

# NATIONAL CERTIFICATE IN BOATBUILDING ALLOY (Level 4)

306 CREDITS Version 5

An apprentice completing this NZQA registered qualification will gain the knowledge and skills required to be Marine Industry recognized and qualified as a competent **Alloy Boatbuilder**.

In this qualification, apprentices gain a comprehensive and detailed understanding of all aspects of alloy construction.

This qualification covers boat drawing, lofting techniques, pattern making calculations and learning to build boats of all sizes.

Construction of the frames through to completion of the hull and superstructure are all covered in detail as are welding, cutting, shaping/fabricating, fitting of interior and exterior components, and the correct use of all boatbuilding tools.

There is a diverse range of boats built every year in New Zealand from alloy materials. These include vessels from private recreational boats, to work boats to superyachts. Alloy boats are light and strong and those with the skills to cut, shape, fit and weld alloy materials will always be needed in this sector of the industry.

This qualification takes on average 4.5 to 5.5 years to complete.

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Adam Powell



Adam Powell completed his National Certificate in Boatbuilding (Alloy) Level 4 in 2008, while working at Alloy Yachts. As a fully qualified alloy boatbuilder, he enjoyed the excitement of working on one-off, luxury superyacht projects.

His current role is as fabricator / team leader where he has the opportunity to pass on his skills and knowledge to junior team members.

In the future Adam would like to complete the National Diploma in Boatbuilding (Metal) Level 5 which will give him advanced skills in his chosen area, allowing him to become an advanced metal boatbuilder. As such, he will become a skilled manager of people, resources and work operations, a valuable member of his company.

**Unit Standard Content**

Unit Number	Unit Title	Level	Credit Value
414	Demonstrate knowledge of the distribution environment	2	4
2675	Weld aluminium in the downhand positions using the gas metal arc welding process	3	6
2677	Weld aluminium in the downhand positions using the gas tungsten arc welding process	3	6
2686	Weld aluminium in all positions using the gas metal arc welding process	4	10
2689	Weld aluminium in all positions using the gas tungsten arc welding process	4	10
5433	Demonstrate knowledge of electrical and electronic applications for marine use	4	8
9913	Demonstrate a knowledge of the New Zealand marine industry	2	3
9917	Demonstrate knowledge of boatbuilding methods	2	4
9922	Produce templates and patterns used in boatbuilding	3	4
9923	Install internal and external boat hardware fittings	4	4
9933	Install exterior boat joinery, modules and components	4	10
9944	Identify the characteristics of aluminium alloys relevant to boat building	2	2
9946	Assemble multiple and complex metal boat components for joining	4	10
10836	Produce scale drawings of boat surfaces from corrected offsets	2	6
11790	Prepare aluminium substrates for marine surface coatings	4	5
18158	Select, use and care for hand tools used in boatbuilding	2	5
18159	Select, use and care for portable power tools used in boatbuilding	2	5
18160	Operate mechanical plant used in boatbuilding	2	12
18161	Perform measurements and calculations used in boatbuilding	2	5
18162	Calculate quantities and costs for boatbuilding projects	3	4
18163	Demonstrate a knowledge of boatbuilding construction drawings and produce related freehand sketches	3	2
18164	Demonstrate knowledge of insulation and install insulation in boats	3	2
18165	Demonstrate knowledge of computer technology used in the boating industry	3	6
18166	Participate in a project team in the boating industry	2	4
18170	Contribute to a project team in the boating industry	3	3
21907	Demonstrate and apply knowledge of safe welding procedures under supervision	2	3
23035	Describe and install boat tankage systems	3	6
23241	Loft a boat hull	4	10
23242	Loft full sized decks and superstructures	4	6
23243	Identify and explain the causes and prevention of material deterioration in the marine environment	4	8
23244	Identify and apply health and safety procedures for the boatbuilding industry	3	4
25075	Perform basic fabrication operations under supervision	2	12
25113	Describe filling and fairing technology used in boatbuilding	3	4
25115	Describe, install and test plumbing systems in boats	3	6
25116	Lift, support and move boats and components	3	8
25157	Build metal boat framework under supervision	3	20
25343	Identify boat fittings and fastenings	2	4
25344	Demonstrate knowledge of marine trades and expectations of employees	2	3
25345	Demonstrate knowledge of terminology used in the marine industry	2	6
25698	Form and shape light fabrication materials	4	20
25874	Lay out and mark off light fabrication shapes	4	15
26542	Demonstrate basic knowledge of the operation of recreational craft by day	2	6

## NATIONAL CERTIFICATE IN BOATBUILDING (ALLOY) Level 4 (Version 5)

**Elective Unit Standard Content** Plus at least **25** credits from the following list:

Unit Number	Unit Title	Level	Credit Value
2676	Weld stainless steel sheet using the gas tungsten arc welding process	3	6
2683	Cut metals using manual thermal processes	3	4
2688	Weld stainless steel tube using the gas tungsten arc welding process	4	12
5231	Use constructions and make drawings for geometrical situations	1	2
9931	Overlay boat decks with teak	4	15
9937	Install interior and exterior boat systems	4	10
10841	Produce a half model of a small craft to scale	4	10
10843	Mark out full sized boat components from loftings and computer generated mylars	3	2
11777	Install inboard production engine packages in boats	3	6
11778	Install and test custom power plants and power trains	4	20
18171	Demonstrate knowledge of spars and rigging	3	5
23038	Form and shape compound aluminium plate for boats	4	10
25152	Apply 2D CAD/CAM in boatbuilding	4	5
25153	Describe computerized manufacturing processes used in boatbuilding	4	3
25700	Assemble and join light fabrication materials	4	20

