



Australian Government

CPCPCM4013A Produce 2-D architectural drawings using CAD software

Release 1

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Modification History

Changes to application, element, performance criteria, required skills and knowledge, range statement and critical aspects

Not equivalent to CPCPCM4003A

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

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 responsible 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

In some jurisdictions, this unit of competency may form part of accreditation, licensing, legislative, regulatory or certification requirements.

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 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

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|---|--|-----|--|
| 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 according to 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. |

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| 4 | Print CAD drawings. | 4.1 | Page layout for the drawing file is set to suit printing requirements. |
| | | 4.2 | Print parameters for the printer are set. |
| | | 4.3 | Drawings are printed on the correct media. |
| | | 4.4 | <i>Sustainability principles and concepts</i> are observed when preparing for and undertaking work process. |
| | | | |
| 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

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

Required skills

- communication skills to:
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - seek clarification
 - use language and concepts appropriate to cultural differences
 - use and interpret non-verbal communication
- creative design, drawing and drafting skills, using CAD software
- literacy skills to:
 - complete workplace documentation
 - read and interpret:
 - plans, drawings, specifications and design briefs
 - documentation from a variety of sources
- numeracy skills to apply measurements and make calculations
- planning and organising skills to coordinate development of sketches and plans
- technology skills to use computers

Required knowledge

- building materials and techniques
- building services
- construction technology
- document controls
- drafting and drawing protocols
- general work health and safety (WHS) principles and responsibilities
- relevant industry standards and codes of practice
- requirements for the production of working drawings
- structural systems
- SI units of measurement
- types and application of working drawings

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, and building and construction 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 National Construction Code (NCC) Type C structures.

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:

- given the plans and specifications, producing a 2-D CAD architectural drawing to scale of a plumbing and services layout for a single dwelling (Class 1a) building, ensuring:
 - correct identification of dimensions, symbols, abbreviations and key features of architectural drawings
 - application of sustainability principles and concepts throughout the process of producing 2-D architectural drawings using 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.

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 work 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 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

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, which may include:
 - area analysis
 - construction notes
 - general notes
 - location of neighbouring buildings
 - services
- types of drawing, which must include:
 - elevations or projections
 - floor plans
 - sections
 - site plans.

Drawing protocols include:

- abbreviations
- commonly used symbols
- legends
- lettering standards
- numbering
- paper size
- scale
- SI units of measurement.

Sustainability principles and concepts:

- cover the social, economic and environmental use of resources to meet current and future needs
- may include:
 - disposing of waste material to ensure minimal environmental impact
 - energy efficiency.

Unit Sector(s)**Functional area**

Unit sector Plumbing and services

Custom Content Section

Not applicable.