

Title	Describe and apply filling and fairing technology		
Level	3	Credits	15

Purpose	People credited with this unit standard are able to: describe filling and fairing systems; and describe and apply extenders, surface preparation requirements, and filling and fairing techniques.
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Classification	Boating Industries > Boatbuilding
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Available grade	Achieved
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Guidance Information

- 1 All required equipment must be set up, started up, operated, and shut down in accordance with organisation policies and procedures.
- 2 All work practices must meet recognised codes of practice and documented worksite health and safety procedures (where these exceed code) for personal, product, and worksite health and safety, and must meet the obligations required under the Health and Safety at Work Act 2015, Health and Safety in Employment Act 1992, and Resource Management Act 1991 and any subsequent amendments.
- 3 Surface filling in the context of this unit standard is for the purposes of achieving surface fairness, as opposed to localised spot filling on nail and screw holes.
- 4 Assessment must include establishing fairness and filling appropriately an entire non fair convex boat hull, deck, or other surface exceeding 10m².
- 5 Definitions
Extender refers to a substance used to thicken or alter a base resin into a paste form.
Fairing refers to a process of making the form of a surface smooth
Job specifications refers to the standard requirements of the job being undertaken.
Manufacturer's specifications refers to the instructions that may apply to quantities, ratios, temperatures, humidity, application rate, ventilation, material handling, taking specified safety precautions, and application method.

Outcomes and performance criteria

Outcome 1

Describe filling and fairing systems.

Performance criteria

1.1 Pre-extended and extended systems are compared in terms of cost, wastage, efficiency, and ease of use.

1.2 Pre-extended and extended system advantages and disadvantages are described with reference to their properties.

Range may include – polyester/vinylester, epoxy;
properties may include – water resistance, compatibility, bonding strength, hardness, stability, shrinkage.
evidence of at least two resin systems is required.

1.3 Pre-extended and extended system types are described in terms of the application method, build thickness, and purpose.

Range evidence of three application methods is required.

Outcome 2

Describe and apply extenders used in filling and fairing systems.

Range evidence of two extenders is required.

Performance criteria

2.1 Extenders advantages and disadvantages are described, with reference to their properties, when mixed into a filling or fairing compound.

Range extenders may include – talc, silica, micro-balloons;
properties may include – shaping, sanding, hardness, stability, mixing, cost, application.

2.2 Extenders are applied in accordance with job specifications.

Outcome 3

Describe and apply surface preparation requirements for filling and fairing.

Performance criteria

3.1 Surface preparation and cleaning requirements prior to application of filling or fairing compound are described according to surface.

Range preparation includes cleaning, identification and marking of highs and lows
surfaces may include – steel, aluminium, composite, timber.
evidence of two surfaces is required.

3.2 Surface preparation is applied and verified in accordance with job requirements and manufacturer's specifications.

Outcome 4

Describe and apply filling and fairing techniques.

Performance criteria

4.1 Filler is progressively checked during shaping using battens, and highs and lows are identified in accordance with job specifications.

4.2 The stages of filler application are described and applied in terms of the progression of the fairing process.

Range initial fairing application, localised application.

4.3 Surface is filled so that fair lines are achieved across the entire surface in accordance with job specifications.

4.4 Cured filler is checked for hardness in accordance with job specifications and manufacturer's specifications.

4.5 Use of battens is described and applied in terms of establishing fair surfaces.

Range batten length and rigidity, batten selection according to surface curvature, localised fairness, overall fairness, marking out.

4.6 Use of shaping and smoothing tools is described and applied in terms of establishing fair and smooth surfaces.

Range includes planes, sanding boards, sanding machines.

Replacement information	This unit standard replaced unit standard 25113, 25155, and 25156.
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Planned review date	31 December 2027
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	15 October 2015	31 December 2024
Review	2	25 August 2022	N/A

Consent and Moderation Requirements (CMR) reference	0136
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council qualifications@hangaarorau.nz if you wish to suggest changes to the content of this unit standard.