



Australian Government

Department of Education, Employment and Workplace Relations

MEM09222A Interpret and maintain or restore original drawings

Release: 1

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Modification History

Release 1 - New unit of competency

Unit Descriptor

This unit of competency covers the skills and knowledge required to identify and interpret original drawings that contain historical information and/or dated presentation protocols, maintain or restore documents and convert information to contemporary formats, including to computer-aided design (CAD) files.

Application of the Unit

This unit is suitable for those working within a drafting work environment. Drawings include blueprints and other hard copy originals that may be used to inform current assembly, detail or design information, or hold other historical value.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Pre-Requisites

MEM30032A Produce basic engineering drawings

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

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| 1 | Analyse document components | 1.1 | Identify the purpose and scope of drawing and application for current work needs |
| | | 1.2 | Examine and interpret drawing protocols applied, symbols, version, origin and completeness of information provided, and identify and address further information needs |
| | | 1.3 | Examine condition of document and determine requirements for presentation, maintenance or restoration |
| | | 1.4 | Identify and prepare equipment required to complete work |
| 2 | Maintain or restore document | 2.1 | Apply treatment or preservation techniques, as required, to restore or maintain document |
| | | 2.2 | Ensure document details are updated and required storage and filing conditions are prepared |
| 3 | Transfer data to CAD format, where required | 3.1 | Determine and verify dimensions and notations |
| | | 3.2 | Select and prepare CAD software and work environment |
| | | 3.3 | Apply standard drawing conventions and techniques according to work requirements |
| | | 3.4 | Produce drawings using CAD that reflect detail provided in original drawing |
| 4 | Complete drawing task | 4.1 | Check and confirm dimensions, angles and proportions |
| | | 4.2 | Ensure drawing is presented according to organisational requirements and contains all relevant and accurate information |
| | | 4.3 | Issue and file drawing according to workplace procedure |
| | | 4.4 | Evaluate work and identify areas for improvement |
| | | 4.5 | Plot or print the final drawing to a standard scale |

Required Skills and Knowledge

Required skills

Required skills include:

- literacy skills sufficient to read and interpret instructions and specifications for drawings work
- obtaining all relevant job requirements, data/information and specifications necessary to produce the drawing in accordance with workplace procedures
- planning and sequencing operations
- checking and clarifying task-related information
- using computer technologies and navigating software
- numeracy skills sufficient to interpret technical information and conduct mathematical problem solving as required in the scope of this unit
- applying spatial principles to achieve scale and proportion
- applying manual drawing and sketching techniques including correct use of lines, angles and curves, symbols and drawing conventions
- using manual drafting equipment appropriate to the drawing and chosen restoration method, including:
 - t-square
 - drafting board
 - instruments
 - appropriate pens, inks, paper and pencils
- recording completed drawings in accordance with standard operating procedures
- treating, handling and storing the approved drawings in accordance with standard operating procedures

Required knowledge

Required knowledge includes:

- general knowledge of different approaches to drawing and historical methods used, including:
 - symbols and drawing presentation
 - measurement and tolerancing conventions
 - drawing conventions and construction techniques
 - use of drawing materials
- awareness of copyright and intellectual property issues and legislation in relation to drawing
- environmental and occupational health and safety (OHS) issues associated with the tools and materials used for drawing
- quality assurance procedures
- principles of plane geometry:
 - geometric shapes

- plane geometry
- geometric construction
- drawing construction:
 - four centre method
 - ordinate method
 - sectioning isometric shapes
 - dimensions and notations
 - line types
- requirements and purpose of the drawing to be produced
- sources of relevant data/information
- timeframe for completion of drawings
- persons who can confirm drawing requirements
- treatment, preservation and storage requirements for old blueprints and drawings

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>Overview of assessment</p>	<p>A person who demonstrates competency in this unit must be able to use interpret historical detail drawings and blueprints, restore or maintain, as required, and complete drawing to Australian Standard (AS) 1100.101–1992 Technical drawing – General principles, using CAD tools.</p>
<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>	<p>Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts.</p> <p>Specifically the candidate must be able to:</p> <ul style="list-style-type: none"> • work within typical site/teamwork structures and methods • apply worksite communication procedures • comply with organisational policies and procedures, including quality requirements • participate in work meetings • comply with quality requirements • use industry terminology • apply appropriate safety procedures • interpret work and specifications and use reference material to obtain required information for drawing work • produce a detailed engineering drawing to AS 1100.101–1992 Technical drawing – General principles, and according to work requirements • use CAD software.
<p>Context of and specific resources for assessment</p>	<p>This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team.</p> <p>Where applicable, reasonable adjustment must be</p>

	<p>made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.</p> <p>Access must be provided to appropriate learning and/or assessment support when required. Where applicable, physical resources should include equipment modified for people with disabilities.</p> <p>This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with drafting or other units requiring the exercise of the skills and knowledge covered by this unit.</p>
Method of assessment	<p>Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways, including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.</p>

Range Statement

<p>Standard drawing conventions</p>	<p>Standard drawing conventions may include:</p> <ul style="list-style-type: none"> • use of correct sectioning technique • identification of cutting plane • accurate line types • appropriate view positions • use of correct symbols • use of correct dimensioning technique • provision of suitable number of views • use of correct scales • neat presentation
<p>Drawing techniques</p>	<p>Drawing techniques may include:</p> <ul style="list-style-type: none"> • orthogonal projection: <ul style="list-style-type: none"> • first angle projection • third angle projection • projection symbol • preferred system of projection in Australia • number of views • relationship of views • sheet format: <ul style="list-style-type: none"> • borders and title blocks • application of projection symbol • drawing sheets and sizes • lettering styles • Australian Standards • dimensioning: <ul style="list-style-type: none"> • unidirectional dimensioning • aligned dimensioning • projection and dimension lines • arrow heads • dimension placement • scale drawing: <ul style="list-style-type: none"> • recommended scales • reduction scales • enlargement scales • multiple scales • dimensioning techniques of scale drawings • sectioning: <ul style="list-style-type: none"> • types of sections

	<ul style="list-style-type: none">• required section views• placement of views• cutting planes• labelling of cutting planes and section views• general notes
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Unit Sector(s)

Drawing, drafting and design

Custom Content Section

Not applicable.