

COMPETENCY FRAMEWORK

SURVEYING ASSOCIATE

Surveyors Act 2003 s39

Document Identifier:	SBQ-CF-0101
Version Number:	V4.00
Approval/Review Date:	28 th February 2014

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Version Control

Version	Author	Release Date	Change Description
V0.90	CF Taskforce	28 th July 2005	Draft Document
V0.95	CF Taskforce	25 th August 2005	Final for forwarding to the Surveyors Board
V1.00	CF Taskforce	13 th October 2005	Released Document
V2.00	SBQ		Reviewed Document
V3.00	SBQ	20 th August 2007	Board approval
V4.00	SBQ	16 th April 2013	Board Approval
	SBQ Admin	28 th February 2014	Document Reference Updated

Document References

Ref	Title	Document ID	Version	Owner
[1]	Surveyors Act 2003			State of Qld
[2]	Competency Frameworks (Overview)	SBQ-CF-0100	V1.00	SBQ
[3]	Competency Frameworks (Surveying Associate)	SBQ-CF-0101	V4.00	SBQ
[4]	Competency Frameworks (Surveying Graduate)	SBQ-CF-0102	V4.10	SBQ
[5]	Competency Frameworks (Surveyor)	SBQ-CF-0103	V5.00	SBQ
[6]	Competency Frameworks (Consulting Endorsement)	SBQ-CF-0104	V1.00	SBQ
[7]	Competency Frameworks (Engineering Endorsement)	SBQ-CF-0105	V4.00	SBQ
[8]	Competency Frameworks (Cadastral Endorsement)	SBQ-CF-0106	V4.00	SBQ
[9]	Competency Frameworks (Hydrographic Endorsement)	SBQ-CF-0107 Superseded	V1.00	SBQ
[10]	Competency Frameworks (Mining Endorsement)	SBQ-CF-0108 Superseded	V3.00	SBQ
[11]	Competency Frameworks (Associate Degree Mapping)	SBQ-CF-0109 Superseded	V1.00	SBQ
[12]	Competency Frameworks (Graduate Degree Mapping)	SBQ-CF-0110 Superseded	V1.00	SBQ
[13]	Competency Frameworks (Surveyor Degree Mapping)	SBQ-CF-0111 Superseded	V1.00	SBQ
[14]	Competency Frameworks (Mining O Endorsement)	SBQ-CF-0112	V1.00	SBQ
[15]	Competency Frameworks (Mining UC Endorsement)	SBQ-CF-0113	V1.00	SBQ
[16]	Competency Frameworks (Mining UM Endorsement)	SBQ-CF-0114	V1.00	SBQ

Introduction

This document describes the Competency Framework for registration as a Surveying Associate as prescribed under section 39 of the Surveyors Act 2003.

The competency framework describes the competency Units, Elements and Descriptors that are required to be met for registration as a Surveying Associate. The competency framework describes the performance that the candidate is required to display. Competency is developed through the appropriate combination of qualifications, skills, knowledge and experience

Definitions

Unit of Competency (Unit): A major segment of the overall competency of a profession, typically representing a major function, role or field of activity.

Element of Competency (Element): A subdivision of a unit of competency into an observable function or activity.

Performance Criteria (Descriptors): An indicative list of the aspects of professional performance that would be regarded as evidence of competent professional performance in the work place in an element of competency.

Notes: The notes within framework are for guidance only and are not an official part of the framework. The notes are an aid to assist in the understanding of the requirement of a Unit, Element or Descriptor.

Under Direction of a Supervisor: The performance of the descriptor is achieved by the applicant under the direction of a competent supervisor. The result of the activity cannot be used unless it has been checked by a competent supervisor. The applicant need not be able to perform the activity without requesting help in planning and execution.

Competency Table for Surveying Associate

Interpretation of the Framework

The notes to the framework are for guidance only are not an official part of the framework. The Board can add to, amend or delete notes at their discretion.

Unit 1: Personal Qualities

Element	Descriptors	Notes
SA 1.1 Are professional in their dealings with the public	Applicants will need to demonstrate that they: <ol style="list-style-type: none"> i. Have not conducted themselves in a manner that erodes the public confidence in the profession. ii. Have not been unfair or unethical in their dealings with the public. 	An absence of contrary evidence will be sufficient evidence for this element. Applicants are obliged to reveal any matter related to their character, honesty and integrity which would affect their application.
SA 1.2 Know and comply with published ethical codes	Applicants will need to demonstrate that they: <ol style="list-style-type: none"> i. Understand and can explain the Surveyors Board of Queensland's <i>Code of Practice for Surveyors</i> 	<i>Code of Practice for Surveyors</i> http://sbq.com.au/member/board-publications/code-of-practice/
SA 1.3 Keep their knowledge and skills current	Applicants will need to demonstrate that they have made themselves aware of changes in surveying practice through activities such as: <ol style="list-style-type: none"> i. Attending continuing professional development events ii. Reading literature relevant to surveying practice iii. Undertaking further formal education 	
SA 1.4 Know what limitations apply to their work	Applicants will need to demonstrate that they: <ol style="list-style-type: none"> i. Can describe the regulation of surveying in Queensland. ii. Have not undertaken work beyond limits of personal skills and expertise 	See <i>Surveyors Act 2003</i> An absence of contrary evidence will be sufficient evidence for descriptor (ii). Applicants are obliged to reveal any matter related to their character, honesty and integrity which would affect their application.

Unit 2: Collection of Data and Measurement

Element	Descriptors	Notes
SA 2.1 Collect data by measurement	Applicants will need to demonstrate that they: <ol style="list-style-type: none"> i. Use adequate redundant measurements to validate data ii. Can explain the need for legal traceability iii. Can use the various measuring techniques available 	Evidence of use of a variety of measurement methods in a variety of circumstances will be sufficient evidence for descriptor (iii)
SA 2.2 Search and acquire existing data	Applicants will need to demonstrate that they are able to: <ol style="list-style-type: none"> i. Extract required information from relevant geographic and land information records, survey data bases, and general information depositories under direction of a supervisor. 	
SA 2.3 Can use GNSS surveying instruments	Applicants will need to demonstrate that they are able to: <ol style="list-style-type: none"> i. Define coordinates systems likely to be encountered by GNSS users and calculate GNSS coordinates ii. Discuss the principles of GNSS observations iii. Make observations using a GNSS receiver iv. Explain GNSS observations techniques, and calculate and evaluate levels of accuracy associated with GNSS observations v. Identify error sources in GNSS observations, and explain the uses and critical factors of differential GNSS techniques vi. Output GNSS observations in existing local co-ordinate systems including ground based systems 	
SA 2.4 Apply quality assurance principles	Applicants will need to demonstrate that they are able to: <ol style="list-style-type: none"> i. Comply with an accepted quality assurance program ii. Rectify non-compliance with quality standards 	

SA 2.5 Process data to create information	Applicants will need to demonstrate that they are able to: <ol style="list-style-type: none"> i. Solve problems using trigonometry 	
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Unit 3: Development Surveys

Element	Descriptors	Notes
SA 3.1 Setout minor works	Applicants will need to demonstrate that, under direction of a supervisor, they are able to: <ol style="list-style-type: none"> i. Read, interpret and understand design and construction plans ii. Set out works iii. Communicate results to client, construction staff and other consultants iv. Use adequate redundant measurements to validate data 	
SA 3.2 Perform topographic surveys	Applicants will need to demonstrate that, under direction of a supervisor, they have: <ol style="list-style-type: none"> i. Completed a variety of topographic surveys that were fit for purpose using terrestrial and GNSS instruments ii. Use adequate redundant measurements to validate data iii. Accurately described the origin of datums and other explanatory notes 	Descriptor (i) requires evidence that the applicant has completed detail surveys that: <ul style="list-style-type: none"> • Involve surveys of irregular surface levels and breaklines; and locating a range of artificial and natural features; • Require creation of a digital terrain model and contours; • Generate output formats (e.g. digital files, PDF) to suit the project brief.
SA 3.3 Survey and calculate volumes and quantities	Applicants will need to demonstrate that, under direction of a supervisor, they: <ol style="list-style-type: none"> i. Collect topographic data at appropriate accuracy and density for volume purpose ii. Calculate and report volumes to an accuracy justified by the measurement method 	

SA 3.4 Know and apply occupational health and safety requirements	<p>Applicants will need to demonstrate that they:</p> <ul style="list-style-type: none"> i. Can describe the requirements of occupational health and safety legislation in Queensland that is pertinent to their work environment ii. Use occupational health and safety procedures that comply with the relevant legislation 	<p>See <i>Coal Mining Safety and Health Act 1999</i> <i>Mining and Quarrying Safety and Health Act 1999</i> <i>Work Health and Safety Act 2011</i></p>
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Unit 4: Process Field Measurements

Element	Descriptors	Notes
SA 4.1 Can detect errors in existing data and field observations	<p>Applicants will need to demonstrate that, under direction of a supervisor, they are able to:</p> <ul style="list-style-type: none"> i. Identify errors in data that is supplied by other parties ii. Use quality assurance processes to ensure that errors are detected and eliminated 	
SA 4.2 Understands the accuracy of existing data and creates new data with appropriate accuracy	<p>Applicants will need to demonstrate that, under direction of a supervisor, they are able to:</p> <ul style="list-style-type: none"> i. Determine the accuracy and reliability of data 	
SA 4.3 Can combine existing data with new survey data	<p>Applicants will need to demonstrate that, under direction of a supervisor, they:</p> <ul style="list-style-type: none"> i. Are able to deduce or estimate the accuracy limitations of existing data sets ii. Do not use data sources of insufficient accuracy in survey products 	

SA 4.4 Can produce plans that are accurate, legible and useful	Applicants will need to demonstrate that, under direction of a supervisor, they are able to: <ul style="list-style-type: none"> i. Use a computer aided drafting package to produce paper plans ii. Produce sketches that are fit for purpose 	Descriptor (ii) requires evidence that the applicant produces plans for set out operations that accurately and unambiguously identify the marks placed and their relation to works to be constructed.
SA 4.5 Can produce electronic models and plans	Applicants will need to demonstrate that they are able to: <ul style="list-style-type: none"> i. Use a computer aided drafting package to produce electronic plans ii. Create digital models of physical surfaces 	Descriptor (i) requires evidence that the applicant produces plans where the plan information is accurately and unambiguously ordered to prevent misinterpretation by other parties.

Unit 5: Communication

Element	Descriptors	Notes
SA 5.1 Communicate effectively	Applicants will need to demonstrate that they are able to: <ul style="list-style-type: none"> i. Communicate effectively, orally and in writing ii. Give clear, accurate reports to supervisors iii. Successfully use electronic communications technologies 	
SA 5.2 Prepare reports	Applicants will need to demonstrate that, under direction of a supervisor, they are able to: <ul style="list-style-type: none"> i. Prepare documents on measurement and data 	
SA 5.3 Certify data	Applicants will need to demonstrate that, under direction of a supervisor, they are able to: <ul style="list-style-type: none"> i. Apply effective validation procedures for certification by another ii. Effectively identify and manage risk associated with certification 	

Unit 6: Survey Control

Element	Descriptors	Notes
SA 6.1 Use geodetic reference systems	Applicants will need to demonstrate that, under direction of a supervisor, they are able to: <ol style="list-style-type: none"> i. Use appropriate geodetic datums and map projections 	
SA 6.2 Integrate survey control	Applicants will need to demonstrate that, under direction of a supervisor, they are able to: <ol style="list-style-type: none"> i. Describe and comply with the regulation of surveying and mapping infrastructure in Queensland ii. Find and recognise evidence of previous surveys 	See <i>Survey and Mapping Infrastructure Act 2003</i> Descriptor (ii) refers to evidence of previous cadastral, engineering and mining surveys.
SA 6.3 Establish and measure horizontal survey control	Applicants will need to demonstrate that, under direction of a supervisor, they are able to: <ol style="list-style-type: none"> i. Establish project control networks using GNSS and terrestrial measurements ii. Use adequate redundant measurements to validate data 	
SA 6.4 Establish and measure vertical survey control	Applicants will need to demonstrate that, under direction of a supervisor, they are able to: <ol style="list-style-type: none"> i. Perform precise level measurements ii. Identify the effects of curvature and refraction on levelling and apply this knowledge to trigonometrical levelling 	