



Australian Government

CPCCV1002B Undertake a basic computer design project

Release 1

CPCCVE1002B Undertake a basic computer design project

Modification History

Minor changes throughout unit
Equivalent to CPCCVE1002A

Unit Descriptor

This unit of competency specifies the outcomes required to undertake a basic computer design project involving the design of a simple structure, such as a barbecue area, deck, pergola or shed. It includes interpreting a client brief, applying the computer design software, refining the design, and final production of the design in plan and elevation format.

Application of the Unit

This unit supports the attainment of understanding how to design a basic construction project using relevant computer equipment and software.

Licensing/Regulatory Information

Not applicable.

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 | Plan and prepare for the design. | 1.1 Work health and safety (WHS) requirements, including ergonomic and personal protection needs are observed throughout the work. |
| | | 1.2 Outline action plan is prepared, taking into account scope of work to be done, available time and a critical issues timeline. |
| | | 1.3 Equipment and materials, including available computing systems, required for the work are identified and obtained or scheduled. |
| | | 1.4 Detail of the design requirement is identified from a prepared client brief and relevant information . |
| | | 1.5 Details of client's preferred construction materials are confirmed with relevant supervisor. |
| | | 1.6 Details of services, inclusions and quality requirements are confirmed with relevant supervisor. |
| 2 | Prepare the first draft design. | 2.1 Design software capable of producing required results is selected. |
| | | 2.2 Design system is prepared for use following authorised set-up procedures. |
| | | 2.3 Design parameters and other relevant information for the proposed structure are progressively placed into the computer system. |
| | | 2.4 Design information is modified in the system as anomalies and errors become apparent and the transactions are recorded. |
| | | 2.5 First draft design is completed and prepared for presentation to the client. |
| 3 | Refine and confirm the design requirements. | 3.1 First draft design, together with justifications for departure from the client brief, are explained to relevant supervisor for negotiation with the client. |
| | | 3.2 Details of variations to the design that the relevant supervisor has negotiated and agreed with the client are |

noted and confirmed.

- 4 Finalise the design.
 - 4.1 Agreed variations to the first draft design are converted to usable data that meets ***statutory and regulatory authority*** requirements.
 - 4.2 Variations are incorporated into the design using software capabilities.
 - 4.3 Required explanatory information and margin note detail are incorporated into the design.
 - 4.4 Design is finalised, titled and presented in both plan and elevation form to the relevant supervisor.

Required Skills and Knowledge

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

Required skills

Required skills for this unit are:

- communication skills to:
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - present design plan and negotiate and agree on plan with supervisor
 - read and interpret:
 - documentation from a variety of sources
 - drawings and specifications
 - use language and concepts appropriate to cultural differences
 - use and interpret non-verbal communication, such as hand signals
 - written skills to prepare an outline action plan and develop and finalise a design
- creative design, drawing and drafting skills, including use of drafting equipment
- initiative and enterprise skills to identify and accurately report to appropriate personnel any faults in tools, equipment or materials
- numeracy skills to apply measurements and calculations, including basic calculations of height, areas, volumes and grades
- planning and organising skills to:
 - ensure coordinated development of sketches and drawings
 - plan and set out work
- 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 operate computer-aided design (CAD) software systems.

Required knowledge

Required knowledge for this unit is:

- basic calculations of height, areas, volumes and grades
- CAD software systems and user techniques
- commonly used construction terminology, symbols and abbreviations
- commonly used residential construction materials and their applications
- features of plans and elevations, including orientation, direction, scale, key, contours, symbols and abbreviations
- fundamentals of design in terms of space, access, flow and function

- impact on design of environmental requirements
- impact on design of quality requirements
- project quality requirements
- techniques for reading and interpreting plans.

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, 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 the ability to:

- locate, interpret and apply relevant information, standards and specifications
- comply with OHS regulations and state and territory legislation applicable to the design function
- comply with organisational policies and procedures, including quality requirements
- communicate and work effectively and safely with others
- design a residential structure, including:
 - interpreting and confirming a client brief
 - producing, using a CAD system, a first draft design
 - finalising the design and presenting it, in both plan and elevation form, to the client.

Context of and specific resources for assessment

This unit of 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 mandatory 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.

Work health and safety is to be in accordance with legislation, regulations, codes of practice, organisational safety policies and procedures, and project safety plan and may include:

- emergency procedures related to the design function, such as extinguishing fires
- personal protective equipment prescribed under legislation, regulation and workplace policies and practices
- state or territory legislation and regulations and organisational safety policies and procedures, which include:
 - ergonomics
 - use of materials and equipment
 - workplace environment and safety.

Scope of work includes:

- CAD software that accepts and manipulates data to present design options and outcomes, with results possibly represented in two or three dimensional form
- client brief that is a definitive and documented description of the user requirements in terms of dimensions, services, construction materials and other defined requirements
- plans that include a title panel, amendment detail, orientation, legend information, industry symbols and abbreviations, material information and relevant finishes/standards of work

- services in the client brief that include power or plumbing systems
- simple domestic or residential structure, such as a barbecue area, deck, pergola or shed.

Information includes:

- CAD software packages and related user information
- diagrams or sketches
- instructions issued by authorised organisational or external personnel
- manufacturer specifications and instructions for major equipments
- maps
- memos
- regulatory and legislative requirements pertaining to design of residential structures
- relevant Australian standards
- safe work procedures related to design work
- verbal, written and graphical instructions.

Quality requirements include relevant regulations, including:

- Australian standards
- internal company quality policy and standards
- manufacturer specifications, where specified.

Statutory and regulatory authorities include:

- commonwealth, state or territory, and local authorities administering applicable Acts, regulations and codes of practice.

Unit Sector(s)

Functional area

Unit sector

Construction

Custom Content Section

Not applicable.