


QCTO CURRICULUM DOCUMENT

Curriculum Code	Curriculum Title	
311303-001-00-00	Energy Performance Certificate Practitioner	

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SECTION 1: CURRICULUM SUMMARY

1. Occupational Information

1.1 Associated Occupation

Energy Performance Certificate (EPC) Practitioner

1.2 Occupation/s or Specialisation/s Addressed

Energy Performance Certificate (EPC) Practitioner

1.3 Skills Programme Addressed by this Curriculum

Energy Performance Certificates (EPC)

1.4 Alternative Titles used by Industry

EPC Auditor

EPC Assessor

2. Curriculum Information

2.1 Curriculum Structure

This qualification is made up of the following compulsory Knowledge and Practical Skill Modules:

Knowledge Modules:

- 311303-001-00-KM-03, Fundamental principles of energy, NQF Level 5, Credits 3
- 311303-001-00-KM-04, Energy conversion and efficiency, NQF Level 6, Credits 2
- 311303-001-00-KM-05, Fundamentals of electrical energy, NQF Level 5, Credits 6
- 311303-001-00-KM-11, Theory of energy auditing, NQF Level 5, Credits 1
- 311303-001-00-KM-01, Policies, regulations and standards relating to energy performance of buildings, NQF Level 5, Credits 1

Total number of credits for Knowledge Modules: 13

Practical Skills Modules:

- 311303-001-00-PM-01, Determine energy audit data requirements for energy performance of a building, NQF Level 5, Credits 1
- 311303-001-00-PM-02, Measure energy performance of the building, NQF Level 5, Credits 1
- 311303-001-00-PM-03, Analyse energy data collected for the energy performance of a building, NQF Level 6, Credits 2
- 311303-001-00-PM-04, Prepare and present energy audit findings of the energy performance of a building, NQF Level 5, Credits 1

Total number of credits for Work Practical Skill Modules: 5

This qualification also requires the following Work Experience Modules:

- 311303-001-00-WM-01, Energy audit planning processes for a building system, NQF Level 5, Credits 2
- 311303-001-00-WM-02, Data collection and measurement processes, NQF Level 5, Credits 2
- 311303-001-00-WM-03, Data analysis of the energy performance of a building, NQF Level 6, Credits 2
- 311303-001-00-WM-04, Energy audit reporting processes for building energy performance, NQF Level 5, Credits 1

Total number of credits for Work Experience Modules: 7

2.2 Entry Requirements

- N4 electrical Engineering or
- NQF Level 4 with Mathematics and Science, or Technical Mathematics and Science, or a Technical Subject,
or
- 6 months full time work experience as a qualified artisan

3. Assessment Quality Partner Information

Name of body: EWSETA

Address of body: 22 Wellington Road, Parktown, Johannesburg

Contact person name: Thandiwe Shashu

Contact person work telephone number: 011 274 4700

SECTION 2: OCCUPATIONAL PROFILE

1. Occupational Purpose

An Energy Performance Certificate (EPC) Practitioner assess/audits, analyses and reports on the energy performance of a building, processes and verifies the data and information to be ready for the National Building Energy Performance Register of South African hosted by the South African National Energy Development Institute (SANEDI), and provides a mock Energy Performance Certificate with all relevant supporting information, ready for verification and officiating by a SANAS accredited Inspection Body.

2. Occupational Tasks

- Determine and collate the building data required for energy audits (NQF Level 5)
- Analyse audit data and present credible and verified findings for the National Building Energy Performance Register (NQF Level 5)

3. Occupational Task Details

3.1 Determine and collate the building data required for energy audits (NQF Level 5)

Unique Product or Service:

- Performance data of the energy performance of a building

Occupational Responsibilities:

- Determine energy audit data requirements
- Determine the energy performance of the building through appropriate measurements

Occupational Contexts:

- Energy audit planning processes
- Data collection and measurement processes
- Defining credibility of data and measurements

3.2. Analyse energy audit data and present findings for the National Building Energy Performance Register (NQF Level 5)

Unique Product or Service:

- Summary energy audit report and mock Energy Performance Certificate

Occupational Responsibilities:

- Analyse energy efficiency data and identify improvement opportunities
- Prepare and present energy audit findings in a report and mock Energy Performance Certificate

Occupational Contexts:

- Data analysis processes
- Energy audit reporting processes

SECTION 3: CURRICULUM COMPONENT SPECIFICATIONS

SECTION 3A: KNOWLEDGE MODULE SPECIFICATIONS

List of Knowledge Modules for which Specifications are included

- 311303-001-00-KM-03, Fundamental principles of energy, NQF Level 5, Credits 3
- 311303-001-00-KM-04, Energy conversion and efficiency, NQF Level 6, Credits 2
- 311303-001-00-KM-05, Fundamentals of electrical energy, NQF Level 5, Credits 6
- 311303-001-00-KM-11, Theory of energy auditing, NQF Level 5, Credits 1
- 311303-001-00-KM-01, Policies, regulations and standards relating to Energy Performance Certificates, NQF Level 5, Credits 1

1. KNOWLEDGE MODULE TITLE: 311303-001-00-KM-03 Fundamental principles of energy, NQF Level 5, Credits 3

Purpose of the Knowledge Modules

The main focus of the learning in this knowledge module is to build an understanding of the various forms of energy. The learning contract time, which is the time that reflects the required duration of enrolment for this module is at least 3.75 days.

The learning will enable learners to demonstrate an understanding of:

- KM-03-KT01: Forms of energy (50%)

- KM-03-KT02: Units of energy (50%)

Guidelines for Topics

1.1 KM-03-KT01 Forms of energy (50%)

Topic elements to be covered include:

- KT0101 - Definition of energy
- KT0102 - Different forms of energy important to energy audits
- KT0103 - Definition of energy efficiency
- KT0104 - Definition of energy density calorific values

Associated Assessment Criteria and Weight

- AAC0101 - Define and discuss the difference between kinetic (potential), chemical, thermal (radiant), mechanical and electrical energy
- AAC0102 - Define and discuss the terms energy efficiency and energy density

(Weight 50%)

1.2 KM-03-KT02 Units of energy (50%)

Topic elements to be covered include:

- KT0201 - Calorie (C)
- KT0202 - Joule (J)
- KT0203 - Pascal (Pa)
- KT0204 - Ampere (A)
- KT0205 - Amp-hours (Ah)
- KT0206 - Volt-Ampere (VA)
- KT0207 - kilovolt-Ampere (kVA)
- KT0208 - Watt (W)
- KT0209 - Watt-hour (Wh)
- KT0210 - kilowatt (kW)
- KT0211 - kilowatt-hour (kWh)

Associated Assessment Criteria and Weight:

- AAC0201 - Explain the 11 different metric units that are used in energy calculations, their applications and how they are measured

(Weight 50%)

1.3 Provider Programme Accreditation Criteria

Physical Requirements:

- Hand-outs, learning materials and resources
- Computer, software, and internet for online remote learning

Human Resource Requirements:

- Facilitator should have a qualification at the equivalent level qualification of the qualification outcomes, or higher, or proven experience that includes competencies related to energy, and energy performance of buildings
- Facilitator/learner ratio 1 to 25

Legal Requirements:

- None

1.4 Exemptions

- SAQA US 263906: Demonstrate and understanding of the basic principles of energy

2. KNOWLEDGE MODULE TITLE: 311303-001-00-KM-04 Energy conversion and efficiency, NQF Level 6, Credits 2

Purpose of the Knowledge Modules

The main focus of the learning in this knowledge module is to build an understanding of energy efficiency. The learning contract time, which is the time that reflects the required duration of enrolment for this module is at least 2.75 days.

The learning will enable learners to demonstrate an understanding of:

- KM-04-KT01: Electricity, energy conversion and energy efficiency (100%)

Guidelines for Topics

2.1 KM-04-KT01: Electricity, energy conversion and energy efficiency (100%)

Topic elements to be covered include:

- KT0101 - Useful versus total energy
- KT0102 - Available energy versus non-available energy (entropy)
- KT0103 - Definition of energy demand
- KT0104 - Types (carriers) of energy and energy conversion (energy flow)
- KT0105 - Heat flow and heat loss
- KT0106 - Mass- and energy-balance
- KT0107 - The four thermodynamic laws
- KT0108 - Energy performance criteria
- KT0109 - Calculation of energy efficiency performance
- KT0110 - Calculation of Point of Use (PoU) costs

Associated Assessment Criteria and Weight:

- AAC0101 - Compare kinetic (potential), chemical, thermal (radiant), mechanical and electrical energy
- AAC0102 - Differentiate between energy efficiency and energy density
- AAC0103 - Distinguish between energy and power
- AAC0104 - Differentiate between the following electricity principles: voltage, current, power triangle, AC/DC, power factor correction, harmonics, and electrical circuitry

- AAC0105 - Compare the following concepts: temperature, psychrometry, heat flow, and heat loss in relation to energy efficiency
- AAC0106 - Compare the calculation of power, energy, energy balance and point of use cost

(Weight 100%)

2.2 Provider Programme Accreditation Criteria

Physical Requirements:

- Hand-outs, learning materials and resources
- Computer, software, and internet connection for online remote learning

Human Resource Requirements:

- Facilitator should have a qualification at the equivalent level, or higher, or proven experience that includes competencies related to energy, and energy performance of buildings
- Facilitator/learner ratio 1 to 25

Legal Requirements:

- None

2.3 Exemptions

- None

3. KNOWLEDGE MODULE TITLE: 311303-001-00-KM-05 Fundamentals of electrical energy, NQF Level 5, Credits 6

Purpose of the Knowledge Modules

The main focus of the learning in this knowledge module is to build an understanding of the key aspects of electrical energy and the measurement of usage thereof. The learning contract time, which is the time that reflects the required duration of enrolment for this module is at least 7.5 days.

The learning will enable learners to demonstrate an understanding of:

- KM-05-KT01: Electrical power and electrical power quality (50%)
- KM-05-KT02: Principles of measuring electrical energy consumption (50%)

Guidelines for Topics

3.1 KM-05-KT01: Electrical power and electrical power quality (50%)

Topic elements to be covered include:

- KT0101 - Voltage, current, power and demand
- KT0102 - Direct current (DC) and alternating current (AC)
- KT0103 - Resistive (R), inductive (I), and capacitive loads (C)
- KT0104 - Electrical power factor
- KT0105 - Demand management
- KT0106 - Total harmonic distortion (THD)

Associated Assessment Criteria and Weight:

- AAC0101 - Explain and discuss voltage, current, power and demand and demand management
- AAC0102 - Explain and discuss the effect that different loads have on currents, and power factor
- AAC0103 - Explain and discuss the concepts power factor (including the power triangle) and the importance thereof
- AAC0104 - Explain and discuss the concept total harmonic distortion (THD) (incl. voltage and current) and the importance thereof

(Weight 50%)

3.2 KM-05-KT02 Principles of measuring electrical energy consumption (50%)

Topic elements to be covered include:

- KT0201 - Methods of calculating power, voltage, current and power factor in alternating current circuits
- KT0202 - Methods of correcting the power factor
- KT0203 - Methods and tools used for calculating energy efficiency
- KT0204 - Methods to determine electrical equipment efficiency
- KT0205 - Electrical energy consumption at uninterruptible power supply sites (e.g. data centres)

Associated Assessment Criteria and Weight:

- AAC0201 - Discuss methods to calculate power, voltage, current and power factor in alternating current circuits
- AAC0202 - Discuss the importance of, and methods to correct the power factor
- AAC0203 - Explain and discuss methods and tools that can be used to calculate energy efficiency and electrical equipment efficiency

(Weight 50%)

3.3 Provider Programme Accreditation Criteria

Physical Requirements:

- Hand-outs, learning materials and resources
- Computer, software, and internet connection for online remote learning

Human Resource Requirements:

- Facilitator should have a qualification at the equivalent level, or higher, or proven experience that includes competencies related to energy, and energy performance of buildings
- Facilitator/learner ratio 1 to 25

Legal Requirements:

- None

3.4 Exemptions

- SAQA UN 263906: Demonstrate and understand of the basic principles of energy

4. KNOWLEDGE MODULE TITLE: 311303-001-00-KM-11 Theory of energy auditing, NQF Level 5, Credits 1

Purpose of the Knowledge Module

The main focus of the learning in this knowledge module is to build an understanding of the purpose and steps in the auditing process and categories of data to be collected. The training contract time, which is the time that reflects the required duration of enrolment for this module, is at least 1.5 days.

The learning will enable learners to demonstrate an understanding of:

- KM-11-KT01: Concepts and principles of energy audits (30%)
- KM-11-KT02: The energy audit process (20%)
- KM-11-KT03: Energy audit data sources (50%)

Guidelines for Topics

4.1 KM-11-KT01: Concepts and principles of energy audits (30%)

Topic elements to be covered include:

- KT0101 - Definition of an energy audit
- KT0102 - Use of energy audits
- KT0103 - Types of energy audits

Associated Assessment Criteria and Weight:

- AAC0101 - Illustrate the function and purpose of an energy audit and the benefits thereof
- AAC0102 - Compare and explain the types of energy audits (including: BEA, PQA, PPEA, PEA, TPA, CPA and EDA, and Level 1, 2, and 3)

(Weight 30%)

4.2 KM-11-KT02: The energy audit process (20%)

Topic elements to be covered include:

- KT0201 - Purpose and elements of energy audit planning
- KT0202 - Purpose and elements of the opening meeting
- KT0203 - Purpose, elements of and types of data collection
- KT0204 - Purpose and elements of the measurement plan
- KT0205 - Purpose and elements of conducting a site visit
- KT0206 - Purpose and elements of analysis
- KT0207 - Purpose and elements of energy audit reporting
- KT0208 - Purpose and elements of the closing meeting

Associated Assessment Criteria and Weight:

- AAC0201 - Discuss the purpose and elements of the energy audit planning and the opening meeting
- AAC0202 - Discuss the purpose, elements of and list the types of data to be collected
- AAC0203 - Discuss the purpose and elements of the measurement plan

- AAC0204 - Discuss the purpose of conducting a site visit and the elements to be considered
- AAC0205 - Discuss the purpose and elements of analysis
- AAC0206 - Discuss the purpose and elements of energy audit reporting
- AAC0207 - Discuss the purpose and elements of the closing meeting

(Weight 20%)

4.3 KM-11-KT03: Energy audit data sources (50%)

Topic elements to be covered include:

- KT0201 - Historical energy consumption data
- KT0202 - Metered consumption data (including utility bills)
- KT0203 - Weather data (including websites, local data, install a weather station)
- KT0204 - Equipment data (including nameplate data)
- KT0205 - On-going demand and consumption (including sub-metering)
- KT0206 - Detailed building and equipment information (including engineering and architectural specifications and drawings)
- KT0207 - Building configuration (including architectural drawings)
- KT0208 - Current data and building system integration (including BMS)
- KT0209 - Operation schedules, maintenance records (including interviews with key operator / facilities management personnel)

Associated Assessment Criteria and Weight:

- AAC0201 - Differentiate between the sources of historical energy consumption data and explain the significance thereof
- AAC0202 - Differentiate between the sources of weather data and explain the significance thereof
- AAC0203 - Differentiate between the sources of equipment data and explain the significance thereof
- AAC0204 - Differentiate between the sources of on-going demand and consumption data and explain the significance thereof
- AAC0205 - Differentiate between the sources of building (including configuration and integration) and equipment information and explain the significance thereof
- AAC0206 - Differentiate between the sources of building and equipment information and explain the significance thereof
- AAC0207 - Differentiate between the significance of operation schedules and maintenance records

(Weight 50%)

4.4 Provider Programme Accreditation Criteria

Physical Requirements:

- Hand-outs, learning materials and resources
- Computer, software, and internet connection for online remote learning

Human Resource Requirements:

- Facilitator should have a qualification at the equivalent level, or higher, or proven experience that includes competencies related to energy, and energy performance of buildings

- Facilitator/learner ratio 1 to 25

Legal Requirements:

- None

4.5 Exemptions

- None

5. KNOWLEDGE MODULE TITLE: 311303-001-00-KM-01 Policies, regulations and standards relating to the energy performance of buildings, NQF Level 5, Credits 1

Purpose of the Knowledge Module

The main focus of the learning in this knowledge module is to build an understanding of the legislative framework within which Energy Performance Certificates have to be displayed on buildings and the data that needs to be reported to the building Energy Performance Register of the government. This includes the regulation, the standards, process of reporting, how buildings can comply, what is measured and reported and how. The learning contact time, which is the time that reflects the required duration of enrolment for this module, is at least 2 days.

The learning will enable learners to demonstrate an understanding of:

- KM-01-KT01: Energy Performance Certificates standards and regulations (50%)
- KM-02-KT02: Definitions of Energy Performance Certificate terms (50%)

Guidelines for Topics

5.1 KM-01-KT01: Policies and standards addressing energy performance in buildings (50%)

Topic elements to be covered include:

- KT0101 – SANS10400XA Energy Efficiency in Buildings
- KT0102 – SANS1544 Energy Performance Certificates for Buildings
- KT0103 - Regulation for the Mandatory Display of Energy Performance Certificates on Buildings and the submission of data to the National Building Energy Performance Register
- KT0104 – Framework for the Energy Performance Certificate Regulation for buildings

Associated Assessment Criteria and Weight

- AAC0101 – Explain the integration of the standards and the regulation
- AAC0102 – Discuss the role players within the Energy Performance Certificates for Buildings and how a Certificate is issued, and data submitted to the National Building Energy Performance Register
- AAC0103 – Illustrate the application process of an Energy Performance Certificate

(Weight 50%)

5.2 KM-01-KT02: Definitions of Energy Performance Certificate terms (50%)

Topic elements to be covered include:

- KT0201 - Definition of an Energy Performance Certificate
- KT0202 - Definition of energy carrier
- KT0203 - Definition of energy performance
- KT0204 - Definition of energy exclusions
- KT0205 - Definition of exported energy
- KT0206 - Definition of measured energy performance
- KT0207 - Definition of net energy
- KT0208 - Definition of net floor area
- KT0209 - Definition of occupancy
- KT0210 - Definition of single occupancy
- KT0211 - Definition of multiple occupancy
- KT0212 - Definition of reference value
- KT0213 - Definition of unoccupied floor area
- KT0214 - Definition of occupancy rate
- KT0215 - Definition of net occupied area
- KT0216 - Definition of assessment period
- KT0217 - Definition of an accounting officer
- KT0218 - Definition of a building owner
- KT0219 - Definition of a major renovation
- KT0220 - Definition of an organ of state
- KT0222 - Definition of a privately-owned building

Associated Assessment Criteria and Weight:

- AAC0201 - Define the Energy Performance Certificate Regulation and SANS1544 terms

(Weight 50%)

5.2 Provider Programme Accreditation Criteria

Physical Requirements:

- Hand-outs, learning materials and resources
- The latest Regulation and the standards of Energy Performance Certificates
- Learning material must have the version of the Regulation and standard indicated on the learning materials
- Computer, software, and internet connection for online remote learning

Human Resource Requirements:

- Facilitator should have a qualification at the equivalent level, or higher, or proven experience that includes competencies related to energy, and energy performance of buildings with knowledge of applying the standards and regulation in relation
- Facilitator/learner ratio 1 to 25

Legal Requirements:

- None

5.3 Exemptions

- None

SECTION 3B: PRACTICAL SKILL MODULE SPECIFICATIONS

List of Practical Skill Module Specifications

- 311303-001-00-PM-01, Determine energy audit data requirements for energy performance of a building, NQF Level 5, Credits 1
- 311303-001-00-PM-02, Measure energy performance of the building, NQF Level 5, Credits 1
- 311303-001-00-PM-03, Analyse energy data collected for the energy performance of a building, NQF Level 6, Credits 2
- 311303-001-00-PM-04, Prepare and present energy audit findings of the energy performance of a building, NQF Level 5, Credits 1

1. PRACTICAL SKILL MODULE TITLE: 311303-001-00-PM-01, Determine energy audit data requirements for energy performance of a building, NQF Level 5, Credits 1

Purpose of the Practical Skill Modules

The focus of the learning in this module is on providing the learner an opportunity to record data available on energy use (manner or kind of application of energy) and consumption (quantity of energy applied), net energy, and building occupancy.

The learner will be required to

- PM-01-PS01: Collate and record available data that supports the audit objectives
- PM-01-PS02: Develop measurement plans

Guidelines for Practical Skills

1.1 PM-01-PS01: Collate and record available energy data that supports the audit objectives

Scope of Practical Skill

A physical building infrastructure as defined by the regulation and standard, or given case studies, or a simulation of a building, or typical data sets containing the operational history, data sheets containing measured data on energy consumption of the building system and its energy users and equipment (including energy, fuels, and metered energy consumption), net energy and building occupancy, excluded area measurements, occupancy, net floor area, the learner must be able to:

- PA0101 – Capture (documented) historical data on energy carriers such as fuels and metered energy consumption, including electrical and thermal energy datasheets, exported energy
- PA0102 – Capture building area information, net floor area, occupancy classification, energy zone, occupied and unoccupied areas
- PA0103 – Capture exclusion areas which do not form part of the building envelope
- PA0104 – Identify operational history and past events that could have affected energy consumption in the period covered by the data
- PA0105 – Evaluate available data and identify requirements for additional measurements

Applied Knowledge

- AK0101 – Sources and uses of energy data
- AK0102 – Data collection and recording procedures
- AK0103 – Theory of energy distribution
- AK0104 – Theory of building envelope and measurement requirements

Associated Assessment Criteria

- AAC0101 – The fields of data captured is appropriate for energy performance analysis
- AAC0102 – Building area requirements is in line with the regulatory requirements
- AAC0103 – Aspects that could have influenced energy consumption are identified and additional measuring requirements specified to better explain the energy performance of the building

1.2 PM-01-PS02: Develop measurement plans

Scope of Practical Skill

A physical building infrastructure as defined by the regulation and standard, or given case studies, or a simulation of a building, with the availability of information on data sources, energy consuming systems, processes and equipment, the energy distribution system and management, building plans and layouts, process flow diagrams, copies of the regulations and standards, the learner must be able to:

- PA0201 - Develop a list of relevant measurement points
- PA0202 - Identify methods (e.g., individual data points or continuous monitoring, read from a meter, or otherwise calculated)
- PA0203 - Identify equipment for obtaining measurements
- PA0204 - Determine measurement duration and frequency for each measurement
- PA0205 - Determine a suitable time for the installation of measuring equipment
- PA0206 - Identify forms and data sheets to capture data

Applied Knowledge

- AK0201 - Measurement plan format and requirements
- AK0202 - Procedures to produce comparable sets of data
- AK0203 - Techniques to determine measurement duration and frequency
- AK0204 - Factors which may affect measurement accuracy

Associated Assessment Criteria

- AAC0201 - Measurement plans reflect methods, equipment for obtaining measurements and installation points that are relevant and accessible, feasible and cost effective
AIAC0202 - Determined measurement duration and frequency of each measurement will produce standardised required data
- AAC0203 - Activity schedule is considerate of variables provided by the organization, e.g. operational parameters
- AAC0204 - Forms and data sheets identified for data capturing purposes facilitates the production of comparable sets of information

1.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have either a simulation tool, or a physical building of 1,000m² or larger, or case studies or data sets containing operational history, data sources, energy consuming systems, operational data, and equipment, the energy distribution system and its management, building plans and layouts, process flow diagrams, the regulations and standards, data sheets containing current available measured data on energy consuming systems, processes and equipment (including energy and fuel consumption data, metered energy consumption specified in the scope statements).
- Computer, software, internet connection, multi-meter and measuring tape

Human Resource Requirements:

- Facilitator should have a qualification at the equivalent level, or higher, or proven experience that includes competencies related to energy, and energy performance of buildings
- Facilitator/learner ratio 1 to 10

Legal Requirements:

- None

1.3 Exemptions

- None

2. PRACTICAL SKILL MODULE TITLE: 311303-001-00-PM-02, Measure energy performance of the building, NQF Level 5, Credits 1

Purpose of the Practical Skill Modules

The focus of the learning in this module is on providing the learner with the opportunity to practically perform the activities to measure the data, collect the information, verify collected and measured information, using the standards and regulation of the measurement planning for data sources, energy consuming systems, processes and equipment, the energy distribution system and management, building plans and layouts, process flow diagrams.

The learner will be required to:

- PM-02-PS01: Collect the data and information through applying measurement principles

Guidelines for Practical Skills

2.1 PM-02-PS01: Collect data and information through applying measurement principles

Scope of Practical Skill

A physical building infrastructure as defined by the regulation and standard, or given case studies, or a simulation of a building, with the availability of information on data sources, energy consuming systems, processes and equipment, the energy distribution system and management, building plans and layouts, process flow diagrams, to perform the measurement requirements aligned to the measurement plan to collate and document the copies of the regulations and standards, the learner must be able to:

- PA0101 – Measure and use resource tables for the energy performance of the building
- PA0102 – Measure and determine excluded areas
- PA0103 – Identify the energy carriers and net energy measurements
- PA0104 – Determine occupancy

Applied Knowledge

- AK0101 – Methods for measuring and determining occupancy
- AK0102 – Methods for measuring and determining floor area and unoccupied floor area
- AK0103 – Methods for measuring energy carriers
- AK0104 – Methods for measuring significant energy sources
- AK0105 - Determining exclusion areas and sub-measurement
- AK0106 – Determine factors which may affect measurement accuracy

Associated Assessment Criteria

- AAC0101 – Determining the energy use of a building in relation to the occupancy and building classification
- AAC0102 – Justifying exclusion areas not part of the building envelope and the measurement of the exclusion area data

2.2 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have either a simulation tool, or a physical building of 1,000m² or larger, or case studies or data sets containing operational history, data sources, energy consuming systems, operational data, and equipment, the energy distribution system and its management, building plans and layouts, process flow diagrams, the regulations and standards, data sheets containing current available measured data on energy consuming systems, processes and equipment (including energy and fuel consumption data, metered energy consumption specified in the scope statements.
- Computer, software, internet connection, multi-meter and measuring tape

Human Resource Requirements:

- Facilitator should have a qualification at the equivalent level, or higher, or proven experience that includes competencies related to energy, and energy performance of buildings
- Facilitator/learner ratio 1 to 10

Legal Requirements:

- The hand-out resources include the latest Regulation and the standards of Energy Performance Certificates

2.3 Exemptions

- None

3. PRACTICAL SKILL MODULE TITLE: 311303-001-00-PM-03, Analyse energy data collected for the energy performance of a building, NQF Level 6, Credits 2

Purpose of the Practical Skill Modules

The focus of the learning in this module is on providing the learner with the opportunity to practically apply the analysis of the measured data and collected information, using the standards and regulation to determine the occupancy data, net floor data, determine the net energy, net floor area, occupancy rate, and excluded areas.

The learner will be required to:

- PM-03-PS01: Analyse the buildings energy performance

Guidelines for Practical Skills

3.1 PM-03-PS01: Analyse the buildings energy performance

Scope of Practical Skill

A buildings energy performance in relation to the occupancy and size of the building will be evaluated using the data and information measured and collected is used to calculate the information and collate the data collected where the learner must be able to:

- PA0101 - Calculate fuel consumption and conversion
- PA0102 - Calculate prorated requirements for occupancy and energy use
- PA0103 - Calculate normalisation of energy use in relation to occupancy
- PA0104 - Calculate the energy performance of the building
- PA0105 - Calculate the excluded areas and allocate as percentage of building use
- PA0106 - Calculate occupancy percentages of multiple tenancy of the building
- PA0107 - Calculate the net energy use
- PA0108 - Calculate the floor area in terms of net floor area, unoccupied floor area
- PA0109 - Determine the energy consumption of the used net floor area in kWh
- PA0110 - Determine the effective energy consumption per used net floor area in kWh/(m²*a)
- PA0111 - Determine the variance relative to the referenced energy consumption index of the applicable standard
- PA0112 - Determine the multiple reference value
- PA0113 - Determine the performance scale of the building by referring to the performance scale grades which aligns the multiple reference value

Applied Knowledge

- AK0101 - Methods for calculating occupancy
- AK0102 - Methods for calculating floor area and unoccupied floor area and occupancy
- AK0103 - Methods to determining energy carriers and calculating net energy consumption
- AK0104 - Methods for determining significant energy sources and calculating the total energy use
- AK0105 - Methods for calculating exclusion areas
- AK0106 - Methods for calculating occupancy and determining occupancy class
- AK0107 - Determine the relevant resources from the standards that impact the calculations for energy use, exclusions, occupancy, and floor area requirement

Associated Assessment Criteria

- AAC0101 – Determining the multiple reference value and the performance scale of the building
- AAC0102 – Aspects that significantly impact on the performance scale are identified and verified for accuracy

3.2 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have either a simulation tool, or a physical building of 1,000m² or larger, or case studies or data sets containing operational history, data sources, energy consuming systems, operational data, and equipment, the energy distribution system and its management, building plans and layouts, process flow diagrams, the regulations and standards, data sheets containing current available measured data on energy consuming systems, processes and equipment (including energy and fuel consumption data, metered energy consumption specified in the scope statements).
- Computer, software, internet connection, multi-meter and measuring tape

Human Resource Requirements:

- Facilitator should have a qualification at the equivalent level, or higher, or proven experience that includes competencies related to energy, and energy performance of buildings
- Facilitator/learner ratio 1 to 10

Legal Requirements:

- None

3.3 Exemptions

- None

4. PRACTICAL SKILL MODULE TITLE: 311303-001-00-PM-04, Prepare and present energy audit findings of the energy performance of a building, NQF Level 5, Credits 1

Purpose of the Practical Skill Modules

The focus of the learning in this module is on providing the learner an opportunity to translate the audit findings into an audit report and present the findings as a mock Energy Performance Certificate.

The learner will be required to:

- PM-04-PS01: Summarise the energy audit information
- PM-04-PS02: Prepare and present a mock Energy Performance Certificate

Guidelines for Practical Skills

4.1 PM-04-PSO1: Summarise the energy audit information

Scope of Practical Skill

Given case studies or data sets containing the data and information from the building energy audit, the energy audit details, and the energy performance results, the learner must be able to:

- PA0401 - Prepare an executive summary
- PA0402 - Present the findings in a one-page Energy Performance Certificate audit report

Applied Knowledge

- AK0401 - Methods of summarising information

Associated Assessment Criteria

- AAC0101 - Executive summary is an accurate and concise compilation of the calculations, data and findings
- AAC0102 - Findings are unbiased and honest

4.2 PM-04-PSO2: Prepare a mock Energy Performance Certificate

Scope of Practical Skill

Given case studies or data sets containing the data and information from the building energy audit, the energy audit details, the learner must be able to:

- PA0201 – Prepare an Energy Performance Certificate

Applied Knowledge

- AK0201 – Method of producing an Energy Performance Certificate
- AK0202 – Integrating the calculated data and building information into a demonstrative summary report

Associated Assessment Criteria

- AAC0201 – The Energy Performance Certificate reflects the relevant energy performance of the building correctly, the occupancy information, building information, building rating
- AAC0202 – The Certificate is clear and provides the cadastral information of the building, the energy performance rating, with the correct pictographic requirements and visualisation to comply with the Regulatory requirements

4.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have either a simulation tool, or a physical building of 1,000m² or larger, or case studies or data sets containing operational history, data sources, energy consuming systems, operational data, and equipment, the energy distribution system and its management, building plans and layouts, process flow diagrams, the regulations and standards, data sheets containing current available measured data on energy consuming systems, processes and equipment (including energy and fuel consumption data, metered energy consumption specified in the scope statements).
- Computer, software, and internet connection
- The latest Regulation and the standards of Energy Performance Certificates

Human Resource Requirements:

- Facilitator should have a qualification at the equivalent level, or higher, or proven experience that includes competencies related to energy, and energy performance of buildings
- Facilitator/learner ratio 1 to 10

Legal Requirements:

- None

4.4 Exemptions

- None

SECTION 3C: WORK EXPERIENCE MODULE SPECIFICATIONS

List of Work Experience Module Specifications

- 311303001-00-WM-01, Energy audit planning processes for a building system, NQF Level 5, Credits 2
- 311303001-00-WM-02, Data collection and measurement processes, NQF Level 5, Credits 2
- 311303001-00-WM-03, Data analysis of the energy performance of a building, NQF Level 6, Credits 2
- 311303001-00-WM-04, Energy audit reporting processes for building energy performance, NQF Level 5, Credits 1

1. WORK EXPERIENCE MODULE TITLE: 311303-001-00-WM-01, Energy audit planning processes for a building system, NQF Level 5, Credits 2

Purpose of the Work Experience Modules

The focus of the work experience is on providing the learner an opportunity to:

Define the energy audit scope and objective(s) and gather preliminary information from the client and to brief interested and affected parties regarding the methods and procedures to be followed.

The learner will be required to:

- WM-01-WE01: Determine the energy audit scope over a period of 0.5 days
- WM-01-WE02: Determine the energy audit context over a period of 1.5 days
- WM-01-WE03: Conduct opening coordination meeting over a period of 0.5 days

Guidelines for Work Experiences

1.1 WM-01-WE01: Determine the energy audit scope over a period of 1 days

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0101 - Receive and evaluate the client energy audit application
- WA0102 - Clarify the energy audit boundaries and objectives
- WA0103 – Clarify the availability of data and information
- WA0104 - Determine the time period to complete the energy audit
- WA0105 - Determine the required excluded areas, occupancy and floor area aspects
- WA0106 - Determine time commitments and other resources from client

Supporting Evidence

- SE0101 - Working documents, outlining the scope(s) of the energy audit(s) signed off by the client of one building system

1.2 WM-01-WE02: Determine the energy audit context over a period of 1.5 days

Scope of Work Experience

The learner will be expected to engage in the following work activities:

- WA0201 – Determine whether the building requires an Energy Performance Certificate or not by evaluating the building criteria available at the time, request relevant data to confirm (e.g. occupancy certificate, date of last renovation, plans to determine building size, relevant occupational category)
- WA0202 - Determine relevant historical consumption data to be made available prior to the start of the auditing process (e.g. utility bills over the preceding 12 months)
- WA0203 – Determine relevant historical occupancy data to be made available prior to the start of the auditing process (e.g., clock in data over the preceding 12 months)
- WA0204 - Establish availability of other sources of relevant data and sub-metering zones
- WA0205 - Determine whether there are regulatory requirements or other variables affecting the energy audit boundaries
- WA0206 - Establish the relevant data related to the context (building plans, electrical layout) to be made available prior to the start of the auditing process
- WA0207 - Develop checklists in preparation for and arrange a meeting with the client

Supporting Evidence

- SE0201 - A list of available data sources
- SE0202 - A list of energy consuming systems, processes, and equipment
- SE0203 - Working documents, outlining the context

1.3 WM-01-WE03: Conduct opening coordination meeting over a period of 0.5 days

Scope of Work Experience

The learner will be expected to engage in the following work activities:

- WA0301 - Establish the representative of the client who is responsible for the energy auditing process
- WA0302 - Clarify availability of documented energy, occupancy and building data and identify additional existing documented energy data that is sub-metered for exclusion areas
- WA0303 - Verify availability of personnel to assist in collection of available data (with the necessary authority to obtain and provide data)
- WA0304 - Determine any unusual operational and occupancy conditions that may affect the energy auditing process
- WA0305 - Determine client specific procedural requirements for installation of special measuring equipment if needed
- WA0306 - Determine client specific access, health, safety, security and emergency requirements and procedures
- WA0307 - Verify availability of personnel to assist in the measuring process (with the necessary competence to request or carry out direct operations on processes and equipment)
- WA0308 Arrange for a site visit

Supporting Evidence

- SE0301 Minutes of a meeting, outlining the scope, context, and responsibilities, signed by the client
- SE0302 List of personnel responsible for assisting in the audit process reflecting their roles and responsibilities
- SE0303 Documented schedules that may affect the energy audit process or energy performance, including maintenance work, special visits (customer, regulatory, etc.) and changes in production cycles
- SE0304 List of historical and current available energy performance and occupancy data

1.4 Contextualised Workplace Knowledge

- i. Client specific audit requirements
- ii. Client specific regulatory requirements and information that can impact on energy audit process and occupancy
- iii. Client specific types of energy uses, systems, processes, and equipment, e.g., ventilation, lighting, heating, cooling, excluded areas, and occupancy
- iv. Client specific types of alternative and renewable energy sources (irradiation, wind, bio-gas, fossil fuels)
- v. Client-specific strategic plans that can impact on energy audit process and efficiency
- vi. Client specific-data systems and energy-related records
- vii. Client-specific organizational structure
- viii. Client-specific meeting and reporting requirements

1.5 Criteria for Workplace Approval

Physical Requirements:

- Measurement tools and meters
- Computer, software and internet connection
- Access to clients with suitable buildings that are suitable for Energy Performance Certificate audits
- Client interaction protocols

Human Resource Requirements:

- Supervisor to worker ratio of 1:5
- Supervisor must be qualified and experienced in the field of energy auditing or have a suitable support mentor

Legal Requirements:

None

1.5 Additional Assignments to be Assessed Externally

None

2. WORK EXPERIENCE MODULE TITLE: 311303-001-00-WM-02, Data collection and measurement processes, NQF Level 5, Credits 2

Purpose of the Work Experience Modules

The focus of the work experience is on providing the learner an opportunity to:

consider all existing documented data, identify gaps, develop a measurement roll out plan and to conduct additional measurements in accordance with the energy audit scope.

The learner will be required to:

- WM-02-WE01: Conduct a site visit and collect and analyse existing available data over a period of 2.5 days
- WM-02-WE02: Develop a measurement plan over a period of 0.5 days
- WM-02-WE03: Measure energy performance over a period of 2 days

Guidelines for Work Experiences

2.1 WM-02-WE01: Conduct a site visit and collect and analyse existing available data over a period of 2.5 days

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0101 - Arrange for one or more individuals to provide access to and act as guide and escort during site visits
- WA0102 - Collect all identified existing documented energy consumption data

- WA0103 - Collect operational hours and occupancy data
- WA0104 - Identify exported energy sources (e.g., photo voltaic, generators, etc)
- WA0105 - Determine existing energy consuming systems, and occupancy
- WA0106 - Capture existing available measurement data in relevant data sheets
- WA0107 - Determine whether measurements, observations and past data are representative of occupational conditions
- WA0108 - Determine whether historical data provided is representative of normal operation
- WA0109 - Analyse energy users
- WA0110 - Determine energy uses and areas for which additional measurements are needed to calculate energy exclusions, normalisation, and pro-ration

Supporting Evidence

- SE0101 – The full building system must be covered

2.2 WM-02-WE02: Develop a measurement plan over a period of 0.5 days

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0201 - Collect building plans and occupancy certificate
- WA0202 – Collect energy bills
- WA0203 - Identify measurement points, and sub-metering points
- WA0204 - Specify the excluded areas and measurement methods
- WA0205 - Determine suitable measurement equipment
- WA0206 - Determine procedures, responsibilities, dates and times for the installation of measuring equipment
- WA0207 - Obtain approval from client for implementation of measurement plan

Supporting Evidence

- SE0201 A measurement plan for additional measurements to be taken signed off by the client

2.3 WM-02-WE03: Measure energy performance over a period of 2 days

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0301 - Arrange for one or more individuals to install or assist in the installation of data loggers and energy monitoring equipment
- WA0302 - Determine where measuring equipment needs to be coupled or connected
- WA0303 - Set the necessary parameters on the measuring equipment including intervals
- WA0304 - Measure electrical parameters (components of power)
- WA0305 - Determine occupancy patterns
- WA0306 - Log data (manual and possible electronic)
- WA0307 - Clear working area (and make safe)

Supporting Evidence

- SE0301 - The full building system must be covered

2.4 Contextualised Workplace Knowledge

- i. Client-specific occupancy and operating hours and excluded areas
- ii. Client-specific access, health, and safety procedures
- iii. Client-specific hazards and risks

2.5 Criteria for Workplace Approval

Physical Requirements:

- Multi-meter, measuring tape, data sets
- Computer, software and internet connection
- Access to clients with suitable buildings that are suitable for Energy Performance Certificate audits
- Client interaction protocols

Human Resource Requirements:

- Supervisor to worker ratio of 1:5
- Supervisor must be qualified and experienced in the field of energy auditing with knowledge of the standards and regulation or have a suitable support mentor

Human Resource Requirements:

- Supervisor to worker ratio of 1:5
- Supervisor must be qualified and experienced in the field of energy auditing

Legal Requirements:

- None

2.6 Additional Assignments to be Assessed Externally

- None

3. WORK EXPERIENCE MODULE TITLE: 311303-001-00-WM-03, Data analysis processes or the energy performance of a building, NQF Level 6, Credits 2

Purpose of the Work Experience Modules

The focus of the work experience is on providing the learner an opportunity to:

analyse energy performance data and make suggestions on energy improvement opportunities.

The learner will be required to:

- WM-03-WE01: Analyse data over a period of 2.5 days

Guidelines for Work Experiences

3.1 WM-03-WE01: Analyse data over a period of 2.5 days

Scope of Work Experience

The learner will be expected to engage in the following work activities:

- WA0101 – Calculate fuel consumption and conversion
- WA0102 – Calculate prorated requirements for occupancy and energy use
- WA0103 – Calculate normalisation of energy use in relation to occupancy
- WA0104 - Calculate the energy performance of the building
- WA0105 – Calculate the excluded areas and allocate as percentage of building use
- WA0106 – Calculate occupancy percentages of multiple tenancy of the building
- WA0107 – Calculate the net energy use
- WA0108 – Calculate the floor area in terms of net floor area, unoccupied floor area
- WA0109 - Determine the energy consumption of the used net floor area in kWh
- WA0110 - Determine the effective energy consumption per used net floor area in kWh/(m²*a)
- WA0111 - Determine the variance relative to the referenced energy consumption index of the applicable standard
- WA0112 - Determine the multiple reference value
- WA0113 - Determine the performance scale of the building by referring to the performance scale grades which aligns the multiple reference value

Supporting Evidence

- SE0101 – In total a whole building system must be covered
- SE0102 – The occupancy of the building must be covered including the floor areas and use of the building space and energy zoning
- SE0103 – The total energy consumption, users, sources in all it's forms, and the building's energy performance must be covered

3.2 Contextualised Workplace Knowledge

- i. Building specific outcomes of performance rating
- ii. List of information and data for the Energy Performance Certificate

3.3 Criteria for Workplace Approval

Physical Requirements:

- Measurement tools and meters
- Computer, software and internet connection
- Access to clients with suitable buildings that are suitable for Energy Performance Certificate audits
- Client interaction protocols

Human Resource Requirements:

- Supervisor to worker ratio of 1:5
- Supervisor must be qualified and experienced in the field of energy auditing or have a suitable support mentor

Human Resource Requirements:

- Supervisor to worker ratio of 1:5
- Supervisor must be qualified and experienced in the field of energy auditing

Legal Requirements:

4. None

3.4 **Additional Assignments to be Assessed Externally**

5. None

4. WORK EXPERIENCE MODULE TITLE: 311303-001-00-WM-04, Energy audit reporting processes for building energy performance, NQF Level 5, Credits 1

Purpose of the Work Experience Modules

The focus of the work experience is on providing the learner an opportunity to:

consider all existing documented data, identify gaps, develop a measurement roll out plan and to conduct additional measurements in accordance with the energy audit scope towards the final report and Energy Performance Certificate.

The learner will be required to:

- WM-04 - WE01: Prepare energy audit report over a period of 1.5 days
- WM-04 - WE02: Present energy audit findings in an Energy Performance Certificate of 0.5 day

Guidelines for Work Experiences

4.1 **WM-04-WE01: Prepare an energy audit report over a period of 1.5 days**

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0101 - Compile background information
- WA0102 - Reflect energy audit findings
- WA0104 - Prepare building energy rating
- WA0105 - Prepare summary report sheet

Supporting Evidence

- SE0101 - Summary audit report(s) signed off by supervisor

4.2 **WM-04-WE02: Present energy audit findings over a period of 0.5 day**

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0201 - Prepare presentation of the information in an Energy Performance Certificate template
- WA0202 – Deliver the summary audit report that depicts the concise information which is displayed on the Energy Performance Certificate
- WA0203 - Respond to questions and provide clarity

- WA0204 - Amend report where required and submit to client for sign-off with the accompanying mock Energy Performance Certificate

Supporting Evidence

- SE0201 - Mock Energy Performance Certificate
- SE0202 - Summary audit report signed off by client

4.3 Contextualised Workplace Knowledge

- Standard-specific presentation requirements

4.4 Criteria for Workplace Approval

Physical Requirements:

- Computer and software to populate documents
- Access to clients with suitable buildings that are suitable for Energy Performance Certificate audits
- Client interaction protocols

Human Resource Requirements:

- Supervisor to worker ratio of 1:5
- Supervisor must be qualified and experienced in the field of energy auditing or have a suitable support mentor

Legal Requirements:

- None

4.5 Additional Assignments to be Assessed Externally

- None

SECTION 4: STATEMENT OF WORK EXPERIENCE

Curriculum Code:	
Curriculum Title:	Energy Performance Certificate (EPC) Practitioner

Learner Details	
Name:	
ID Number:	

Employer Details	
Company Name:	
Address:	
Supervisor Name:	
Work Telephone:	
E-Mail:	

311303001-WM-01, Energy audit planning processes for a building system, NQF Level 5, Credits 2

WM-01 WE01	<i>Determine the energy audit scope over a period of 1 days</i>		
	Scope Work Experience	Date	Signature
WA0101	Receive and evaluate the client energy audit application		
WA0102	Clarify the energy audit boundaries and objectives		
WA0103	Clarify the availability of data and information		
WA0104	Determine the time period to complete the energy audit		
WA0105	Determine the required excluded areas, occupancy, and floor area aspects		
WA0106	Determine time commitments and other resources from client		
	Supporting Evidence	Date	Signature
SE0101	Working documents, outlining the scope(s) of the energy audit(s) signed off by the client of one building system		
WM-01- WE02	<i>Determine the energy audit context over a period of 1.5 days</i>		
	Scope Work Experience	Date	Signature
WA0201	Determine whether the building requires an Energy Performance Certificate or not by evaluating the building criteria available at the time, request relevant data to confirm (e.g. occupancy certificate, date of last renovation, plans to determine building size, relevant occupational category)		
WA0202	Determine relevant historical consumption data to be made available prior to the start		

	of the auditing process (e.g. utility bills over the preceding 12 months)		
WA0202	Determine relevant historical occupancy data to made available prior to the start of the auditing process (e.g., clock in data over the preceding 12 months)		
WA0202	Establish availability of other sources of relevant data and sub-metering zones		
WA0202	Determine whether there are regulatory requirements or other variables affecting the energy audit boundaries		
WA0202	Establish the relevant data related to the context (building plans, electrical layout) to be made available prior to the start of the auditing process		
WA0202	Develop checklists in preparation for and arrange a meeting with the client		
	Supporting Evidence	Date	Signature
SE0201	A list of available data sources		
SE0202	A list of energy consuming systems, processes, and equipment		
SE0203	Working documents, outlining the context		
WM-01-WE03	<i>Conduct opening coordination meeting over a period of 0.5 days</i>		
	Scope Work Experience	Date	Signature
WA0301	Establish the representative of the client who is responsible for the energy auditing process		
WA0302	Clarify availability of documented energy, occupancy and building data and identify additional existing documented energy data that is sub-metered for exclusion areas		
WA0303	Verify availability of personnel to assist in collection of available data (with the		

	necessary authority to obtain and provide data)		
WA0304	Determine any unusual operational and occupancy conditions that may affect the energy auditing process		
WA0305	Determine client specific procedural requirements for installation of special measuring equipment if needed		
WA0306	Determine client specific access, health, safety, security and emergency requirements and procedures		
WA0307	Verify availability of personnel to assist in the measuring process (with the necessary competence to request or carry out direct operations on processes and equipment)		
WA0308	Arrange for a site visit		
	Supporting Evidence	Date	Signature
SE0301	Minutes of a meeting, outlining the scope, context, and responsibilities, signed by the client		
SE0302	List of personnel responsible for assisting in the audit process reflecting their roles and responsibilities		
SE0304	List of historical and current available energy performance and occupancy data		

	Contextualised Workplace Knowledge	Date	Signature
1	Client specific audit requirements		
2	Client specific regulatory requirements and information		

	that can impact on energy audit process and occupancy		
3	Client specific types of energy uses, systems, processes, and equipment, e.g., ventilation, lighting, heating, cooling, excluded areas, and occupancy		
4	Client specific types of alternative and renewable energy sources (irradiation, wind, bio-gas, fossil fuels)		
5	Client-specific strategic plans that can impact on energy audit process and efficiency		
6	Client specific-data systems and energy-related records		
7	Client-specific organizational structure		
8	Client-specific meeting and reporting requirements		

	Additional Assignments to be Assessed Externally	Date	Signature
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311303001-WM-02, Data collection and measurement processes, NQF Level 5, Credits

2

WM-02-WE01	<i>Conduct a site visit and collect and analyse existing available data over a period of 2.5 days</i>		
	Scope Work Experience	Date	Signature
WA0101	Arrange for one or more individuals to provide access to and act as guide and escort during site visits		
WA0102	Collect all identified existing documented energy consumption data		
WA0103	Collect operational hours and occupancy data		
WA0104	Identify exported energy sources (e.g., photo voltaic, generators, etc)		
WA0105	Determine existing energy consuming systems, and occupancy		
WA0106	Capture existing available measurement data in relevant data sheets		
WA0107	Determine whether measurements, observations and past data are representative of occupational conditions		
WA0108	Determine whether historical data provided is representative of normal operation		
WA0109	Analyse energy users		
WA0110	Determine energy uses and areas for which additional measurements are needed to calculate energy exclusions, normalisation, and pro-ration		
	Supporting Evidence	Date	Signature
SE0101	The full building system must be covered		

WM-02-WE02	<i>Develop a measurement plan over a period of 0.5 days</i>		
	Scope Work Experience	Date	Signature
WA0201	Collect building plans and occupancy certificate		
WA0202	Collect energy bills		
WA0203	Identify measurement points, and sub-metering points		
WA0204	Specify the excluded areas and measurement methods		
WA0205	Determine suitable measurement equipment		
WA0206	Determine procedures, responsibilities, dates and times for the installation of measuring equipment		
WA0207	Obtain approval from client for implementation of measurement plan		
	Supporting Evidence	Date	Signature
SE0201	A measurement plan for additional measurements to be taken signed off by the client		
WM-02-WE03	<i>Measure energy performance over a period of 2 days</i>		
	Scope Work Experience	Date	Signature
WA0301	Arrange for one or more individuals to install or assist in the installation of data loggers and energy monitoring equipment		
WA0302	Determine where measuring equipment needs to be coupled or connected		
WA0303	Set the necessary parameters on the measuring equipment including intervals		

WA0304	Measure electrical parameters (components of power)		
WA0305	Determine occupancy patterns		
WA0306	Log data (manual and possible electronic)		
WA0307	Clear working area (and make safe)		
	Supporting Evidence	Date	Signature
SE0301	The full building system must be covered		

	Contextualised Workplace Knowledge	Date	Signature
1	Client-specific occupancy and operating hours and excluded areas		
2	Client-specific access, health, and safety procedures		
3	Client-specific hazards and risks		

	Additional Assignments to be Assessed Externally	Date	Signature

311303001-WM-03, Data analysis of the energy performance of a building, NQF Level 6, Credits 2

WM03	<i>Analyse data over a period of 2.5 days</i>		
	Scope Work Experience	Date	Signature
WA0101	Calculate fuel consumption and conversion		
WA0102	Calculate prorated requirements for occupancy and energy use		
WA0103	Calculate normalisation of energy use in relation to occupancy		
WA0104	Calculate the energy performance of the building		
WA0105	Calculate the excluded areas and allocate as percentage of building use		
WA0106	Calculate occupancy percentages of multiple tenancy of the building		
WA0107	Calculate the net energy use		
WA0108	Calculate the floor area in terms of net floor area, unoccupied floor area		
WA0109	Determine the energy consumption of the used net floor area in kWh		
WA0110	Determine the effective energy consumption per used net floor area in kWh/(m ² *a)		
WA0111	Determine the variance relative to the referenced energy consumption index of the applicable standard		
WA0112	Determine the multiple reference value		
WA0113	Determine the performance scale of the building by referring to the performance scale grades which aligns the multiple reference value		

	Supporting Evidence	Date	Signature
SE0101	In total a whole building system must be covered		
SE0102	The occupancy of the building must be covered including the floor areas and use of the building space and energy zoning		
SE0103	The total energy consumption, users, sources in all it's forms, and the building's energy performance must be covered		

	Contextualised Workplace Knowledge	Date	Signature
1	Building specific outcomes of performance rating		
2	List of information and data for the Energy Performance Certificate		

	Additional Assignments to be Assessed Externally	Date	Signature

311303001-WM-04, Energy audit reporting processes for building energy performance, NQF Level 5, Credits 1

WM04-01-	<i>Prepare an energy audit report over a period of 1.5 days</i>		
	Scope Work Experience	Date	Signature
WA0101	Compile background information		
WA0102	Reflect energy audit findings		
WA0103	Prepare building energy rating		
WA0104	Prepare summary report sheet		
	Supporting Evidence	Date	Signature
SE0101	Summary audit report(s) signed off by supervisor		
WM04-02-	<i>Present energy audit findings over a period of 0.5 day</i>		
	Scope Work Experience	Date	Signature
WA0201	Compile background information		
WA0202	Reflect energy audit findings		
WA0203	Prepare building energy rating		
WA0204	Prepare summary report sheet		
	Supporting Evidence	Date	Signature
SE0201	Summary audit report(s) signed off by supervisor		

	Contextualised Workplace Knowledge	Date	Signature
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	Additional Assignments to be Assessed Externally	Date	Signature
1	Standard-specific presentation requirements		