



Specification

for

Assessor Training Programmes for: Building Energy Rating (BER) of Dwellings

September 2008

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1.0 Introduction

This document has been developed for and approved by the Energy Performance of Buildings Directive (EPBD) Implementation Group which comprises officials drawn from the Department of the Environment, Heritage and Local Government, the Department of Communications, Energy and Natural Resources, and The Sustainable Energy Authority of Ireland (SEAI). It follows a process of consultation with the national awards bodies, prospective training providers and industry.

This document sets out the minimum requirements that must be included in any programme in order to attain recognition by the EPBD Implementation Group as a suitable Building Energy Rating (BER) Assessor Training Programme for the purposes of individuals becoming registered BER assessors for both newly constructed and existing dwellings.

1.1 Implementation of BER in Ireland

Article 7 of the EPBD requires that when a building is constructed, sold or rented out, the owner must provide a Building Energy Rating (BER) Label and Advisory Report to the prospective buyer or tenant. Under the European Communities (Energy Performance of Buildings) Regulations 2006, (S.I. No. 666 of 2006) the phased implementation of BER in Ireland as follows:

- 1 January 2007¹: BER of new dwellings
- 1 July 2008: BER of new buildings, other than dwellings
- 1 January 2009: BER of existing dwellings and other existing buildings, when offered for sale or rental

The BER Label and Advisory Report for a building in any of the above categories may be produced by a BER assessor who is registered on the BER National Administration System (NAS) as a BER assessor for that building category. The BER must be carried out in an independent manner. The BER label and Advisory Report databases and quality assurance (QA) functions also form part of the NAS.

1.2 Pre-requisites for BER Assessor Registration

In order to be registered as a BER assessor for dwellings, candidates must apply to the issuing authority for registration as a BER assessor and will be required to demonstrate that they meet the requirements specified by the EPBD Implementation Group. These requirements include the following:

- Successful completion of a training programme that meets this Training Specification
- Successful completion of the national BER exam for dwellings once available
- Acceptance of the Code of Conduct for BER Assessors
- Submission of a completed BER assessor application form and certified copy of valid photographic ID to the issuing authority
- Payment of the required registration fee

¹ A transitional exemption will apply to dwellings for which planning permission is applied on or before **31st December 2006** provided substantial work has been completed by **30 June 2008**.

1.3 Training Programme Pre-requisites

To be recognised as meeting this *Specification for Assessor Training Programmes for BER of Dwellings*, a training programme must meet the following criteria:

- It must be provided by a training provider that is registered with a National Awards Body (HETAC, FETAC, DIT, Universities) recognised under the National Framework of Qualifications.
- The Award on successful completion of a programme must be at least a Level 6 Special Purpose Award, issued by such a National Awards Body.
- On successful completion of the programme, learners must have acquired the specific learning outcomes detailed in this specification.
- The programme must meet the minimum criteria detailed in this document. The duration, content and delivery of training programmes should be appropriate to the learners' needs, and must enable the learners to acquire all the learning outcomes specified as a minimum it must include:
 - Programme material must cover all learning outcomes stated in this Training Specification in sufficient detail to ensure that learners thoroughly understand the theory behind each element of BER including the DEAP calculation, and to enable them to apply the rules stated in the DEAP manual to correctly calculate BERs for a range of dwellings of varying complexity. Training providers must make material available for review when requested by SEAI. All training material will be treated confidentially and will not be disclosed to any third party without written consent from the training provider.
 - The programme should be designed to allow sufficient time for trainers to adequately cover all learning outcome with learners. As a guideline it is recommended that standard training programmes which accept learners just meeting minimum prequalification requirements, consist of at least 200 learning hours (learning hours are a combination of teaching hours, course work hours and reading hours).
 - The programme and examination should be provided in facilities that are clean, smoke free, secure with a quiet environment, adequate heating, lighting, ventilation and adequate room for all learners.
 - The programme should be designed to cater for Candidates with special requirements.
 - The programme must cater for Candidates to survey a trainer selected existing dwelling in the company of a trainer.
 - For FETAC approved Training Providers the programme should include an external examination element. The external examiner should have sufficient subject knowledge to allow for adequate assessment of robustness and thoroughness of the examination process.
- All programme Trainers must have as a minimum:
 - A level 8 award under the National Framework of Qualifications in a relevant engineering, building surveying or architecture discipline or an equivalent relevant technical professional qualification.
 - Working knowledge of the current Irish Building Regulations.
 - Be technically competent and familiar with current practices and products that are applicable to the particular part of the BER programme to which they are training.

- A minimum of five years professional experience in the building sector or a minimum of five years appropriate training experience.
- Have an appropriate training qualification or at least 5 years training experience or evidence that they have completed adequate shadow BER training with a BER trainer who has an appropriate training qualification or 5 years training experience.
- Attained 85% in the BER national exam for dwellings, prior to training the programme.

The training provider may set prequalification requirements for entry to a particular programme. As a pre-qualification for entry on to all dedicated BER courses, successful applicants must have an appropriate construction related qualification, at least at Level 6 Award (Advanced Certificate/Higher Certificate) in construction studies or other cognate discipline or equivalent. Equivalence may be determined as a combination of an appropriate construction-related qualification and significant relevant experience. Training providers must satisfy themselves that applicants have adequate Information Technology skills before enrolling them on a training programme. Adequate Information Technology skills are considered to be skills of at least European Computer Driver Licence START standard or equivalent.

Training providers must retain evidence that the learners they admit to the courses have achieved the minimum entry requirements and must have a documented procedure for determining equivalence or prior learning with their conclusions. These items shall be held for a period of three years and made available for review on request by SEAI during normal working hours for audit purposes.

Training providers may design a specific programme to meet this specification or they may integrate the specification into other programmes subject to agreement with the relevant National Awards Body i.e. HETAC, FETAC, DIT, Universities.

2.0 Purpose of the Training Programme

On completion of an Assessor Training Programme for BER for Dwellings, the learner will be able to undertake and provide a BER and accompanying Advisory Report for a dwelling, for delivery to the owner or builder, prospective buyer or tenant, when the dwelling is constructed, sold or rented.

Training programmes must be designed to produce competent BER assessors who will be capable of delivering this service to a consistently high standard.

3.0 General Aims

Learners who successfully complete an Assessor Training Programme for BER of Dwellings must be able to:

- Explain key objectives and the background to the EPBD

- Demonstrate the ability to undertake limitation of primary energy use and or CO₂ emission calculations required by the Building Regulations Part L and as outlined in the associated Technical Guidance Document to the Building Regulations Part L
- Demonstrate the ability to accurately collect data from plans, specifications and physical surveys to correctly calculate BERs and associated CO₂ emissions performance using the DEAP software for both new and existing dwellings of varying complexity
- Produce BER Certificates and Advisory Reports for dwellings
- Explain the significance, in BER terms, of varying the specifications for dwellings

4.0 Structure of Learning Outcomes Units

The specific learning outcomes are grouped into 6 units:

- Unit 1 Building Energy Rating (BER) in Ireland
 - 1.1 Background to the EPBD
 - 1.2 Building Regulations Part L and Technical Guidance Document to Part L
 - 1.3 Introduction to Dwellings Energy Assessment Procedure (DEAP)
 - 1.4 BER Administration
- Unit 2 Building Construction and Lighting Assessment
- Unit 3 Building Energy Performance - Fabric and Ventilation Systems
- Unit 4 Space/Domestic Hot Water, Heating Systems and their Controls
- Unit 5 Overall Energy Performance, CO₂ emissions and BER Labels
- Unit 6 Advisory Reports for Dwellings
 - 6.1 BER Advisory Report for Dwellings
 - 6.2 Design Advice Opportunities

5.0 Unit 1 Building Energy Rating (BER) in Ireland

Aim The aim of this unit is that the learner gains an overall understanding of the EPBD and its associated documentation

Learners should be able to:

5.1 Background to Energy Performance of Buildings Directive

- 5.1.1 Explain the key objectives of the EPBD, as set out in Article 1
- 5.1.2 Describe what the EPBD requires in terms of BERs
- 5.1.3 Describe the process that has been adopted for implementing of the EPBD in Ireland, with a particular focus on Articles 3 to 7
- 5.1.4 Identify the appropriate legislation published to date to implement Article 7 of the EPBD in Ireland
- 5.1.5 Describe the timelines including the transitional arrangements for introducing the BER requirements for new and existing buildings
- 5.1.6 Identify the types of buildings in Ireland which require BER, on a phased basis over the period 2007-2009 and which buildings are exempt from BER requirements

5.2 Building Regulations Part L and Technical Guidance Document to Part L

- 5.2.1 Explain what is required by all applicable versions of Building Regulations Part L
- 5.2.2 Explain how all applicable versions of the Technical Guidance Documents to Part L of the Building Regulations (TGD L) can be used to demonstrate compliance with Building Regulations Part L
- 5.2.3 Describe how the Part L primary energy use and/or CO₂ emission limitations are calculated for applicable dwellings
- 5.2.4 Describe the Part L requirements which the DEAP software can and can not demonstrate conformance with
- 5.2.5 Differentiate between Part L2(a) compliance requirements and EPBD Article 7 BER requirements
- 5.2.6 List the requirements of Building Regulations Part L that are applicable to all dwellings and list those requirements that are only applicable to dwellings that have specific planning permission and construction dates

5.3 Background to Dwellings Energy Assessment Procedure (DEAP)

- 5.3.1 Describe the general principles of the DEAP calculation methodology
- 5.3.2 Explain the assumptions that are made in determining the BER
- 5.3.3 Explain the limitations and constraints that apply to DEAP calculations
- 5.3.4 List the different types of information that must be gathered in order to complete a BER assessment
- 5.3.5 Identify the dwelling features that significantly affect BER calculations
- 5.3.6 Explain the meaning of a BER to a client in terms of energy efficiency and validity
- 5.3.7 Describe the importance of ensuring that the correct version of DEAP software and associated reference materials are used in any BER assessment

5.4 BER Administration

- 5.4.1 Describe the process for registering as an official BER Assessor
- 5.4.2 Explain how the BER data is submitted to the National Administration System
- 5.4.3 Explain how the BER Label and Advisory Report is printed and issued
- 5.4.4 Explain the Quality Assurance (QA) requirements associated with the BER scheme
- 5.4.5 Explain the importance of documenting terms, conditions and scope of assessment in writing with the client
- 5.4.6 Describe the key requirements of the BER Assessor's Code of Conduct
- 5.4.7 Describe the data storage requirements included in the BER Assessor's Code of Conduct and the implications these and current data protection legislation have for assessors
- 5.4.8 Describe an assessor's legal duty for health and safety in the workplace as required by legislation
- 5.4.9 Describe the importance of keeping records in a legible, complete and accurate manner
- 5.4.10 Describe the relevance the Declaration of Interest Form when conducting a BER assessment

6.0 Unit 2 Building Construction and Lighting Assessment

Aim The aim of this unit is that the learner is proficient in interpreting and entering data relating to dimensions and construction type of the dwelling into the DEAP software

Learners should be able to:

- 6.1 Assign the appropriate age band to a dwelling (based on year of construction)
- 6.2 Explain how to determine the number of storeys in a dwelling
- 6.3 Measure the floor area and storey heights from plans
- 6.4 Measure the floor area and storey heights from surveys
- 6.5 Explain how the following spaces should be handled in DEAP: store rooms, utility rooms, porches, draft lobbies, conservatories, open plan spaces, mezzanine floors, basements/under-crofts, flats, maisonettes pitched roofs, un-heated spaces such as garages and attics
- 6.6 Interpret house drawings and construction specifications to gather relevant information required for a BER assessment
- 6.7 Identify the risks associated with surveying a dwelling
- 6.8 Describe the actions to take to minimise or mitigate risks to people, property or information while conducting a BER assessment including a survey
- 6.9 Survey existing dwellings in a safe, methodical and consistent manner in accordance with the DEAP survey methodology to gather all relevant information required for a BER assessment
- 6.10 Explain how electricity consumption and internal heat gains from lighting are calculated in DEAP
- 6.11 Identify energy efficient lights/fittings from plans/specifications and from physical surveys
- 6.12 Calculate the proportion of energy efficiency lights/fittings in a dwelling

7.0 Unit 3 Building Energy Performance - Fabric and Ventilation Systems

Aim The aim of this unit is that the learner is proficient in the calculating ventilation and fabric heat losses and is capable of inputting this data into the DEAP software

Learners should be able to:

- 7.1 Describe how the ventilation heat loss rate is calculated in DEAP
- 7.2 Describe building features listed in DEAP that affect a dwelling's ventilation rate
- 7.3 Identify all elements listed in DEAP that affect ventilation heat loss from plans/specifications and from physical surveys
- 7.4 Describe the situations where a chimney can be classified as a flue for the purposes of DEAP
- 7.5 Measure the effective area of a vent
- 7.6 Describe how draught lobbies, sheltered sides and suspended wooden floors affect a BER
- 7.7 Describe how to pressure test a dwelling
- 7.8 Describe how the results from a dwelling pressure testing effect a BER

- 7.9 Identify the type of ventilation system(s) in a dwelling from plans/specifications and from physical surveys
- 7.10 Describe the differences in calculation approach between designed natural ventilation and a designed mechanical ventilation (air handling) system for a dwelling
- 7.11 Describe the appropriate procedure for changing from the default specific fan power consumption figure for a mechanical ventilation system.
- 7.12 Describe the appropriate procedure for changing from the default heat recovery efficiency figure for a mechanical ventilation system.
- 7.13 Describe how heat losses from a dwelling are calculated
- 7.14 Identify different types of window frames/glazing
- 7.15 Demonstrate the ability to determine the size, shape and orientation for each window
- 7.16 Determine U-value and frame factor for windows and doors using both "DEAP Look Up Tables" and the International Standards recognised in DEAP
- 7.17 Evaluate the effect of varying the window specification for different dwelling types using DEAP
- 7.18 Identify and recognise the building fabric and construction method for walls, floors, roofs and doors
- 7.19 Demonstrate the ability to recognise acceptable sources of information for U-value calculations
- 7.20 Determine the U-value of various types of walls, roofs, floors, windows and doors using DEAP default tables, and through calculations based on the International Standards cited in the DEAP manual
- 7.21 Calculate U-values for elements adjacent to unheated spaces
- 7.22 Describe how unheated spaces such as garages, stairwells, rooms in the roof, access corridors, conservatories and other large glazed areas affect a BER
- 7.23 Explain the significance of varying U-values for different building elements using DEAP
- 7.24 Explain the term thermal bridging
- 7.25 Explain how thermal bridging is accounted for in DEAP
- 7.26 Define circumstances where the thermal bridging factor can be varied from the default figure
- 7.27 Describe elemental heat loss limits and where appropriate the overall heat loss limits that are specified in TGD L
- 7.28 Demonstrate how DEAP calculates internal heat gains
- 7.29 Explain how to calculate solar heat gain and demonstrate the ability to input this information into the DEAP software
- 7.30 Explain how solar and light access factors affect the BER
- 7.31 Explain how light transmittance affects the BER
- 7.32 Explain how to calculate summertime overheating using DEAP

8.0 Unit 4 Space and Domestic Hot Water Heating Systems and their Controls

Aim The aim of this unit is that the learner is proficient in the calculating Domestic Hot Water and Space Heat demands and is capable of inputting this data into the DEAP software. The learner should also be proficient in identifying energy efficient controls for space and hot water heating systems.

Learners should be able to:

- 8.1 Identify all types of space and water heating systems referenced in DEAP from plans/specifications and from physical surveys
- 8.2 Describe how the demand/losses for a Domestic Hot Water (DHW) system is calculated using DEAP methodology or estimated using default data for existing dwellings
- 8.3 Compare and contrast the heat losses from DHW storage and non-storage system
- 8.4 Determine water storage volumes of DHW systems
- 8.5 Identify insulation types and thickness for DHW systems from plans/specifications and from physical surveys
- 8.6 Demonstrate the ability to identify and recognise acceptable sources of measured data for declared cylinder losses
- 8.7 Calculate heat loss from DHW storage system
- 8.8 Calculate heat losses from group DHW heating systems
- 8.9 Calculate the heat output from a dwelling's solar water heating system
- 8.10 Identify the advantages of solar heating in relation to BER
- 8.11 Explain when and how supplementary electric heating for DHW should be included in calculating a BER
- 8.12 Describe how the annual space heat requirement is calculated in DEAP
- 8.13 Calculate space heat requirements for different dwelling structures using DEAP
- 8.14 Describe how the mean internal temperature is calculated in DEAP
- 8.15 Differentiate between living area and the remainder of a dwelling.
- 8.16 Identify the thermal mass category for different dwelling construction types
- 8.17 Explain how thermal mass category affects the heat demand calculation
- 8.18 Demonstrate how to select appropriate thermal mass category for different dwelling constructions
- 8.19 Describe the type of heating schedule that is used in the DEAP calculation
- 8.20 Explain and demonstrate how solar gains are calculated
- 8.21 Explain and demonstrate how solar gains affect the space heating requirement calculation
- 8.22 Explain how the utilisation factor for solar gains is applied in DEAP
- 8.23 Explain the difference between the "ideal" and "actual" space heat requirement
- 8.24 Explain how the annual space heat demand is calculated
- 8.25 Identify the different types of space heating systems controls as referenced in DEAP from plans/specifications and from physical surveys
- 8.26 Determine the effect different types of controls have on the heating system efficiency
- 8.27 Apply the correct responsiveness categories to different space heating systems
- 8.28 Explain how the responsiveness category affects the heating system efficiency
- 8.29 Explain how the number and location of pumps and fans affects the calculation of the space heating demand
- 8.30 Explain how an underfloor heating system can affect the heating system efficiency
- 8.31 Explain how the annual fuel consumption for space and water heating is calculated for individual heating systems
- 8.32 Calculate the annual fuel consumption and associated CO₂ emissions for individual space and water heating systems
- 8.33 Explain the term *Seasonal Efficiency* as it relates to boilers, heat pumps and other heating appliances

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- 8.34 Describe the acceptable sources of information for seasonal efficiencies for heating appliances
 - 8.35 Demonstrate the ability to apply seasonal efficiencies for space and water heating systems using all acceptable sources of information
 - 8.36 Explain rationale behind the Home-Heating Appliance Register of Performance (HARP) database
 - 8.37 Explain how to update DEAP software with the most current data from the HARP database
 - 8.38 Explain the theory behind efficiency adjustment factors
 - 8.39 Demonstrate the ability to apply efficiency adjustment factors to space and water heating systems
 - 8.40 Describe how to determine which heating system in a dwelling is the primary heating system and which is the secondary heating system
 - 8.41 Demonstrate how the energy demand from the primary and secondary heating systems are apportioned
 - 8.42 Identify fuel type for the main and secondary water and space heating systems from plans/specifications and from physical surveys
 - 8.43 Identify the solar collector types referenced in DEAP from plans/specifications and from physical surveys
 - 8.44 Demonstrate the ability to measure the aperture area of solar collectors
 - 8.45 Describe acceptable sources of information for the zero-loss collector efficiency and the collector heat loss coefficients of solar collectors
 - 8.46 Identify the angle of tilt of a solar collector
 - 8.47 Explain how varying the orientation of a solar collector affects its performance
 - 8.48 Demonstrate how to apply the solar over-shading correction factor
 - 8.49 Describe how the solar over-shading correction factor affects the input to the hot water heating system
 - 8.50 Explain how a solar water heater affects a dwelling's water heating demand
 - 8.51 Describe how the annual fuel consumption for space and water heating is calculated for community heating schemes
 - 8.52 Calculate the annual fuel consumption and associated CO₂ emissions for space and water heating for community/group heating schemes
 - 8.53 Identify the primary fuel and secondary fuel type for space heating
 - 8.54 Describe how the procedures listed in DEAP Appendix Q affect a BER
 - 8.55 With reference to Appendix M, N and Q of the DEAP manual describe how energy produced, saved or consumed by a renewable or energy saving technology may be accounted for in DEAP.

9.0 Unit 5 Overall Energy Performance, CO₂ emissions and BER Labels

Aim The aim of this unit is that the learner can demonstrate the ability to undertake a BER using DEAP software

Learners should be able to:

- 9.1 Use DEAP to calculate the BER in kWh/m²/annum and the associated CO₂ emissions for a variety of dwelling forms (both new and existing) of varying complexity, including dwellings with extensions
- 9.2 For a variety of dwelling forms, of varying complexity, compare the calculated BER and the CO₂ emission results
- 9.3 Determine if a dwelling is in compliance with specific requirements of Part L of the Building Regulations
- 9.4 Explain when assessment limitations, caveats or explanations should be included with a BER assessment
- 9.5 Demonstrate the ability to appraise and evaluate the default data contained in the DEAP software
- 9.6 Demonstrate how the BER is affected by changes in the fabric or dimensions of the building, type of space and or water heating system in use and the application of heating system controls
- 9.7 Log the BER assessment on to the National Administration System (NAS) and produce a BER Label
- 9.8 Explain the rationale behind the NAS validation rules

10.0 Unit 6 Advisory Reports for Dwellings

Aim The aim of this unit is that the learner can produce an Advisory Report which will provide information on the dwelling features, operation and maintenance requirements

Learners should be able to:

10.1 BER Advisory Report for Dwellings

- 10.1.1 Explain the purpose of the Advisory Reports
- 10.1.2 Produce appropriate Advisory Reports for new and existing dwellings which are consistent with the BER result
- 10.1.3 Explain the effects and potential risks which should be considered before including any remedial solution in an Advisory Report.
- 10.1.4 Explain how a dwelling can be best managed to optimise the energy performance
- 10.1.5 Explain day to day practices effecting space heating, water heating and lighting energy use, including setting and using controls
- 10.1.6 Detail the requirements for periodic checks required on installations, annual maintenance and pre-season checks
- 10.1.7 Explain the major maintenance issues within a dwelling

10.2 Design Advice Opportunities

- 10.2.1 Explain how the DEAP software can be used to provide information on maximising a dwelling's energy performance
- 10.2.2 Using relevant sources of information such as Good Practice Guides and Building Regulation Compliance Guides, identify the most feasible measures to improve the energy performance of various dwelling types without compromising the performance of any other aspect of those dwellings
- 10.2.3 Evaluate the effect of fuel switching has on CO₂ emissions and energy efficiency
- 10.2.4 Evaluate how the delivered energy produced from renewable and energy-saving technologies affects the primary energy, CO₂ emission factors for a dwelling

11.0 Examination

All examinations must be carried out in accordance with the National Awards Bodies' regulations (HETAC, FETAC, DIT, Universities).

The examination must be devised by the training provider, with external moderation by the relevant National Awards Body.

The examination must include the following minimum criteria:

- Assignments (x4) 50% of total marks
- Examination 50% of total marks

Learners must achieve a minimum of 70% in each assignment and in each individual section of the examination in order to be eligible to become a registered BER assessor for dwellings.

SEAI reserve the right to review and monitor the examination process.

11.1 Assignments (50% of Total Marks)

The training providers must devise four individual assignments that require the learners to produce evidence that demonstrates an understanding and the application of the range of specific learning outcomes. The assignments should be of a sufficiently complex form to ensure that learners can demonstrate that they can apply DEAP to a variety of dwelling types of varying complexity both new and existing.

Assignment 1: U-values - 10%

Students should be required to source thermal conductivity information for components of a wall, floor, roof, dormer roofs and either a floor or wall adjacent to an unheated space from any of the sources referenced in the DEAP manual and calculate the U-values for those building elements from first principles.

Assignment 2: BER assessment from plans and specifications and achieving a specified improvement - 15%

Students should be required to complete a BER assessment of a dwelling from plans and specifications, log it on the Training NAS and produce an Advisory Report for that dwelling.

They should then be required to vary the specification to achieve a specified improvement in the BER. These variations should focus on the most practical and least cost options.

The dwelling must contain at least two features from Group 1 and two features from Group 2 below:

Group 1 features

- dormer windows and dormer roof
- conservatory
- integral garages
- split level
- an extension

Group 2 features

- ventilation system other than a natural ventilation system that uses non-default data
- a solar water heater
- a renewable energy systems other than a solar water heater
- a group heating system.

Assignment 3: BER of an existing dwelling (trainer selected dwelling) - 15%

Students should be required to survey an existing dwelling in the company of a trainer and complete a BER and Advisory Report for that dwelling.

Students should then be required to vary the dwelling specification to achieve a specified improvement in the BER. These variations should focus on the most practical and least cost options.

Assignment 4: BER of an existing dwelling (student selected dwelling) - 10%

Students should be required to survey an existing dwelling and complete a BER and Report for that dwelling. Full supporting evidence in the form of site notes, photographs, sketches and survey notes must be compiled as part of the assignment and students must provide further information if so required by the trainer. The dwelling must be different for each student in the training programme.

Assignments marks must be as follows;

- Assignment 1: 10%
- Assignment 2: 15%
- Assignment 3: 15%
- Assignment 4: 10%

All assignments must be completed individually not as group work.

11.2 Examination - 50% of Total Marks

Part 1: Short Answer Questions - 10% of Total Marks

The training providers must devise an examination consisting of 10 questions that assess learners' understanding of the DEAP methodology, BER policy, QA requirements, NAS system and surveying dwellings. The questions should examine the learners' ability to recall, apply theory, define information and identifying products and systems in a dwelling that affect a BER.

The answers should be in written form, including any illustrations and must be categorised as short in length.

The examination must cover all Units. The format of the examination must be short questions of equal marks.

Learners must attempt all questions.

Part 2 Practical Examination - 40% of Total Marks

The training providers must devise a practical examination that requires learners to demonstrate their ability to use the DEAP software in a supervised setting for a previously unseen dwelling to produce a BER Label and Advisory Report. The practical examination must be of such depth and breadth that requires the candidate to apply all aspects of the DEAP software.