Occupational Certificate: Boilermaking

SAQA ID: 93626

NQF 4

Credits: 395

Cost: Contact Training Centre

This qualification is made up of the following compulsory Knowledge and Practical Skill Modules:

Knowledge Modules:

- Introduction to Boilermaker Trade, NQF Level 4, 9 Credits.
- Boilermaker Tools, Equipment, Machines and Materials, NQF Level 4, 10 credits.
- Fabrication and Pipework, NQF Level 4, 23 Credits.
- Assembling and Joining, NQF Level 4, 14 Credits.
- Cutting and Welding, NQF Level 4, 20 Credits.
- Boilermaker's Drawings, NQF Level 4, 9 Credits.

The total number of credits for Knowledge Modules: 85.

Practical Skill Modules:

- Visualise structures and components and develop templates according to set tolerances and/or standards whilst applying safety measures, NQF Level 4, 18 Credits.
- Maintain and use tools, equipment, and machinery, NQF Level 4, 15 Credits.
- Weld and gas cut components required for fabrication of a specific task such as metal pipes, construction and fabricated plate work and conduct visual and mechanical inspections for compliance with legal requirements, NQF Level 4, 28 Credits.
- Accurately manipulate and fabricate profiles and fabricate metal sections using heating and cold bending processes whilst applying safety measures, NQF Level 4, 41 Credits.
- Accurately erect, assemble and repair metal structures whilst applying safety measures, NQF Level 4, 28 Credits.

Total number of credits for Practical Skills Modules: 130.

This qualification also requires the following compulsory Work Experience Modules:

- Pattern and template development processes, NQF Level 4, 30 Credits.
- Tools, equipment and machinery maintenance and operation processes, NQF Level 4, 30 Credits.
- Workshop or on-site cutting and welding processes, NQF Level 4, 43 Credits.
- Fabrication, assembling and repairing of metal components and structures, NQF Level 4, 43 Credits.
- Assembling and erecting of structures and components, NQF Level 4, 34 Credits.

Total number of credits for Work Experience Modules: 180.

EXIT LEVEL OUTCOMES

1. Develop components.

2. Develop and fabricate using interpenetrations.

3. Mark-off and lay-out a construction.

4. Demonstrate an understanding of the underpinning theory of the boilermaker competencies.

ASSOCIATED ASSESSMENT CRITERIA

Associated Assessment Criteria for Exit Level Outcome 1:

Task instructions are correctly interpreted and accordingly complied with.

Develop components where all tolerances and angles are within the recognised manufacturing code of practice, according to specifications.

Correctly perform calculations required for the task.

Health, quality, safety and environmental protection practices are adhered to .

Relevant tools for the task are Identified and used correctly.

Associated Assessment Criteria for Exit Level Outcome 2:

Marking off equipment is identified and selected as per work requirements.

The methods and reasons for using calculations are explained.

Reason for checking material types is explained.

Transfer sizes onto material according to calculations from drawings or templates.

The purpose of using pipes with differed laterals is explained.

The purpose of fabrication procedures is explained.

Interpenetration components where all tolerances and angles of degree are developed and fabricated within the recognised manufacturing code of practice.

The consequences of not following fabrication procedures is explained.

Associated Assessment Criteria for Exit Level Outcome 3:

Mark off all measurements which are within tolerances and according to specifications are explained. More than four (4) holes or four (4) measurements out of tolerance are not acceptable.

Complex plate, pipe and structural steel drawings are interpreted.

Lay out and cut templates and/or jigs from the original blueprint/approved drawing.

Task is performed within the allocated time.

Task is performed with no loss or damage to tools and equipment used.

Associated Assessment Criteria for Exit Level Outcome 4:

Trades-related calculations are performed with 100% accuracy.

The material to be used is identified in the process.

All trade-related safety requirements are complied with.

Welding principles and techniques and joint characteristics are explained.

Oxy fuel cutting and machines are identified and the components and procedures for utilization are described.

Trade-related tools and equipment are identified.

Thermal applications are explained.

Basic principles of development are described.

Integrated Summative Assessment:

An external integrated summative assessment, conducted through the relevant QCTO Assessment Quality Partner is required for the issuing of this qualification.

The external integrated summative assessment will focus on the exit level outcomes and associated assessment criteria.

The external summative assessment will be a trade test as prescribed under Section 26d of the Skills Development Act and defined in the trade test regulations conducted through an evaluation of practical tasks and theoretical questions covering critical aspects ion a simulated environment at an assessment centre accredited by the QCTO and conducted by an assessor registered by NAMB. The assessment will take place over a minimum of 2 days (no contexts for contextualisation specified).

INTERNATIONAL COMPARABILITY

This qualification is closely related to two Canadian Red-Seal recognised qualifications, namely:

Boilermaker 2008 (Code 7262).

Metal Fabricator (Fitter) 2008 (Code 7263).

The frameworks of these qualifications are respectively:

Boilermaker:

Trades Covered by this Qualification:

This qualification covers the following trades as recorded on the NLRD:

ID 60712: Plater and Welder.

ID 60768: Boilermaker.

ID 60701: Boilermaker/Welder.

ID 60694: Plater/Boilermaker.

ID 60755: Plater/Boilermaker.

ID 60706: Plater.

ID 60769: Structural Plater.