



Australian Government

CPCPCM4014A Prepare simple sketches and drawings

Release 1

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Modification History

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

Not equivalent to CPCPCM4004A

Unit Descriptor

This unit of competency specifies the outcomes required to produce on-site drawings of work required in buildings up to five floors with residential, commercial, industrial or mixed occupancy. Sketches may be used for estimating purposes and show measurements and other requirements for building and construction or fire, mechanical and/or plumbing services.

Application of the Unit

This unit of competency supports the needs of experienced tradespeople, project managers, estimators and builders with a responsibility for preparing sketches and drawings for scoping and estimating work.

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 | Prepare to make sketches and drawings. | <p>1.1 <i>Types of drawings required</i> and <i>key features to be recorded</i> are identified through consultation and reference to relevant job documentation and in conformity with the scope and standard practice of the <i>relevant industry sector</i>.</p> <p>1.2 <i>Work health and safety (WHS) requirements</i> on site are identified and followed.</p> <p>1.3 <i>Tools and equipment</i> required for inspection and measurement and for producing the drawings are gathered and checked for safety and serviceability.</p> |
| 2 | Create simple sketches and drawings. | <p>2.1 Inspection of the relevant area is carried out and required measurements are taken and recorded.</p> <p>2.2 Any incursions into the fabric of the building for inspection and measuring purposes are made with the least amount of disruption and made good to the relevant standards and finish.</p> <p>2.3 Suitable views are selected and simple sketches and drawings created using standard drawing conventions and incorporating relevant codes and standards.</p> <p>2.4 Sectional drawings of structural elements are created using standard drawing conventions.</p> |

- 2.5 ***Sustainability principles and concepts*** are observed when preparing for and undertaking work process.
- 3 Notate and process drawings.
- 3.1 Essential information is recorded on the drawing with symbols and abbreviations according to standard drawing conventions.
- 3.2 Drawings are labelled, dated and processed according to organisational administration and quality procedures.

Required Skills and Knowledge

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

Required skills

- communication skills to:
 - confirm job specifications and requirements orally and in writing
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - use language and concepts appropriate to cultural differences
 - use and interpret non-verbal communication, such as hand signals
- creative design, drawing and drafting skills, including use of drafting equipment
- literacy skills to:
 - read and interpret a range of documents, such as design briefs, sketches, drawings and plans
 - read, interpret and apply relevant standards and codes
- numeracy skills to apply measurements and make calculations
- planning and organising skills to:
 - plan and set out work
 - ensure coordinated development of sketches and drawings
- teamwork skills to work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- technology skills to access and understand site-specific instructions

Required knowledge

- drawing conventions and features, including direction, scale, key, contours, symbols and abbreviations
- drawing techniques
- requirements of relevant codes, standards and statutory requirements
- safe work methods
- other services and penetrations to be considered

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 a workplace or closely simulated 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 who demonstrates competency in this unit must be able to provide evidence of:

- producing clear and effective drawings and sketches with appropriate notations and labelling by creating a set of sketches and drawings for a small work project in the relevant field of expertise, including:
 - application of sustainability principles and concepts
 - measurements and details of components, sub-assemblies, products and models
 - correct calculations of required dimensions
 - other drafting details based on measurements and other relevant information
 - notations and labelling.

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.

Types of drawings required include:

- floor plans
- land boundaries and footprint of building
- orthographic drawings
- schematic drawings of wiring and pipework
- sectional views.

Key features to be recorded may include:

- for building and construction sketches:
 - ceiling heights and variations
 - doors
 - light fittings and power supplies
 - services
 - wall penetrations
 - walls
- for plumbing services sketches:
 - drains
 - equipment locations
 - fittings
 - incoming water supplies
 - lighting and power supplies
 - obstructions
 - service penetrations
- for fire services sketches:
 - incoming water supplies
 - layout of automatic fire detection and alarm systems

- lighting
- location of hydrants and hose reels
- obstructions
- passive fire protection
- power supplies
- service penetrations
- for mechanical services sketches:
 - air conditioning requirements
 - ceilings
 - doors
 - lighting and power supplies
 - obstructions
 - walls
 - windows (opening and non-opening).

Relevant industry sectors and their requirements include 2-D and 3-D manual sketches and drawings of building and construction work, including:

- all classes of buildings as defined in the National Construction Code:
 - commercial
 - domestic
 - industrial
 - residential
- plumbing services work, including:
 - gas
 - hydrant and hose reel systems
 - residential and domestic fire sprinkler systems
 - sanitary plumbing and drainage
 - stormwater systems
 - water supply and distribution
- fire services work, including:
 - alarm and detection systems
 - commercial and industrial fire sprinklers systems
 - emergency evacuation
 - hydrant and hose reel systems
 - intercommunication warning systems
 - passive protection
 - residential and domestic fire sprinkler systems
 - smoke and heat venting and air control systems
 - special hazards

- mechanical services work, including:
 - air handling systems
 - air conditioning systems
 - refrigeration systems
 - smoke and heat venting systems.

Work health and safety requirements may include:

- details of power supplies
- details of all services
- installation of scaffolding
- understanding of hazards located in the area
- use of personal protective equipment.

Tools and equipment include:

- recording devices, such as:
 - computers
 - digital cameras
 - pen and paper.

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.