



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **UEENEEK051A Develop effective strategies for energy reduction in buildings**

**Release: 1**

## **UEENEEK051A Develop effective strategies for energy reduction in buildings**

### **Modification History**

Not Applicable

### **Unit Descriptor**

#### **Unit Descriptor**

**1)**

##### **1.1) Descriptor**

This unit covers evaluating energy used in buildings and developing and documenting strategies/methods to effectively reduce energy use without compromising occupancy standards. It encompasses working safely, setting up and conducting evaluation measurements and evaluating energy use from measured parameters.

### **Application of the Unit**

#### **Application of the Unit    4)**

This unit is intended for competency development entry-level employment-based programs incorporated in approved contracts of training. It applies to any formal recognition for this standard at the aligned AQF 4 level or higher.

## Licensing/Regulatory Information

### 1.2) License to practice

The skills and knowledge described in this unit do not require a license to practice in the workplace. However, practice in this unit is subject to regulations directly related to occupational health and safety and contracts of training such as new apprenticeships.

## Pre-Requisites

**Prerequisite Unit(s)**            2)

### 2.1) Competencies

There are no prerequisite competencies for this unit.

## Employability Skills Information

**Employability Skills**            3)

The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The Employability Skills Summary of the qualification in which this unit of competency is packaged will assist in identifying Employability Skill requirements.

## Elements and Performance Criteria Pre-Content

6) Elements describe the essential outcomes of a unit

Performance criteria describe the required performance needed to demonstrate achievement of the Element. Assessment of performance must be consistent with the evidence guide.

## Elements and Performance Criteria

| ELEMENT  | PERFORMANCE CRITERIA   |
|--|--|
| 1 Prepare to develop strategies for effective energy reduction in buildings. | 1.1 OHS procedures for a given work area are identified, obtained and understood   |
|  | 1.2 Established OHS risk control measures and procedures are followed in preparation for the work  |
|  | 1.3 The extent of evaluation is determined from specifications of building(s) and services, plant and machinery and discussed with appropriate personnel |
|  | 1.4 Advice is sought from the work supervisor to ensure the work is coordinated effectively with others  |
|  | 1.5 Tools, testing devices, and materials needed to carry out the work are obtained and checked for correct operation and safety                         |
| 2 Develop strategies for effective energy reduction in buildings.            | 2.1 OHS risk control measures and procedures for carrying out the work are followed  |
|  | 2.2 Tests and measurements are carried out in strict accordance with OHS requirements safety procedures  |
|  | 2.3 In-depth knowledge of the energy use of building services, plant and machinery is applied to the evaluation process                                  |
|  | 2.4 Energy evaluation tests are set up in accordance with established test methods and procedures for each particular parameter under scrutiny           |
|  | 2.5 Strategies to reduce energy use with compromising occupancy standards are developed from knowledge of energy management and evaluation test results. |
|  | 2.6 Unexpected situations are dealt with safely and with the approval of an authorised person  |
|  | 2.7 Evaluation is carried out without damage to systems, circuits, the surrounding environment or services and using sustainable energy                  |

| ELEMENT |  | PERFORMANCE CRITERIA |   |
|---------|--|----------------------|---|
|         |  | practices            |   |
| 3       | Document and report strategies for effective energy reduction in buildings | 3.1                  | OHS work completion risk control measures and procedures are followed   |
|         |  | 3.2                  | Work site is cleaned and made safe in accordance with established procedures  |
|         |  | 3.3                  | Results of energy use evaluation and recommended strategies and their criterion for energy reduction are documented in accordance with established procedures |
|         |  | 3.4                  | Energy reduction report is forwarded to appropriate persons   |

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

7) This describes the essential skills and knowledge and their level, required for this unit.

Evidence must show that knowledge has been acquired of safe working practices and developing strategies for effective energy reduction in buildings.

All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies.

The extent of the essential knowledge and associated skills (EKAS) required is given in Volume 2 - Part 2.2 EKAS. It forms an integral part of this unit.

- 2.16.13 Building management systems
- 2.18.1 Occupational Health and Safety principles
- 2.20.12 Energy efficient building design

## Evidence Guide

### EVIDENCE GUIDE

9) This provides essential advice for assessment of the unit and must be read in conjunction with the performance criteria and the range statement of the unit and the Training Package Assessment Guidelines.

The Evidence Guide forms an integral part of this unit. It must be used in conjunction with all parts of this unit and performed in accordance with the Assessment Guidelines of this Training Package.

#### Overview of Assessment

##### 9.1)

Longitudinal competency development approaches to assessment, such as Profiling, require data to be reliably gathered in a form that can be consistently interpreted over time. This approach is best utilised in Apprenticeship programs and reduces assessment intervention. It is the industry-preferred model for apprenticeships. However, where summative (or final) assessment is used it is to include the application of the competency in the normal work environment or, at a minimum, the application of the competency in a realistically simulated work environment. In some circumstances, assessment in part or full can occur outside the workplace. However, it must be in accordance with industry and regulatory policy.

Methods chosen for a particular assessment will be influenced by various factors. These include the extent of the assessment, the most effective locations for the assessment activities to take place, access to physical resources, additional safety measures that may be required and the critical nature of the competencies being assessed.

The critical safety issues inherent in working with electricity, electrical equipment, gas or any other hazardous substance/material present a challenge for those determining competence. Sources of evidence need to be 'rich' in nature to minimise error in judgment.

Activities associated with normal everyday work have a bearing on the decision as to how much and how detailed the data gathered will contribute to its 'richness'. Some skills are more critical to safety and operational requirements while the same skills may be more or less frequently practised. These points are raised for the assessors to consider when choosing an assessment method and developing assessment instruments. Sample assessment instruments are included for Assessors in

## EVIDENCE GUIDE

the Assessment Guidelines of this Training Package.

### **Critical aspects of evidence required to demonstrate competency in this unit**

#### **9.2)**

Before the critical aspects of evidence are considered all prerequisites must be met.

Evidence for competence in this unit must be considered holistically. Each element and associated performance criteria must be demonstrated on at least two occasions in accordance with the 'Assessment Guidelines - UEE07'. Evidence must also comprise:

- A representative body of work performance demonstrated within the timeframes typically expected of the discipline, work function and industrial environment. In particular this must incorporate evidence that shows a candidate is able to:
  - Implement Occupational Health and Safety workplace procedures and practices including the use of risk control measures as specified in the performance criteria and range statement
  - Apply sustainable energy principles and practices as specified in the performance criteria and range statement
  - Demonstrate an understanding of the essential knowledge and associated skills as described in this unit. It may be required by some jurisdictions that RTOs provide a percentile graded result for the purpose of regulatory or licensing requirements.
  - Demonstrate an appropriate level of skills enabling employment
  - Conduct work observing the relevant Anti Discrimination legislation, regulations, policies and workplace procedures
- Demonstrated consistent performance across a representative range of contexts from the prescribed items below:
  - Develop strategies for effective energy reduction in buildings as described in 8) and including:
    - A Determining the extent of the evaluation.
    - B Setting up and conducting appropriate examinations and tests.
    - C Reporting evaluation including recommendation

## EVIDENCE GUIDE

for improving energy efficiency

- D Dealing with unplanned events by drawing on essential knowledge and skills to provide appropriate solutions incorporated in a holistic assessment with the above listed items

### Context of and specific resources for assessment

#### 9.3)

This unit should be assessed as it relates to normal work practice using procedures, information and resources typical of a workplace. This should include:

- OHS policy and work procedures and instructions.
- Suitable work environment, facilities, equipment and materials to undertake actual work as prescribed by this unit.

These should be part of the formal learning/assessment environment.

Note:

Where simulation is considered a suitable strategy for assessment, conditions must be authentic and as far as possible reproduce and replicate the workplace and be consistent with the approved industry simulation policy.

The resources used for assessment should reflect current industry practices in relation to developing strategies for effective energy reduction in buildings.

### Method of assessment

#### 9.4)

This unit shall be assessed by methods given in Volume 1, Part 3 'Assessment Guidelines'.

Note:

Competent performance with inherent safe working practices is expected in the Industry to which this unit applies. This requires assessment in a structured environment which is intended primarily for learning/assessment and incorporates all necessary equipment and facilities for learners to develop and demonstrate the essential knowledge and skills described in this unit.

### Concurrent assessment and relationship with other units

#### 9.5)

There are no concurrent assessment recommendations for this unit.



## Range Statement

### RANGE STATEMENT

8) This relates to the unit as a whole providing the range of contexts and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

This unit must be demonstrated in relation to developing strategies for effective energy reduction in at least two buildings each used for a different purpose.

Generic terms used throughout this Vocational Standard shall be regarded as part of the Range Statement in which competency is demonstrated. The definition of these and other terms that apply are given in Volume 2, Part 2.1.

## Unit Sector(s)

Not Applicable

## Competency Field

### 2.2) Literacy and numeracy skills

Participants are best equipped to achieve competency in this unit if they have reading, writing and numeracy skills indicated by the following scales. Description of each scale is given in Volume 2, Part 3 'Literacy and Numeracy'

|         |   |         |   |          |   |
|---------|---|---------|---|----------|---|
| Reading | 5 | Writing | 5 | Numeracy | 5 |
|---------|---|---------|---|----------|---|

### 2.2) Literacy and numeracy skills

Competency Field                      5)

Renewable and Sustainable Energy