



Australian Government

MEM09219 Prepare drawings for fabricated sheet metal products

Release: 1

MEM09219 Prepare drawings for fabricated sheet metal products

Modification History

Release 1. Supersedes and is equivalent to MEM09219A Prepare drawings for fabricated sheet metal products.

Application

This unit of competency defines the skills and knowledge required to prepare detail drawings for fabricated sheet metal products to Australian Standard (AS) 1100.101 Technical drawing - General principles and is primarily for draftspersons operating within the manufacturing and engineering industry.

Critical dimensions and specifications are predetermined and drawings are created with or without the use of computer-aided design (CAD) systems.

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

Pre-requisite Unit

MEM09229 Read and interpret technical engineering drawings

Competency Field

Drawing, drafting and design

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Access and interpret specifications	1.1 Follow standard operating procedures (SOPs) and comply with work health and safety (WHS) requirements at all times 1.2 Identify design process for fabricated sheet metal products 1.3 Interpret specifications and requirements for product and determine implications and requirements for fabrication 1.4 Access and interpret organisational and industry standards, information and catalogues to obtain required product specifications
2. Identify fabrication techniques	2.1 Identify features of sheet metal products and techniques used in fabrication 2.2 Identify characteristics of metal materials used in fabricated

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	products and implications for fabrication techniques 2.3 Identify terminology, symbols and standards used in drawings for fabricated products and required inclusions for fabrication drawings
3. Prepare detail drawing	3.1 Perform calculations required to complete drawings to specifications 3.2 Lay out the drawing in accordance with specifications and industry conventions 3.3 Ensure drawing accurately reflects specifications, is presented according to organisational requirements and contains all relevant information, including full notation and dimensioning
4. Document and store drawings	4.1 Document drawings and associated technical information in accordance with project requirements and SOPs 4.2 Store drawings in accordance with SOPs

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Fabrication techniques include one or more of the following:	• spigots • flanges • mild steel angles • weld • braze • solder • seal • bolt • thermal cutting
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	• mechanical cutting • forming and shaping of plate • sheet and tubular ferrous and non-ferrous metal • folding and unfolding.
Drawing details include one or more of the following:	• base faces, contour flanges and contour rolls • secondary faces, contour flanges and contour rolls • sheet metal parameters • flanges • hems, folds and bends • corner rounds and chamfers • sheet metal cuts (holes, cuts and punch features) • corner seams (seams and mitres) • flat patterns • lofted flanges • rips • unfolding and refolding.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM09219A Prepare drawings for fabricated sheet metal products.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>

Assessment Requirements for MEM09219 Prepare drawings for fabricated sheet metal products

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- interpreting project specifications and industry standards for fabricated sheet metal products in mild steel and stainless steel using fabrication techniques, including forming and shaping plate sheet and tubular ferrous and non-ferrous metal
- interpreting appropriate thermal and mechanical cutting and joining techniques
- applying specifications for fabricated sheet metal products
- producing detail drawings of fabricated sheet metal products according to industry standards and conventions on at least two occasions
- performing required calculations to complete drawing to specifications
- applying spatial principles to achieve scale and proportion
- confirming drawing accurately reflects specifications
- documenting and storing drawing in accordance with SOPs
- complying with organisational policies and procedures including quality requirements.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe work practices and procedures
- relevant codes of practice
- industry standards, drawing symbols and conventions
- different approaches to drawing and drawing details
- features and uses of materials and components used in sheet metal fabricated products
- characteristics of sheet metal and implications for drawing
- techniques used to fabricate sheet metal products.
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Assessment Conditions

- Assessors must:
 - have vocational competency in preparing drawings for fabricated sheet metal products at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the Standards for Registered Training Organisations 2015 or its replacement and comply with the National Vocational Education and Training Regulator Act 2011, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires.
- Where possible, assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions that cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required including relevant workplace procedures, product and manufacturing specifications.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
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