Draft 0.1

This is our work-in-progress update to CPCSUS4003A Maximise energy efficiency through applied trade skills: https://training.gov.au/Training/Details/CPCSUS4003A.

We are working with industry experts to ensure the updated unit:

- meets current and anticipated industry needs
- complies with current Standards for Training Packages
- is written in clear understandable English.

Information on our training package review and development process is available here: http://www.artibus.com.au/project-stage.

Summary of changes from current endorsed unit

Re-templated to meet Standards for Training Packages 2012.

Sequenced Elements and Performance Criteria.

Specified what and how performance is demonstrated in Performance Evidence.

Captured critical Range Statement items and included industry relevant knowledge in Knowledge Evidence.

Stated mandatory conditions and specific requirements for assessment.

CPCSUS4003
Maximise energy efficiency through applied trade skills

Application

This unit of competency specifies the outcomes 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.

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

Prerequisite Unit

Nil.

Unit Sector

Construction.

Elements and Performance Criteria

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 of 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	Minimise or seal planned 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.
4. Finalise and evaluate work.	4.1	Arrange assessment with qualified energy assessor of work undertaken 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, extract information and develop relevant documentation

Unit Mapping Information

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

Links

Companion Volume Implementation Guide: to be added.

Assessment Requirements for CPCSUS4003 Maximise energy efficiency through applied trade skills

Performance Evidence

- To demonstrate competency, a candidate must meet the performance criteria of this unit by undertaking and completing three different activities to maximise energy efficiency of the process or finished product within their relevant trade specification. 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 energy efficient practices during the course of their trade skill.

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, 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 requirements
- 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 of performance must be undertaken in the workplace or in a simulated workplace environment.

Candidates must be provided with:

- government building regulations, codes and standards
- current project plans, specifications and manufacturer's product information
- environmental and sustainability legislation and requirements
- organisational quality assurance documents and workplace safety requirements
- sufficient materials and equipment to maximise energy efficiency through applied trade skills.

Links

Companion Volume Implementation Guide: to be added.