Australian Government

Department of Education, Employment and Workplace Relations

UEPMNT339A Perform Sheet Metal Work

Release: 1

UEPMNT339A Perform Sheet Metal Work

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor **1**)

This unit deals with the skills and knowledge required to undertake marking out and development, fabrication and installation of sheet metal work.

Application of the Unit

Application of the Unit **3**)

This unit is intended to augment formally acquired competencies. It is suitable for employment-based programs under an approved contract of training.

License to practise **3.1**)

The skills and knowledge described in this unit do not require a licence to practise in the workplace. However, practice in this unit is subject to regulations directly related to Occupational Health and Safety and where applicable contracts of training such as apprenticeships and the like.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite Unit(s) **2)**

Competencies **2.1)**

There are no prerequisite units.

Employability Skills Information

Refer to the Evidence Guide

Elements and Performance Criteria Pre-Content

5) Elements describe the essential outcomes of a competency standard unit

Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Plan and prepare for the work	1.1 Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties or by site inspection
	1.2 Occupational Health and Safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
	1.3 Resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications
	1.4 Relevant plans, drawings and texts are selected and interpreted in accordance with the work plan

ELEMENT		PERFORMANCE CRITERIA	
		1.5	Correct size, type and quantity of materials/components are determined, obtained and inspected for compliance with the job specifications
		1.6	Work is planned in detail including sequencing and prioritising and considerations made, where appropriate, for the maintenance of plant security and capacity in accordance with system/site requirements
		1.7	Coordination requirements, including requests for isolations where appropriate, are resolved with others involved, affected or required by the work
		1.8	Potential hazards are identified and prevention and/or control measures are selected in accordance with the work plan and site procedures
		1.9	Work area is prepared in accordance with work requirements and site procedures
		1.10	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
2	Mark out and develop sheet metal work	2.1	Appropriate development method and material is chosen and applied in accordance with the work plan
		2.2	Datum points are established to ensure efficient use of materials in accordance with the work plan
		2.3	Marking out/development is performed within established tolerances and in accordance with the work plan
		2.4	Marking out and development is checked to ensure compliance with specifications and the work plan

ELEMENT		PERFORMANCE CRITERIA	
3	Fabricate sheet metal work	3.1	Sheet metal work is fabricated in accordance with the work plan and specifications
		3.2	Materials and templates, where appropriate, are cut and formed using appropriate machinery or tools in accordance with the work plan
		3.3	Machinery and tools are used in accordance with manufacturer specification and the work plan
		3.4	Fabricated work is checked to ensure compliance with specifications and the work plan
4	Install sheet metal work	4.1	Required isolations are confirmed where appropriate in accordance with work requirements
		4.2	Installation of sheet metal work is performed in accordance with the work plan
		4.3	Repairs/modifications are carried out where necessary in accordance with the work plan
		4.4	Machinery and tools are used in accordance with manufacturer specifications and the work plan
		4.5	Installed work is checked to ensure compliance with specifications and the work plan
5	Complete the work	5.1	Work is completed and appropriate personnel notified in accordance with site/enterprise requirements
		5.2	Work area is cleared of waste, cleaned, restored and secured in accordance with site/enterprise procedures
		5.3	Plant, tools, equipment and materials are maintained and stored in accordance with site/enterprise procedures
		5.4	Work completion and documentation details are finalised in accordance with site/enterprise procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

6) This describes the essential skills and knowledge and their level, required for this unit.

Evidence shall show that knowledge has been acquired performing sheet metal work.

The extent of the Essential Knowledge and Associated Skills required follows:

Evidence shall show that knowledge has been acquired for safe working practices of:

- Occupational Health and Safety
- Hazardous materials and their handling
- Marking off/out and development methods
- Hand and portable power tools
- Basic metallurgy
- Sheet metal working machinery
- Fabrication techniques
- Soldering and welding
- Geometric concepts
- Engineering principles
- Cutting and routine welding techniques
- Installation techniques
- Technical drawings/manuals
- Environmental requirements
- Materials and their profiles
- Communication principles

Specific skills needed to achieve the Performance Criteria:

- Apply Occupational Health and Safety standards
- Apply hazardous materials handling procedures
- Mark out/off and develop
- Apply measurements
- Apply basic engineering design concepts
- Use hand and portable power tools
- Select and use appropriate machinery
- Apply fabrication development and techniques

REQUIRED SKILLS AND KNOWLEDGE

and procedures
- Apply installation techniques and procedures
- Use and update technical drawings and records
- Apply environmental procedures
- Select materials
- Use specialist tools
- Apply data analysis techniques and tools
- Modify/repair sheet metal work
- Communicate effectively.

Evidence Guide

EVIDENCE GUIDE

8) This provides essential advice for assessment of the competency standard unit and must be read in conjunction with the Performance Criteria and the range statement of the competency standard unit and the Training Package Assessment Guidelines.

The Evidence Guide forms an integral part of this unit and shall be used in conjunction with all components parts of this unit and, performed in accordance with the Assessment Guidelines of this Training Package.

Overview of Assessment

8.1)

Longitude competency development approaches to assessment, such as Profiling, require data to be reliably gathered in a form that can be consistently interpreted over time. This approach is best utilised in Apprenticeship programs and reduces assessment intervention. It is the Industry preferred model for apprenticeships. However, where summative (or final) assessment is used it is to include the application of the competency in the normal work environment or in a realistically simulated work environment. It is recognised that, in some circumstances, assessment in part or full can occur outside the workplace, however, it must be in accord with Industry and regulatory policy.

Methods chosen for a particular assessment will be influenced by various factors. These include the extent of the assessment, the most effective locations for the assessment activities to take place, access to physical resources, additional safety measures that may be required and the critical nature of the competencies being assessed.

The critical safety nature of working with electricity, electrical equipment, gas or any other hazardous substance/material carries risk in deeming a person competent. Hence, sources of evidence need to be 'rich' in nature so as to minimise error in judgment.

Activities associated with normal every day work have a bearing on the decision as to how much and how detailed the data gathered will contribute to its 'richness'. Some skills are more critical to safety and operational requirements while the same skills may be more or less frequently practised. These points are raised for the assessors to consider when choosing an assessment method and developing assessment instruments.

Sample assessment instruments are included in the Assessment Guidelines of this Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

8.2)

Before the critical aspects of evidence are considered all prerequisites shall be met.

Evidence for competence in this unit shall be considered holistically. Each element and associated Performance Criteria shall be demonstrated on at least two occasions in accordance with the "Assessment Guidelines - UEP06". Evidence shall also comprise:

- A representative body of Performance Criteria demonstrated within the timeframes typically expected of the discipline, work function and industrial environment. In particular this shall incorporate evidence that shows a candidate is able to:

- Implement Occupational Health and Safety workplace procedures and practices including the use of risk control measures as specified in the Performance Criteria and Range Statement
- Apply sustainable energy principles and practices as specified in the Performance Criteria and Range Statement
- Demonstrate an understanding of the essential knowledge and associated skills as described in 6) Essential Knowledge and Associated Skills of this unit
- Demonstrate an appropriate level of skills enabling employment
- Conduct work observing the relevant Anti Discrimination legislation, regulations, polices and workplace procedures

- Demonstrated performance across a representative range of contexts from the prescribed items below:
  - The knowledge and application of relevant sections of: Occupational Health and Safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures
  - Preparation and planning of work
  - Layout, marking off/out and developing techniques and procedures
  - Fabrication techniques
  - Installation techniques and procedures
  - Relevant standards and procedures
  - Completion of work procedures
  - Dealing with an unplanned event by drawing on essential knowledge and skills to provide appropriate solutions incorporated in the holistic assessment with the above listed items.

Context of and specific resources for assessment

8.3)

This unit should be assessed as it relates to normal work practice using procedures, information and resources typical of a workplace. This should include:

- OHS policy and work procedures and instructions.
- Suitable work environment, facilities, equipment and materials to undertake actual work as prescribed by this unit.

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace

conditions.

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work.

In addition to the resources listed above in Context of assessment', evidence should show competency working, in limited spaces, with different types of plant and equipment as well as different structural/construction types and method and in a variety of environments.

Method of assessment

8.4)

This unit shall be assessed by methods given in Volume 1, Part 3 "Assessment Guidelines".

Note:
Competent performance with inherent safe working practices is expected in the Industry to which this unit applies. This requires that the specified essential knowledge and associated skills are assessed in a structured environment which is primarily intended for learning/assessment and incorporates all necessary equipment and facilities for learners to develop and demonstrate the essential knowledge and skills described in this unit.

Concurrent assessment and relationship with other units

8.5)

There are no recommended concurrent assessments with this unit, however in some cases efficiencies may be gained in terms of learning and assessment effort being concurrently managed with allied competency standard units where listed.

Nil

Key competencies

8.6)

Evidence that particular key competencies have been achieved within this unit is in the context of the following Performance Criteria of evidence. See Volume 2, Part 4 for an explanation of Key competencies and levels of this Training Package.

Key competencies	**Example of Application**	**Performance Level**
How are ideas and information communicated within this competency?	Refer to the following example of application: Explain ideas and actions, make suggestions for alternative actions and deal with contingencies and non-routine situations.	2

How can information be collected, analysed and organised?	Refer to the following example of application: Information with regard to operations, faults and maintenance may be observed and monitored for analysis and organised into records and reports.	2

How are activities planned and organised?	Refer to the following example of application: Planning the required activity, to include coordination and use of equipment, materials and tools to avoid backtracking and rework.	1
How is team work used within this competency?	Refer to the following example of application: Share tasks and provide appropriate support to other team members in completion of work tasks to meet the team's goals.	2
How are mathematical ideas and techniques used?	Refer to the following example of application: Calculation of time to complete tasks, estimation of distances, levels, loads and material requirements.	1
How are problem solving skills applied?	Refer to the following example of application: Determine solutions which focus on long and short-term resolution of work task problems.	2
How is use of technology applied?	Refer to the following example of application: Access, communicate, measure and record information with regard to operations and performance of plant and equipment.	1

Skills Enabling Employment

8.7)

Evidence that competency in this unit incorporates skills enabling employment is in the context of the following performance. See Volume 2, Part 5 for definitions and an explanation of skills enabling employment.

Skills for Employment		**Example of Application**
1	Developing and using skills within a real workplace	Refer to the following example of application: Completion of tasks within an acceptable timeframe and performance with some supervision.
2	Learning to learn in the workplace	Refer to the following example of application: Comprehension and application of theoretical knowledge to well-developed skills.
3	Reflecting on the outcome and process of work task	Refer to the following example of application: Focused on improvement in own and other team member's performance in the workplace.
4	Interacting and understanding of the context of the work task	Refer to the following example of application: Working understanding of the processes and systems which apply to the workplace.
5	Planning and organising the meaningful work task	Refer to the following example of application: Achieving work tasks in a timely manner and ensuring that the work team achieves its stated work goals.
6	Performing the work task in non-routine or contingent situations	Refer to the following example of application: Seek advice and apply solutions to problems relevant to the workplace environment.

Range Statement

RANGE STATEMENT

7) This relates to the competency standard unit as a whole providing the range of contexts and conditions to which the Performance Criteria apply. It allows for different work environments and situations that will affect performance.

Insulation material may include asbestos, calcium silicate, rockwool, insulfrax and fibre glass.

Sheet metal work may include, to a range of up to 3mm, fabrication of cladding, protective covers, cabinets, boxes and ducting.

Developments may include hoppers, chutes, conical and spherical shapes and spirals.

Fabrication methods may include cutting, bending, rolling, beading, soldering and welding.

Control measures for insulation materials may be disposable overalls, dust mask, eye protection, gloves and, if required, the engagement of specialised asbestos removal/handling resources.

Sheet metal material may include mild steel, galvanised or stainless steel, aluminium and brass.

Work completion details may include plant and maintenance records, job cards, check sheets, on device labelling updates and reporting and/or documenting equipment defects.

Work site environment may be affected by nearby plant or processes, e.g. chemical, heat, dust, noise, gas and oil.

Isolations can refer to electrical/mechanical or other associated processes.

Generic terms are used throughout this Training Package for vocational standard shall be regarded as part of the Range Statement in which competency is demonstrated. The definition of these and other terms are given in Volume 2, Part 1.

Unit Sector(s)

Not Applicable

Literacy and numeracy skills

Literacy and numeracy skills **2.2)**

Participants are best equipped to achieve this unit if they have reading, writing and numeracy skills indicated by the following scales. Description of each scale is given in Volume 2, Part 3 Literacy and Numeracy

Reading 3 Writing 3 Numeracy 3

Competency Field

Competency Field **4)**

Maintenance