Australian Government

Department of Education, Employment and Workplace Relations

RTE2205A Fabricate and repair metal or plastic structures

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This competency standard covers the requirements to undertake minor fabrication and repair of metal or plastic structures where the services of a specialist trades person is not necessary. It requires the application of basic skills and knowledge to match materials against workplans, and select appropriate plant and equipment to carry out repairs and/or fabricate structures. The work involves the application of some judgement and discretion and would be carried out under supervision within enterprise guidelines.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

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Element	Performance Criteria
1 Prepare for fabrication and/or repair	1.1 **Items** for repair or fabrication are identified against **work plans** using industry recognised **techniques**.
	1.2 **Equipment** appropriate to job requirements is selected and confirmed against work plan.
	1.3 **Jointing/welding materials** suitable to the job requirements are selected.
	1.4 **Potential and existing hazards in the workplace are identified and reported to the supervisor.**
2 Assist with maintaining structures and facilities	2.1 Suitable **personal protective equipment** is selected, used and maintained according to **OHS** and **enterprise requirements**.
	2.2 Equipment and structures are safely **repaired or fabricated** according to enterprise requirements and industry standards.
	2.3 **Jointing methods** used in the fabrication and/or repair structures and equipment are according to enterprise requirements and industry standards.
3 Complete fabrication and repair	3.1 Materials and equipment are cleaned and stored according to manufacturers guidelines and enterprise policy.
	3.2 **Work area** is cleaned and maintained, and any hazardous materials removed in an environmentally responsible manner.
	3.3 Completed work is detailed and recorded according to enterprise requirements.

Required Skills and Knowledge

Not applicable.

Evidence Guide

What evidence is required to demonstrate competence for this standard as a whole?
Competence in minor fabrication and repair requires evidence of the ability to effectively identify job requirements and select materials, tools and equipment to complete the job. It also requires the ability to identify and use jointing methods and safe and appropriate repair/fabrication techniques, and to clean up after operations. Evidence must be demonstrated in the employment of safe workplace and environmentally responsible practices.
The skills and knowledge required to fabricate and repair metal or plastic structures must be **transferable** to a different work environment. For example, this could include fabrication and repair of different items and structures.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:
types of fabrication materials and their various applications
range of metals and non-metal materials that may be used in fabrication and repair
industry jointing/welding techniques and fabrication and repair methods
OHS legislative requirements
environmental codes of practice with regard to equipment operation and maintenance activities
operating principles and operating methods for equipment
various types of welders and respective functions
environmental impacts and minimisation measures.

What specific skills are needed to achieve the performance criteria?	To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to: safely use welding and thermal cutting equipment demonstrate safe and environmentally responsible workplace practices read and interpret manufacturers specifications, work and maintenance plans, and MSDS effectively communicate information, interpret and apply task instructions, and maintain records and reports estimate and measure dimensions, and calculate volumes.

What processes should be applied to this competency standard?
There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the **key competencies**, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

1. How can **communication of ideas and information** (**2**) be applied?	Information with regard to fabrication, repair, welding and cutting methods may be discussed with the supervisor and others in the work group.
2. How can **information be collected**, **analysed and organised** (**2**)?	Information with regard to equipment performance, faults and maintenance requirements may be detailed and monitored for analysis, and organised by records and reports.
3. How are **activities planned and organised** (**2**)?	Fabrication and repair tasks may be sequenced or carried out in conjunction with colleagues.
4. How can **team work** (**2**) be applied?	Team work may be applied in the communication and co-ordination of tasks to achieve specified work requirements.
5. How can the use of **mathematical ideas and techniques** (**2**) be applied?	Mathematics may be applied in the calculation and measurement of materials and resources used and volume dimensions.
6. How can **problem-solving skills** (**2**) be applied?	Malfunctions or breakdown will require arrangements for repair or replacement to meet work requirements.
7. How can the **use of technology** (**2**) be applied?	To communicate, maintain records, and troubleshoot performance problems.

Are there other competency standards that could be assessed with this one?
This competency standard **could** be assessed on its own or in combination with other competencies relevant to the job function.

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

Range Statement

Range of Variables

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available

What **items** might be included in this standard?	Items may include working with metal, fibreglass and plastic components in the manufacture, repair and/or installation of plant, equipment and structures.
What may be included in **work plans**?	This may include pre-operational checks and maintenance procedures, designated job tasks, equipment, resources and materials for use, supervisors instructions, timeframe for work completion and reporting requirements.
What **techniques** might be used when identifying items for repair and fabrication?	Techniques may include metal identification through grinding, and observing spark colour, filing and colour.
What **equipment** might be selected?	Equipment may include cutting tools, welding and thermal cutting equipment, and soldering irons.
What **jointing**/**welding materials** might be used in fabrication/repair?	Materials may include iron and steel, copper or brass, aluminium, cast iron, high tensile steel, gun metal and plastics.
What potential and existing **hazards** may be encountered in the workplace?	Hazards may include exposure to loud noise and fumes, solar radiation, dust, hazardous substances, oil and grease spills. It may also include the presence of bystanders, livestock and wildlife, obstacles, extreme weather conditions, electricity, powerlines, and equipment malfunctions.
What **personal protective equipment** may be relevant to this standard?	Boots, hat/hard hat, overalls, gloves, protective eyewear, hearing protection, respirator or face mask, and sun protection (sun hat, sunscreen).
What **OHS** requirements may be applicable to this standard?	This may include systems and procedures for manual handling and transportation of fabrication and repair of materials and equipment, the appropriate use of personal protective equipment, the elimination of hazards, safe handling of hazardous

	substances, the provision of safety signage and decals, and the safe use of tools and equipment particularly welding and thermal cutting equipment.
What **enterprise requirements** may be applicable to this standard?	SOP, industry standards, production schedules, MSDS, work notes and plans, product labels, manufacturers specifications, operators manuals, enterprise policies and procedures (including waste disposal, recycling and re-use guidelines), and supervisors oral or written instructions.
What techniques might be used in the safe **repair or fabrication** of structures and equipment?	Techniques may include cutting, forming, jointing, welding, brazing, soft soldering, thermal cutting, hot air welding, drilling, plastic welding and forming, brazing or welding cast iron including the use of pre-heating and controlled cooling, the use of the full range of jointing techniques, the use of masonry anchors and bolts, silver soldering of high tensile materials, gas welding or silver soldering copper piping, metal forming and wrought iron fabrication, hard facing techniques, and thread cutting or tapping. Welding techniques may include: manual metal arc welding (MMAW), gas metal arc welding (MGAW), gas tungsten arc welding (GTAW), or oxy acetylene (or fuel gas) welding (OAW).
What jointing methods might be used?	This may include silver soldering, soldering, solid rivets, pop rivets, folding, self tapping screws, glues and silicones.
What might be considered to be a work area?	A working area may be an enclosed workshop, field, or area constructed specifically for job requirements.

For more information on contexts, environment and variables for training and assessment, refer to the Sector Booklet.

Unit Sector(s)

Not applicable.