

NATIONAL CERTIFICATE IN BOATBUILDING METAL SPARMAKING (Level 4)

218 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 **Metal Sparmaker**.

This qualification recognises the skills and knowledge required for apprentices working in the sparmaking sector of the Marine Industry, specifically in the fabrication and manufacture of metal masts and spars.

In this qualification, apprentices undertake detailed training in metal construction methods, all types of welding, appropriate tools and machinery involved in sparmaking and how to assemble fittings and rigging. In addition, they receive an overview of the boatbuilding industry and gain a detailed knowledge of design drawings and calculations.

Metal sparmakers use aluminium alloys or stainless steel to manufacture masts, booms, yards and bowsprits used for supporting sails and rigging. The skills involved in fabrication include welding and machining and then there is the transportation, installation and maintenance of spars. With the advances in racing yacht and superyacht development, this part of the industry, with its specialised skills, makes up an essential and exciting sector.

This qualification takes, on average 2.5 to 4 years to complete.

Trent Cunningham



Trent Cunningham is in the process of completing his National Certificate in Boatbuilding, Level 4, in two strands, metal sparmaking and marine rigging. These two qualifications complement each other and it makes sense to do them concurrently.

Trent works for NZ Rigging, on the North Shore of Auckland, a company specialising in manufacturing carbon fibre and aluminium masts and rigging. Through his work and his training, Trent has made some great contacts in the industry and the sailing community and in future hopes to be involved as a rigger or as crew on the Med Cup circuit.

*“Coming from a yachting background is definitely a bonus when training in this sector of the industry”
– Trent Cunningham*

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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
9922	Produce templates and patterns used in boatbuilding	3	4
9944	Identify the characteristics of aluminium alloys relevant to boatbuilding	2	2
9946	Assemble multiple and complex metal components for joining	4	10
11790	Prepare aluminium substrates for marine surface coatings	4	5
18158	Select, use and care for hand tools used in boat building	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
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
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
18171	Demonstrate knowledge of spars and rigging	3	5
21907	Demonstrate and apply knowledge of safe welding procedures under supervision	2	3
23039	Demonstrate knowledge of the transportation of spars and rigging	3	4
23243	Identify and explain causes 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
25119	Describe and safely control work aloft on yacht rigs	4	4
25120	Demonstrate knowledge of the design and specifications for yacht spars and rigging	4	4
25123	Interpret, select and assemble components of yacht spars and rigging	4	6
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
25700	Assemble and join light fabrication materials	4	20
26542	Demonstrate basic knowledge of the operation of recreational craft by day	2	6

Elective Unit Standard Content Plus at least **20** 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
2688	Weld stainless steel tube using the gas tungsten arc welding process	4	12
9917	Demonstrate knowledge of boatbuilding methods	2	4
11661	Produce components by performing basic engineering drilling operations	2	8
11662	Produce components by performing basic engineering turning operations	2	12
11663	Produce components by performing basic engineering milling operations	2	12
11789	Prepare steel substrates for marine surface coatings	4	5
16961	Polish welded stainless steel fabrications	3	10
23040	Demonstrate knowledge of yacht spar and rigging systems	4	8
23049	Demonstrate knowledge of composite technology for boatbuilding	4	6
25121	Maintain yacht spars, rigging and hardware	4	4
25122	Install and remove yacht spars and rigging	4	8
25152	Apply 2D CAD/CAM in boatbuilding	4	5