

Title	Apply 2D CAD/CAM in boatbuilding		
Level	4	Credits	5

Purpose	People credited with this unit standard are able to: produce and export 2D CAD boat drawings; import 2D CAD boat drawings and produce boat components using a CNC machine; and check machined boat components.
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Classification	Boating Industries > Boatbuilding
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Available grade	Achieved
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Guidance Information

1 Definitions

Apply refers to producing boat drawings using 2D CAD/CAM software.

CAD – Computer Aided Design using computer drawing software.

CAM (Computer Aided Manufacture) refers to software and machines that enable the CAD drawing to be converted to G-code format and cut components.

CNC (Computer Numerical Control) refers specifically to a computer machine controller that reads G-code instructions (usually derived from CAD software) that drives the machine tool.

2D refers two dimensional with an x and y axis.

Job specifications refer to the standard requirements of the job being undertaken.

MDF – Medium-Density Fibreboard

Workplace policies and procedures refer to the documented and policies providing guidelines of the tasks and activities carried out in the workplace. This typically includes relevant health and safety requirements to manage risk in the workplace.

2 This unit standard only covers 2D CAD drawing and CNC/CAM machining – not 3D.

3 Suitable materials for cutting include – timber, plywood, MDF, metal, plastics.

4 For the purposes of this unit standard the product drawn in outcome 1 is the same product to be exported and cut.

Outcomes and performance criteria

Outcome 1

Produce and export 2D CAD boat drawings.

Performance criteria

- 1.1 Simple 2D CAD boat drawings are produced in accordance with job specifications.
- Range boat frames (chine or round bilge) or any simple 2D boat components.
- 1.2 CAD boat drawing files are exported to CNC machine or server in accordance with workplace policies and procedures.
- Range transfer by network, flash drive, other data transfer media.

Outcome 2

Import 2D CAD boat drawings and produce boat components using a CNC machine.

Performance criteria

- 2.1 2D CAD drawing is imported into CNC/CAM software in accordance with software requirements.
- 2.2 Tool and clearance corrections are assigned in accordance with machine and job specifications.
- 2.3 Machining settings are test run in the software in accordance with workplace policies and procedures.
- 2.4 CNC machine is run in order to machine component.

Outcome 3

Check machined boat components.

Performance criteria

- 3.1 Machined component is checked for accuracy in accordance with the CAD drawings.

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	21 November 2008	31 December 2022
Revision	2	20 March 2009	31 December 2022
Rollover and Revision	3	30 August 2018	31 December 2022
Review	4	27 August 2020	31 December 2022
Review	5	27 October 2022	N/A

Consent and Moderation Requirements (CMR) reference

0136

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 at qualifications@hangaarorau.nz if you wish to suggest changes to the content of this unit standard.