



Australian Government

Department of Education, Employment and Workplace Relations

CPCPCM4003A Produce 2-D architectural drawings using CAD software

Release: 1

CPCPCM4003A Produce 2-D architectural drawings using CAD software

Modification History

Not Applicable

Unit Descriptor

Unit descriptor This unit of competency specifies the outcomes required to produce two-dimensional (2-D) architectural drawings using computer-aided design (CAD) software under limited supervision.

Application of the Unit

Application of the unit This unit of competency supports the needs of project managers, site managers, estimators, forepersons and other plumbing and services and building and construction industry personnel who have a responsibility for preparing architectural drawings from project briefs, sketches, drawings and plans for residential and commercial construction projects. The drawings produced and notations included should conform to Australian standards and drawing protocols.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units Nil

Employability Skills Information

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

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Create a drawing template file.	1.1. Basic drawing environment is set up. 1.2. Suitable layering strategy is created. 1.3. Suitable architectural library is created. 1.4. Suitable text and dimension styles are created.
2. Produce architectural drawings to relevant Australian standards.	2.1. <i>Drawing requirements</i> are clarified and confirmed. 2.2. Drawings are produced using appropriate layers. 2.3. Notation that complies with Australian standards and <i>drawing protocols</i> is added to the drawings as required. 2.4. Dimensions, using appropriate scales in accordance with Australian standards and drawing protocols, are added to the drawings as required.
3. Edit drawing components.	3.1. Elements that are not required are deleted from an existing drawing. 3.2. Editing commands are used to modify drawing elements and existing text.
4. Plot CAD drawings.	4.1. Page layout for the drawing file is set to suit plotting requirements. 4.2. Print parameters for the plotter are set. 4.3. Drawings are plotted on the correct media.
5. Save and back up files.	5.1. Suitable file directories are created for the drawing project. 5.2. Drawing files are saved and backed up correctly to specified drives or directories. 5.3. Saved files are retrieved, renamed and edited as required.
6. Import files.	6.1. Drawing files are inserted correctly into other software applications. 6.2. Text files are imported into CAD drawings from other software applications.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

REQUIRED SKILLS AND KNOWLEDGE

Required skills

Required skills for this unit are:

- communication skills to:
 - complete workplace documentation
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - prepare written quotes and tenders
 - record details, including costs and charges
 - read and interpret:
 - plans, drawings, specifications and design briefs
 - documentation from a variety of sources
 - seek clarification
 - use language and concepts appropriate to cultural differences
 - use and interpret non-verbal communication
- creative design, drawing and drafting skills, including use of drafting equipment and CAD
- numeracy skills to apply measurements and make calculations
- planning and organisational skills to ensure coordinated development of sketches and drawings.

Required knowledge

Required knowledge for this unit is:

- building materials and techniques
- building services
- construction technology
- document controls
- drafting and drawing protocols
- relevant industry standards and codes of practice
- general OHS principles and responsibilities
- requirements for the production of working drawings
- structural systems
- types and uses of working drawings.

Evidence Guide

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 in the workplace or a close simulation of the workplace environment providing that simulated or project-based assessment techniques fully replicate plumbing and services workplace conditions, materials, activities, responsibilities and procedures.

It may be assessed on its own or as part of an integrated assessment activity involving preparation of CAD drawings, including construction detailing and material identification, for a range of typical Building Code of Australia (BCA) Type C structures (reference: Table C1.1 BCA).

Critical aspects for assessment and evidence required to demonstrate competency in this unit

A person who demonstrates competency in this unit must be able to provide evidence of:

- correctly identifying dimensions, symbols, abbreviations and key features of architectural drawings
- correctly identifying styles, characteristics, technologies and decorative styles
- correctly identifying particular styles of architecture, including period and type of materials used
- sound understanding of the structural function of elements
- correctly identifying the relationship between architectural styles and structures
- applying CAD software.

Context of and specific resources for assessment

This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.

Assessment of essential underpinning knowledge will usually be conducted in an off-site context.

Assessment is to comply with relevant regulatory or Australian standards' requirements.

EVIDENCE GUIDE

Resource implications for assessment include:

- an induction procedure and requirement
- realistic tasks or simulated tasks covering the minimum 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 working practices and addressing hazards and emergencies
- material safety data sheets
- research resources, including industry related systems information.

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.

Method of assessment

Assessment methods must:

- satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package
- include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application
- reinforce the integration of employability skills with workplace tasks and job roles
- confirm that competency is verified and able to be transferred to other circumstances and environments.

Validity and sufficiency of evidence requires that:

- competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
- where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances

EVIDENCE GUIDE

assessed at different points in time and separated by further learning and practice, with a decision on competency only taken at the point when the assessor has complete confidence in the person's demonstrated ability and applied knowledge

- all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence.

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.

Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.

Range Statement

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.

- Drawing requirements*** include:
- details, including:
 - area analysis
 - construction notes
 - general notes
 - location of neighbouring buildings
 - services
 - types of drawing, including:
 - elevations or projections
 - floor plans

RANGE STATEMENT

- Drawing protocols* include:
- sections
 - site plans.
 - abbreviations
 - commonly used symbols
 - legends
 - lettering standards
 - numbering
 - paper size
 - scale
 - standard units of measurement.

Unit Sector(s)

Unit sector Plumbing and services

Co-requisite units

Co-requisite units Nil

Functional area

Functional area