

Field Engineering and Technology

Review of *Mechanical Engineering* unit standards

Subfield	Domain	ID
Mechanical Engineering	Welding	2671-2672, 2674-2678, 2680-2682, 2685-2690, 2692-2697, 15133-15134, 18105-18106, 18108, 21907, 22906-22907, 25783, 26393, 30080, 30275, 30277-30279, 30282-30283
	Engineering core skills	29651

Hanga Aro Rau Manufacturing, Engineering and Logistics Workforce Development Council has completed the review of the unit standards listed above.

Date new versions published

January 2023

Planned review date

December 2027

Summary

The review was conducted following the approval of two new Welding qualifications:

- New Zealand Certificate in Welding (Level 3) [Ref: 4605]
- New Zealand Certificate in Welding (Level 4) [Ref: 4606]

The review was completed between May 2022 and September 2022 in consultation with stakeholders through video review meetings. These stakeholders included technical experts from engineering and fabrication businesses across the country and representatives from providers of welding training nationally.

Two new units have been developed to address a gap in welding specific skills and knowledge identified during the development of the two qualifications.

All feedback received prior to and during the review process was incorporated and endorsed for registration by the stakeholders in September 2022.

Unit standards 2691, 2698 and 30280 from welding domain have been excluded from this review. These units will be reviewed with upcoming Fabrication unit standards review to better align skill set and usage from multiple engineering qualifications.

Main changes

- Guidance information has been updated across the suite of standards.
- New unit standard has been developed to meet industry needs for welding specific skills and knowledge with calculations relating specifically to welding.
- Unit standards 15133, 15134, 18105, 18108, and 26393 have been expired without replacement due to no longer being required by industry.
- Unit standards 22906, 30282, 30283 received credit increases, to better reflect the complexity of skills, knowledge and responsibly required of learners, aligning with the newly developed welding qualifications.
- Some unit standards have received new titles to better reflect content.
- Unit 26951 is set to expire with replacement and will be housed in the Welding domain for consistency. The replacement unit is set at a higher level at the request of stakeholders.

The last date for assessment of superseded versions of Category B unit standards is December 2025

Category C and D unit standards will expire at the end of December 2025

Impact on existing organisations with consent to assess

Current consent for			Consent extended to		
Nature of consent	Classification or ID	Level	Nature of consent	Classification or ID	Level
Domain	Engineering Core Skills	2-4	Standard	33135	3
Standard	29651	2	Standard	33135	3

Detailed list of unit standards – classification, title, level, and credits

All changes are in **bold**.

Key to review category	
A	Dates changed, but no other changes are made - the new version of the standard carries the same ID and a new version number
B	Changes made, but the overall outcome remains the same - the new version of the standard carries the same ID and a new version number
C	Major changes that necessitate the registration of a replacement standard with a new ID
D	Standard will expire and not be replaced

Engineering and Technology > Mechanical Engineering > Engineering Core Skills

Engineering and Technology > Mechanical Engineering > **Welding**

ID	Title	Level	Credit	Review Category
29651	Demonstrate knowledge of health and safety when welding and thermal cutting.	2	3	C
33135	Demonstrate knowledge of safety and health while welding and thermal cutting	3	3	New

Engineering and Technology > Mechanical Engineering > Welding

ID	Title	Level	Credit	Review Category
2671	Weld steel structures in the downhand positions using the manual metal arc welding process	3	6	B
2672	Weld steel to a general purpose industry standard using the gas metal arc welding process	3	6	B
2674	Weld stainless steel plate in downhand positions using the gas metal arc and flux cored arc welding processes	3	6	B
2675	Weld aluminium to industry standard in downhand positions using the gas metal arc welding process Weld aluminium in downhand positions using the gas metal arc welding process	3	6	B
2676	Weld stainless steel sheet to industry standard using the gas tungsten arc welding process Weld stainless steel sheet using the gas tungsten arc welding process	3	6	B
2677	Weld aluminium to industry standard in the downhand positions using the gas tungsten arc welding process Weld aluminium in the down hand positions using the gas tungsten arc welding process	3	6	B
2678	Join steel using the oxyacetylene welding process	3	3	B

ID	Title	Level	Credit	Review Category
2680	Join metals using the resistance welding process	3	4	B
2681	Weld steel structures using the submerged arc welding process	3	6	B
2682	Weld steel in the downhand positions to a general purpose industry standard using the manual metal arc welding process	3	6	B
2685	Weld steel structures in all positions using the manual metal arc welding process	4	10	B
2686	Weld aluminium in all positions using the gas metal arc welding process	4	10	B
2687	Weld stainless steel sheet and plate in position using the gas metal arc or flux cored arc welding process	4	10	B
2688	Weld stainless steel tube using the gas tungsten arc welding process	4	12	B
2689	Weld aluminium in all positions using the gas tungsten arc welding process	4	10	B
2690	Weld steel pipe using the oxyacetylene welding process	4	12	B
2692	Repair non-ferrous metal components using welding processes	4	10	B
2693	Repair ferrous metal components using welding processes	4	10	B
2694	Weld steel pressure pipe using the manual metal arc welding process with cellulosic electrodes	4	20	B
2695	Weld steel pressure pipe using the gas tungsten arc and manual metal arc welding processes	4	15	B
2696	Weld steel or stainless steel pressure pipe in all positions using the gas tungsten arc welding process	4	12	B
2697	Weld aluminium pipe in all positions using the gas tungsten arc welding process	4	12	B
15133	Design and manage welded construction	6	34	D
15134	Supervise welding operations	5	20	D
18105	Demonstrate knowledge of welding metallurgy	5	20	D
18106	Gouge steel using the air carbon arc gouging process	3	4	B
18108	Demonstrate knowledge of welding technology	5	20	D
21907	Demonstrate and apply knowledge of safe welding principles and quality assurance under supervision Demonstrate and apply knowledge of welding principles and quality control and safe welding practice under supervision	2	4	B
22906	Demonstrate and apply knowledge of welding low carbon steel Demonstrate knowledge of welding and weld low carbon steel	3	3 5	B
22907	Demonstrate and apply knowledge of welding aluminium and stainless steel	3	3	B
25783	Demonstrate knowledge of and apply metal cutting and gouging processes	3	2	B
26393	Demonstrate knowledge of the supervision of structural steel welding in accordance with AS 2214	5	25	D
30080	Join ferrous and non-ferrous metal components by torch brazing	3	6	B

ID	Title	Level	Credit	Review Category
30275	Weld steel structures in all positions using the selfshielded flux cored arc welding processes Weld steel structures in all positions using the self-shielded flux cored arc welding processes	4	6	B
30277	Weld steel structures in all positions using the flux cored arc welding processes	4	10	B
30278	Weld steel structures in all positions using the gas metal arc welding process	4	10	B
30279	Cut steel using the manual gas cutting process	3	2	B
30282	Weld steel structures in the downhand positions using the gas shielded flux cored arc welding process	3	4 6	B
30283	Weld steel structures in the downhand positions using the gas metal arc welding process	3	4 6	B
33134	Identify and calculate trade calculations to solve problems for welding engineering trades	3	4	New