER Assessor number or name. This information must be provided on the DEAP Survey Form.
% of low energy lighting calculated incorrectly.	<ul style="list-style-type: none"> • Total count of % low energy lighting not recorded correctly; • Total number of lights not recorded correctly; • Calculation of % low energy lighting incorrect; • % figure not detailed on the survey form. DEAP Appendix L, along with several of the BER Technical Bulletins provide guidance on specification of the percentage of low energy lighting.
Unacceptable photo provided in support of number of storeys and dwelling type.	<ul style="list-style-type: none"> • Photographs taken not showing adjacent properties in support of the dwelling type. For example: <ul style="list-style-type: none"> ○ the photograph should show clearly the adjacent house in support of a semi-detached house; ○ the photograph should show clearly that there is no adjoining house in support of a detached house; • The boundary separation from neighbouring properties either side, above and below, are not clearly visible; • Photographs not supporting the presence of an external main entrance at ground in support of a maisonette; • Room in roof not included as a storey.
Thermal bridging factor sign off dated after the BER publication date.	<ul style="list-style-type: none"> • Sign-off does not explicitly address the detail requirements set out in Appendix K and the Technical Bulletin (April 2009); • Sign-off is dated after the publication date of a rating.
Water heating cylinder volume calculations not included as part of the site survey.	The DEAP Survey Form provides an entry for hot water cylinder volume. Calculations used in deriving this figure must be kept on file with the BER assessment records.

Desk Review Findings (Medium volume, desk based audits on single BER assessments):

Issue	Examples of errors and further guidance
No response to the audit request by the required deadline.	Each audit request will be issued along with a deadline date. Assessors must respond to the request for audit data by the deadline date.
Unacceptable information provided in support of building elements heat loss floor U-value.	The DEAP manual (Section 3) provides detail on the relevant standards for U-value calculations. In addition, several of the BER Technical Bulletins provide guidance on derivation of U-values and where to obtain certified thermal conductivity values. DEAP Appendix S and the DEAP Survey Guide provide guidance on acceptable evidence when entering non default and default U-values in DEAP.
Unacceptable information provided in support of building elements roof U-value.	The DEAP manual (Section 3) provides detail on the relevant standards for U-value calculations. In addition, several of the BER Technical Bulletins provide guidance on derivation of U-values and where to obtain certified thermal conductivity values. DEAP Appendix S and the DEAP Survey Guide provide guidance on acceptable evidence when entering non default and default U-values in DEAP.

Documentation and Practice Audit Findings (Low volume intensive audits entailing detailed inspection at a BER Assessor's office and/or at the site of a building or buildings which have been the subject of a BER assessment):

Issue	Examples of errors and further guidance
Unacceptable information provided supporting floor area.	Dwelling sketches or plans must be provided and show sufficient detail to support all relevant areas.
No response to an audit request by the required deadline.	Each audit request will be issued along with a deadline date. Assessors must respond to the request for audit data by the deadline date.
Unacceptable information provided in support of space and water heating efficiency.	All efficiencies entered must be based on data from the HARP database, certified test data or the defaults in DEAP Table 4a or 4b. Further guidance is available in the BER Technical Bulletins and the DEAP manual.
Unacceptable information provided in support of heat loss floor areas.	Dwelling sketches or plans must be provided and show sufficient detail to support all relevant areas.
Unacceptable information provided in support of roof area.	Dwelling sketches or plans must be provided and show sufficient detail to support all relevant areas.
Unacceptable information provided in support of window performance.	The DEAP manual (Section 3) provides detail on the relevant standards for U-value calculations. In addition, several of the BER Technical Bulletins provide guidance on derivation of U-values where to obtain certified thermal conductivity values. DEAP Appendix S and the DEAP Survey Guide provide guidance on acceptable evidence when entering non default and default U-values in DEAP. In addition, as detailed in the DEAP manual, non-default window U-values must be accompanied by certified solar transmittance values.
Unacceptable information provided in support of the number of sheltered sides.	Section 2.5 of the DEAP manual provides guidance related to the number of sheltered sides to be entered in the DEAP Ventilation tab. For new dwellings, the dwelling plans can be used in support of this entry. For existing dwellings, photographs and dwelling sketches can be used in support of this entry.

Assessors should review any non-compliance with reference to the Code of Practice and relevant guidance as published by SEAI reducing the likelihood of re-occurrence of these non-compliance in future audits.

BER Appeal Process:

As detailed in the [Quality Assurance System and Disciplinary Procedure](#), an Assessor has the right to appeal all audit findings, penalty points resulting from findings, suspensions or terminations. Penalty point appeals must be made within 28 days of such points being formally notified to the Assessor. All appeals must be made in writing to BER.QA@seai.ie clearly detailing the audit number and any grounds for appeal. Decisions resulting from the appeals process are final.

2 Sheltered Sides

Section 2.5 of the DEAP manual describes the conditions for deciding whether a particular side of a dwelling is sheltered by adjacent obstacles such as neighbouring buildings or trees. Specifically it details how high, wide and near to the dwelling the obstacle(s) must be for that side to be sheltered. This Technical Bulletin article focuses on the requirements of object width for sheltered sides. All objects in the following examples are assumed to meet the height and distance requirements for sheltered sides as detailed in DEAP manual Section 2.5. The importance of the position of the obstacle relative to the dwelling is highlighted in Figure 2.

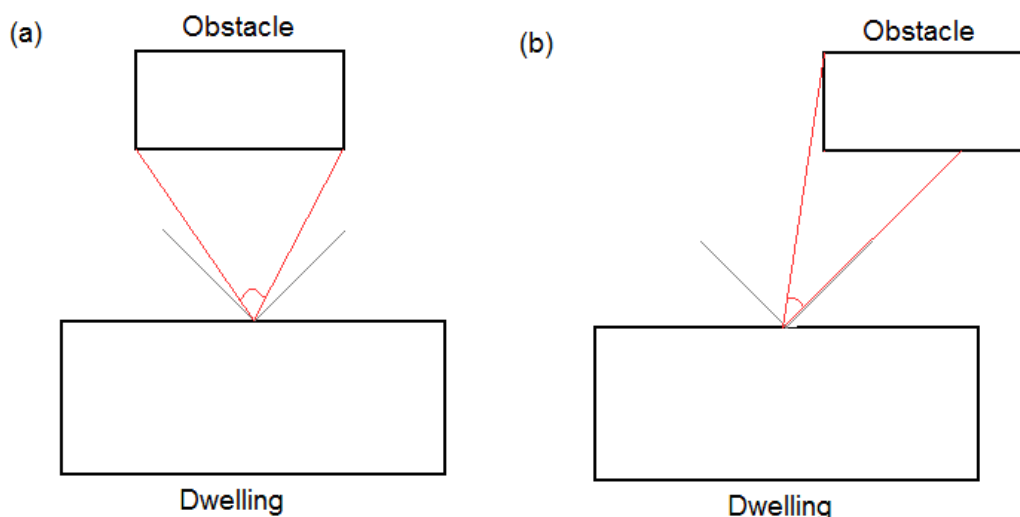


Figure 2: The red lines indicate the angle the obstacle subtends to the midpoint of the side of the dwelling within the central 90° (marked by the grey lines). Anything outside the grey lines is ignored.

(a) In this case, the whole of the obstacle is contained within the central 90° (marked by grey lines). It subtends an angle greater than 60° so that side of the dwelling is considered to be sheltered by the obstacle.

(b) Because the position of the obstacle is shifted relative to the dwelling, only part of the obstacle contributes to the sheltering angle. In this case the angle is less than 60° so the side is considered to be unsheltered.

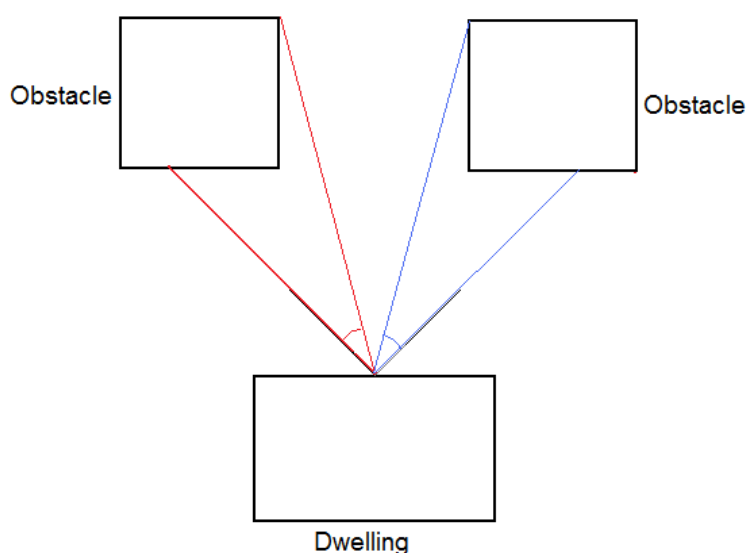


Figure 3: Two obstacles providing shelter to one side of a dwelling. The subtended angles of each obstacle (red and blue) are added to give the total sheltering angle.

In some situations more than one obstacle needs to be considered when evaluating whether a side is sheltered as shown in Figure 3. The angle subtended by the first obstacle is shown between the red lines and the angle subtended by the second obstacle is shown between the blue lines. These two angles are added together to get the total sheltering angle for this side.

- If the total sheltering angle is 60° or greater then the side is sheltered.
- If the total sheltering angle is less than 60° then the side is not sheltered.

Figure 4 shows a dwelling with two “partially sheltered” sides. In this case if the total angle subtended by the two obstacles, i.e. the red angle plus the blue angle, is greater than or equal to 60° then their combined effect is equivalent to one sheltered side. If it is less than 60° then the dwelling has no sheltered sides.

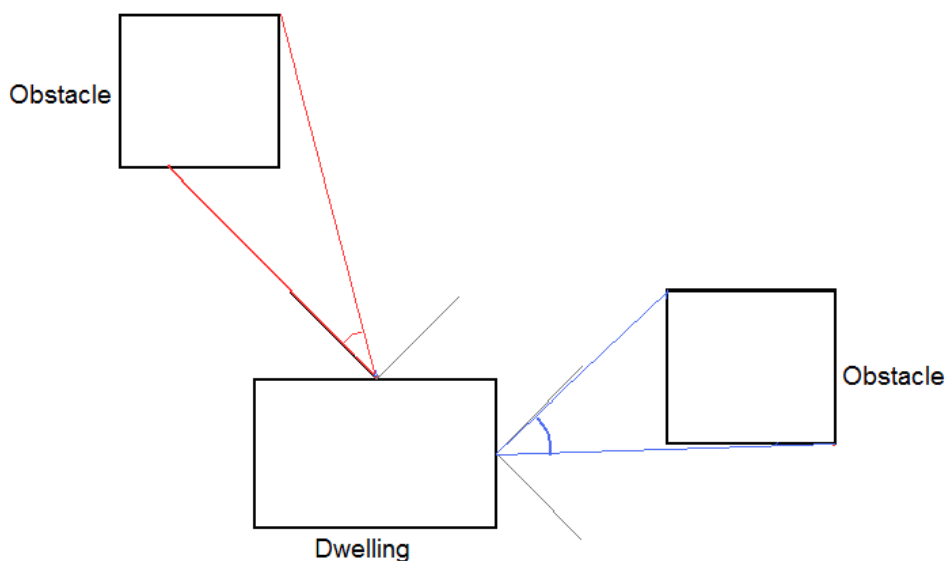


Figure 4: A dwelling with two partially-sheltered sides. Taken together they count as one sheltered side.

DEAP manual Section 2.5, Appendix S and the DEAP Survey Guide provide further guidance on assessing the number of sheltered sides.

3 When to include conservatories in dwelling floor area in DEAP

A conservatory is defined in DEAP as an extension attached to a dwelling which has at least 75% of its roof and 50% of its external walls made of material that allows the transmission of light. The [July 2009 Technical Bulletin](#) (Page 4) dealt with the issue of when to include a conservatory in the dwelling floor area if the Building Regulations Part L of 2008 applies. For existing dwellings or new dwellings prior to TGD L 2008, the decision to include a conservatory in the dwelling floor area depends on whether the conservatory is thermally separated from the dwelling.

As indicated in DEAP manual Section 3.3.3, for a conservatory to be thermally separated it must meet 2 conditions:

- (i) The U-value of the partition separating the conservatory from the rest of the house must not be more than 10% larger than the corresponding exposed elements in the rest of the dwelling.**

In the case shown in Figure 5 the partition is a sliding glazed door. The door has 70% glazing which means that in DEAP it is treated as a window. To test the first condition the U-value of this sliding window (marked in red) is compared to the average U-value of the other windows in the house (marked in blue).

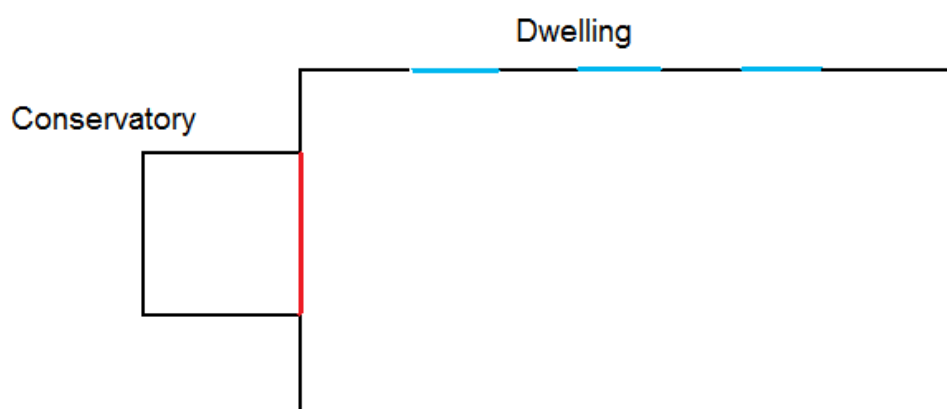


Figure 5: Dwelling with glazed door to conservatory

As an example, assume the sliding window is single-glazed with $U = 4.8 \text{ W/m}^2\text{K}$ and the other windows are double-glazed with $U = 2.6 \text{ W/m}^2\text{K}$. The limit for thermal separation is 10% greater than the U -value of the windows,

$$\text{i.e. } 2.6 + 0.26 = 2.86 \text{ W/m}^2\text{K}.$$

The U -value of the sliding window, $4.8 \text{ W/m}^2\text{K}$, is obviously larger than this so the condition for thermal separation of the conservatory is not met. This means that heat will pass through the sliding window into the conservatory more easily than heat will flow out of the other windows. As a result the conservatory will heat up to the same temperature as the rest of the house in which case it must be *included* in the dwelling floor area.

Now, assume that the single-glazed sliding window was replaced by a modern double-glazed sliding window with $U = 2 \text{ W/m}^2\text{K}$.

The U -value of the sliding window, $U = 2 \text{ W/m}^2\text{K}$, is less than the limit for thermal separation in this example which is still $2.86 \text{ W/m}^2\text{K}$. This means that the new double-glazed sliding window acts as a sufficient barrier to the flow of heat from the house to the conservatory for the first condition for thermal separation to be satisfied.

Similar to the above, any walls in the partition between the dwelling and conservatory would be compared to other external dwelling walls. Likewise, doors in the partition between the dwelling and conservatory are compared to other external dwelling doors. The condition is met if the U -value of each of the partition elements is not 10% greater than the corresponding external elements elsewhere in the dwelling.

(ii) The second condition for thermal separation states that the conservatory must be either unheated or have a heating system with independent time and temperature control (see Section 3.3.3 of the DEAP manual).

An unheated conservatory (no fixed heaters) meets the second condition for thermal separation. A conservatory that is heated by the main space heating system of the dwelling and has automatic time and temperature control independent of the dwelling also meets the second condition for thermal separation. In practice this means the conservatory forms a separate zone on the main heating system with its own room thermostat and timer or programmer channel.

In both cases, if the first condition for thermal separation is also satisfied then the conservatory is thermally separated and is excluded from the BER assessment.

A conservatory that is heated by the main space heating system of the dwelling but which does not have independent automatic time and temperature control does not meet the second condition for thermal separation and as such must be included in the BER assessment.

The various situations an Assessor is likely to encounter are summarised in the following table:

Situation	Automatic, independent temperature control	Automatic, independent on/off control	Meets Second Condition for Thermal Separation
Conservatory, no fixed heating	n/a	n/a	Yes
Conservatory with fixed heating (from main heating system). No radiator valve.	No	No	No
Conservatory with fixed heating (from main heating system). Radiator valve only	No	No	No
Conservatory with fixed heating (from main heating system). TRV only	No	No	No
Conservatory with fixed heating (from main heating system). Room thermostat only	Yes	No	No
Conservatory with fixed heating (from main heating system). Own zone (time and temperature control using time control and room thermostat)	Yes	Yes	Yes
Conservatory with fixed standalone heating system without time switch and room thermostat.	No	No	No
Conservatory with fixed standalone heating system with time switch and room thermostat.	Yes	Yes	Yes

In the example of the conservatory separated from the dwelling by the double-glazed sliding window, if the conservatory had no fixed heating then both conditions for thermal separation would be fulfilled and the conservatory would not be included in the dwelling floor area in the BER assessment.

On the other hand, if the conservatory had a radiator running from the main heating system controlled by a TRV (without room thermostat) then the second condition for thermal separation would not be met so the conservatory would be included in the BER assessment.

The [May 2009 Technical Bulletin](#) (Page 3) provides guidance on treatment of elements between the dwelling and a thermally separated conservatory.

4 Compliance with TGD L revisions prior to TGD L 2005

The [Technical Bulletin of November 2009](#) (Section 1.1) discusses new dwellings complying with Building Regulations prior to TGD L 2005. Assessors should note that they do not have a role in carrying out the Heat Energy Rating on such a new dwelling, although they should make the client aware of any compliance issues as outlined in the technical bulletin.