



**Australian Government**

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

# **CPPBDN5009A Produce compliant client-approved designs for small-scale building design projects**

**Release: 1**

## **CPPBDN5009A Produce compliant client-approved designs for small-scale building design projects**

### **Modification History**

New unit

### **Unit Descriptor**

This unit of competency specifies the outcomes required to prepare, consult on and refine designs for building design projects, covered by Building Code of Australia (BCA), except construction Type A buildings, to produce client-approved drawings that comply with planning approval requirements.

It also covers the application of creative design skills, knowledge of human lifestyles and cycles, knowledge of safe and sustainable construction materials and methods, and includes consultation and collaboration with technical experts such as structural engineers.

### **Application of the Unit**

This unit of competency supports building designers who produce design drawings that meet client and compliance requirements for 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 | Plan, administer and produce design drawings                           | 1.1 | <b><i>Design drawings</i></b> required in planning approval application documentation for <b><i>small-scale building design projects</i></b> are confirmed with <b><i>relevant authorities</i></b> . |
|   |                                                                        | 1.2 | <b><i>Compliance requirements</i></b> to be addressed in design drawings are confirmed with relevant authorities.                                                                                    |
|   |                                                                        | 1.3 | Timelines and methodologies for producing final design drawings are established and followed.                                                                                                        |
|   |                                                                        | 1.4 | Drawings required from <b><i>technical experts</i></b> are specified, commissioned and obtained.                                                                                                     |
|   |                                                                        | 1.5 | Design drawings are set up, named and filed according to workplace procedures.                                                                                                                       |
| 2 | Refine spatial, structural and technical elements of building designs. | 2.1 | <b><i>Factors contributing to spatial requirements and relationships</i></b> are analysed and incorporated into building designs.                                                                    |
|   |                                                                        | 2.2 | Structural systems for small-scale buildings are reviewed, in consultation with technical experts as required, and appropriate systems are incorporated into building designs.                       |
|   |                                                                        | 2.3 | Construction and technical elements for small-scale buildings are reviewed, in consultation with technical experts as required, and appropriate elements are incorporated into building designs.     |
|   |                                                                        | 2.4 | Aesthetic fusion of design elements is visualised, analysed and refined in building designs.                                                                                                         |

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| 3 | Address health and safety issues in building designs   | 3.1 | Obligations of building designers for health and safety during construction and use of small-scale buildings are analysed.                                              |
|   |                                                        | 3.2 | Health and safety issues specific to design team, construction team and <i>users</i> are researched, in consultation with client and stakeholders, and analysed.        |
|   |                                                        | 3.3 | Risk analyses of construction and use of small-scale buildings are conducted and appropriate controls selected and applied to design drawings.                          |
|   |                                                        | 3.4 | <b><i>Health and safety documentation for the building</i></b> is created, processed and communicated to relevant personnel according to workplace procedures.          |
|   |                                                        |     |                                                                                                                                                                         |
| 4 | Refine sustainable design elements of building designs | 4.1 | <b><i>Optimum sustainable construction materials and methods</i></b> are selected and incorporated into building designs.                                               |
|   |                                                        | 4.2 | <b><i>Systems for sustainable water use</i></b> are reviewed and suitable systems are incorporated into building designs.                                               |
|   |                                                        | 4.3 | <b><i>Energy-efficient design principles</i></b> and <b><i>renewable energy sources</i></b> are reviewed and suitable solutions are incorporated into building designs. |
|   |                                                        |     |                                                                                                                                                                         |
| 5 | Obtain client approval of final design drawings        | 5.1 | Design drawings are assessed against client and compliance requirements and anomalies are addressed.                                                                    |
|   |                                                        | 5.2 | Design drawings are presented and explained to client and relevant stakeholders according to workplace procedures.                                                      |
|   |                                                        | 5.3 | Detailed client and stakeholder feedback is encouraged and discussed, and required amendments are negotiated.                                                           |
|   |                                                        | 5.4 | Design drawings are amended as required, and client approval is obtained, documented and processed according to workplace procedures.                                   |

## 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
  - select cost-effective products and materials that contribute to sustainable development
  - work out optimum compliant and cost-effective design solutions
- interpersonal skills to interact with clients and other stakeholders, including planning and regulatory personnel and technical experts
- language, literacy and numeracy skills to:
  - communicate with clients and contacts
  - estimate costs
  - interpret and apply complex information, including legislation, regulations, and codes and standards
  - present design options to clients
- technical skills to:
  - produce accurate design documentation
  - apply compliance requirements, including drawing standards
  - produce hand drawings
  - design from a brief
  - plan and carry out design, including visualising spaces, form, shapes and light
  - use design tools
- technology skills to use information technology and relevant 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 and their impact on the design process
- conventional and sustainable construction materials and methods, including their application, behaviour, characteristics, performance and interactions with other materials
- design development and approval processes and implications of changes to design at each

stage

- design drawing and representation methods
- 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
- planning processes and requirements
- pricing of resources
- 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.

|                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| <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>• plan and organise the production of design drawings to meet planning approval requirements</li> <li>• produce sets of building design drawings for at least three different small-scale projects, including residential and commercial or industrial projects, that meet quality requirements and are completed within given timelines</li> <li>• consult with clients, including: <ul style="list-style-type: none"> <li>• obtaining feedback</li> <li>• negotiating and finalising adjustments.</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</li> </ul> </li> </ul> |

|  |                                                                                                                                     |
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|  | <p style="text-align: center;">demonstrate competence</p> <ul style="list-style-type: none"><li>• assessment instruments.</li></ul> |
|--|-------------------------------------------------------------------------------------------------------------------------------------|

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| <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 work required to meet the required outcomes</li> <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> |
| <p>Guidance information for assessment</p> | <p>This unit could be assessed on its own or in combination with other units relevant to the job function.<br/>Where applicable, physical resources should include equipment modified for people with disabilities.<br/>Access must be provided to appropriate learning and/or assessment support when required.<br/>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>                                                                                                                                                                                                                                                                                                                            |

## 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.

|                                                   |                                                                                                                                                                                                                                                                                                                                            |
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| <p><b><i>Design drawings</i></b> may include:</p> | <ul style="list-style-type: none"> <li>• drawings produced by building designers or technical experts</li> <li>• elevations</li> <li>• plans, including:             <ul style="list-style-type: none"> <li>• contour</li> <li>• demolition</li> <li>• floor</li> <li>• framing</li> <li>• roof</li> </ul> </li> <li>• sections</li> </ul> |
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|  | <ul style="list-style-type: none"><li>• site analyses</li><li>• landscape designs</li><li>• services layout.</li></ul> |
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| <p><b><i>Small-scale building design projects:</i></b></p> | <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>                     |
| <p><b><i>Relevant authorities</i></b> may include:</p>     | <ul style="list-style-type: none"> <li>• local council planning department</li> <li>• federal, state or territory government departments for:             <ul style="list-style-type: none"> <li>• energy</li> <li>• environment</li> <li>• heritage</li> <li>• infrastructure</li> <li>• services</li> </ul> </li> <li>• regulatory authorities in country of project location.</li> </ul>                                                                                                                                                                                                                               |
| <p><b><i>Compliance requirements</i></b> may include:</p>  | <ul style="list-style-type: none"> <li>• Australian standards</li> <li>• BCA</li> <li>• codes and standards applicable:             <ul style="list-style-type: none"> <li>• at project locations</li> <li>• in particular conditions</li> </ul> </li> <li>• legislation, regulations and local by-laws relating to:             <ul style="list-style-type: none"> <li>• conservation</li> <li>• construction materials and methods</li> <li>• energy</li> <li>• environment</li> <li>• heritage</li> <li>• OHS</li> <li>• planning</li> <li>• water</li> </ul> </li> <li>• local authority planning schemes.</li> </ul> |
| <p><b><i>Technical experts</i></b> may include:</p>        | <ul style="list-style-type: none"> <li>• construction contractors</li> <li>• landscape designers</li> <li>• service contractors</li> <li>• structural engineers</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                |

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|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                           | <ul style="list-style-type: none"> <li>• surveyors.</li> </ul>                                                                                                                                                                                                              |
| <b><i>Factors contributing to spatial requirements and relationships</i></b> may include: | <ul style="list-style-type: none"> <li>• air circulation and user movement patterns</li> <li>• anthropometrics</li> <li>• building occupancy and functions</li> <li>• ergonomics</li> <li>• landscaping</li> <li>• massing</li> <li>• scale transition.</li> </ul>          |
| <b><i>Users</i></b> may include:                                                          | <ul style="list-style-type: none"> <li>• maintenance and service personnel</li> <li>• occupants</li> <li>• visitors</li> <li>• users in subsequent life cycle stages of buildings.</li> </ul>                                                                               |
| <b><i>Health and safety documentation for the building</i></b> may include:               | <ul style="list-style-type: none"> <li>• residual risk register</li> <li>• information relating to: <ul style="list-style-type: none"> <li>• construction materials and methods</li> <li>• location of services and machinery</li> <li>• warranties.</li> </ul> </li> </ul> |
| <b><i>Optimum sustainable construction materials and methods</i></b> may include:         | <ul style="list-style-type: none"> <li>• cost-effective sustainable design solutions</li> <li>• latest sustainable design technologies</li> <li>• locally available sustainable construction materials.</li> </ul>                                                          |
| <b><i>Systems for sustainable water use</i></b> may include:                              | <ul style="list-style-type: none"> <li>• black water systems</li> <li>• bladder storage</li> <li>• filter beds</li> <li>• grey water systems</li> <li>• rainwater tanks</li> <li>• run-off retention.</li> </ul>                                                            |
| <b><i>Energy-efficient design principles</i></b> may include:                             | <ul style="list-style-type: none"> <li>• appliance selection</li> <li>• building location and orientation</li> <li>• low energy lighting</li> <li>• solar hot water systems</li> <li>• star rated appliances</li> <li>• window coverings and glazing.</li> </ul>            |
| <b><i>Renewable energy sources</i></b> may include:                                       | <ul style="list-style-type: none"> <li>• biomass energy</li> <li>• geothermal energy</li> <li>• hydroelectric energy</li> <li>• solar energy</li> <li>• wind energy.</li> </ul>                                                                                             |

## **Unit Sector(s)**

Building design

## **Custom Content Section**

Not applicable.