



Australian Government

Department of Education, Employment and Workplace Relations

CPCCV1002A Undertake a basic computer design project

Release: 1

CPCCVE1002A Undertake a basic computer design project

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit of competency specifies the outcomes required to undertake a basic computer design project involving the design of a simple residential structure. It includes interpretation of a client brief, application of the computer design software, refining of the design through consultation with the client, and final production of the design in plan and elevation format.
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Application of the Unit

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

Not Applicable

Pre-Requisites

Prerequisite units	Nil
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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. Plan and prepare for the design.	1.1. Workplace health and safety (OHS) requirements, including ergonomic and personal protection needs are observed throughout the work. 1.2. An outline action plan taking into account scope of work to be done, available time and a critical issues timeline is prepared. 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 preferred construction materials are confirmed with the client. 1.6. Details of services, inclusions and quality requirements are confirmed with the client.
2. Prepare the first draft design.	2.1. Design software is selected capable of producing required results. 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 is progressively placed into the computer system. 2.4. Design information is modified within the system as anomalies and errors become apparent and the transactions are recorded for subsequent discussion with the client. 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 negotiated with the client. 3.2. Variations to the design are discussed, negotiated and agreed with the client.
4. Finalise the design.	4.1. The 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.

ELEMENT**PERFORMANCE CRITERIA**

4.4. Design is finalised, titled and presented in both plan and elevation form to the client.

Required Skills and Knowledge

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:
 - determine client requirements
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - present design plan and to negotiate and agree on plan
 - 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
- identifying and accurately reporting 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 organisational skills, including the ability 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
- technological skills to:
 - use a range of mobile technology, such as two-way radio and mobile phones
 - voice and hand signals to access and understand site-specific instructions.

Required knowledge

REQUIRED SKILLS AND KNOWLEDGE

Required knowledge for this unit is:

- basic calculations of height, areas, volumes and grades
- commonly used construction terminology, symbols and abbreviations
- commonly used residential construction materials and their applications
- computer-aided design (CAD) software systems and user techniques
- 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

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 minimum of a full size one bedroom

EVIDENCE GUIDE

Context of and specific resources for assessment

home or equivalent (including a bedroom, lounge, kitchen and bathroom of not less than 30 square metres), including:

- interpret and confirm a client brief
- produce, using a CAD system, a first draft design
- negotiate final design requirements with the client
- finalise the design and its presentation, in both plan and elevation form, to the client.

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 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

EVIDENCE GUIDE

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

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.

Safety (OHS) 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, including extinguishing fires, organisational first aid requirements and evacuation
- 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
 - personal protective clothing
 - 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 functional rooms, 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 systems, plumbing systems and major equipment, such as refrigeration/freezer, audiovisual and air conditioning/heating
- simple domestic or residential structure of a minimum of a full size one bedroom home or equivalent (including a bedroom, lounge, kitchen and bathroom) of not less than 30 square metres.

RANGE STATEMENT

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:

- federal, state and local authorities administering applicable Acts, regulations and codes of practice.

Unit Sector(s)

Unit sector Construction

Co-requisite units

Co-requisite units Nil

Functional area

Functional area