



**Australian Government**

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

# **CPPBDN5007A Inspect and analyse sites and produce measured drawings for small- scale building design projects**

Release: 1

## **CPPBDN5007A Inspect and analyse sites and produce measured drawings for small-scale building design projects**

### **Modification History**

New unit

### **Unit Descriptor**

This unit of competency specifies the outcomes required to inspect sites for commercial, industrial and residential building design projects covered by the Building Code of Australia (BCA), except construction Type A buildings. Site inspections are conducted to determine contours and measurements; existing conditions, structures, features and services; and neighbourhood characteristics.

The unit also covers analysing sites; determining orientation and layout of building, access and egress points, and existing utilities and services infrastructure; and producing measured drawings.

### **Application of the Unit**

This unit of competency supports building designers who gather and correlate field data from small-scale building design project sites and produce accurate measured drawings.

### **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	Inspect sites for small-scale building design projects	1.1	Site inspection tasks for <i>small-scale building design projects</i> are planned with reference to relevant <i>site information</i> and <i>workplace procedures</i> .
		1.2	Site is inspected, sketched and where required photographed, and <i>existing characteristics</i> are noted according to workplace procedures.
		1.3	<i>Features of surrounding area</i> that may affect design options are investigated and noted according to workplace procedures.
2	Measure and record site dimensions	2.1	Linear site dimensions are measured or calculated, and recorded according to workplace procedures.
		2.2	Levelling devices are set up and adjusted according to manufacturer instructions and workplace procedures.
		2.3	Horizontal and vertical angles are determined and recorded.
3	Plot contours and cut and fill areas	3.1	Contour lines are interpolated from spot level values and plotted on site plan.
		3.2	Cut and fill areas are measured or calculated and plotted in plan and section drawings.
4	Analyse site and produce measured drawings	4.1	Field data is correlated and applied to production of measured drawings according to workplace procedures.
		4.2	Orientation and layout of <i>key design elements</i> are determined, in consultation with technical experts as

required, and added to measured drawings.

- 4.3 Measured drawings and relevant site analysis documentation are finalised within project timelines 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:
  - apply design principles and theories within regulatory requirements
  - correlate site information from different sources
  - respond to the challenges of irregularly shaped sites
- language, literacy and numeracy skills to:
  - calculate measurements
  - communicate with clients and colleagues
  - interpret complex documents, including:
    - client briefs
    - compliance requirements
    - land titles
    - reports
    - site plans
- technical skills to:
  - apply on-site OHS procedures
  - apply drawing skills, including:
    - drawing to scale
    - field sketching
    - producing measured drawings based on field data
  - take accurate measurements using basic surveying equipment, including:
    - chains and tapes
    - global positioning systems (GPS)
    - automatic, dumpy and tilting levels
    - theodolites
- technology skills to use information technology and relevant software

### Required knowledge

- architectural styles and terminology

- construction materials and methods to accurately assess materials and methods used in existing on-site and neighbouring buildings
- contextual and site constraints
- design development processes and uses of on-site measured drawings in these processes
- key features of building life cycles to accurately assess potential for re-use of existing buildings
- legislation, codes and standards relevant to small-scale building design projects, including:
  - drawing standards
  - OHS
- organisational scope of business, service levels and fees
- principles of building design, including sustainable design
- safe operating procedures for basic levelling and surveying equipment

## 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>• safely and thoroughly inspect at least three sites for small-scale building design projects, each site having significantly different features and characteristics</li> <li>• observe and document relevant features and characteristics of sites and neighbouring areas</li> <li>• accurately measure or calculate relevant angles, contours and dimensions</li> <li>• produce sets of accurate and scaled measured site drawings.</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>

	<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.</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>

## 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.

<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> </ul> </li> </ul>
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	<ul style="list-style-type: none"><li>• offices</li><li>• restaurants</li><li>• retail and service outlets</li><li>• warehouses.</li></ul>
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<p><b><i>Site information</i></b> may include:</p>	<ul style="list-style-type: none"> <li>• compliance requirements</li> <li>• environmental reports, including:             <ul style="list-style-type: none"> <li>• climate</li> <li>• flora and fauna</li> <li>• soil</li> <li>• water catchment</li> </ul> </li> <li>• maps</li> <li>• overlays</li> <li>• service and utility layouts</li> <li>• site plans</li> <li>• titles.</li> </ul>
<p><b><i>Workplace procedures</i></b> may include:</p>	<ul style="list-style-type: none"> <li>• access arrangements</li> <li>• drawing production systems and procedures</li> <li>• equipment operation and maintenance procedures</li> <li>• hazard and risk assessment and control</li> <li>• OHS requirements</li> <li>• project management procedures.</li> </ul>
<p><b><i>Existing characteristics</i></b> of a site may include:</p>	<ul style="list-style-type: none"> <li>• access</li> <li>• boundaries</li> <li>• buildings, including:             <ul style="list-style-type: none"> <li>• materials and methods</li> <li>• structural integrity</li> </ul> </li> <li>• contours</li> <li>• easements</li> <li>• features</li> <li>• fences</li> <li>• flora, especially significant trees</li> <li>• relationship to adjoining properties</li> <li>• services, including power, telecommunications and water supply</li> <li>• structures</li> <li>• views</li> <li>• water and drainage, including:             <ul style="list-style-type: none"> <li>• absorption and transpiration areas</li> <li>• ground water</li> <li>• rainwater tanks</li> <li>• roof water</li> <li>• sewerage treatment plant</li> <li>• stormwater.</li> </ul> </li> </ul>
<p><b><i>Features of surrounding</i></b></p>	<ul style="list-style-type: none"> <li>• architectural styles of buildings and structures</li> <li>• dimensions, locations and uses of adjacent buildings and</li> </ul>

<i>area</i> may include:	structures, including: <ul style="list-style-type: none"><li>• aesthetics</li><li>• noise produced</li><li>• shade cast on site</li><li>• traffic</li><li>• landscaping, including significant trees</li><li>• street features and furniture, such as poles and cables.</li></ul>
<i>Key design elements</i> may include:	<ul style="list-style-type: none"><li>• access and egress points</li><li>• buildings</li><li>• existing utilities and services infrastructure.</li></ul>

## **Unit Sector(s)**

Building design

## **Custom Content Section**

Not applicable.