



Australian Government

RIISAM205E Cut, weld and bend materials

Release: 2

RIISAM205E Cut, weld and bend materials

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 5.0.
Release 2	Minor amendment to Knowledge Evidence to correct typographical error.

Application

This unit describes the skills and knowledge required to cut, weld and bend materials in the resources and infrastructure industries.

It applies to those working in operational roles. They generally work under supervision to undertake a prescribed range of functions involving known routines and procedures and take responsibility for the quality of work outcomes.

Licensing, legislative and certification requirements may apply to this unit and can vary between states, territories and industry sectors. Users must check requirements with relevant body before applying the unit.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan and prepare to cut, weld and bend materials	1.1 Obtain, interpret and confirm work requirements 1.2 Access, interpret and apply documentation required to cut, weld and bend materials 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures according to workplace procedures 1.4 Select and wear personal protective equipment appropriate for work activities 1.5 Identify and implement signage and barricade requirements 1.6 Select appropriate plant, tools and equipment for the job, inspect them for serviceability and rectify or report any faults prior to commencement of work activities

ELEMENT	PERFORMANCE CRITERIA
	1.7 Calculate material quantity requirements in accordance with plans and specifications within scope of own job role 1.8 Obtain and interpret emergency procedures and be prepared for emergency situations
2. Set up and test equipment	2.1 Select, locate and ensure accessibility to the fire extinguisher prior to and during operations according to workplace procedures 2.2 Attach regulators to Oxy and Acetylene bottles according to manufacturer specifications 2.3 Purge lines prior to lighting up according to manufacturer specifications 2.4 Test equipment for leaks and undertake corrective action or report faults to relevant personnel according to workplace procedures 2.5 Select correct pressures and cutting tips
3. Cut material using oxyacetylene	3.1 Measure and mark material, and secure the material for cutting according to workplace procedures 3.2 Light torch according to manufacturer specifications 3.3 Adjust setting of flame for cutting according to workplace procedures 3.4 Ensure correct cutting position during cutting to set out mark according to workplace procedures
4. Cut and weld materials using electric welding equipment	4.1 Complete and verify test runs according to workplace procedures 4.2 Complete welding and cutting according to workplace procedures 4.3 Clean welds using appropriate tools and techniques according to workplace procedures 4.4 Confirm weld and cut specifications by visual inspection and defects identified and repair according to workplace procedures
5. Heat and bend material	5.1 Measure and mark material, and secure the material for bending 5.2 Light torch according to manufacturer specifications 5.3 Control heat to specified material and minimise weakening effects of the heating process 5.4 Bend material to specification and cool correctly according to workplace procedures
6. Shutdown	6.1 Switch off torch according to manufacturer specifications 6.2 Shut off gas supply according to manufacturer specifications
7. Clean up	7.1 Clear work area and dispose of materials according to workplace procedures 7.2 Clean and maintain the plant and equipment, inspect for ensure serviceability and rectify or report any faults or issues to relevant personnel 7.3 Process written maintenance records according to workplace

ELEMENT	PERFORMANCE CRITERIA
	procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Reading	Identifies and interprets information from workplace procedures, documentation and regulations
Writing	Produces and completes written documents required for workplace procedures and legislative requirements
Self-management	Monitors and minimises own exposure to worksite risks and hazards during activities

Unit Mapping Information

Supersedes and is equivalent to RIISAM205D Cut, weld and bend materials.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIISAM205E Cut, weld and bend materials

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Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 5.0.
Release 2	Minor amendment to Knowledge Evidence to correct typographical error.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- cut, weld and bend materials on at least two occasions, including:
 - identifying and matching cutting equipment with job task
 - setting up oxyacetylene, electric welding and bending equipment in the correct sequence
 - testing the equipment
 - accurately marking and securing or clamping the material ready for bending and cutting
 - lighting the torch correctly and safely
 - adjusting the setting of flame for cutting
 - controlling the heat of the torch to suit the materials being bent
 - adopting correct cutting position during cutting to set out mark
 - welding and cutting materials cleanly
 - cleaning and visually inspecting the welds for defects
 - bending materials to job task requirements
 - shutting down the torch and gas supply in sequence.

During the above, the candidate must:

- locate and apply relevant documentation, policies and procedures and confirm that the work activity is compliant
- implement the requirements, procedures and techniques for cutting, welding and bending materials
- work effectively with others to cut, weld and bend materials in a way that meets all required outcomes

- communicate clearly and concisely with others to receive and clarify work instructions and to determine coordination requirements prior to commencing and during work activities.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- key policies, procedures and documentation required to cut, weld and bend materials
- principles and techniques for cutting, welding and bending materials, including:
 - types
 - techniques
 - characteristics
 - use
 - limitation
 - plant and equipment
- principles and techniques for steel fixing, including:
 - types
 - materials
 - properties
 - terminology
- principles and techniques for identifying types, characteristics, uses and limitations of manual metal arc welding, oxyacetylene, LPG heating and cutting equipment types
- principles and techniques for the calculation of material requirements
- principles and techniques for identifying relevant hazards and emergencies
- techniques for coordinating and communicating job activities with others.

Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

- include access to:
 - personal protective equipment
 - equipment related to cutting, welding and bending materials
 - relevant documentation
- be conducted in a safe environment; and,
- be assessed in the context of this sector's work environment; and,
- be assessed in compliance with relevant legislation/regulation and using policies, procedures and processes directly related to the industry sector for which it is being assessed; and,
- confirm consistent performance can be applied in a range of relevant workplace circumstances.

Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated work environment* provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

Assessor requirements

Assessors must be able to clearly demonstrate current and relevant industry knowledge and experience to satisfy the mandatory regulatory standards as set out in the Standards for Registered Training Organisations (RTOs) 2015/Australian Quality Training Framework mandatory requirements for assessors current at the time of assessment and any relevant licensing and certification requirements. This includes:

- vocational competencies at least to the level being delivered and assessed
- current industry skills directly relevant to the training and assessment being provided
- current knowledge and skills in vocational training and learning that informs their training and assessment
- formal relevant qualifications in training and assessment
- having knowledge of and/or experience using the latest techniques and processes
- possessing the required level of RII training product knowledge
- having an understanding and knowledge of legislation and regulations relevant to the industry and to employment and workplaces
- demonstrating the performance evidence, and knowledge evidence outlined in this unit of competency, and
- the minimum years of current** work experience after competency has been obtained as specified below in an industry sector relevant to the outcomes of the unit.

It is also acceptable for the appropriately qualified assessor to work with an industry expert to conduct assessment together and for the industry expert to be involved in the assessment judgement. The industry expert must have current industry skills directly relevant to the training and assessment being provided. This means the industry subject matter expert must demonstrate skills and knowledge from the minimum years of current work experience after competency has been obtained as specified below, including time spent in roles related to the unit being assessed:

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Infrastructure	1	1 year
	2	2 years
Drilling, Coal Mining, Extractive (Quarrying), Metalliferous Mining and Civil Infrastructure	3-6	3 years
Other sectors	Where this unit is being assessed outside of the resources and infrastructure sectors assessor and/or industry subject matter expert	

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
	experience should be in-line with industry standards for the sector in which it is being assessed and where no industry standard is specified should comply with any relevant regulation.	

*Guidance on simulated environments has been stipulated in the Companion Volume Implementation Guide located on VETNet.

**Assessors can demonstrate current work experience through employment within industry in a role relevant to the outcomes of the unit; or, for external assessors this can be demonstrated through exposure to industry by conducting a minimum number of site assessments as determined by the relevant industry sector, across various locations.

*** While a unit of competency does not have an AQF level, where a unit is being delivered outside of a qualification the first numeric character in the unit code should be considered as the AQF indicator level for assessment purposes.

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