Title	**Demonstrate knowledge of signmaking materials and fabricate and spray paint three dimensional signs**		
Level	**4**	**Credits**	**40**

Purpose	This unit standard is for people working in the signmaking industry wishing to specialise in the fabrication of three dimensional signs. People credited with this unit standard are able to demonstrate knowledge of the following materials used in sign fabrication: acrylic, aluminium, aluminium composite (ACM), and timber based materials; demonstrate knowledge of spray paint finishing for fabricated signs; fabricate acrylic and ACM signs; fabricate aluminium sign components, and a timber sign or display; and spray paint sign components.

Classification	Sign Making > Sign Making - Specialisation

Available grade	Achieved

Guidance Information

1 References
Health and Safety at Work Act 2015.
NZS 3640:2003, *Chemical preservation of round and sawn timber*.

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

3 Assessment information
All performance criteria must be performed in accordance with workplace procedures.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of acrylic materials used in sign fabrication.

Performance criteria

1.1 The differences between extruded and cast acrylic materials are explained for signmaking applications.

Range workability, cost, aesthetic options, durability, availability.

1.2 Acrylic material options are explained in terms of attributes, effects, selection, and usage in sign fabrication.

Range transparent, opal translucent, opaque, colours, surface finishes, thicknesses, sheet sizes.

Outcome 2

Demonstrate knowledge of aluminium material used in sign fabrication.

Performance criteria

2.1 The attributes and usage of aluminium sheet are explained.

Range grades, workability, finishing.

2.2 The attributes and usage of aluminium extrusion are explained.

Outcome 3

Demonstrate knowledge of aluminium composite material (ACM) used in sign fabrication.

Performance criteria

3.1 The attributes and usage of ACM are explained.

3.2 The selection considerations of ACM for sign fabrication are explained.

Range thickness, face thickness, surface finish, durability.

Outcome 4

Demonstrate knowledge of timber based materials used in sign fabrication.

Performance criteria

4.1 Attributes, durability, and usage of plywood are explained.

4.2 Attributes, durability, and usage of medium density fibreboard (MDF) are explained.

4.3 Attributes, durability, and usage of timber are explained.

4.4 Timber durability treatments are explained in terms of hazard class related usage as defined in NZS 3640:2003.

Outcome 5

Demonstrate knowledge of spray paint finishing for fabricated signs.

Performance criteria

5.1 Surface and substrate preparation techniques and requirements are explained in general terms in accordance with a paint manufacturer's use and application specification.

5.2 Procedures for spray gun break down, cleaning, reassembly, and set up are described.

5.3 Spray painting procedures are described for a range of paint types.

Range paint types – acrylic, enamel, lacquer, two pack.

Outcome 6

Fabricate acrylic signs.

Performance criteria

6.1 Acrylic material is measured and marked to meet sign component dimensions.

6.2 Power tools are used for cutting acrylic material.

Range tool examples are – hand held circular saw, jig saw, table saw, bandsaw, copy router;
evidence is required for three power tools.

6.3 Acrylic materials are cut and engraved using computer numerically controlled (CNC) machinery.

Range examples are – CNC router, CNC engraver.

6.4 Acrylic material is cut using a laser cutter.

6.5 A drill bit is sharpened and used for acrylic cutting.

Range drill bit sharpening angles and set, drill speed selected.

6.6 Acrylic sign edges are finished and polished.

Range mechanical methods, flame methods.

6.7 Acrylic material is bent and folded using heat bars and heat guns.

6.8 Acrylic material is bonded using solvent based glues.

6.9 A three-dimensional channel letter is fabricated from acrylic material.

Outcome 7

Fabricate Aluminium Composite Material (ACM) signs.

Performance criteria

7.1 ACM is measured and marked to meet sign component dimensions.

7.2 Power tools are used for cutting ACM.

Range examples of power tools are – hand held circular saw, jig saw, table saw, bandsaw, copy router;
evidence is required for use of three power tools.

7.3 ACM is cut and engraved using computer numerically controlled (CNC) machinery.

Range CNC router, CNC engraver.

7.4 ACM is folded using the v-groove folding method.

Range circular saw, hand held router, CNC router.

7.5 ACM folds are welded using plastic welding in the V groove.

7.6 ACM materials are joined using a range of methods.

Range blind rivets, glues, very high bond (VHB) tapes.

7.7 A folded ACM sign pan is fabricated.

Outcome 8

Fabricate aluminium sign components.

Performance criteria

8.1 Aluminium sheet is measured, marked, and cut to meet sign component dimensions.

8.2 Aluminium extrusion is measured, marked, and cut to meet sign component dimensions.

8.3 Aluminium components are joined using a range of methods.

Range blind rivets, screws, VHB tapes.

8.4 A sign case for an illuminated sign is fabricated from aluminium extrusion.

Outcome 9

Fabricate a timber sign or display.

Performance criteria

9.1 Timber based sheet is measured and cut to meet sign component dimensions.

Range sheet examples are – plywood, medium density fibreboard (MDF).

9.2 Lengths of moulded solid timber are measured and cut to meet sign component dimensions.

9.3 Sign or display is fabricated using a combination of timber based sheet and moulded solid timber.

Outcome 10

Spray paint sign components.

Performance criteria

10.1 Substrate is prepared in accordance with paint manufacturer's specifications and job requirements.

10.2 Spray painting equipment is set up to meet the paint application requirements.

10.3 Paint is verified for colour and type and mixed to meet job requirements.

10.4 Paint is applied and cured to meet job requirements in accordance with manufacturer's specifications.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	20 April 2017	31 December 2025
Review	2	29 September 2022	31 December 2025

Consent and Moderation Requirements (CMR) reference	0013

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