

Title	Weld steel structures using the submerged arc welding process		
Level	3	Credits	6

Purpose	<p>This unit standard is for people welding steel structures to AS/NZS 1554.1 Category SP or equivalent, using the submerged arc welding (SAW) process.</p> <p>People credited with this unit standard are able to prepare to weld; and weld steel using the SAW process; and inspect SAW welds.</p>
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Classification	Mechanical Engineering > Welding
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Available grade	Achieved
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Prerequisites	Unit 29651, <i>Demonstrate knowledge of health and safety when welding and thermal cutting</i> , or demonstrate equivalent knowledge and skills.
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Guidance Information

1 References

Health and Safety in Welding. Wellington: Department of Labour, 2006. Available from <http://www.worksafe.govt.nz/>.

AS/NZS 1554.1:2014, *Structural steel welding – Welding of steel structures*.

2 Definitions

Accepted industry practice – approved codes of practice and standardised procedures accepted by the wider mechanical engineering industry sectors as examples of best practice.

Industry standard – AS/NZS 1554.1:2014 or equivalent.

SAW – Submerged Arc Welding.

Steel – weldable low-carbon unalloyed (carbon-manganese) steel, also referred to as *mild steel*.

Welding procedure – written work instruction providing all the necessary technical detail for a specific welding application.

Workplace procedures – procedures used by the organisation carrying out the work and applicable to the tasks being carried out. Examples are – standard operating procedures, safety procedures, equipment operating procedures, codes of practice, quality management practices and standards, procedures to comply with legislative and local body requirements.

Outcomes and performance criteria

Outcome 1

Prepare to weld steel using the SAW process.

Performance criteria

- 1.1 Equipment is selected to meet welding procedure requirements.
- Range power source – rating, duty cycle, open circuit voltage, current type;
wire feed system; flux feed system; welding cables; travel unit where appropriate.
- 1.2 Equipment is maintained ready for use in accordance with workplace procedures.
- 1.3 Steel is prepared and assembled in accordance with welding procedure.
- 1.4 Electrode and flux are selected in accordance with welding procedure.

Outcome 2

Weld steel using the SAW process.

Range 1G position, 5-20 mm thickness.

Performance criteria

- 2.1 Workplace safety procedures are followed.
- Range examples are – use of personal protective equipment, checking of equipment for faults, elimination of risk of fire or explosion.
- 2.2 Electrodes and fluxes are stored and handled in accordance with manufacturer's specifications.
- 2.3 Welds are deposited on steel to industry standard and in accordance with welding procedure.
- 2.4 Welds are cleaned in accordance with accepted industry practice.

Outcome 3

Inspect SAW welds.

Performance criteria

3.1 Weld imperfections are identified by visual examination and workshop tests.

Range examples of workshop tests are – nick break, fillet break-over, bend, macro examination. One workshop test is required for each weld from outcome 2.

3.2 Weld imperfections are compared to the permissible levels allowed by the industry standard.

Planned review date	31 December 2022
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	30 November 1994	31 December 2022
Revision	2	14 April 1997	31 December 2022
Revision	3	5 January 1999	31 December 2022
Review	4	4 April 2001	31 December 2022
Rollover and Revision	5	20 April 2006	31 December 2022
Review	6	22 May 2009	31 December 2022
Review	7	20 July 2017	N/A

Consent and Moderation Requirements (CMR) reference	0013
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact Competenz qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.