FIELD ENGINEERING AND TECHNOLOGY

Review of *Engineering - Fabrication* unit standards

Subfield	Domain	Id
Mechanical Engineering	Engineering - Fabrication	2414, 2416-2425, 16954-16956, 18107

Competenz has completed the review of the unit standards listed above.

Date new versions published **July 2009**

Planned review date **December 2014**

Summary of review and consultation process

The above unit standards were reviewed in preparation for a major review of the National Certificate in Engineering - Fabrication (Level 4) with strands in Heavy Fabrication, Light Fabrication, and Welding [Ref: 0122].

The review process took into account all comments received up to January 2009, and all assessors, providers, and members of the Industry Sector Advisory Group were invited to comment. Detailed work was carried out with groups of specialists from industry and providers.

In addition, the review provided an opportunity to separate practical standards from standards dealing with underpinning knowledge to facilitate assessment processes.

Main changes resulting from the review

- Unit standards 2418, 2422, and 18107 (layout and marking of) have been replaced by unit standards 25874 and 25875 to separate light and heavy fabrication skills, and to avoid duplication of assessment.
- Unit standards 2420 and 2424 (assemble and join) have been replaced by unit standards 25700 and 25701 to separate light and heavy fabrication skills, and to avoid duplication of assessment.
- Unit standards 2421 and 2425 (mechanically cut) have been replaced by unit standards 25702 and 25703 to separate light and heavy fabrication skills, and to avoid duplication of assessment.
- Unit standards 2419, and 2423 (form and shape) have been replaced by unit standards 25698 and 25699 to separate light and heavy fabrication skills, and to avoid duplication of assessment.
- Unit standard 16954 has been designated expiring and unit standard 21905 is recommended as an alternative.
- Unit standards 2414, 2416, and 2417 have been designated expiring and unit standard 25075 is recommended as an alternative.
- Nine new standards (Unit standards 25704–24709 and 25711–25713) have been developed to facilitate delivery of courses for fabrication apprentices.
- Unit standard 25710 has been developed to cover manufacture of jigs.
- Special notes have been improved and style made consistent with other standards recently reviewed in other domains of Mechanical Engineering.

- Range statements, entry information, definitions, and other assessment parameters have been updated.
- Elements and performance criteria have been made consistent and improved to assist assessment.

Unit standards categorised as category C or D expire at the end of December 2014.

Impact on existing provider accreditations

Current Accreditation for			Accreditation extended to		
Nature of accreditation	Classification or Id	Level	Nature of accreditation	Id	Level
Subfield	Mechanical Engineering	3	Standards	25698, 25699, 25700, 25701, 25702, 25703, 25874, 25875	4
Domain	Engineering - Fabrication	3			
Domain	Engineering - Fabrication	3	Standard	21905	3
Standard	2414	2	Standard	25075	2
Standard	2416	2	Standard	25075	2
Standard	2417	2	Standard	25075	2
Standard	2418	3	Standard	25874, 25875	4
Standard	2421	3	Standard	25702, 25703	4
Standard	2422	4	Standard	25874, 25875	4
Standard	2423	4	Standard	25698, 25699	4
Standard	2424	4	Standard	25700, 25701	4
Standard	2425	4	Standard	25702, 25703	4
Standard	16954	2	Standard	21905, 25075	2

Impact on existing qualifications

Qualifications that contain the reviewed standards or classifications are tabled below.

Affected	The qualification lists a reviewed classification (domain or subfield) in an elective set The qualification lists a standard that has changes to level or credits The qualification lists a C or D category standard
Not materially affected	The qualification lists a standard that has a new title The qualification lists a standard that has a new classification

The following Competenz qualifications are affected by the outcome of this review and will be reviewed in 2009.

Qualification title	Standard in the qualification
National Certificate in Engineering-Fabrication (Level 4) with strands in Heavy Fabrication, Light Fabrication, and Welding [Ref: 0122]	2414, 2416-2425, 16954, 18107
National Certificate in Heating, Ventilating and Air Conditioning (Mechanical Services) (Level 4) [Ref: 0124]	2414, 2416, 2417, 16954

The following qualifications are also affected by the outcome of this review. The standard setting bodies (SSBs) have been advised that they require revision.

Qualification title	Classification or standard in the qualification	SSB Name
National Certificate in Boatbuilding (Level 4) with strands in Marine Cabinetmaking, Composite Sparmaking, Alloy Boatbuilding, Marine Rigging, Marine Painting, Composite Boatbuilding, Steel Boating Boatbuilding, Wooden Boatbuilding, Marine Systems Engineering, Metal Sparmaking, Composite Production Trailer Boats, and Alloy Production Trailer Boats [Ref: 0877]	2414, 2416-2418, 2421-2425	Boating Industry Training Organisation
National Certificate in Motor Industry (Automotive Body) with strands in Coachbuilding, Collision Repair, Dismantling and Recycling, Refinishing, and Vehicle Detailing [Ref: 1413]	2416, 2420	NZ Motor Industry Training Organisation Inc
National Certificate in Motor Industry (Automotive Body) (Level 4) with strands in Coachbuilding, Collision Repair, and Refinishing [Ref: 1414]	2422-2425, 16954	NZ Motor Industry Training Organisation Inc
National Certificate in Motor Industry (Automotive Specialist Engineering) (Level 3) with strands in Automotive Heating, Ventilation, and Air Conditioning; Automotive Machining; Diesel Fuel Injection; and Motorsport [Ref: 1415]	2414, 2416, 2418-2420	NZ Motor Industry Training Organisation Inc

Review Categories and changes to classification, title, level, and credits

All changes are in **bold**. Details of recommended alternative unit standards are in *italics*.

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

Subfield Mechanical Engineering
Domain Engineering - Fabrication

Id	Title	Level	Credit	Review Category
2414	Lay out and mark off regular fabrication shapes under supervision	2	15	D
2416	Assemble and mechanically join plate and sheet under supervision	2	10	D
2417	Mechanically cut fabrication materials under supervision	2	8	D
25075	*Perform basic fabrication operations under supervision*	*2*	*12*	

Id	Title	Level	Credit	Review Category
2418	Lay out and mark off irregular fabrication shapes under supervision	3	15	C
2422	Lay out and mark off complex fabrication shapes	4	15	C
18107	Lay out and mark off complex heavy fabrication shapes	4	15	C
25874	**Lay out and mark off light fabrication shapes**	**4**	**15**	
25875	**Lay out and mark off heavy fabrication shapes**	**4**	**15**	
2419	Form and shape sheet, plate, pipe and structural sections using power machines under supervision	3	15	C
2423	Form and shape fabrication materials	4	15	C
25698	**Form and shape light fabrication materials**	**4**	**20**	
25699	**Form and shape heavy fabrication materials**	**4**	**20**	
2420	Assemble and mechanically join tube, pipe and sections under supervision	3	15	C
2424	Assemble and mechanically join sheet, plate, tube, pipe and structural sections	4	20	C
25700	**Assemble and join light fabrication materials**	**4**	**20**	
25701	**Assemble and join heavy fabrication materials**	**4**	**20**	
2421	Mechanically cut fabrication materials using powered machinery under supervision	3	10	C
2425	Mechanically cut sheet, plate, tube, pipe and structural sections	4	10	C
25702	**Cut light fabrication materials**	**4**	**15**	
25703	**Cut heavy fabrication materials**	**4**	**15**	
16954	Calculate lengths, areas and mass of engineering fabrication materials	2	4	D
21905	*Demonstrate knowledge of trade calculations and units for mechanical engineering trades*	*2*	*4*	
16955	Calculate sizes, mass, volumes, and quantities for fabrication	3	4	B
16956	Demonstrate knowledge of force and stress in fabrications	4	4	B
25704	**Develop fabrication patterns for simple three-dimensional objects**	**3**	**10**	**New**
25705	**Develop fabrication patterns for complex three-dimensional objects**	**4**	**10**	**New**
25706	**Demonstrate and apply knowledge of intermediate light fabrication trade practice**	**3**	**10**	**New**

Id	Title	Level	Credit	Review Category
25707	Demonstrate and apply knowledge of intermediate heavy fabrication trade practice	3	10	New
25708	Demonstrate and apply knowledge of advanced light fabrication trade practice	4	12	New
25709	Demonstrate and apply knowledge of advanced heavy fabrication trade practice	4	12	New
25710	Manufacture jigs for fabrication	4	5	New
25711	Demonstrate knowledge of basic CNC concepts and applications in the fabrication industry	3	4	New
25712	Demonstrate knowledge of pressure vessels and pressure piping for fabrication trades	4	4	New
25713	Demonstrate knowledge of steel construction workshop and jobsite operations, procedures and processes	4	4	New