Title	**Demonstrate knowledge of fabrication machinery, materials, and processes**		
Level	**2**	**Credits**	**3**

Purpose	This is an entry-level unit standard for people working in the mechanical engineering trades involved in the fabrication of metal assemblies. This unit standard is limited to fabrication principles and does not include welding, which is covered in unit standards in the welding domain. People credited with this unit standard are able to demonstrate knowledge of fabrication machinery and machinery components, and common fabrication materials and processes.

Classification	Mechanical Engineering > Engineering - Fabrication

Available grade	Achieved

Explanatory notes

1 Identification of steel fabrication sections may be assessed from physical examples or pictorial representations.

2 References
Timings R. (2011) *Fabrication and welding engineering*. Routledge. Abingdon, England. ISBN 978-0-7506-6691-6.

3 Definitions
Accepted industry practice refers to approved codes of practice and standardised procedures accepted by the wider mechanical engineering industry sectors as examples of best practice.
Job specifications refers to instructions relevant to the safe completion of the specific task, such as technical specifications, assembly instructions, drawings, parts lists, standards, codes of practice, test and commissioning procedures, and verbal instructions.
Workplace procedures refers to procedures used by the organisation carrying out the work and applicable to the tasks being carried out. They may include but are not limited to – 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.

4 Range
Fabrication machinery – band saw, powered hacksaw, cut off saw (disc), manually controlled brake press, pipe bender, manually controlled guillotine, powered shears, drill press, sheet and section rollers.

5 Assessment information
Examples/evidence given must meet applicable workplace procedures and accepted industry practice.

Outcomes and evidence requirements

Outcome 1

Demonstrate knowledge of fabrication machinery and machinery components.

Evidence requirements

1.1 Fabrication machinery is identified and the principles of operation are stated.

Range principles of operation include but are not limited to – purpose, method of operation, controls, alignment and holding of workpiece, limitations to use.

1.2 Fabrication machinery components are identified and their function is explained.

Range components that are essential to the safe and effective operation of the equipment.

Outcome 2

Demonstrate knowledge of common fabrication materials and processes.

Evidence requirements

2.1 Common steel fabrication sections are identified and a typical application is stated.

Range common steel fabrication sections – universal beam, universal column, parallel flanged channel (PFC), equal and unequal angles, rectangular hollow section (RHS), square hollow section (SHS), circular hollow section (pipe or tube), flat, solid square, solid round, plate, sheet.

2.2 Mechanical properties of common fabrication metals are stated.

Range common fabrication metals – mild steel, aluminium, stainless steel; mechanical properties include but are not limited to – corrosion resistance, formability, weldability.

2.3 Fabrication processes are outlined in accordance with workplace procedures and/or accepted industry practice.

Range processes – metal selection, layout, marking, cutting, bending, rolling, assembling.

2.4 Basic quality control checks used in fabrication to ensure that the finished product meets job specifications are described.

Range basic quality control checks for – assembly, orientation, measurement.

2.5 Cutting, bending, and joining allowances are calculated.

Replacement information	This unit standard and unit standard 29730 replaced unit standard 25075.

Planned review date	31 December 2021

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	8 December 2016	N/A

Consent and Moderation Requirements (CMR) reference	0013

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Please note
Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard

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