Appendix A

THE SACAP COMPETENCIES

The priority of the South African Council for the Architectural Profession (SACAP) is to benchmark architectural qualifications against the SACAP competencies as the main criteria for validation. The SACAP competencies explain the required and skills and the ability to apply these for architectural professionals. To this end, all application and validation documentation (ALS Report APPENDIX B, ALS Evidence Preparation APPENDIX C and ALS Qualification Submission APPENDIX E, prepared by an Architectural Learning Site (ALS) should identify how the SACAP competencies and standards are being met within the curriculum, pedagogic approach and assessment practices of the ALS.

This appendix describes the competencies required for each of the categories of architectural professionals as defined in terms of the Architectural Profession Act (Act 44 of 2000). It was compiled by the Stands Generating Body (SGB) for Architecture and is intended as the interface between academia and practice. The document was informed by four interdependent considerations.

1. OUTCOME FIELDS

The essential skills and knowledge required to practise architecture in a sustainable, socially responsible and financially viable way are clustered into a range of ten specific outcome fields.

1. Office practice, legal aspects and ethics Outcome
2. Computer applications
3. Urban relationship
4. Architectural history & theory
5. Architectural design
6. Environmental relationship
7. Contract documentation and administration
8. The structure of buildings
9. Construction technology
10. Building services & related technologies

2. IDENTIFICATION OF WORK MATRIX

The competencies were aligned with the envisaged Identification of Work Matrix. That matrix is based on the complexity of the project, and the sensitivity of the context and site, whether natural or constructed.

		SITE SENSITIVITY		
		LOW	MEDIUM	HIGH
PROJECT COMPLEXITY	LOW	PrArchDraught		
		PrArchT		
		PrSArchT		
		PrArch		
	MEDIUM	PrArchT		
		PrSArchT		
		PrArch		
	HIGH	PrSArchT		

3. ALIGNMENT TO NATIONAL HIGHER EDUCATION LEGISLATION

The SACAP competencies attempt to establish a consistent framework, aligning and matching registration in one of the four categories of architectural professionals with the relevant qualifications. Qualification frameworks have been updated several times in the past two decades. Currently the Higher Education Qualification Sub Framework (HEQSF) is the standard framework. The National Qualification Framework (NQF) levels have also changed. The table below aligns current qualifications and related NQF levels to establish a holistic picture of present architectural qualifications in South Africa. All qualifications require a two years of candidacy and the successful completion a professional exam before registration as a professional is possible.

HEQSF aligned Architectural Qualifications at ALSs for SACAP Registration:

CATEGORY	ACRONYM	QUALIFICATION	NQF LEVEL
Professional Architect	PrArch	Master's Degree (Prof) [1 year ,180 credits]	9
Professional Senior Architectural Technologist	PrSArchT	Bachelor (Hons) Bachelor's Degree [4 years, 480 credits] Postgraduate Diploma	8
		Advanced Diploma [1 year, 120 credits]	7
Professional Architectural Technologist	PrArchT	Bachelor's Degree [3 years, 360 credits]	7
		Diploma [3 years, 360 credits] Advanced certificate [3 years, 240 credits]	6
Professional Architectural Draughtsperson	PrArchD	Higher Certificate [1 year, 120 credits]	5

4. LEARNING LEVELS

The fourth consideration is that the SACAP competencies must allow an architectural professional to compete and operate locally and internationally. Considerable benchmarking was done with competencies set out by other international validation agencies.

LEVEL	LEARNING LEVEL	DESCRIPTION
A	Awareness	Acquaintance with relevant concepts and methods, without necessary being skilled to paraphrase information.
B	Knowledge	Familiarity with relevant information, without necessary being skilled to see its fullest implication or application.
C	Understanding	Full assimilation and comprehension of information, and the skill to correctly paraphrase it and relate it to other situations, including its practical application.
D	Ability	Skill in analysing problems, identifying appropriate information for the accomplishment of tasks and to apply it to the solution of specific problems.

5. THE SACAP SUMMARY MATRIX OF COMPETENCIES

This summary categorises the competencies and skills in relationship to the body of knowledge and expertise available and rate it from minimal, low and medium through to advanced.

			OUTCOMES FIELD & NO									
PROFESSIONAL CATEGORY	LEARNING LEVEL REQUIREMENTS PER CATEGORY		Architectural design	Environmental relationships	Construction technology	The structure of building	Contextual & urban relationships	Architectural history, theory & precedent	Building services & related technologies	Contract documentation & administration	Computer applications	Office practice, legal aspects & ethics
			1	2	3	4	5	6	7	8	9	10
Professional Architect	Advanced	A										
	Medium	B										
	Low	C										
	Minimal	D										
Prof Senior Arch. Technologist	Advanced	A										
	Medium	B										
	Low	C										
	Minimal	D										
Prof Arch. Technologist	Advanced	A										
	Medium	B										
	Low	C										

	Minimal	D										
Prof Arch. Draughtsperson	Advanced	A										
	Medium	B										
	Low	C										
	Minimal	D										

6. THE SACAP COMPETENCIES

	CANDIDATE PROFESSIONAL ARCHITECTURAL DRAUGHTSPERSON	CANDIDATE PROFESSIONAL ARCHITECTURAL TECHNOLOGIST	CANDIDATE PROFESSIONAL ARCHITECTURAL SENIOR TECHNOLOGIST	CANDIDATE PROFESSIONAL ARCHITECT
	A person registered in one of the categories above must demonstrate …			
1. Office practice, legal aspects and ethics	EXPERIENTIAL Knowledge of the administrative and logistical support systems in a practice.	FORMAL Knowledge of the terminology and basic concepts and principles of architectural practice. Knowledge of the contents of the various building contracts and the SAIA practice manual. FORMAL/EXPERIENTIAL Knowledge of the terminology and basic concepts and principles of business practice. Knowledge of the administrative and logistical support systems in a practice.	FORMAL Understand the terminology and basic concepts and principles of architectural practice. Understand all the regulatory and legal aspects of the profession. Knowledge of the contents of the various building contracts and the SAIA practice manual. FORMAL/EXPERIENTIAL Understand the terminology and basic concepts and principles of business practice. Understand the administrative and logistical support systems in a practice. Understand the basic concepts of business structures and principles, pertaining to architectural profession. Ability to design a feasible information access and retrieval system. Ability to design a functional and integrated management system. Ability to participate meaningfully in the management and administration of a building project. Ability to set up and run a building project successfully	FORMAL Ability to apply all the regulatory and legal aspects of the profession. Ability to implement the contents of the various building contracts and the SAIA practice manual. FORMAL/EXPERIENTIAL Ability to apply the basic concepts of business structures and principles, pertaining to architectural profession. Ability to design a feasible information access and retrieval system. Ability to design a functional and integrated management system. Ability to implement administrative and logistical support systems in a practice. Ability to design marketing strategy. Ability to participate meaningfully in the management and administration of a building project. Ability to set up and run a building project successfully.

	CANDIDATE PROFESSIONAL ARCHITECTURAL DRAUGHTSPERSON	CANDIDATE PROFESSIONAL ARCHITECTURAL TECHNOLOGIST	CANDIDATE PROFESSIONAL ARCHITECTURAL SENIOR TECHNOLOGIST	CANDIDATE PROFESSIONAL ARCHITECT
	A person registered in one of the categories above must demonstrate …			
2. Computer applications	FORMAL Knowledge of the range of computer technology presently in use in architectural practice and … FORMAL/EXPERIENTIAL Ability to apply it in the execution of work. Computer software to include web browsers and communication programs, word processing, architectural drawing, graphic and image editing programs.	FORMAL Knowledge of computer technology presently in use in architectural practice and … FORMAL/EXPERIENTIAL Ability to apply it in the execution of work. Computer software to include web browsers and communication programs, word processing, spreadsheets, architectural drawing, graphic and image editing programs.	FORMAL Understanding of the range of computer technology presently in use in architectural practice and ability to apply it in the execution of work. Computer software to include web browsers and communication programs, word processing, spreadsheets, data bases, architectural drawing, 3-dimensional modelling, graphic and image editing programs. Ability to design, publish and maintain a website. Knowledge of different computer hardware solutions for networking. Ability to make informed decisions in the acquisition of networking hardware. Ability to troubleshoot network problems on a basic level. Knowledge of operating systems for networked machines, and, in particular, setting up work groups, setting permissions and data security. Ability to troubleshoot, upgrade and maintain PCs at a basic level.	FORMAL Understanding l of the range of computer technology presently in use in architectural practice and … FORMAL/EXPERIENTIAL Ability to apply it in the execution of work. Computer software to include web browsers and communication programs, word processing, spread- sheets, databases, architectural drawing, 3-dimensional modelling, graphic and image editing programs.
3. Urban relationships	FORMAL Awareness of the issues	FORMAL Awareness of the issues	FORMAL Knowledge of critical urban issues. Awareness of and sensitivity to urban aspects when designing individual buildings.	FORMAL Understanding of the basic spatial, functional and aesthetical aspects appropriate to urban design. Ability to evaluate urban environments in very basic terms in an analytical, constructive and critical manner. Understanding of and sensitivity to urban aspects when designing individual buildings.

	CANDIDATE PROFESSIONAL ARCHITECTURAL DRAUGHTSPERSON	CANDIDATE PROFESSIONAL ARCHITECTURAL TECHNOLOGIST	CANDIDATE PROFESSIONAL ARCHITECTURAL SENIOR TECHNOLOGIST	CANDIDATE PROFESSIONAL ARCHITECT
	A person registered in one of the categories above must demonstrate …			
4. Architectural history & theory	FORMAL Awareness of basic terminology pertaining to architectural theory and history studies.	FORMAL Knowledge of the basic spatial and aesthetical aspects appropriate to architecture. Knowledge of architectural history in broad terms.	FORMAL Understanding of architectural history and theory. Understanding of the principles of learning from historical precedent. Awareness of the built environment and understanding of structures an analytical and constructive, critical manner. Knowledge of the basic spatial and aesthetical aspects appropriate to architecture. Understanding of research processes in architectural theories.	FORMAL Understanding of architectural history and theory as part of a wider natural, social, technological and cultural system. Ability to evaluate and analyse the built form critically in complex terms. Understanding of the principles of learning from historical precedent. Understanding of social, ethical, spatial and aesthetical aspects of the environment. Ability to conduct relevant research in architectural theories.
5. Architectural design	FORMAL Knowledge of the fundamentals of the design process and how it impacts on the documentation process.	FORMAL Knowledge of the principles and terminology applicable to architectural design. Understanding of the fundamentals of the design process. Ability to do thorough, appropriate planning. Understanding of problem analysis on a basic level. Knowledge of social and environmental issues.	FORMAL Ability to do a competent design of a simple multi story building as well as long span structures, based on parameters and constraints developed through independent scientific research, which are sensitive to issues of environment and sustainability, as well as cultural issues in a responsible, appropriate and economical manner in an urban, a sub-urban or rural context. Ability to appraise and define the above-mentioned architectural problem. Ability to prepare an appropriate concept. Ability to develop the design to an ultimate and rational conclusion. Ability to present the design synthesis in a logical manner.	FORMAL Ability to do a competent building design of a complex nature, based on parameters and constraints developed through independent scientific research, which is sensitive to issues of environment and sustainability, as well as cultural issues in a responsible, appropriate and economical manner in an urban, a sub-urban or rural context. Ability to appraise and define a complex architectural problem. Ability to prepare an appropriate concept. Ability to develop the design to an ultimate and rational conclusion. Ability to present the design synthesis in a logical manner.

	CANDIDATE PROFESSIONAL ARCHITECTURAL DRAUGHTSPERSON	CANDIDATE PROFESSIONAL ARCHITECTURAL TECHNOLOGIST	CANDIDATE PROFESSIONAL ARCHITECTURAL SENIOR TECHNOLOGIST	CANDIDATE PROFESSIONAL ARCHITECT
	A person registered in one of the categories above must demonstrate …			
6. Environmental relationships	FORMAL Awareness of the issues	FORMAL Awareness of the issues	FORMAL Understanding of the relationship between the natural and the built environment. Understanding of landscapes and environmental structures in basic terms in an analytical, constructive and critical manner. Knowledge of the basic spatial, functional and aesthetical aspects appropriate to landscape architecture	FORMAL Understanding of the relationship between the natural and the built environment. Ability to evaluate landscapes and environmental structures in basic terms in an analytical, constructive and critical manner. Understanding of the basic spatial, functional and aesthetical aspects appropriate to landscape architecture
7. Contract documentation & administration	FORMAL Ability to apply drawing and specifying aspects pertaining to a simple double-storey building employing either a drawing board or personal computer Ability to apply basic drawing and lettering techniques, basic annotation and specification. Ability to do drawings and sheet layouts. Understanding of relationships between general layout drawings. Ability to apply appropriate National Building Regulations (NBR). Understanding of local authority approval requirements and procedures. Understanding of graphic projections, scale, dimensioning and annotation.	FORMAL Ability to produce a set of working drawings as part of a set of contract documents of a complex building to acceptable practice standards. Ability to develop durable, cost-effective, climate-responsive construction systems and details sensitive to the contextual language of the design concept. Understanding of component and material specification Knowledge of the relevance of appropriate National Building Regulations (NBR) as well as the requirements of the NHBRC. Knowledge of local authority approval requirements and procedures.	FORMAL Ability to produce a set of working drawings as part of a set of contract documents of a complex building to acceptable practice standards. Ability to develop durable, cost-effective, climate-responsive construction systems and details sensitive to the contextual language of the design concept. Ability to do component and material specification Understanding of the relevance of applicable appropriate National Building Regulations (NBR) as well as the requirements of the NHBRC. Ability to respond to local authority approval requirements and procedures.	FORMAL Ability to produce a comprehensive set of contract documents of a complex building to acceptable practice standards. Ability to develop durable, cost-effective, climate-responsive construction systems and details. Ability to recognise the demands of context and local resources and appropriate technologies that harmonise with the environment. Understanding of issues of sustainability of the built environment and ability to be able to evaluate materials in an ethical and socially responsible manner. Ability to do component and material specification Ability to implement appropriate National Building Regulations (NBR) as well as the requirements of the NHBRC. Ability to respond to local authority approval requirements and procedures.

	CANDIDATE PROFESSIONAL ARCHITECTURAL DRAUGHTSPERSON	CANDIDATE PROFESSIONAL ARCHITECTURAL TECHNOLOGIST	CANDIDATE PROFESSIONAL ARCHITECTURAL SENIOR TECHNOLOGIST	CANDIDATE PROFESSIONAL ARCHITECT
	A person registered in one of the categories above must demonstrate …			
8. Building structures	FORMAL Understanding of the terminology and principles associated structures. Ability to do pocket calculator functions. Understanding of the basic units used in the building industry, SI units. Ability to do calculations of area and perimeter of basic geometric figures. Ability to do calculations of volume of basic geometric figures. Ability to do calculations of angles employing sine, cosine, tangent as well as inverse	FORMAL Knowledge of the basic structural concepts pertaining to buildings.	FORMAL Understanding of the basic structural concepts pertaining to buildings. Ability to integrate structure and building design.	FORMAL Understanding of structural concepts pertaining to buildings. Ability to integrate structure and building design. Understanding of calculations on the structural aspects of buildings.
9. Construction technology	FORMAL Ability to research materials, products and components using commercially available referencing material for contract documentation purposes. Knowledge of the generic names of materials as well as common sizes and thickness. Ability to specify basic building materials on technical drawings. Ability to solve construction and design problems in producing working drawings of basic double storey buildings.	FORMAL Knowledge of construction methods and uses for materials related to simple low-rise building types. Ability to develop durable, cost-effective, climate responsive construction details. Ability to conduct limited relevant research into construction methods and materials and the appropriate applications.	FORMAL Understanding of construction methods and uses for materials related to simple multi story building Understanding of the demands of context, local resources and appropriate technologies that harmonise with the environment, which influence the construction of a building. Ability to develop durable, cost-effective, climate responsive construction details. Ability to conduct limited relevant research into construction methods and materials and the appropriate applications.	FORMAL Ability to implement innovative application of construction methods and uses for materials related to multi-storey, multi-functional, complex building types. Ability to recognise the demands of context, local resources and appropriate technologies that harmonise with the environment, which influence the construction of a building. Ability to develop durable, cost-effective, climate responsive construction details. Ability to conduct advanced research into construction methods and materials and the appropriate applications.

	CANDIDATE PROFESSIONAL ARCHITECTURAL DRAUGHTSPERSON	CANDIDATE PROFESSIONAL ARCHITECTURAL TECHNOLOGIST	CANDIDATE PROFESSIONAL ARCHITECTURAL SENIOR TECHNOLOGIST	CANDIDATE PROFESSIONAL ARCHITECT
	A person registered in one of the categories above must demonstrate …			
10. Building services & related technologies	FORMAL Understanding of the elementary building services, e.g. drainage, hot and cold-water supply and electrical services.	FORMAL Knowledge of the various technological aspects relating to services. Knowledge of the building regulations pertaining to all building services. Knowledge of the following technological aspects and building services – Drainage and water reticulation. Electrical and electronic services and lighting. Communications. Air and gas supply. Heating and cooling. Elevators and escalators. Fire protection and control. Acoustics and sound systems	FORMAL Understanding of the integration of the various technological aspects relating to services in one cohesive design. Understanding of the building regulations pertaining to all building services. Understanding of the following technological aspects and building services – Drainage and water reticulation. Electrical and electronic services and lighting. Communications. Air and gas supply. Heating and cooling. Elevators and escalators. Fire protection and control. Acoustics and sound systems.	FORMAL Ability to integrate the various technological aspects relating to services in one cohesive design and find technological solutions. Understanding of the building regulations pertaining to all building services. Understanding of the following technological aspects and building services – Drainage and water reticulation. Electrical and electronic services and lighting. Communications. Air and gas supply. Heating and cooling. Elevators and escalators. Fire protection and control. Acoustics and sound systems.