Occupational Standard

Building Energy Rating (BER) assessors for non-domestic buildings

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Contents

Introduction

The occupational standard for non-domestic BER assessors details the required knowledge, skills and competence of a registered BER assessor. It describes the standard of knowledge expected of a registered non-domestic BER assessor to work independently as a competent assessor.

Purpose

This standard identifies the primary activities and responsibilities that are fundamental to the Building Energy Rating Assessment of non-domestic buildings.

The main purpose of this standard is to provide information to BER training providers and BER assessors on the standard of knowledge and competency required to successfully carry out the role of a Non-domestic BER assessor.

This standard provides a framework to be used by those assessing the competency of assessors and can also be used to provide a roadmap for the development of competency on the path to registration as an assessor.

The standard provides a framework for Continuing Professional Development for use by assessors to assess their own knowledge and skills and guide them on the areas they need to focus on for self-development.

Abbreviations

BER – Building Energy Rating (non-domestic in this document)
CHP – Combined Heat and Power generators/systems
CPC – Carbon Performance Coefficient
EPBD – Energy Performance of Buildings Directive (EU)
EPC - Energy Performance Coefficient
iSBEMie – interface for Simplified Building Energy Assessment Method for Ireland
NDNAS - Non-domestic National Administration System (where BERs are stored by SEAI)
NEAP – Non-domestic Energy Assessment procedure
NFQ - National Framework of Qualifications
RER - Renewable Energy Ratio
SBEMie -Simplified Building Energy Assessment Method for Ireland
TGD Part L – Technical Guidance Document for the Second Schedule of Part L of the Building Regulations

Registering as a Non-domestic BER assessor

To register as a Non-domestic BER assessor, you must meet the pre-qualification requirements and complete an accredited BER training course. Further information on the registration requirements is available on the SEAI website here.

To join the register, an individual must have achieved the standard of knowledge skill and competence set out in this occupational standard of BER assessors for non-domestic buildings.

This is achieved by the following.
1. demonstrating they have met the pre-qualification requirements.
2. successfully completing the BER training course and achieving a result of 70% or more in the assignments and exams and
3. completing the SEAI BER Assessor induction module.

Element	Indicator
Pre-qualification requirement	1. Non-domestic BER assessors require an NFQ Level 7 Advanced/Higher Certificate in a building or construction related discipline, listed on the SEAI webpage, where at least two of the subjects listed on the SEAI webpage are covered for a minimum of two semesters each. As a minimum, BER assessors should have good knowledge and experience of the following prior to completing the BER Assessor training course. a) The ability to survey buildings, take measurements and carry out detailed calculations. b) The ability to read and interpret building drawings and specifications. c) Good knowledge of building regulations. d) Good knowledge of construction methods for buildings. e) Good knowledge of building services, including heating, cooling, ventilation, hot water, lighting and renewable technologies. 2. Proof of membership in a professional organisation, listed on the website linked below. Pre-qualification criteria (seai.ie)
Completion of the BER training course	Completion of an SEAI-approved BER training course. The BER training course typically includes both contact time with a trainer and self-directed learning hours in order to become familiar with the NEAP methodology, SBEM software and practice documentation.
Induction module	The SEAI induction module is delivered by SEAI as a webinar and provides information to applicants who wish to join the BER Assessor register and have successfully demonstrated they have met the registration requirements. The webinar provides information on the supports for BER assessors, technical documents, BER assessor Code of Practice, managing the BER assessor & client relationship, quality assurance processes, publishing BER ratings – Non-Domestic National Administration System (NDNAS) and communications from SEAI.

Upon registration, BER assessors agree to abide by the BER assessor Code of Practice and engage with the BER quality assurance processes.

Standards of knowledge and competency for registered Non-Domestic BER assessors

This section describes in detail what a registered BER assessor for non-domestic buildings needs to know and how well they need to know it. All registered assessors must meet this standard of knowledge.

The standard is divided into 8 units to cover the main activities of a registered assessor carrying out assessments of non-domestic buildings. These units are outlined in Table 2.

Table 2: Units of Competency

Unit		Guidance
1	Fundamentals	Assessors are expected to have gained this knowledge from pre-qualifications and/or experience prior to attending the accredited BER training course.
2	Context	Awareness and knowledge of the legislative environment in which BER Assessors operate.
3	Data Collection – Surveying and Documentation	Ability to identify, record and verify building information from plans, specifications, documentation and site surveys.
4	Calculations	Ability to use the information collected to carry out calculations for entry into the approved software.
5	NEAP Methodology, SBEMie model, and software interfaces	Ability to apply the NEAP methodology and use approved SBEMie interface software to correctly calculate the BER for a variety of new and existing building forms of varying complexity.
6	BER Results + Part L compliance	Ability to interpret and explain BER results and the Part L compliance checks obtained from NEAP Methodology, SBEMie model, and software interface.
7	Publication of BER certificates and advisory reports	Ability to correctly publish BER certificates and advisory reports.
8	Professional practice	Ability to provide a professional service to clients to ensure they obtain the most accurate BER based on the information available to the BER assessor.

Further detail is provided below for each unit including a list of topics, guidance on the scope of each topic and how it applies to the work of an assessor. Each topic is mapped to the relevant learning outcome listed in the BER Assessor Training course specification where applicable.

Unit 1 - Fundamentals			
Topic		**What an assessor needs to know about the topic**	**Learning Outcome**
1.1	Surveying	Ability to identify, survey and record building details including sketching layouts and taking measurements, interpreting drawings and construction specifications to gather information for a BER assessment	n/a
1.2	Mathematics	Ability to carry out mathematical calculations including areas, volumes and average zone heights and to apply mathematical formulas.	n/a
1.3	Building construction	Knowledge of building construction methods, space and water heating, ventilation systems, cooling systems and renewable technologies.	n/a
1.4	IT	Broad range of IT skills to use the SBEMie software and other packages, such as spreadsheets, to assist in the assessment and publication of BERs.	n/a

Unit 2 - Context			
Topic		**What an assessor needs to know about the topic**	**Learning Outcome**
2.1	EU legislation	Awareness of the EPBD, Eco-design and Energy Labelling Regulations, the Construction Product Regulations, and their relevance for BER assessments.	Unit 1
2.2	Climate policy and targets	Awareness of EU and Irish climate policies and targets relating to building energy performance.	Unit 1
2.3	Irish energy legislation and regulations	Awareness of BER Regulations, Building Regulations and Building Control Regulations.	Unit 1
2.4	Part L of the building regulations	Understand how TGD Part L for Buildings other than Dwellings is applied to demonstrate compliance with Building Regulations Part L using the NEAP methodology.	Unit 5
2.5	NEAP methodology and SBEMie model	Ability to explain the general principles of the NEAP methodology, BER calculation assumptions, SBEMie calculation limitations and constraints, the meaning of and rationale behind use of standardised occupancy and asset/calculated rating approach in NEAP assessments, BER methodology documentation, energy calculations in NEAP (energy demand, delivered energy, primary energy, CO_2 emissions, EPC, CPC, RER), the features of a building that significantly affect BER calculations, the general principles that apply when entering building data and component characteristics into SBEMie software.	Unit 1

Unit 3 - Data Collection – Surveying			
Topic		**What an assessor needs to know about the topic**	**Learning Outcome[i]**
3.1	Health and safety	Ability to identify the risks associated with surveying a building and take actions to minimise or mitigate risks to people or the property while conducting a BER assessment.	Unit 1 Self-learning
3.2	General characteristics	Ability to gather the information in sketches, drawings, photographs, survey forms and other documentation in accordance with the NEAP Survey Guide requirements including building type, the age of the original building and any extensions and the number of storeys.	Unit 2 Unit 3
3.3	Building dimensions	Ability to measure and record all dimensions needed to calculate the floor and zone areas and heights, and other element areas.	Unit 3
3.4	Building fabric elements and types	Ability to identify the building fabric type and construction methods for walls, floors, and roofs and to identify the presence of any retrofitted insulation.	Unit 2
3.5	Windows and doors	Ability to identify frame and glazing type, size, orientation and shading for each window and also the door types.	Unit 2
3.6	Thermal capacity	Ability to identify the thermal capacity characteristics of building elements.	Unit 2
3.7	Building Type and Zone types	Ability to identify building features affecting the selection of building type and individual zone type.	Unit 2
3.8	System Adjustments (duct leakage etc)	Ability to identify variable speed pumps. Ability to identify equipment in which duct leakage and SFP are relevant.	Unit 4 Self-learning
3.9	Space heating systems metering and controls	Ability to identify space heating and cooling systems, including local and central, circulation pumps, warm air systems, and space heating system controls as well as the presence of monitoring and targeting systems.	Unit 4 Self-learning
3.10	Water heating systems and distribution	Ability to identify hot water systems with/ without storage. Ability to recognise secondary circulation systems, Ability to identify insulation types and thickness.	Unit 4 Self-learning
3.11	Ventilation	Ability to identify the presence of ventilation and ventilation types. Ability to identify the presence of and type of heat recovery.	Unit 4 Self-learning
3.12	Lighting	Ability to identify lighting types as shown in Appendix 11 of the NEAP Survey Guide.	Self-learning
3.13	Lighting Controls	Ability to identify lighting controls and their function.	Self-learning
3.14	Display Lighting	Ability to identify presence of display lighting and types of light, as shown in Appendix 11 of the NEAP Survey Guide.	Self-learning
3.15	Renewable systems	Ability to identify renewable technologies including solar water heating, photovoltaics, wind turbines and CHP.	Self-learning

Unit 3 - Data Collection – Documentation			
Topic		**What an assessor needs to know about the topic**	**Learning Outcome**
3.15	General documentation to support NEAP inputs	Understanding of the use of non-default data in NEAP and how non-default data from different sources can be identified as acceptable as detailed in the SEAI NEAP‑BER Publication and Survey Guide.	Self-learning
3.16	U-values and Thermal capacity (Km value) for floors, walls, roofs	Understand acceptable supporting documentation for non-default U-values, as detailed in the SEAI NEAP‑BER Publication and Survey Guide.	Self-learning
3.17	Windows and doors	Understand acceptable supporting documentation for non-default U-values, light transmittance (L-solar) and solar transmittance values (T-solar).	Self-learning
3.18	Thermal bridging factors	Understand acceptable supporting documentation for non-default values including acceptable construction details and certified details from plans/specifications, thermal modeler certification, and calculations.	Self-learning
3.19	Airtightness	Understand acceptable pressure test data for constructed and planned buildings.	Unit 3
3.20	Ventilation	Understand acceptable supporting documentation for non-default values including specific fan power, flow rates, leakage and heat recovery for mechanical ventilation.	Self-learning
3.21	Space heating	Understand acceptable sources of information and documentation to verify seasonal efficiencies for heating sources.	Self-learning
3.22	Hot water storage and distribution	Understand acceptable sources of information and documentation to verify insulated pipework, manufacturer's declared cylinder losses and secondary circulation losses, Including time control thereof.	Self-learning
3.23	Heat pumps	Understand acceptable sources of information and documentation to verify heat pump performance for space and water heating including non-default flow temperatures for heat pumps	Self-learning
3.24	Cooling	Understand acceptable sources of information and documentation to verify seasonal cooling efficiency.	Self-learning
3.25	Lighting design data	Understand acceptable lighting design information to verify lux levels and installed wattage. Understand data from lighting product data sheets.	Self-learning
3.26	Lighting control data	Understand acceptable lighting control data from lighting sensor product data sheets.	Self-learning

Unit 4 - Calculations			
Topic		**What an assessor needs to know about the topic**	**Learning Outcome**
4.1	Building dimension calculations	Ability to apply the procedures and measurement conventions and zoning rules used in NEAP to calculate building dimensions and applicable zone heights.	Unit 3
4.2	U-value calculations	Ability to calculate the U-value of various types of walls, roofs and floors based on the International Standards cited in the NEAP manuals, Technical Guidance Document (TGD) Part L and BR 443, using acceptable sources of relevant non-default data.	Self-learning
4.3	Thermal Capacity Km-value calculation	Ability to calculate the Km-value of various types of walls, roofs and floors based on the Specific Heat Capacity and density calculated in accordance with IS EN 13779:2007 Annex D cited in the NEAP manuals.	Self-learning
4.4	Window Parameters	Ability to calculate the: Transmission factor, Surface area ratio, Frame-factor, Aspect ratio as described in the iSBEMie User Guide. Ability to enter relevant data for shading devices, their colour and translucency	Unit 2
4.5	Boiler Efficiency	Ability to calculate a value for the boiler efficiency using the efficiency values $\eta_{30\%}$ and $\eta_{100\%}$ as described in NEAP Survey Guide Appendix A5.1.	Unit 4 Self-learning
4.6	Heat pump efficiency	Ability to calculate a value for the heat pump efficiency using the method described in the NEAP Survey Guide Appendix A5.2.	Unit 4 Self-learning
4.7	Cooling Seasonal Efficiency	Ability to calculate a value for the seasonal efficiency is based on the part load energy efficiency ratios EER measured at 100%, 75%,50% and 25% operating conditions, using the method described in the NEAP Survey Guide Appendix A5.3.	Unit 4 Self-learning
4.8	Hot water storage losses	Ability to determine domestic hot water storage volume from measurements taken on site. Ability to convert manufacturers declared losses to the correct units for entry into SBEMie software.	Unit 4 Self-learning
4.9	Domestic hot water distribution losses	Ability to calculate non-default losses from secondary circulation where insulation details and loop length are known.	Unit 4 Self-learning
4.10	Specific Fan Power (SFP)	Ability to calculate the Specific Fan Power in accordance with Annex D of IS EN 13779:2007 as referenced in A5.4 Specific Fan Power in the NEAP Survey Guide.	Unit 4 Self-learning
4.11	Automatic Lighting Control Parasitic power	Ability to calculate a non-default value for parasitic power consumed by automatic lighting controls.	Unit 4 Self-learning

Unit 5 - NEAP Methodology and Software – Building Fabric			
Topic		**What an assessor needs to know about the topic**	**Learning Outcome**
5.1	Building fabric heat loss	Understand how unheated spaces affect a BER, the significance of varying U-values for different building elements in SBEMie software, the input of curtain wall systems, the default U-value of various types of walls, roofs, floors, windows and doors using SBEMie software and how to change defaults to more accurate values on retrofitted building elements. Understand when areas are included or excluded from BERs.	Unit 2
5.2	Windows and doors	Understand the different types of window frames/ glazing/ gaps/ gas filling/ age for identification of window defaults and how they are entered into SBEMie software. Evaluating the effect of varying the window specification using SBEMie software.	Unit 2
5.3	Display windows	Understand the impact of the inclusion of display windows in SBEMie software. Understand the definition of such windows as described in TGD Part L.	Unit 3
5.4	Solar gains	Understand how solar gains are calculated and affect the space heating and cooling requirement calculation, and the effect of solar and light transmission factors, solar and light gains on the BER.	Unit 5
5.5	Thermal bridging - Psi values	Understand the thermal bridging requirements as specified in TGD Part L, explain how thermal bridging is accounted for in NEAP and when it is appropriate to use non-default thermal bridging values, and how to enter non-default figures into SBEMie software.	Unit 3
5.6	Thermal capacity	Understand that the thermal capacity for constructions can affect the heating and cooling demand calculations and how a non-default value it is entered into SBEMie software.	Unit 2

Unit 5 - NEAP Methodology and Software – Mechanical Exhaust and Ventilation			
Topic		**What an assessor needs to know about the topic**	**Learning Outcome**
5.7	Mechanical exhaust	Understand the difference between exhaust and mechanical supply/extract ventilation. Understand the default and non-default data required in NEAP, how they are entered in SBEMie software. Understand the effect of exhaust on BER and Part L assessment. Understand how to calculate and enter the flow rate and the specific fan power.	Unit 4
5.8	Mechanical ventilation	Understand the default and non-default data required in NEAP, how they are is entered in NEAP, the effect of mechanical ventilation on BER and Part L assessment. Understand how to calculate and enter the specific fan power.	Unit 4

Unit 5 - NEAP Methodology and Software – Space and Domestic Hot Water Heating Systems			
Topic		**What an assessor needs to know about the topic**	**Learning Outcome**
5.9	Space heat requirement	Understand when a default heating system is required in a zone.	Unit 4
5.10	HVAC System Types	Understand and recognise the different HVAC system types available for use in SBEMie software and be able to select the matching, or closest matching, system to represent what is encountered on site or shown in documents.	Unit 4 and Self-learning
5.11	Space and water heating efficiency	Understand the term gross seasonal efficiency as it relates to boilers, and other heating appliances, and how it is entered into SBEMie software.	Unit 4
5.12	HVAC system controls	Understand the different heating control categories in NEAP, how to identify the heating controls and enter them into SBEMie software, how the control category affects the application of heating credits, as described in the NEAP Survey Guide Appendix A5.1 and the effect on the advisory report.	Unit 4
5.13	CHP	Understand how all of the relevant CHP parameters are determined and entered into SBEMie software as described in Section 3.5.7 of the iSBEMie User Guide (2).	Unit 4
5.14	District heating	Understand the definition of district heating, the methodology, and how to enter district heating in iSBEMie as described in District Heating factors for BER calculations in the SEAI website.	Unit 4
5.15	Cooling	Understand how the space cooling systems are entered into SBEMie software and the impact of cooling on the results.	Unit 4
5.16	Pumps and fans	Understand how the inclusion of pumps and fans affects the calculation of the auxiliary energy demand and how to input the various types of pumps into SBEMie software.	Unit 4
5.17	Hot water energy demand and storage losses	Understand the factors impacting on hot water heating energy, including the zone type, the generating efficiency and the heat losses from hot water storage systems.	Unit 4
5.18	Hot water energy distribution losses	Understand the factors impacting on hot water circulation losses, including, loop length, insulation and pumping power and time control and how to enter them into SBEMie software.	Unit 4

Unit 5 - NEAP Methodology and Software – Renewables			
Topic		**What an assessor needs to know about the topic**	**Learning Outcome**
5.21	Renewable technologies	Understand how energy produced, saved or consumed by renewable technologies is accounted for in SBEMie software and the impact on the BER and Part L assessment.	Unit 4 Unit 6
5.22	Photovoltaics	Understand both methods of entering PV installations, that is the use of Peak Power input or the type and area and the difference in results with each. Understand how to enter the various physical parameters or use of default values where actual values are unavailable. Understand the difference between the various ventilation strategies and when each can be used.	Unit 4
5.23	Solar water heating	Understand how the system is integrated into the water heating system, how to identify dedicated solar storage volume in different types of solar-heated water storage arrangements, identify the angle of tilt of a solar collector, demonstrate the ability to measure the aperture area of solar collectors and enter various efficiency and losses data.	Unit 4

Unit 5 - NEAP Methodology and Software – Lighting			
Topic		**What an assessor needs to know about the topic**	**Learning Outcome**
5.24	Lighting	Understand how lighting is accounted for and entered into SBEMie software and the use of lighting design figures or manufacturers' data versus default figures. How the use of non-default figures versus default figures will impact on BER and Part L assessment.	Unit 4
5.25	Lighting controls	Understand how lighting control is accounted for and entered into SBEMie software. How the use of non-default figures versus default figures will impact on BER and Part L assessment.	Unit 4
5.26	Display Lighting	Understand how display lighting is accounted for and how non-default values are entered into SBEMie software. How the use of non-default figures versus default figures will impact on BER and Part L assessment with reference to relevant zone types listed in Appendix A4.9 in the NEAP Survey Guide.	Unit 4

Unit 5 - NEAP Methodology and Software – Fuel and primary energy factors			
Topic		**What an assessor needs to know about the topic**	**Learning Outcome**
5.27	Fuel Types	Understand how primary energy and CO_2 factors for different fuel types impact on the BER, and Part L Compliance.	Unit 5

Unit 6 - BER Results and Part L compliance			
Topic		**What an assessor needs to know about the topic**	**Learning Outcome**
6.1	BER results	Understand the characteristics that have the greatest effect on ratings. Understand when assessment limitations, caveats or explanations should be included with a BER assessment, how the BER is affected by changes in the zone activity, fabric or dimensions of the building, type and efficiency of space and water heating systems and heating system controls, how the SBEMie software can be used to provide information on improving energy performance. Also understand the above in the context of the Notional Building as described in Appendix B of the NEAP Modelling Guide.	Unit 5 Unit 6
6.2	Part L compliance	Ability to use SBEMie software to check compliance with specific requirements of the TGD L and how this is relayed to the client. Understand the TGD L requirements which the SBEMie software does and does not demonstrate conformance with Part L requirements applicable to new non-domestic buildings depending on planning permission and construction dates, evaluating case studies for non-domestic buildings meeting the Building Regulations Part L requirements. Understand the how the Reference Building effects the above outputs as described in the NEAP Modelling Guide.	Unit 5
6.3	Overheating risk assessment and excessive solar gain assessment.	Understand what measures lower the risk of overheating in Part L Compliance in NEAP. Understand what measures reduce excessive solar gain in Part L Compliance in NEAP.	Unit 5
6.4	iSBEMie and Part L compliance reports	Understand the content and purpose of each of the SBEMie reports and how to generate them as described in Section 4.2 of the iSBEMie User Guide (3).	Unit 5

Unit 7 - Publication of BER Certificates and Advisory Reports			
Topic		**What an assessor needs to know about the topic**	**Learning Outcome**
7.1	Documentary evidence	Understand the documentary & photographic evidence that must be obtained and recorded, the requirements for the retention of supporting documentation/ calculations for the life of the BER certificate as described throughout Section 7 of the NEAP Survey Guide.	Self-Learning
7.2	Non-Domestic National Administration System	Understand the operations of the BER Non-Domestic National Administration System as described in the NDNAS System User Guide available on the SEAI Website.	NDNAS System User Guide
7.3	MPRN verification	Understand the MPRN utility in NDNAS to confirm the MPRN as described in the NDNAS System User Guide available on the SEAI Website.	NDNAS System User Guide
7.4	Errors & notices	Understand the publication errors and notices and purpose of the NDNAS validation rules as described in the NDNAS System User Guide available on the SEAI Website.	NDNAS System User Guide
7.5	Publication of documentation	Ability to upload and publish BER Certificates and Advisory Reports as described in the NDNAS System User Guide available on the SEAI Website.	NDNAS System User Guide
7.6	Advisory report overview	Understand the purpose and content of the BER advisory report, the upgrade measures and how the recommendations are generated and can be edited as described in Sections 4.1 and 4.2 of the iSBEMie User Guide (3).	Unit 6
7.7	Improving a BER	Understand the effects and potential risks which should be considered before including any recommendation in advisory reports, the relevant sources of information such as Good Practice Guides and Building Regulation Technical Guidance Documents, the measures to improve the energy performance of various building types without compromising the performance of any other aspect of those buildings as described in Section 4.1 of the iSBEMie User Guide (3).	Self-Learning

Unit 8 - Professional Practice			
Topic		**What an assessor needs to know about the topic**	**Learning Outcome**
8.1	Professionalism	Ability to act with integrity and diligence to ensure each BER assessment is executed competently, in an independent manner, and in accordance with the Regulations, the BER Assessor's Code of Practice and all other directions issued by SEAI. Understanding of the requirements of the BER Assessor Code of Practice, including the responsibilities of the BER assessor, the requirement for BER assessors to act in an independent manner, advertising and sales promotion requirements for BER assessors, record-keeping requirements for publishing BER assessments.	BER assessors' Induction module BER Assessor's Code of Practice
8.2	Quality Assurance	The BER QA processes and best practice for publishing assessments. Understanding of the requirements of the BER Assessor Quality Assurance Documents as described in the BER Assessors' Quality Assurance and Disciplinary Procedure.	BER assessors' Induction module BER Assessor's Code of Practice
8.3	Engagement and communications with the client	Ability to clearly communicate with clients regarding the BER service and regulations, the terms of engagement, timelines for delivery of their BER certificate and advisory report, documentation required to support the BER and ability to explain the results of a BER and the recommended upgrade measures in the advisory report.	BER assessors' Induction module BER Assessor's Code of Practice
8.4	Organisational skills	Ability to ensure that the retention and maintenance of records, data and documentation are done so in a safe and secure way as outlined in the BER Assessor's Code of Practice.	BER assessors' Induction module Self-Learning
8.4	Confidentiality and data protection	Understand the responsibilities in relation to data protection legislation.	BER assessors' Induction module BER Assessor's Code of Practice

[i] Learning outcome specified in the Non-domestic BER Assessor Training Course (interim) specification for BER Assessment (Non-domestic buildings)