



Australian Government

Department of Education, Employment and Workplace Relations

CPCCBBC4037A Prepare drawings for heritage works

Release: 1

CPCCB4037A Prepare drawings for heritage works

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit of competency specifies the outcomes required to prepare drawings for heritage works associated with historic buildings and structures of cultural significance. To successfully prepare drawings requires a comprehensive understanding of architectural forms, specifically period architecture, and appropriate drafting techniques. The unit requires the ability to interpret specifications for drawings, measure and calculate dimensions accurately, and work to scale.

Application of the Unit

Application of the unit

This unit of competency supports builders, project managers and related construction industry professionals responsible for heritage works during residential and commercial projects.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units Nil

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 drawing requirements.	1.1. Specifications for drawing are identified from request or conservation authority requirements. 1.2. Dimensions of the historical or significant building are determined in accordance with appropriate methods, taking into account the type of structure, access to details and previous drawings available, if applicable. 1.3. Method of recording feature details is determined in accordance with nature of the feature, location and accessibility. 1.4. Method and system of recording identification, location and dimensional information are determined and applied in accordance with requested drawing requirements. 1.5. Equipment and instruments required are identified, listed and used in accordance with recording task requirements.
2. Organise information for drawing preparation.	2.1. Information is gathered and organised to determine overall dimensions of the building, structure or details to be drafted. 2.2. Information is gathered to identify and group all recorded details associated with each area or section of the building or structure. 2.3. Size of the drawing and scale to be used is determined in accordance with dimensions of building, structure or section. 2.4. Sketches, tracings or photographs of recorded features are identified and located with other recorded information related to feature work.
3. Draw or develop orthographic description.	3.1. Block layout of views and designed spacings, where applicable, are drawn or developed to planned layout and scaled accurately to recorded or calculated dimensions. 3.2. Orthographic description views are detailed to show visible lines of structure and elements as seen with each view to correct scale representation of recorded dimensions. 3.3. Architectural drawing conventions, symbols and hatching, where applicable, are shown on drawings in accordance with AS1100.301 - 1985 Architectural Drafting.

ELEMENT	PERFORMANCE CRITERIA
4. Draw or develop sectional detailed drawings.	3.4. Plans of large buildings are produced by use of grids, where applicable, to provide cross-referencing and dimensioning by coordinates. 3.5. Dimensions and reference notations are located relevantly on drawings to provide full detailed descriptions as required with each view. 3.6. Appendices and reference details of drawing are provided with drawing as required and in accordance with overall request. 4.1. Sectional detailed drawings are drawn or developed to scale to show detailed structural description of relationship between elements in accordance with recorded dimensions. 4.2. Architectural hatching is shown on drawings to represent materials, in accordance with relevant Australian standards. 4.3. Dimensions and reference notation are located on drawings to provide full details of sectional description.
5. Develop detailed drawings of feature work.	5.1. Photographic recording of feature work shape and design is enlarged by photocopying to provide more realistic size for analysis and reproduction. 5.2. Gridlines are determined in accordance with actual dimensions of the feature work shape and are reproduced to enlarged photocopy. 5.3. Enlarged photocopy is closely examined for distortion from the photographing process and adjustments are made to the design, as necessary. 5.4. Tracing recordings are examined in accordance with the whole feature or part thereof and linked with other tracings or sketches to ascertain the feature shape to be reproduced. 5.5. Design shape drawings are developed to produce accurate design to scale with grid lines where applicable. 5.6. Cross-sectional details are produced accurately to scale, to provide three-dimensional information. 5.7. Dimensions, reference notation, specific location and appendices are produced for drawings in accordance with client request or design aims.
6. Complete work.	6.1. Drawings are checked for accuracy, clarity of line, completeness of drawing and associated dimensions and details.

ELEMENT	PERFORMANCE CRITERIA
	6.2. Copies are made, where applicable, in accordance with original request.
	6.3. Production details and coded reference information are recorded.

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:

- ability to use instruments and equipment for measuring
- communication skills to:
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - read and interpret:
 - documentation from a variety of sources
 - plans, specifications and drawings
 - use and interpret non-verbal communication
 - use language and concepts appropriate to cultural differences
 - written skills to record relevant information
- numeracy skills to calculate measurements
- organisational skills, including the ability to set out work
- work to scale.

Required knowledge

Required knowledge for this unit is:

- Australian standards - AS1100.101 and AS1100.301
- conservation processes, including good conservation practice arising from principles of Burra Charter
- finishing trade applications to materials
- methods and processes relating to historic building construction, including the range and use of building materials, structure of buildings and drafting techniques
- methods of measuring
- relevant architectural knowledge, including orders of architecture and the characteristics and features of period architecture

REQUIRED SKILLS AND KNOWLEDGE

- workplace and equipment safety requirements, including relevant statutory regulations, codes and standards.

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 by carrying out the necessary preparatory processes and developing at least two examples of each form of drawing specified, using sample or case study heritage projects for any of the buildings listed in the range statement.

This unit of competency can 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:

- clearly understand conservation considerations and consultative processes associated with preservation of historic structures
- clearly appreciate preservation of fabric
- comply with OHS regulations applicable to workplace operations
- apply organisational quality procedures and processes within the context of preparing drawings to conservation requirements
- apply recording and identification system for measurements, locations and details
- select and use appropriate processes, instruments and equipment to measure and record information
- use appropriate and safe techniques to obtain measurements and details
- apply accurate techniques in preparing information for related drawings
- select and use appropriate techniques to ascertain accurate analysis of featured design shapes

EVIDENCE GUIDE

- apply techniques to ensure all relevant information is included in orthographic description
- select and use appropriate techniques to produce accurate, sharp and complete drawings.

Context of and specific resources for assessment

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:

- historic locations appropriate to competency range
- drafting and computer equipment
- equipment relevant to measuring processes.

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

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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.

Historical or significant building includes:

- built or sculptured artefacts
- cathedrals and churches
- civic buildings
- commercial and retail buildings
- doors

RANGE STATEMENT

	• external features • fences • government buildings • houses • mansions • out buildings • walls • wharves • windows.
Methods include:	• accurately trace shapes or features • calculate height by use of levelling equipment and/or trigonometry • physically tape and measure all internal and external measurement • scale proportion of roof, chimney and spire heights from photograph where wall height is determined.
Feature work includes:	• decorative tiling • mosaic tiling • ornamental mouldings • ornamental plasterwork • ornamental stonework.
Orthographic description includes:	• front, rear and side elevations • plans • sectional elevations • sectional plans.
Sectional detailed drawings include:	• ceiling and roof framing construction • ceiling construction • chimney construction • cladding details • external wall construction • fence construction • footings and foundation • internal wall construction • roofing details • sub-floor construction.
Development of drawings includes:	• computer aided drafting • drafting techniques • drawings developed in accordance with National Trust guidelines or in accordance with AS1100.101 - 1992 Technical Drawing -

RANGE STATEMENT

General Principles, and AS1100.301 - 1985
Architectural Drawing.

Unit Sector(s)

Unit sector Construction

Co-requisite units

Co-requisite units Nil

Functional area

Functional area