



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **CPPBDN5012A Produce and present 3-D models of small-scale building designs**

**Release: 1**

## **CPPBDN5012A Produce and present 3-D models of small-scale building designs**

### **Modification History**

New unit

### **Unit Descriptor**

This unit of competency specifies the outcomes required to produce three-dimensional (3-D) models for building design projects covered by the Building Code of Australia (BCA), except construction Type A buildings.

It also covers demonstrating and discussing the representations with clients and stakeholders.

### **Application of the Unit**

This unit of competency supports building designers who prepare and present 3-D models to clients and stakeholders to illustrate concepts of small-scale building design projects.

### **Licensing/Regulatory Information**

Work in this area must be completed according to relevant legislative, industry and organisational requirements, including occupational health and safety (OHS) policies and procedures.

Different states and territories may have regulatory mechanisms that apply to this unit. Users are advised to check for regulatory limitations.

### **Pre-Requisites**

Not applicable.

### **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

- |   |   |     |   |
|---|---|-----|---|
| 1 | Set up and manage digital files               | 1.1 | Files for digital 3-D models of <b><i>small-scale building design projects</i></b> are created, named, saved and retrieved according to project and workplace requirements. |
|   |   | 1.2 | Digital two-dimensional (2-D) drawing files are imported as required using appropriate file transfer protocols.   |
|   |   | 1.3 | Files are exported and transferred for client and consultant use in required formats using appropriate file transfer protocols.   |
| 2 | Create digital 3-D models of building designs | 2.1 | Sources of customised <b><i>architectural objects</i></b> for digital 3-D models are identified and accessed.   |
|   |   | 2.2 | 3-D modelling functions of design software are operated to create 3-D model and additional objects according to project and workplace requirements.                         |
|   |   | 2.3 | Architectural objects are applied to 3-D models according to project and workplace requirements.  |
| 3 | Produce 3-D model presentation                | 3.1 | 3-D models are manipulated to create a range of <b><i>views</i></b> according to project and workplace requirements.  |
|   |   | 3.2 | Dimensions and <b><i>notations</i></b> are applied to views as required.  |
|   |   | 3.3 | 3-D models are checked for accuracy, completeness and quality according to workplace procedures.  |
|   |   | 3.4 | Presentation styles and <b><i>display controls</i></b> are selected and applied according to project and workplace requirements.  |

- 4 Present digital 3-D models to clients
  - 4.1 3-D models are presented and explained to client to ensure client understanding of designs, according to workplace procedures.
  - 4.2 Client feedback is encouraged and incorporated into models.
  - 4.3 Files for finalised 3-D models are saved and processed according to project and workplace requirements.

## Required Skills and Knowledge

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

### Required skills

- administration and management skills to:
  - manage documents
  - manage time, including planning and prioritising work
- analytical and problem-solving skills to develop innovative ideas and designs
- interpersonal skills to interact with clients and other stakeholders
- language, literacy and numeracy skills to:
  - calculate dimensions and scales for models
  - communicate with clients and contacts
  - interpret and apply complex information, including legislation, regulations, codes and standards, and software operation instructions
  - present design options to clients
- technical skills to:
  - apply compliance requirements, including drawing standards
  - produce accurate design documentation
- technology skills to use information technology and 3-D modelling software

### Required knowledge

- architectural styles and terminology
- basic principles of structural engineering
- building designers' duty of care to ensure quality and safety of designs
- contextual and site constraints
- conventional and sustainable construction materials and methods, including their application, behaviour, characteristics, performance and interactions with other materials
- design drawing and representation methods
- digital file management procedures
- functions and operation of 3-D modelling software programs
- hazards of site, materials, construction practices and building use over life cycle
- key features of building life cycles
- legislation, codes and standards relevant to sustainable design requirements for small-scale building design projects
- organisational scope of business, service levels and fees
- principles of sustainable design
- scientific and social principles of human interactions with the built environment

## 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.

<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>	<p>A person should demonstrate the ability to:</p> <ul style="list-style-type: none"> <li>• produce digital 3-D models of a range of building designs that meet client expectations and workplace requirements</li> <li>• present digital 3-D models of a range of building designs to clients, including:             <ul style="list-style-type: none"> <li>• explaining design using terms appropriate to clients' understanding</li> <li>• encouraging and answering questions and feedback.</li> </ul> </li> </ul>
<p>Context of and specific resources for assessment</p>	<p>Assessment of this unit:</p> <ul style="list-style-type: none"> <li>• must be in the context of the work environment</li> <li>• may be conducted in an off-site context, provided it is realistic and sufficiently rigorous to cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills</li> <li>• must meet relevant compliance requirements.</li> </ul> <p>Resource implications for assessment include:</p> <ul style="list-style-type: none"> <li>• access to:             <ul style="list-style-type: none"> <li>• suitable assessment venue and equipment</li> <li>• suitable simulated or real opportunities and resources to demonstrate competence</li> </ul> </li> <li>• assessment instruments.</li> </ul>
<p>Method of assessment</p>	<p>Assessment for this unit must verify the practical application of the required skills and knowledge, using one or more of the following methods:</p> <ul style="list-style-type: none"> <li>• written and/or oral assessment of the candidates required knowledge for the unit</li> <li>• observed, documented and/or firsthand testimonial evidence of the candidates</li> <li>• implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes</li> <li>• identification of the relevant information and scope of the</li> </ul>

	<p>work required to meet the required outcomes</p> <ul style="list-style-type: none"><li>• identification of viable options and the selection of options that best meet the required outcomes</li><li>• consistently achieving the required outcomes.</li></ul>
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Guidance information for assessment	<p>This unit could be assessed on its own or in combination with other units relevant to the job function.</p> <p>Where applicable, physical resources should include equipment modified for people with disabilities.</p> <p>Access must be provided to appropriate learning and/or assessment support when required.</p> <p>Assessment processes and techniques must be culturally appropriate, and appropriate to the language and literacy capacity of the candidate and the work being performed.</p>
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## 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.

<b><i>Small-scale building design projects:</i></b>	<ul style="list-style-type: none"> <li>• include buildings covered by the BCA, except construction Type A buildings</li> <li>• may be residential projects, such as: <ul style="list-style-type: none"> <li>• additions and renovations</li> <li>• heritage restoration</li> <li>• new buildings</li> </ul> </li> <li>• may be commercial or industrial projects, such as: <ul style="list-style-type: none"> <li>• factories</li> <li>• motels</li> <li>• offices</li> <li>• restaurants</li> <li>• retail and service outlets</li> <li>• warehouses.</li> </ul> </li> </ul>
<b><i>Architectural objects</i></b> may include:	<ul style="list-style-type: none"> <li>• ceilings</li> <li>• doors</li> <li>• fittings</li> <li>• fixtures</li> <li>• floors</li> <li>• landscape</li> <li>• lighting</li> <li>• railings</li> <li>• roofs</li> <li>• stairs</li> </ul>



	<ul style="list-style-type: none"> <li>• walls</li> <li>• windows.</li> </ul>
<b>Views</b> may include:	<ul style="list-style-type: none"> <li>• elevations</li> <li>• orthographic 3-D views</li> <li>• perspective views</li> <li>• plans</li> <li>• sections.</li> </ul>
<b>Notation</b> may include:	<ul style="list-style-type: none"> <li>• comments</li> <li>• door and window numbers</li> <li>• floor finishes</li> <li>• references</li> <li>• room labels</li> <li>• schedules</li> <li>• titles.</li> </ul>
<b>Display controls</b> may include:	<ul style="list-style-type: none"> <li>• element visibility</li> <li>• hidden</li> <li>• lineweight control</li> <li>• material patterns</li> <li>• section box</li> <li>• shaded</li> <li>• shadows</li> <li>• wireframe.</li> </ul>

## Unit Sector(s)

Building design

## Custom Content Section

Not applicable.