



SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)

In accordance with regulation 24(c) of the National Standards Bodies Regulations of 28 March 1998, the Standards Generating Body (SGB) for

Manufacturing and Assembly Processes

Registered by Organising Field 06, Manufacturing, Engineering and Technology, publishes the following qualification and unit standards for public comment.

This notice contains the titles, fields, subfields, **NQF** levels, credits, and **purpose of the** qualification and unit standards. The qualification and unit standards can be accessed via **the SAQA** web-site at www.saga.org.za. Copies may also be obtained from the Directorate for Standards Setting and Development at the **SAQA** offices, Hatfield Forum West, 1067 Arcadia Street, Hatfield, Pretoria.

Comment on the qualification and unit standards should reach **SAQA** at the address **below and no later than 6 July 2006**. All correspondence should be marked Standards **Setting – SGB** for Manufacturing and Assembly Processes and addressed to

The Director: Standards Setting and Development

SAQA

Attention: Mr. D Mphuthing

Postnet Suite 248

Private Bag X06

Waterkloof

0145

or faxed to **012 –431-5144**

e-mail: dmpmuthing@saga.co.za

S BHIKHA
DIRECTOR STANDARDS SETTING AND DEVELOPMENT



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:

National Certificate: Small Craft Construction

SAQA QUAL ID	QUALIFICATION TITLE		
50542	National Certificate: Small Craft Construction		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Manufacturing and Assembly Processes	6		
QUAL TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD	
National Certificate	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	MINIMUM CREDITS	NQF LEVEL	QUALIFICATION CLASS
Undefined	156	Level 2	Regular-Unit Stds Based

PURPOSE AND RATIONALE OF THE QUALIFICATION

• Purpose:

This qualification will enable qualifying learners with elementary skills in the small craft construction environment to assist boat builders with the manufacturing of small craft. These skills include but are not **limited to** on board applications, basic manufacturing processes using metal and wood polymer composites **and working** with tools and equipment. It will also contribute to the further development of learners by providing **articulation** towards more general small craft construction skills. Learners acquiring this qualification will have an improved understanding of their role, acquire the applied competencies to **consistently** and effectively execute their duties by contributing to the manufacturing process and adhering to quality and safety requirements. The skills, knowledge and understanding demonstrated within this **qualification** are essential for social, economic and cultural transformation and contribute to the upliftment and economic **growth** within the manufacturing environment.

Qualifying learners will be able to perform their line function with specific reference to:

- > Managing themselves, physical and material during the manufacturing process through effective organisational relations and practices to achieve business objectives.
- > Demonstrating an understanding of national and international boat building practices, terminology and systems **as** applied in **small** craft construction.
- > Assisting under supervision in the building of a small craft of national and international quality for leisure **activity** by applying relevant quality, health and safety requirements.

Range:

- > **Small** craft construction is limited to boats with fibreglass hulls not exceeding five meters.

Range:

- > **Construction** excludes the manufacturing of the hull and major components such as the power system and communication systems **but** does include the **fitting** of such systems.

Rationale:

Since small craft construction discipline has not previously had formal qualifications, people who have **worked in this** field require validation by being given access to formal qualifications and standards. The qualification will therefore be able to affirm the experiences of boat builders through the recognition of prior learning, credit accumulation and achievement of competencies. This qualification is for learners who are pursuing a career specifically within the small craft construction sector and is the first one in a learning pathway that has been created. It also provides learners with opportunities for professional development and career advancement within the broader manufacturing environment.

This qualification reflects the need and demand within the small craft construction sector for skilled employees. People looking for a career in small craft construction or new entrants to the employment market will be able to perform predominantly in a production environment that produces national and international quality small craft for leisure activity. Successful learners of this qualification will be able to provide world-class service, improve professionalism and enhance the quality of service delivery thereby contributing to the creation of investor confidence and global competitiveness in the South African small craft construction sector.

RECOGNIZE PREVIOUS LEARNING?

Y

LEARNING ASSUMED TO BE IN PLACE

it is assumed that learners are already competent in:

> Communication and Mathematical Literacy at NQF Level.

Recognition of prior learning?

The structure of this unit standards-based qualification makes the Recognition of Prior learning possible. This qualification may therefore be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience. The learner should be thoroughly briefed on the mechanism to be used and support and guidance should be provided. Care should be taken that the mechanism used provides the learner with an opportunity to demonstrate competence and is not so onerous as to prevent learners from taking up the RPL option towards gaining a qualification.

If the learner is able to demonstrate competence in the knowledge, skills, values and attitudes implicit in this qualification the appropriate credits should be assigned to the learner. Recognition of Prior Learning will be done by means of Integrated Assessment as mentioned above.

This Recognition of prior learning may allow

- > Accelerated access to further learning at this or higher levels on the **NQF**.
- > Gaining of credits towards a unit standard.
- > Obtaining of this Qualification in part or in **whole**.

Access to the qualification:

Taking learning assumed to be in place into account, access is open for learners whose mobility on a boat will not be restricted due to any disabilities, as most training will take place on and in a small **craft**.

QUALIFICATION RULES

The Qualification is made up of a planned combination of learning outcomes that have a defined purpose and will provide qualifying learners with applied competence and a basis for further training. The Qualification is made up of unit standards that are classified as Fundamental, Core and **Elective** in achieving its purpose. A minimum of **156** credits is required to complete the Qualification.

In this Qualification the credits are allocated as follows:

- > Fundamental: **45** credits.
- > Core: **86** credits.
- > Electives (minimum): **25** credits.
- > Total: **156** credits.

Fifty seven percent of the credits relate directly to small craft construction practices. The elective component allows the learner to select unit standards that are:

- > Related to the work done by the learner in an organisation.
- > Related to specialist areas in small craft construction specifically or other specialist areas that the learner might be interested in.

This is to ensure that while there is a strong small craft construction focus, there is scope for learners to select additional unit standards that are relevant to their own situations and cement articulation and portability opportunities for the learner.

Motivation for number of credits assigned to fundamental, core and elective.

Allocation of Fundamental credits:

Unit standards to the value of 45 credits in Language and Communication, Mathematical Literacy and Health and Safety have been selected for the Fundamental component. These unit standards will add value to learners both organisationally and functionally in terms of their ability to operate as a proficient person in a global economy. All the Fundamental unit standards are compulsory.

Allocation of Core credits

86 credits have been allocated to unit standards in the Core Component of this qualification. This is to ensure that the qualification has a strong small craft construction focus. The unit standards classified as Core reflect the compulsory aspects in small craft construction that the learner needs to be fully competent in. The Core component covers competencies related to small craft construction practices, health, safety and environmental issues, tools and equipment and manufacturing processes and materials. The unit standards provide the knowledge, values and skills that all learners require in order to engage in small craft construction practices. All Core unit Standards are compulsory.

Allocation of Elective credits:

There are unit standards totalling 112 credits in this component. Learners are required to select electives totalling a minimum of 25 credits. It is intended that the selected electives should allow learners to develop alternative career paths; or gain additional skills and knowledge that relate directly to the work of the learner and which will enhance the learner's work performance or introduce a learner to areas of specialisation in small craft construction.

EXIT LEVEL OUTCOMES

Qualifying learners are able to:

1. Manage self, and material during the manufacturing process through effective organisational relations and practices to achieve business objectives.
2. Demonstrate an understanding of national and international boat building practices, terminology and systems as applied in small craft construction.
3. Assist in the building of a small craft in accordance with predetermined specifications and international standards.

ASSOCIATED ASSESSMENT CRITERIA

1.

- > Communication techniques are applied to optimise the impact and effectiveness of quality service delivery.
- > A range of communication strategies are identified and utilised in solving small craft construction related problems.
- > Calculations and statistics are used correctly and accurately in contributing to a manufacturing process.
- > Information systems are utilised to improve service delivery.

2.

- > The international boating environment is understood by using the correct terminology and describing the uses of various small craft designs.
- > The craft design is explained in terms of the uses of various techniques, materials and methods in construction and manufacturing processes.
- > Distinctions between the different on-board applications are made with reference to the relevant systems.
- > Finishing materials are appropriately identified and used in accordance with the type of small craft being manufactured.
- > The work area is kept in a safe and productive condition through safety standards.
- > Seamanship is demonstrated through assistance in the handling of a small craft.

3.

- > Curved laminated timber and board components are produced utilising the appropriate materials and processes.
- > Small craft construction activities are undertaken utilising polymer composite fabrication techniques.
- > Basic welding or joining of metals is performed in accordance with materials and manufacturers specifications.
- > The appropriate hand and power tools are selected and cared for in accordance with manufacturers

specifications.

Integrated Assessment

- > Assessment practices must be open, transparent, fair, valid, and reliable and ensure that no learner is disadvantaged in any way whatsoever, so that an integrated approach to assessment is incorporated into the qualification.
- > Learning, teaching and assessment are inextricably interwoven. Whenever possible, the assessment of knowledge, skills, attitudes and values shown in the unit standards should be integrated.
- > Assessment of Communication and Mathematical Literacy should be integrated as far as possible with other aspects and should use practical administration contexts wherever possible. A variety of methods must be used in assessment and tools and activities must be appropriate to the context in which the learner is working or will work. Where it is not possible to assess the learner in the workplace or on-the-job, simulations, case studies, role-plays and other similar techniques should be used to provide a context appropriate to the assessment.
- > The term 'Integrated Assessment' implies that theoretical and practical components should be assessed together. During integrated assessments, the assessor should make use of a range of formative and summative assessment tool methods and assess combinations of practical, applied, foundational and reflective competencies.
- > Assessors must assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience,
- > Assessment should ensure that all specific outcomes, embedded knowledge and critical cross-field outcomes are evaluated in an integrated manner.

INTERNATIONAL COMPARABILITY

This qualification was compared with training offered in countries that are acknowledged leaders in the small boat-building industry; countries whose industry supplies small craft to others. These countries are:

- > Malaysia
- > China.
- > Turkey.
- > Australia.
- > New Zealand.
- > UK.
- > USA.

United States of America:

Several providers of courses in boat building were identified in the USA, however no evidence was found of a national qualification in boat building. Standards for vocational training in boat building have been approved by the US Department of Education. Most courses are short learning programmes on a specific type of boat. The level at which these programmes are presented seems to be very elementary and the contents are well defined. It is deduced that the proposed South African qualifications at level 2 and 3 compares well with most of the learning programmes presented in the USA. It is evident that the South African approach will provide for a much more informed learner whilst the opportunity to follow a skills programme based on selected unit standards will allow learners to develop a very specific focused skill as is the USA.

Malaysia:

Malaysia is an emerging boat building country. To date they have not developed a formal national qualification. They have however identified future training objectives and are in the process of developing learning programmes for fibreglass boats.

China:

China has a well-established boat building industry but no evidence was found of any formal qualifications in boat building.

Turkey:

The boating industry in Turkey is well developed. A technical high school, Kurucasile, on the Black Sea Coast of Turkey, is devoted to boat building only. This school, in addition to modern techniques, teaches its students, elements and principles of traditional craftsmanship. All the schools and academic institutions, issue diplomas to students who have attended the necessary courses and fulfilled all conditions, including tests and exams. In addition, people attending and successfully finishing the training courses held at various

places, such as large yards, and other institutions, are given certificates declaring that the holder has completed a certain program. All these diplomas and certificates are valid nationwide. Diplomas issued by large universities (such as the naval architect diplomas issued by most technical universities) are internationally recognized.

Australia:

Australia has a well-established boat-building industry supported by well-defined units of study to be applied by training providers. Their learning programmes in boat building do not seem to follow levels of complexity but rather that of completeness. It is very difficult to compare the South African individual boat building qualifications with those in Australia. However, it seems that once South African learners had completed the FETC in Boat Building, they will be adequately equipped to compete with their Australian counterparts.

New Zealand:

The New Zealand authorities compiled a range of national Certificates that can be applied in the boat building industry. Most of these certificates are at level 4 with the exception of one that is registered at level 3. In general the contents of the South African boat building qualifications compares well with the New Zealand boat building qualifications.

United Kingdom:

The United Kingdom is renowned for their boat building expertise and similarly displays a well-thought-out capability to train towards that expertise. The UK has several national registered qualifications, however, it does seem as though many training providers still present their own traditional learning programmes based on years of experience and specific community needs. It is thought that the South African boat building qualifications are much more comprehensive.

Africa in General:

Although many countries in Africa have displayed across the continent the capability to build boats of many shapes and sizes it still lacks the capability to build modern boats. No evidence was found of any boat building training being presented in sub-Saharan Africa. The South African qualifications could help to fill that gap on the continent by making these qualifications available to all those countries that might show an interest in these qualifications.

ARTICULATION OPTIONS

This Qualification articulates with the following proposed and registered Qualifications:

Horizontal articulation:

- > National Certificate in Polymer Composite Fabrication L2, NLRD ID: 36154
- > National Certificate in Airconditioning, Refrigeration and Ventilation L2, NLRD ID: 48959
- > National Certificate in Welding Application and Practice L2, NLRD ID: 24214

Vertical articulation:

- > National Certificate in Small craft construction L3, NLRD ID: 50543
- > National Certificate in Polymer Composite Fabrication L3, NLRD ID: 36155
- > National Certificate in Airconditioning, Refrigeration and Ventilation L3, NLRD ID: 48963
- > National Certificate in Welding Application and Practice L3, NLRD ID: 24213
- > National Certificate: Furniture Making: Wood t3, NLRD ID: 49105
- > National Certificate: Construction Carpentry L3, NLRD ID: 22670

MODERATION OPTIONS

> Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with an appropriate Education and Training Quality Assurance Body (ETQA) or with an ETQA that has a Memorandum of Understanding with the relevant ETQA.

> Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA or with an ETQA that has a Memorandum of Understanding with the relevant ETQA.

> Moderation of assessment will be overseen by the relevant ETQA or by an ETQA that has a

Memorandum of Understanding with the relevant ETQA, according to the ETQA's policies and guidelines for assessment and moderation.

> Moderation must include both internal and external moderation of assessments at exit points of the Qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual Unit Standards as well as in the exit level outcomes described in the Qualification.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

For an applicant to register as an assessor, the applicant needs:

- > To be registered as an assessor with the relevant Education and Training Quality Assurance Body.
- > A relevant tertiary qualification at one level higher than the level of the qualification and 12 months experience in the relevant field.
- > Well-developed subject matter expertise within small craft construction.

NOTES

The elective unit standard category is open ended to allow the learner to choose the 17 credits associated to the elective unit standards from any discipline that would add value to the purpose of the qualification or the learners own development on a learning pathway within the manufacturing environment

UNIT STANDARDS

(Note: A blank space after this line means that the qualification is not based on Unit Standards.)

	UNIT STANDARD ID AND TITLE	LEVEL	CREDITS	STATUS
Core	114923 Demonstrate knowledge of personal safety and survival at sea	Level 1	2	Registered
Core	10252 Identify, inspect, use, maintain and care for engineering hand tools	Level 2	6	Reregistered
Core	12219 Select use and care for engineering power tools	Level 2	6	Reregistered
Core	13220 Keep the work area safe and productive	Level 2	8	Registered
Core	110289 Identify and work with material as required for polymer composite fabrication	Level 2	8	Registered
Core	119753 Perform basic welding/joining of metals	Level 2	8	Registered
Core	123597 Demonstrate understanding of small craft designs and terminology	Level 2	4	Draft - Prep for P Comment
Core	123598 Identify and describe the systems required for different on-board applications	Level 2	8	Draft - Prep for P Comment
Core	123600 Demonstrate seamanship for the safe crewing of a small craft	Level 2	10	Draft - Prep for P Comment
Core	123602 Identify and explain the various boat building techniques, materials and their applications	Level 2	8	Draft - Prep for P Comment
Core	123603 Identify and use applicable methods and materials in finishing a small craft	Level 2	10	Draft - Prep for P Comment
Core	117385 Produce curved laminated timber and board components	Level 3	8	Registered
Elective	9672 Erect and dismantle scaffolding	Level 2	5	Registered
Elective	9881 Mark off basic regular engineering shapes	Level 2	6	Reregistered
Elective	9882 Read and interpret basic engineering drawings	Level 2	8	Reregistered
Elective	12249 Weld workpieces with the gas metal arc welding process in the down-hand position	Level 2	12	Registered
Elective	12465 Develop a learning plan and a portfolio for asses	Level 2	6	Registered
Elective	12476 Select, use and care for engineering measuring equipment	Level 2	4	Registered
Elective	12481 Sling loads	Level 2	4	Registered
Elective	12483 Perform basic first aid	Level 2	4	Reregistered
Elective	12484 Perform basic fire fighting	Level 2	4	Reregistered
Elective	14682 Prepare and assemble welding equipment related to welding processes	Level 2	5	Registered
Elective	110278 Prepare damaged polymer composite product for repairs	Level 2	6	Registered
Elective	110279 Prepare mould for polymer composite fabrication	Level 2	8	Registered
Elective	110281 Fabricate a polymer composite product	Level 2	9	Registered
Elective	110285 Demould a polymer composite product	Level 2	5	Registered
Elective	110288 Apply gel coat in patterns	Level 2	6	Registered
Elective	110290 Assemble moulded components and attach fittings	Level 2	6	Registered

Elective	119744 Select, use and care for engineering hand tools	Level 2	8	Registered
Elective	119749 Cut material with oxy-fuel gas cutting process (Manual cutting)	Level 2	6	Registered
Fundamental	7469 Use mathematics to investigate and monitor the financial aspects of personal and community life	Level 2	2	Reregistered
Fundamental	7480 Demonstrate understanding of rational and irrational numbers and number systems	Level 2	3	Reregistered
Fundamental	9007 Work with a range of patterns and functions and solve problems	Level 2	5	Reregistered
Fundamental	9009 Apply basic knowledge of statistics and probability to influence the use of data and procedures in order to investigate life related problems	Level 2	3	Reregistered
Fundamental	9268 Manage basic personal finance	Level 2	6	Reregistered
Fundamental	12444 Measure, estimate and calculate physical quantities and explore, describe and represent geometrical relationships in 2-dimensions in different life or workplace contexts	Level 2	3	Reregistered
Fundamental	12463 Understand and deal with HIV/AIDS	Level 2	3	Registered
Fundamental	119454 Maintain and adapt oral/signed communication	Level 2	5	Registered
Fundamental	119456 Write/present for a defined context	Level 2	5	Registered
Fundamental	119460 Use language and communication in occupational learning programmes	Level 2	5	Registered
Fundamental	119463 Access and use information from texts	Level 2	5	Registered