



Australian Government

CPCSUS4003 Maximise energy efficiency through applied trade skills

Release: 2

CPCSUS4003 Maximise energy efficiency through applied trade skills

Modification History

- Release 2 Updated reference to general construction induction training program.
- Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.
- Supersedes and equivalent to CPCSUS4003A Maximise energy efficiency through applied trade skills. Updated to meet the Standards for Training Packages 2012.

Application

This unit of competency specifies the skills and knowledge required to undertake trade work using techniques and practices aimed at achieving high levels of energy efficiency in the finished work. It includes identifying and applying principles or techniques designed to maximise the energy efficiency characteristics of a building or project.

This unit of competency applies to builders and tradespeople who identify opportunities for energy efficiency gains during construction of the building envelope or finishing work within the residential or commercial construction work.

Completion of the general construction induction training program specified by the model Code of Practice for Construction Work is required for any person who is to carry out construction work. Achievement of *CPCWHS1001 Prepare to work safely in the construction industry* meets this requirement.

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

Pre-requisite Unit

Nil.

Unit Sector

Sustainability

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe what needs to be done to demonstrate achievement of the element.

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| 1 Identify energy efficiency aims of the project. | 1.1 Use building science principles to identify efficiency expectations from plans, drawings and specifications. |
| | 1.2 Confirm building envelope, energy efficiency requirements and specific instructions on priority areas in consultation with relevant personnel and stakeholders. |
| | 1.3 Identify limitations and determine appropriate solutions to achieving energy efficiency requirements with relevant personnel. |
| 2 Prepare for task. | 2.1 Identify comparable products and materials based on building science knowledge and project energy efficiency specifications. |
| | 2.2 Check substituted materials and products for comparable energy efficiency characteristics for approval with relevant person. |
| | 2.3 Identify and factor into work plan differences in standard practice to achieving energy efficient outcome, gain approval and adjust task timeframe. |
| | 2.4 Calculate material quantity from plans and specifications. |
| | 2.5 Locate materials ready for use in proximity to the work area. |
| | 2.6 Select energy efficient plant, tools and equipment appropriate to carry out specified tasks. |
| 3 Perform tasks using energy efficient techniques. | 3.1 Eliminate greenhouse gas emissions and avoid unnecessary waste of products and materials during the use of energy efficient techniques. |
| | 3.2 Handle and use products and materials according to manufacturer specifications to ensure energy efficiency ratings are maintained when installed. |
| | 3.3 Treat cavities and openings created in the building envelope during the project to avoid unnecessary air leakages. |
| | 3.4 Maximise opportunities for achieving energy efficiency |

outcomes by minimising energy leakages.

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| 4 | Finalise and evaluate work. | 4.1 | Arrange assessment of work undertaken with qualified energy assessor to confirm extent of energy efficiency outcomes achieved. |
| | | 4.2 | Identify and note improvements in own work practices to ensure energy efficiency outcomes for future development. |

Foundation Skills

As well as the foundation skills explicit in the performance criteria of this unit, candidates require:

- technology skills to:
 - use mobile and communication tools and devices to communicate and collaborate effectively with others
 - use equipment and programs to access and extract information and develop relevant documentation.

Unit Mapping Information

Supersedes and is equivalent to CPCSUS4003A Maximise energy efficiency through applied trade skills.

Links

Companion volumes to this training package are available at the VETNet website - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>

Assessment Requirements for CPCSUS4003 Maximise energy efficiency through applied trade skills

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Performance Evidence

To demonstrate competency, a candidate must meet the elements and performance criteria of this unit by undertaking and completing three different activities to maximise energy efficiency of the process or finished product. The three activities may be related to or on the same construction project.

In doing this, the candidate must:

- use principles or techniques that are designed to maximise the energy efficiency characteristics of the building or project
- apply their trade skills to energy efficient practices during the project.

Knowledge Evidence

To be competent in this unit, a candidate must demonstrate knowledge of:

- general construction terminology
- building science principles:
 - building envelope
 - effective ventilation
 - heat, air and moisture flows:
 - conduction
 - convection
 - radiation
 - interaction between occupants, building components and systems, and the environment both indoors and out
 - moisture management and condensation
- energy efficient techniques:
 - advanced framing or optimal value engineering for energy efficient framing

- appropriate selection and installation of insulation without compressing it
- conserving energy by effectively sealing the building envelope to minimise air leakage (exfiltration and infiltration) in the building envelope, shell or enclosure
- effectively installing windows and flashing without breaking the building envelope
- effectively selecting and installing thermal insulation
- minimising embodied energy
- sealing, insulating and minimising duct leakage
- sealing leaky joints
- selecting recycled materials to minimise production energy
- sourcing materials or products locally to minimise transport energy
- energy efficiency expectations:
 - acoustic and thermal insulation between zones and rooms
 - achieving relevant energy efficient requirements in the National Construction Code (NCC), and other relevant codes and regulations
 - achieving or maintaining a home energy rating, commercial building rating, or equivalent energy rating
 - effectively selecting and using thermal mass
 - energy conservation
 - minimising infiltration
 - minimising the heat loss and maximising the heat gain based on the requirements of the building reflective of the climatic zones
 - minimising thermal bridging
 - passive solar design approach
 - reducing or minimising energy costs and consumption to heat and cool the building
 - thermal resistance
 - ventilation, heat and energy recovery
 - zero energy homes
- workplace safety:
 - hierarchy of control
 - hazardous manual tasks
- processes, procedures and techniques for:
 - calculating material for the task
- organisation's project quality requirements
- environmental requirements and sustainability principles
- properties, characteristics and limitations of approved materials, products and components:
 - structural insulated panels
 - mud bricks
 - solar panels and battery storage
 - glazing
 - straw bale building products

- functional and operational features of tools and equipment.

Assessment Conditions

Assessors must meet the requirements for assessors contained in the Standards for Registered Training Organisations.

Assessment can be undertaken in the workplace or in a simulated workplace environment.

A simulated environment is one that realistically replicates workplace conditions, materials and equipment, interactions with others and workplace irregularities, and which meets industry standards for safety and environmental practices.

Candidates must have access to:

- government building and environmental legislation
- relevant industry codes and standards
- current project plans, specifications and manufacturer's product information
- organisational policies, procedures and other quality documentation to undertake the performance criteria and assessment requirements
- business equipment, technology, applications and software to research product and material information and calculate energy gains.

Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>