



Australian Government

Department of Education, Employment and Workplace Relations

CPCPCM2032A Weld using oxy-acetylene equipment

Release: 1

CPCPCM2032A Weld using oxy-acetylene equipment

Modification History

Not Applicable

Unit Descriptor

Unit descriptor This unit of competency specifies the outcomes required to weld/braze metals associated with the fabrication, installation and repair of plumbing components and systems, using oxyLPG-acetylene equipment.

Application of the Unit

Application of the unit This unit of competency supports the development of oxy-acetylene welding skills used in plumbing work but not specialist welding skills used in other occupations.

Site location for work application may be either domestic or commercial and may be a new work site or an existing structure being renovated, extended, restored or maintained.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units

CPCPCM203A	Carry out OHS requirements
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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. Prepare for work.	<p>1.1. Plans and specifications are obtained from job supervisor.</p> <p>1.2. Safety (OHS) requirements associated with oxy-acetylene welding tasks, and workplace environmental requirements, are adhered to throughout the work.</p> <p>1.3. Quality assurance requirements are identified and adhered to in accordance with workplace requirements.</p> <p>1.4. Tasks are planned and sequenced in conjunction with others involved in or affected by the work.</p> <p>1.5. Personal protective equipment applicable to oxy-acetylene welding is selected and checked for serviceability.</p> <p>1.6. Work area is prepared to support efficient welding with oxy-acetylene equipment.</p>
2. Prepare materials and welding equipment.	<p>2.1. Weld requirements are identified from specifications or given information.</p> <p>2.2. Materials to be welded are identified and selected in accordance with workplace procedures.</p> <p>2.3. Material is cleaned and prepared using appropriate tools and techniques in accordance with workplace procedures.</p> <p>2.4. Welding equipment, including cylinders and regulators, are assembled and set up in accordance with workplace procedures.</p> <p>2.5. Welding tips, settings and consumables are selected to meet job requirements and welding procedures in accordance with workplace procedures.</p>
3. Perform welding.	<p>3.1. Materials are welded to job requirements using safe welding practices.</p> <p>3.2. Appropriate action is taken to report or remedy defects in materials or welding equipment, including adjustments to settings and welding technique.</p> <p>3.3. Welds are cleaned in accordance with workplace requirements.</p>
4. Clean up.	<p>4.1. Work area is cleared and materials disposed of or recycled in accordance with state or territory statutory and regulatory authority legislation and workplace procedures.</p> <p>4.2. Tools and equipment are cleaned, checked,</p>

ELEMENT**PERFORMANCE CRITERIA**

maintained and stored in accordance with manufacturer recommendations and workplace procedures.

4.3. Information is accessed and documentation completed in accordance with workplace requirements.

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:

- communication skills to:
 - access information
 - complete workplace documentation
 - determine requirements
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - follow instructions
 - plan and sequence tasks with others
 - read and interpret:
 - documentation from a variety of sources
 - drawings and specifications
 - use language and concepts appropriate to cultural differences
 - use and interpret non-verbal communication, such as hand signals
- identifying and accurately reporting to appropriate personnel any faults in tools, equipment or materials
- organisational skills, including the ability to plan and set out work
- numeracy skills to apply measurements and calculations
- teamwork skills to work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- technological skills to:
 - access and understand site-specific instructions in a variety of media
 - use mobile communication technology

REQUIRED SKILLS AND KNOWLEDGE

- welding mild steel plate, non-ferrous materials and pipe by oxy-acetylene welding.

Required knowledge

Required knowledge for this unit is:

- dangers associated with oxy-acetylene welding in the fabrication and installation of plumbing systems
- effect of heat on the properties and shape of welded metals
- job safety analysis (JSA) and safe work method statements (SWMS)
- operating principles of oxy-acetylene welding equipment
- organisational quality procedures and processes within the context of oxy-acetylene welding
- SI system of measurement
- 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 in the workplace or a close simulation of the workplace environment providing that simulated or project-based assessment techniques fully replicate plumbing and services 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:

- locating, interpreting and applying relevant information, standards and specifications for oxy-acetylene welding
- applying safety requirements throughout the work sequence, including the use of personal protective clothing and equipment
- as a minimum the ability to, given the plans and specifications, weld two of the following:
 - a flat butt weld up to 6mm mild steel plate, 150mm long
 - a vertical butt weld up to 6mm mild steel plate, 150mm long
 - a rotated butt weld around up to DN100 mild steel pipe located in a horizontal position and rotated during welding
 - silver braze fabricated non-ferrous pipes, fittings and components
- welding should ensure:
 - correct selection and use of appropriate processes, tools and equipment
 - completing all work to specification
 - compliance with regulations, standards and organisational quality procedures and processes
 - communicating and working effectively and safely with others.

Context of and specific

This competency is to be assessed using standard

EVIDENCE GUIDE

resources for assessment

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:

- an induction procedure and requirement
- realistic tasks or simulated tasks covering the minimum task requirements
- relevant specifications and work instructions
- tools and equipment appropriate to applying safe work practices
- support materials appropriate to activity
- workplace instructions relating to safe working practices and addressing hazards and emergencies
- material safety data sheets
- research resources, including industry related systems information.

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.

EVIDENCE GUIDE

Validity and sufficiency of evidence requires that:

- competency will need to be demonstrated over 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.

Safety (OHS) is to be in accordance with commonwealth,

- handling of materials
- hazard control and hazardous materials and

RANGE STATEMENT

state and territory legislation and regulations and may include:

- substances
- personal protective clothing and equipment prescribed under legislation, regulations and workplace policies and practices
- safe operating procedures, including recognising and preventing hazards associated with:
 - pressurised and inflammable gases
 - surrounding structure and facilities
 - trip hazards
 - work site visitors and the public
 - working at heights
 - working in confined spaces
 - working in proximity to others
- use of firefighting equipment
- use of first aid equipment
- use of tools and equipment
- workplace environment and safety.
- clean-up protection
- waste management.

Environmental requirements include:

Quality assurance requirements may include:

- Environment Protection Authority (EPA)
- internal company quality assurance policy and risk management strategy
- International Standards Organisation
- site safety plan
- workplace operations and procedures.

Materials include:

- copper
- copper alloy
- low carbon mild steel (plate and pipe)
- oxy-LPG-acetylene.

Statutory and regulatory authorities include:

- statutory gasfitting authority
- state or territory statutory authority
- statutory plumbing authority.

Tools and equipment may include:

- clamps
- hand and power tools
- jigs
- measuring equipment
- oxy-acetylene welding equipment.

Unit Sector(s)

Unit sector Plumbing and services

Co-requisite units

Co-requisite units Nil

Functional area

Functional area