



Australian Government

CPCSUS5003A Manage energy efficient building methods and strategies

Release: 1

CPCSUS5003A Manage energy efficient building methods and strategies

Modification History

New unit.

This version first released with CPC08 Construction, Plumbing and Services Training Package Version 9.

Unit Descriptor

This unit of competency specifies the outcomes required to ensure that energy efficient building methods and strategies are supported by employees and contractors working on a new or existing residential or commercial building designed to satisfy energy efficiency ratings and requirements.

The unit provides the skills required to ensure that work undertaken to construct an energy efficient building or to retrofit an existing building for improved energy efficiency is performed as designed and reflects energy efficient specifications.

The unit covers developing a culture of energy efficient work practices.

Application of the Unit

This unit of competency supports builders and site managers overseeing the construction or retro fit of buildings designed to meet energy efficient ratings or improve the energy efficiency characteristics of a building.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Pre-Requisites

Nil

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

- | | | |
|---|---|---|
| 1 | Plan and prepare to construct an energy efficient building. | <p>1.1 <i>Relevant stakeholders</i> are consulted to identify the purpose for which the building is to be used and the energy efficiency expectations of its owners or occupiers.</p> <p>1.2 Plans, drawings and specifications are reviewed to identify energy efficient requirements of finished building or works.</p> <p>1.3 Project is resourced with appropriately skilled tradespeople with energy efficiency competency.</p> <p>1.4 Works to be undertaken are <i>scheduled</i> to support energy efficient building strategy.</p> <p>1.5 <i>Construction materials and products</i> are costed, selected and sourced to conform to and meet energy efficiency expectations of the building or works.</p> <p>1.6 Strategies for the disposal or reuse of waste materials are developed for the project.</p> <p>1.7 Impact of energy efficient project on timelines and budget is communicated to owner or occupier and other stakeholders.</p> |
| 2 | Communicate and monitor energy efficiency awareness among tradespeople. | <p>2.1 Trades and other works on the building project are briefed with expectations for <i>techniques to be used</i>, quality of works to be undertaken, and energy efficiency outcomes required.</p> <p>2.2 Sealing of building envelope is assessed for capacity to maximise energy efficiency and improvements are made</p> |

- in sealing the building envelope before other works continue.
- 2.3 Requirements to maintain energy efficient techniques are communicated to subsequent trades to ensure benefits of the work are not lost.
 - 2.4 Alterations to works, construction methods and selected materials are **evaluated** against project energy efficiency expectations, and impact on energy efficiency is quantified to assist in decision-making processes.
- 3 Evaluate and communicate energy efficiency outcomes.
- 3.1 Works undertaken are assessed for adherence to energy efficiency processes.
 - 3.2 Hand held thermal imaging assessment of building or works is conducted to determine presence of unwanted heat and air leakages, and findings are addressed where necessary.
 - 3.3 Duct testing is conducted where appropriate to identify location of leakages and works are implemented to address findings where necessary.
 - 3.4 External rating of energy efficiency, including star ratings, is sought from recognised expert to verify efficiency of construction.

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- learning skills to:
 - evaluate own actions and make judgments about performance and necessary improvements
 - respond to change, such as differences in current work site energy efficiency requirements
- numeracy skills to calculate and confirm correct quantities of materials for work tasks
- oral communication skills to:
 - enable clear and direct communication, using questioning to identify and confirm requirements, and share information
 - report hazards on the work site, including faults in tools, equipment or materials
 - use language and concepts appropriate to cultural differences
- reading skills to:
 - conduct own research into current building and construction methodologies and new materials technology
 - interpret documentation, including drawings and specifications
 - follow written instructions, procedures and signage
- writing skills to develop reports and recommendations about energy efficient projects

Required knowledge

- approaches to waste management consistent with principles of energy efficiency, including processes for minimising and reusing materials
- benchmarks to meet standards and rating systems (such as star rating) for energy efficiency
- compliance requirements relating to construction materials and methods, including:
 - Australian standards
 - energy efficiency and sustainability requirements in different jurisdictions
 - National Construction Code deemed-to-satisfy requirements
- general construction terminology
- impacts of different climate zones and environmental conditions on the built environment
- performance characteristics and benefits of energy efficiency policies, practices, products and services
- processes for constructing different building types
- processes for evaluating energy efficiencies in buildings

- theories and principles of energy efficiency applied to buildings and construction processes
- types, uses and limitations of different construction materials
- use and limitations of new and advanced construction materials that improve the energy efficiency of buildings

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment This unit of competency could be assessed by performing a range of tasks in the workplace or a close simulation of the workplace environment, provided that simulated or project-based assessment techniques fully replicate construction workplace conditions, materials, activities, responsibilities and procedures.

Critical aspects for assessment and evidence required to demonstrate competency in this unit A person should demonstrate the ability to:

- implement energy efficient building methods and management strategies for two building and construction projects, including:
 - resourcing the project with appropriately skilled tradespeople competent in energy efficient works
 - using energy efficient products and materials aligned with the energy efficient aims for the building envelope
 - clearly communicating to trades and other relevant stakeholders the energy efficiency techniques and strategies to be used in order to achieve building energy expectations
 - conducting appropriate performance testing of the construction to determine adherence to energy efficiency methodologies and techniques
- locate, interpret and apply relevant energy efficiency related compliance requirements applicable to the building and construction projects
- locate, interpret and monitor the application of relevant work health and safety (WHS) legislation, regulations and codes of practice applicable to the work site
- comply with organisational policies and procedures relating to managing energy efficiency building methods and strategies, including standards.

Context of and specific resources for assessment Assessment of this unit:

- must be in the context of the work environment
- may be conducted in an off-site context, provided it is realistic and sufficiently rigorous to cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills
- must meet relevant compliance requirements.

Resource implications for assessment include:

- an induction procedure
- realistic tasks or simulated tasks covering the mandatory task requirements
- relevant specifications and work instructions
- tools and equipment appropriate to applying safe work practices
- support materials appropriate to activity
- workplace instructions relating to safe work practices and addressing hazards and emergencies
- research resources, including industry-related systems information
- safety data sheets.

Method of assessment Assessment for this unit must verify the practical application of the required skills and knowledge, using one or more of the following methods:

- direct observation of tasks in real or simulated work conditions
- questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application
- review of relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.

Guidance information for assessment This unit could be assessed on its own or in combination with other units relevant to the job function.

Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

Assessment processes and techniques should, as far as is practical, take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. ***Bold italicised*** wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate,

accessibility of the item, and local industry and regional contexts) may also be included.

Relevant stakeholders
may include:

- architects
- builders
- building owners or investors
- designers
- developers
- engineers
- facility managers
- occupants.

Construction materials and products may include:

- cladding
- floors
- framing
- heating, ventilation and air conditioning (HVAC) systems
- insulation
- interior and exterior paints
- interior and exterior wall materials
- lights and lighting systems
- plaster
- roof materials
- types and uses of water tanks and recyclable grey water systems
- windows.

Techniques to be used to support energy efficiency may include:

- protecting the air barrier by minimising and sealing gaps using advanced framing techniques to increase construction productivity, reduce thermal bridging and increase operational energy efficiency
- installing insulation on the outside of the frame and in the roof, walls and floor
- reducing the effect of thermal bridging
- selecting appropriately sized HVAC system, which considers the tightness of the structure and incorporates heat or energy recovery systems as appropriate for ventilation
- using air or vapour barriers to ensure the entire building envelope is sealed, separating the inside environment from the outside
- using thicker insulation to improve the building's thermal performance.

Evaluated may involve:

- occupier
- owner or developer
- relevant trades.

Unit Sector(s)

Construction

Custom Content Section

Not applicable.