



Australian Government

Department of Education, Employment and Workplace Relations

CPCCSF2005A Arc weld reinforcement steel

Release: 1

CPCCSF2005A Arc weld reinforcement steel

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit of competency specifies the outcomes required to arc weld reinforcement to non-load bearing structural components forming part of the construction process.

It includes planning and preparation for the work, setting up for welding, welding the reinforcement, checking the reinforcement, and completing clean-up activities.

Application of the Unit

Application of the unit

This unit supports the attainment of skills and knowledge to perform arc welding on reinforcement steel in a construction project, which includes working with others and as a member of a team. It does not involve specialist welding techniques.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units

CPCCOHS2001A

Apply OHS requirements, policies and procedures in the construction industry

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. Plan and prepare.	1.1. Work instructions, including plans, specifications, quality requirements and operational details are obtained from relevant information, confirmed and applied to the scope of work performed. 1.2. Safety (OHS) requirements are followed in accordance with safety plans and policies. 1.3. Signage and barricade requirements are identified and implemented. 1.4. Plant, tools and welding equipment are selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported prior to commencement. 1.5. Materials quantity requirements are calculated in accordance with plans, specifications and quality requirements. 1.6. Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use. 1.7. Environmental requirements are identified for the project in accordance with environmental plans and statutory and legislative authority obligations and applied.
2. Prepare for welding reinforcement.	2.1. Appropriate welding method and material are identified and selected in relation to job and site specifications. 2.2. Area is cleaned of flammable material and barriers are erected to eliminate potential hazards. 2.3. Mill scale and loose residual debris are removed from reinforcement prior to welding.
3. Weld reinforcement.	3.1. Reinforcement is welded to specifications, instructions and job requirements. 3.2. Tack welds are conducted to meet specifications relating to the diameter of the bar. 3.3. Welding is conducted to the required distance from bends or re-bends of reinforcement bars.
4. Check reinforcement prior to use.	4.1. Location and position of reinforcement and fixing ties are checked for accuracy. 4.2. Depth of coverage, clearance, spacing and overlap are checked before use.
5. Clean up.	5.1. Work area is cleared and materials disposed of,

ELEMENT**PERFORMANCE CRITERIA**

reused or recycled in accordance with legislation, regulations, codes of practice and job specification.

5.2. Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer recommendations and standard work practices.

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:
 - determine requirements
 - follow instructions
 - read and interpret:
 - documentation from a variety of sources
 - drawings and specifications
 - report faults
 - 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
- mathematical and numeracy skills to apply measurements and calculations
- organisational skills, including the ability to plan and set out work
- 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:
 - use a range of mobile technology, such as two-way radio and mobile phones
 - voice and hand signals to access and understand site-specific instructions.

Required knowledge

Required knowledge for this unit is:

- construction arc welding terminology

REQUIRED SKILLS AND KNOWLEDGE

- material safety data sheets (MSDS)
- materials storage and environmentally friendly waste management
- mechanical lifting techniques
- manual metal arc welding (MMAW) equipment types, characteristics, uses and limitations
- MMAW set-up, operating and welding sequence and techniques
- plans, drawings and specifications
- processes for the calculation of material requirements
- quality requirements
- types and properties of materials to be welded
- workplace and equipment safety requirements.

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, provided that simulated or project-based assessment techniques fully replicate construction 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 the ability to:

- locate, interpret and apply of relevant information, standards and specifications
- comply with site safety plan and OHS legislation, regulations and codes of practice applicable to workplace operations
- comply with organisational policies and procedures, including quality requirements
- safely and effectively use tools, plant and equipment
- communicate and work effectively and safely with others
- for a minimum of five separate tasks, arc weld reinforcement steel materials, as listed in the range statement, to specification.

Context of and specific resources for assessment

This competency is to be assessed using standard 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 mandatory task requirements
- relevant specifications and work instructions

EVIDENCE GUIDE

- tools and equipment appropriate to applying safe work practices
- support materials appropriate to activity
- workplace instructions relating to safe work 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.

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

EVIDENCE GUIDE

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.

Information includes:

- diagrams or sketches
- instructions issued by authorised organisational or external personnel
- manufacturer specifications and instructions, where specified
- MSDS
- memos
- regulatory and legislative requirements pertaining to arc welding of reinforcement steel
- relevant Australian standards
- safe work procedures relating to arc welding of reinforcement steel
- signage
- verbal, written and graphical instructions

RANGE STATEMENT

Scope of work:

- work bulletins
- work schedules, plans and specifications.
- welding is to be conducted using MMAW equipment
- reinforcing material to be welded includes deformed bars, plain rods, mesh sheets of plain bars and mesh sheets of deformed bars
- welding is to conform to relevant Australian standard.

Safety (OHS) is to be in accordance with state and territory legislation and regulations and project safety plan and may include:

- emergency procedures, including extinguishing fires, organisational first aid requirements and evacuation
- handling activities that may require the assistance of others or the use of manual or mechanical lifting devices where size, weight or other issues, such as a disability are a factor
- hazard control
- hazardous materials and substances, including cement and curing agents
- organisational first aid
- PPE prescribed under legislation, regulations and workplace policies and practices
- safe operating procedures, including the conduct of operational risk assessment and treatments associated with:
 - cutting, grinding and welding equipment
 - lighting
 - power equipment
 - power leads and sources
 - trip hazards
 - work site visitors and the public
 - working in confined spaces
 - working in proximity to others
 - working with metals under stress
- use of firefighting equipment
- use of tools and equipment
- workplace environmental requirements and safety.

Tools and welding equipment include:

- angle grinders
- bolt cutters
- measuring tapes and rules

RANGE STATEMENT

Materials:

- mesh guillotine
- reinforcement benders
- tie wire reels
- wire nippers.
- include:
 - bar chairs
 - deformed bars
 - ligatures and spacer/spreader assemblies
 - mesh sheets of deformed bars
 - mesh sheets of plain bars
 - plain rods
 - welding consumables
 - wire ties
- may include:
 - pipe sections
 - scaffolding components
 - structural steel sections.

Quality requirements include relevant regulations, including:

- Australian standards
- internal company quality policy and standards
- manufacturer specifications
- workplace operations and procedures.

Environmental requirements include:

- clean-up management
- dust and noise
- waste management.

Statutory and regulatory authorities include:

- federal, state and local authorities administering the applicable Acts, regulations and codes of practice.

Unit Sector(s)

Unit sector

Construction

Functional area

Functional area

