

Title	Form heavy fabrication materials		
Level	4	Credits	20

Purpose	<p>This workplace unit standard is intended for people training to be engineering heavy fabricators.</p> <p>People credited with this unit standard are able to prepare to form; and form heavy fabrication materials; and inspect work after forming.</p>
----------------	--

Classification	Mechanical Engineering > Engineering - Fabrication
-----------------------	--

Available grade	Achieved
------------------------	----------

Guidance Information

- 1 References

Health and Safety at Work Act 2015.
Accident Compensation Corporation and Department of Labour. *Metal Industry Guidelines for Safe Work*. Wellington: ACC, 2007. Available from <http://www.acc.co.nz>.
- 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.

Specifications – detail that defines an object being made; commonly communicated by annotated and dimensioned drawings; by written description, or by other communication media. External references may also be used to specify objects such as tables or industry standards.

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.
- 3 Materials and forming techniques

Examples of materials are – plate, heavy structural sections, angles, channels, pipes, tubes.

Examples of forming techniques are – hot and cold forming using hand and power operated machinery that may be manually controlled, numerically controlled (NC) or computer numerically controlled (CNC).

Examples of projects are – hoppers, chutes, tanks.

Examples of shapes are – cylindrical, pyramidal, conical, square to round.

- 4 Recommended for entry
Unit 25707, *Demonstrate and apply knowledge of intermediate heavy fabrication trade practice.*
- 5 Related unit standards
This unit standard is one of a comprehensive set of fabrication unit standards. Other available related unit standards can be found by searching the Directory of Assessment Standards (DAS) on the NZQA website <http://www.nzqa.govt.nz> in the Engineering - Fabrication domain.
- 6 Timeframe
All activities are expected to be completed within commercially acceptable timeframes.

Outcomes and performance criteria

Outcome 1

Prepare to form heavy fabrication materials.

Range material thickness – 4mm or greater;
six unique projects.

Performance criteria

1.1 Work is planned in accordance with job requirements.

Range work requirements, materials, tools and equipment, work sequences, identification of potential problems.

1.2 Forming tools, equipment and machinery are selected and set to meet job requirements.

1.3 Calculations are made to aid forming.

Range examples are – die forms, mean radius, efficient use of materials, pressure settings, interpretation of nomographs, bending allowances.

Outcome 2

Form heavy fabrication materials.

Range projects prepared in outcome 1.

Performance criteria

2.1 Workplace safety procedures are followed.

Range examples are – use of personal protective equipment, checking of equipment for faults, use of lifting and handling equipment, use of fume extraction equipment, elimination of risk of fire or explosion.

2.2 Materials are formed to meet specifications in accordance with accepted industry practice.

2.3 Component damage during forming is minimised in accordance with workplace procedures.

Range examples are – tooling marks, hammer marks, handling damage marks, work surface marks, metal fatigue.

2.4 Tools, machines and equipment are cleaned and waste materials disposed of in accordance with workplace procedures.

Outcome 3

Inspect work after forming.

Range materials formed in outcome 2.

Performance criteria

3.1 Jobs are inspected for conformance with specifications, and any deviations rectified.

Range visual examination, tolerance checks, dimensional checks.

3.2 Completion of work is reported in accordance with workplace procedures.

Replacement information	This unit standard and unit standard 25698 replaced unit standard 2419 and unit standard 2423.
--------------------------------	--

Planned review date	31 December 2022
----------------------------	------------------

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	17 July 2009	31 December 2022
Review	2	20 July 2017	N/A

Consent and Moderation Requirements (CMR) reference	0013
--	------

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.