NATIONAL COUNCIL FOR TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING

JANUARY 2023

PROPOSED OCCUPATIONAL STANDARDS

OCCUPATION: ARCHITECTURAL ENGINEER

LEVEL: NTA 7

TABLE OF CONTENT

CONTENTS

ABBREVIATIONS

BIM	Building Information Model
CAD	Computer-aided Design
CPM	Critical Path Method
CBET	Competency Based Education and Training
ISO 9001	Quality Management System Standard
NACTVET	National Council for Technical and Vocational Education and Training
NOS	National Occupational Standards
OS	Occupational Standards
TET	Technical Education and Training
TVET	Technical and Vocational Education and Training

GLOSSARY OF TERMS

Circumstantial Knowledge:	Detailed knowledge, which allows the decision-making in regard to different circumstances and cross cutting issues.
Competence:	The ability to use knowledge, understanding, practical, and thinking skills to perform effectively to the workplace standards required in employment.
Competency:	A description of the ability one possesses when able to perform a given occupational task effectively and efficiently.
Competency-based Education:	An instructional programme that derives its content from validated tasks and bases assessment on the learner's performance.
Curriculum:	A description or composite of statements about "what is to be learned" by the trainee/student in a particular instructional programme; a product that states the "intended learning outcomes".
Educational/Training Programme:	The complete curriculum and instruction (what and how) that is designed to prepare a person for employment in a job or other particular performance situation.
Occupation:	A specific position requiring the performance of specific tasks – essentially the same tasks are performed by all employees having the same title. (Example: baker)
Occupational Area:	This is a broad grouping of related jobs. (Example: food service)
Occupational Competence:	The application of knowledge and skills that consistently meet the standards required by the work context.
Occupational Standards:	Specific requirements of competences people are expected to demonstrate in a particular occupational area, including knowledge and relevant attitudes. They also act as a performance tool of assessment of the prescribed outcomes.
Occupational/Job Analysis:	A process used to identify the tasks that are important to employees in any given occupation.
Performance Criteria:	Indicate expected end results or outcomes in the form of evaluative statements.
Skills:	The ability to perform occupational tasks with a high degree of proficiency within a given occupation. Skill is conceived of as a composite of three completely interdependent components: cognitive, affective, and psychomotor.

Standards:	A set of statements, which if proved true under working conditions, means that an individual is meeting an expected level and type of performance.
Task Analysis:	The process of analysing each task to determine the steps, circumstantial knowledge, attitudes, performance standards, tools and materials needed, as well as safety concerns required for the employees performing it.
Task:	A work activity that has a definite beginning and ending, is observable or measurable, and consists of two or more definite steps that leads to a product, service, or decision.
Underpinning Knowledge:	Crucial knowledge that an individual must acquire in order to demonstrate competences that are associated in performing a given task.
Verification Process:	The process of having experts review and confirm the importance of the task (competency) statements identified through occupational analysis. Other questions, such as the degree of task learning difficulty are also frequently asked. This process is also sometimes referred to as validation.

1.0. INTRODUCTION

Technical Education and Training (TET) is one of the most important education sub-sectors in Tanzania, responsible for developing a skilled workforce to support the country's industrialization economic agenda. Tanzania's *Development Vision 2025* intends to raise the country's economy to a middle-income status. This requires a skilled workforce that is aligned with the needs of the public and private sectors of the economy. The National Council for Technical and Vocational Education and Training of Tanzania has begun the job of drafting Occupational Standards that will eventually be adopted as National Occupational Standards for TET in order to ensure that it meets the needs of the labour market and the country's economic agenda.

National Occupational Standards (NOS) are performance criteria that are matched with labour market demands. Each National Occupational Standard describes functions, performance standards, and knowledge/understanding for one important function or task. They combine skills, knowledge, and attitudes to describe best practice. They are useful tools for establishing job roles, personnel recruiting, supervision, and appraisal, as well as TET standards. They're also helpful for benchmarking and harmonizing qualifications on a national and international level. Standards, in general, provide a solid framework for high-quality TET that is labour market-relevant, current and consistent in delivery across all public and private institutions.

However, it must be noted that, Occupational Standards and Training Standards/Qualifications Standards are different. Occupational Standards are defined in terms of activities performed by a person in a selected occupation (e.g., an electrical engineer designs electrical circuits, performs fault in electrical wiring, etc.) and they are usually defined by employers following procedures agreed upon by all stakeholders. Education and Training standards are developed from the activities defined in occupational standards, and they include learning objectives to ensure that the necessary skills and knowledge are developed by a person to enable him or her to function at an agreed level in an occupation. Education and Training standards are used to define curricula in training institutions. It is however critical that there must be a direct link between the Occupational Standards and the training standards to respond to demands of the labour market.

In TET delivery, Tanzania adopted the Competence Based Education and Training (CBET) approach. The CBET approach focuses on providing learners with the skills and knowledge required to meet the Occupational Standards. Occupational Standards are thus the starting point for developing competency-based training (CBET) programmes. TET institutions will be required to benchmark their curricula with relevant Occupational Standards.

Occupational Standards are developed based on a given occupation's current and future demands. As a result, they serve as a means of bridging the gap between the worlds of employment and technical education and training (TET).

The Architectural Engineer (AE) Occupation has its own set of occupational standards. The document explains how the Occupational Standards were developed, as well as the scope, the occupational profile in the form of DACUM charts, and the Occupational Standards.

2.0. OCCUPATIONAL STANDARD DEVELOPMENT PROCESS

The Occupational Standards development process began with an examination of major documents that guide Tanzanian skill development. The *10-year National Skills Development Strategy (2016-2026)* was one of the documents reviewed, and it outlined six (6) economic sectors that should be prioritized when developing skills development programmes.

These sectors include: Transport and Logistics, Tourism and Hospitality, Agribusiness, Construction, Energy and ICT. NACTE labour market reports were also used in the literature review to determine the skills demand in the Tanzanian labour market as a whole.

After the literature review, a workshop comprised of experts and educators with substantial knowledge and experience in the occupation conducted an occupational analysis utilizing the DACUM approach to produce the occupational profile. The analysis resulted in DACUM Charts, which are attached as **Appendix 1** to this document.

The Occupational Standards were then developed. Experts in Occupational Analysis and the Development of Occupational Standards facilitated the workshop. Interviews, online surveys, and a stakeholder forum were used to validate the Occupational Standards. Engineers, supervisory technicians on the job, and experienced Architectural Engineers were key informants in the survey to discover occupational trends. The information was used to gain insight from the workplaces regarding trends and changes in the profession, including how well graduates are prepared for working in the occupation. A total of ..... online surveys were completed by experts from the labour market across the country. Apart from the survey aiding in defining the scope for the occupational analysis, they also served to engage a wide cross-section of experts in the occupation. Apart from this, the stakeholders' forum was attended by ... participants from different parts of the country representing various companies.

3.0. THE SCOPE AND OVERVIEW OF THE OCCUPATION STANDARDS FOR ARCHITECTURAL ENGINEERS

These standards cover a broad range of duties and tasks that can be performed by an Architectural Engineer. However, the occupational standards are not meant to replace individual job descriptions. Instead, they are to be used for guidance in defining skill levels and knowledge for the technician in

specific settings or positions. Architectural Engineers may perform tasks in a number of key areas of the occupational standards, but not necessarily in all areas. For example, in large operations, other individuals may be employed or designated to perform specific tasks.

The Architectural Engineer shall conduct construction organization and planning, construction technology management, construction quality control, construction schedule control, construction cost control, safety and environmental management, data information management, and project resource management at the construction site.

Generally, the Architectural Engineer performs the following responsibilities:

a) Analysis of architectural design schemes

b) Assistance in engineering surveying

c) Preparation of construction drawings and construction schemes

d) Supervision of construction quality and schedule at the construction site

e) Coordination of various types of work during the construction process

f) Inspection of the quality and qualification certificates of construction materials

g) Resolution of technical problems and difficulties at the construction site

h) Detection and assessment of safety risks at the construction site

i) Ensurance of the construction site complies with relevant laws, regulations, and safety standards

j) Quality acceptance and rectification at the construction site;

k) Assistance in preparing work safety management plans for the construction project

l) Cost control and budget management at the construction site;

m) Detection and monitoring of environmental factors at the construction site;

n) Coordination of the communication and collaboration with relevant parties such as the owner and the supervisor

o) Participation in technical disclosure and training for the construction project

p) Preparation of completion files and acceptance reports for the construction project

The Occupational Standards have been clustered into NTA qualification levels, i.e. NTA 7 and 8.

4.0. VALIDITY PERIOD

Due to the rapid development of technology, the validity period of occupational standards is 3-5 years. The review will proceed in the same manner as the one before it, with new occupational standards being developed based on current trends of the labour market.

5.0. OCCUPATIONAL STANDARDS

5.1 OCCUPATIONAL STANDARDS FOR ARCHITECTURAL ENGINEER - NTA 7

OCCUPATION	ARCHITECTURAL ENGINEER	**OCCUPATION CODE**	
DUTY TITLE	CONSTRUCTION ORGANIZATION AND IMPLEMENTATION	**DUTY NO.**	701
TASK TITLE	IMPLEMENTATION OF CONSTRUCTION ORGANIZATION DESIGN	**TASK NO.**	7011
PERFORMANCE CRITERIA	The person performing this task must be able to implement the construction organization design reasonably in accordance with relevant laws and regulations and technical requirements.		
RANGE STATEMENT	The task can be performed in construction areas and offices under the supervision of senior architectural engineers. The tools and equipment to be used include: 1. Computers; 2. Printers; 3. Projectors; 4. Safety construction equipment; 5. Communication devices.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Implement the elements of the construction organization design; 2. Analyse the preparation of the construction site; 3. Explain the significance of the construction organization design; 4. Execute the construction organization design process; 5. Implement the requirements of the construction organization design.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Implement the construction organization design by judging the actual situation on site; 1.2 Judge the conditions at the construction site and execute the construction organization design. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 The principles for preparing the construction organization design; 2.2 The process of implementing the construction organization design; 2.3 Implementation of the design requirements of the construction organization. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Requirements and reasons for the preparation of the construction organization design; 3.2 Preparation requirements for implementing the

	construction organization design; 3.4 Measures to implement the construction organization design; 3.5 Architectural construction requirements. **4.0 Essential Skills** 4.1 Skills in analyzing the conditions at the construction site; 4.2 Comprehension; 4.3 Communication skills; 4.4 Teamwork skills; 4.5 Computer operation skills; 4.6 Competence to implement the construction organization design; 4.7 Competence to present the elements of a construction organization design.
DESCRIPTION OF THE END PRODUCT / SERVICE	The construction organization design requirements are implemented in accordance with relevant laws and regulations.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:** 1. Specific requirements of relevant laws and regulations.

OCCUPATION	ARCHITECTURAL ENGINEER	**OCCUPATION CODE**	
DUTY TITLE	CONSTRUCTION ORGANIZATION AND IMPLEMENTATION	**DUTY NO.**	701
TASK TITLE	PREPARATION OF CONSTRUCTION SCHEMES	**TASK NO.**	7012
PERFORMANCE CRITERIA	The person performing this task must be able to correctly prepare the construction scheme in accordance with relevant laws and regulations and technical requirements.		
RANGE STATEMENT	The task can be performed in the office area under the supervision of senior architectural engineers. The tools and equipment to be used include: 1. Computers; 2. Printers; 3. Projectors; 4. Communication devices.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Implement requirements for preparation of construction schemes; 2. Analyse the conditions of the construction site; 3. Understand the purpose of preparation of construction schemes; 4. Prepare construction schemes.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Prepare a construction scheme by analyzing the actual situation on site. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Principles for preparing a construction scheme; 2.2 The implementation process of a construction scheme; 2.3 Requirements for implementing a construction scheme. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Relevant provisions of relevant laws and regulations; 3.2 Requirements for the preparation of a construction scheme; 3.3 Preparation content of a construction scheme; 3.4 Purpose of construction scheme preparation. **4.0 Essential Skills**

	4.1 Skills in analyzing the conditions at the construction site; 4.2 Comprehension; 4.3 Communication skills; 4.4 Teamwork skills; 4.5 Computer operation skills; 4.6 Competence to prepare construction schemes.
DESCRIPTION OF THE END PRODUCT / SERVICE	Construction schemes are prepared and implemented in accordance with relevant laws and regulations.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:** 1. Specific requirements of relevant laws and regulations

OCCUPATION	ARCHITECTURAL ENGINEER	**OCCUPATION CODE**	
DUTY TITLE	CONSTRUCTION ORGANIZATION AND IMPLEMENTATION	**DUTY NO.**	701
TASK TITLE	IMPLEMENTATION OF MANAGEMENT SYSTEMS	**TASK NO.**	7013
PERFORMANCE CRITERIA	The person performing this task must be able to implement the site management systems in accordance with the requirements of the construction organization design.		
RANGE STATEMENT	The task can be performed in construction areas, offices and living quarters under the supervision of senior architectural engineers. The tools and equipment to be used include: 1. Computers; 2. Printers; 3. Projectors; 4. Communication devices; 5. Safety construction equipment.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Analyse the elements of the construction organization design; 2. Comply with construction management systems; 3. Analyse the preparatory conditions of the construction site; 4. Communicate the requirements of construction management systems; 5. Implement construction management systems.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Communicate and be responsible for construction management systems by analyzing the actual situation on site. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Principles for implementing construction management systems; 2.2 Requirements for implementing construction management systems; 2.3 The process of implementing construction management systems. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Requirements of relevant laws and regulations and technical documents; 3.2 Purpose of the implementation of construction management systems;

	3.3 Content of construction management systems; 3.4 Measures to implement construction management systems; 3.5 Analysis of the implementation effect of the construction management systems. **4.0 Essential Skills** 4.1 Skills in analyzing the conditions at the construction site; 4.2 Comprehension; 4.3 Communication skills; 4.4 Teamwork skills; 4.5 Computer operation skills; 4.6 Competence to implement construction management systems.
DESCRIPTION OF THE END PRODUCT / SERVICE	The relevant management systems are implemented in accordance with the relevant construction management system requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:** 1. Specific requirements of relevant laws and regulations

OCCUPATION	ARCHITECTURAL ENGINEER	**OCCUPATION CODE**	
DUTY TITLE	DISCLOSURE OF CONSTRUCTION TECHNOLOGY SCHEMES	**DUTY NO.**	702
TASK TITLE	ANALYSIS AND IMPLEMENTATION OF TECHNICAL VERIFICATION	**TASK NO.**	7021
PERFORMANCE CRITERIA	The person performing this task must be able to implement the construction technical disclosure documents based on the actual situation and requirements.		
RANGE STATEMENT	The task can be performed in construction areas and offices under the supervision of architectural engineers. The tools and equipment to be used include: 1. Computers; 2. Printers; 3. Projectors; 4. Communication devices; 5. Safety construction equipment.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Analyse the actual situation of the construction site; 2. Implement the quality and safety requirements of the construction technology scheme; 3. Verify the quality and safety disclosure documents for the construction technology scheme; 4. Implement the quality and safety disclosure documents for the construction technology scheme.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Analyse and disclose the disclosure documents for the construction technology scheme by analyzing the actual situation on site. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Principles of quality and safety disclosure for the construction technology scheme; 2.2 Requirements of quality and safety disclosure for the construction technology scheme; 2.3 Process of quality and safety disclosure for the construction technology scheme. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Requirements of relevant laws and regulations and technical documents; 3.2 Purpose of the construction technology scheme disclosure;

	3.3 Content of the construction technology scheme disclosure; 3.4 Measures to implement the construction technology scheme disclosure; 3.5 Technical methods for on-site construction. **4.0 Essential Skills** 4.1 Skills in analyzing the conditions at the construction site; 4.2 Comprehension; 4.3 Communication skills; 4.4 Teamwork skills; 4.5 Computer operation skills; 4.6 Executive capacity to implement the construction technology scheme disclosure.
DESCRIPTION OF THE END PRODUCT / SERVICE	Quality and safety disclosure documents are implemented in accordance with the requirements for the construction technology scheme disclosure.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:** 1. Specific requirements of relevant laws and regulations.

OCCUPATION	ARCHITECTURAL ENGINEER	**OCCUPATION CODE**	
DUTY TITLE	DISCLOSURE OF CONSTRUCTION TECHNOLOGY SCHEMES	**DUTY NO.**	702
TASK TITLE	PREPARATION AND IMPLEMENTATION OF TECHNICAL DISCLOSURE	**TASK NO.**	7022
PERFORMANCE CRITERIA	The person performing this task must be able to correctly prepare the construction technical disclosure documents based on the actual situation on site and the preparation requirements.		
RANGE STATEMENT	The task can be performed in the office area under the supervision of architectural engineers. The tools and equipment to be used include: 1. Computers; 2. Printers; 3. Communication devices.		

EVIDENCE REQUIREMENT

PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Analyse the actual situation of the construction site; 2. Investigate the requirements for the preparation of quality and safety disclosure documents for construction technology; 3. Prepare quality and safety disclosure documents for construction technology.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Analyse the actual situation of the construction site; 1.2 Prepare the disclosure documents for the construction technology scheme. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Principles for preparing the quality and safety scheme disclosure documents for construction technology; 2.2 Requirements for preparing the quality and safety scheme disclosure documents for construction technology; 2.3 Content of the preparation of the quality and safety scheme disclosure documents for construction technology; **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Requirements of relevant laws and regulations and technical documents; 3.2 Purpose of preparing the quality and safety scheme

	disclosure documents for construction technology; 3.3 Content of the quality and safety scheme disclosure documents for construction technology; 3.4 Measures to implement the disclosure of the construction technical, quality and safety schemes. **4.0 Essential Skills** 4.1 Skills in analyzing the conditions at the construction site; 4.2 Comprehension; 4.3 Communication skills; 4.4 Teamwork skills; 4.5 Computer operation skills; 4.6 Competence to prepare the disclosure documents for the construction technology scheme.
DESCRIPTION OF THE END PRODUCT / SERVICE	The disclosure documents for the construction technology scheme are prepared in accordance with the requirements of relevant laws and regulations and the actual situation.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:**

OCCUPATION	ARCHITECTURAL ENGINEER	**OCCUPATION CODE**	
DUTY TITLE	DISCLOSURE OF CONSTRUCTION TECHNOLOGY SCHEMES	**DUTY NO.**	702
TASK TITLE	IMPLEMENTATION OF TECHNICAL REVIEW	**TASK NO.**	7023
PERFORMANCE CRITERIA	The person performing this task must be able to correctly review the implementation of the construction technical disclosure documents based on the actual situation on site and the requirements for the disclosure documents.		
RANGE STATEMENT	The task can be performed in construction areas and offices under the supervision of senior architectural engineers. The tools and equipment to be used include: 1. Computers; 2. Printers; 3. Projectors; 4. Communication devices; 5. Safety construction equipment.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Analyse the actual situation of the construction site; 2. Comply with the disclosure requirements for the construction technical, quality, and safety schemes; 3. Implement the review of the disclosure of the construction technical, quality and safety schemes.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Analyse the construction preparations at the construction site; 1.2 Review the implementation of the disclosure of the construction technical, quality and safety schemes. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Content and requirements of the quality and safety scheme disclosure documents for construction technology. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Requirements of relevant laws and regulations and technical documents; 3.2 Requirements of the quality and safety scheme disclosure documents for construction technology.

	4.0 Essential Skills 4.1 Skills in analyzing the conditions at the construction site; 4.2 Comprehension; 4.3 Communication skills; 4.4 Teamwork skills; 4.5 Computer operation skills; 4.6 Competence to review the disclosure documents for the construction technology scheme.
DESCRIPTION OF THE END PRODUCT / SERVICE	The implementation of the disclosure of the construction technology scheme is reviewed in accordance with the requirements of relevant laws, regulations and the disclosure documents.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:**

OCCUPATION	ARCHITECTURAL ENGINEER	**OCCUPATION CODE**	
DUTY TITLE	CONSTRUCTION QUALITY ANALYSIS AND PROCESSING	**DUTY NO.**	703
TASK TITLE	IMPLEMENTATION OF QUALITY CONTROL SYSTEMS, AND ANALYSIS AND IMPLEMENTATION OF QUALITY PLANS	**TASK NO.**	7031
PERFORMANCE CRITERIA	The person performing this task must be able to correctly analyse and implement the quality plans in accordance with relevant laws and regulations and quality control systems.		
RANGE STATEMENT	The task can be performed in construction areas and offices under the supervision of senior architectural engineers. The tools and equipment to be used include: 1. Computers; 2. Printers; 3. Projectors; 4. Communication devices; 5. Safety construction equipment.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Analyse the actual situation of the preparations at the construction site; 2. Comply with construction quality control systems; 3. Implement construction quality plans.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Analyse the construction at the construction site; 1.2 Implement quality control systems. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Principles for preparing construction quality control systems. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Requirements of relevant laws and regulations and technical documents; 3.2 Principles for preparing construction quality control systems; 3.3 Requirements of construction quality control systems; 3.4 Measures to implement construction quality control systems.

	4.0 Essential Skills 4.1 Skills in analyzing the conditions at the construction site; 4.2 Comprehension; 4.3 Communication skills; 4.4 Teamwork skills; 4.5 Computer operation skills; 4.6 Competence to implement quality control systems.
DESCRIPTION OF THE END PRODUCT / SERVICE	The implementation of the quality control systems is guaranteed in accordance with relevant laws and regulations.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:**

OCCUPATION	ARCHITECTURAL ENGINEER	**OCCUPATION CODE**	
DUTY TITLE	CONSTRUCTION QUALITY ANALYSIS AND PROCESSING	**DUTY NO.**	703
TASK TITLE	IMPLEMENTATION OF QUALITY PRE-CONTROL, ANALYSIS AND HANDLING OF QUALITY PROBLEMS, AND IMPLEMENTATION OF MEASURES TO HANDLE QUALITY ACCIDENTS	**TASK NO.**	7032
PERFORMANCE CRITERIA	The person performing this task must be able to control construction quality, analyse and handle quality problems, and implement quality accident handling measures in accordance with relevant laws, regulations and the construction quality analysis results.		
RANGE STATEMENT	The task can be performed in construction areas under the supervision of senior architectural engineers. The tools and equipment to be used include: 1. Communication devices; 2. Safety construction equipment.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Analyse the quality of the site construction; 2. Implement quality pre-control; 3. Analyse and handle quality problems; 4. Implementation of quality accident handling measures.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Judge the quality of on-site construction; 1.2 Analyse and handle quality problems and implement measures to handle quality accidents. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Principles of quality pre-control; 2.2 Requirements for handling quality accidents. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Requirements of relevant laws and regulations and technical documents; 3.2 Analysis of the quality of on-site construction; 3.3 Implementation of quality accident handling measures; 3.4 Construction quality analysis and processing.

	4.0 Essential Skills 4.1 Skills in analyzing the conditions at the construction site; 4.2 Comprehension; 4.3 Communication skills; 4.4 Teamwork skills; 4.5 Competence to implement measures to handle quality accidents.
DESCRIPTION OF THE END PRODUCT / SERVICE	Quality pre-control is implemented, quality problems are handled, and measures to handle quality accidents are established in accordance with relevant laws and regulations and technical requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:**

OCCUPATION	ARCHITECTURAL ENGINEER	**OCCUPATION CODE**	
DUTY TITLE	IMPLEMENTATION OF THE CONSTRUCTION SCHEDULE	**DUTY NO.**	704
TASK TITLE	IMPLEMENTATION OF CONSTRUCTION OPERATION PLANS	**TASK NO.**	7041
PERFORMANCE CRITERIA	The person performing this task must be able to reasonably implement construction operation plans in accordance with relevant laws, regulations and the requirements of the construction schedule.		
RANGE STATEMENT	The task can be performed in construction areas under the supervision of senior architectural engineers. The tools and equipment to be used include: 1. Communication devices; 2. Safety construction equipment.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Analyse the construction schedule; 2. Implement construction operation plans.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Implement construction operation plans by analyzing the construction schedule. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Purposes of implementing the construction schedule; 2.2 Content of the construction schedule. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Requirements of relevant laws and regulations and technical documents; 3.2 Theory of implementation of the on-site construction schedule; 3.3 Requirements for measures to implement the construction operation plan; 3.4 Methods of preparing the construction schedule. **4.0 Essential Skills** 4.1 Construction schedule control abilities; 4.2 Comprehension;

	4.3 Communication skills; 4.4 Teamwork skills; 4.5 Capabilities to implement construction operation plans.
DESCRIPTION OF THE END PRODUCT / SERVICE	The implementation of the construction operation plan is guaranteed in accordance with the relevant laws and regulations and the requirements of the construction schedule.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:**

OCCUPATION	ARCHITECTURAL ENGINEER	**OCCUPATION CODE**	
DUTY TITLE	IMPLEMENTATION OF THE CONSTRUCTION SCHEDULE	**DUTY NO.**	704
TASK TITLE	DYNAMIC MANAGEMENT OF THE CONSTRUCTION PLANE LAYOUT	**TASK NO.**	7042
PERFORMANCE CRITERIA	The person performing this task must be able to reasonably implement the construction plane layout and conduct dynamic management of material changes in accordance with relevant laws and regulations and technical requirements.		
RANGE STATEMENT	The task can be performed in construction areas and offices under the supervision of senior architectural engineers. The tools and equipment to be used include: 1. Computers; 2. Printers; 3. Projectors; 4. Communication devices; 5. Safety construction equipment.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Analyse the construction plane layout principles; 2. Implement dynamic layout and management of the construction plane.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Implement the dynamic layout of the construction plane; 1.2 Manage the construction plane. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Construction plane layout of personnel, materials, etc.; 2.2 Purpose of dynamic management of the construction plane layout of personnel, materials, etc.; 2.2 Requirements for dynamic management of the construction plane layout of personnel, materials, etc. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Requirements of relevant laws and regulations and technical documents; 3.2 Measures for dynamic management of the

	construction plane layout of personnel, materials, etc. **4.0 Essential Skills** 4.1 Skills in analysing the rationality of the construction plane layout; 4.2 Comprehension; 4.3 Communication skills; 4.4 Teamwork skills; 4.5 Computer operation skills; 4.6 Dynamic management skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The dynamic management of construction plane layout is implemented in accordance with relevant laws and regulations and the requirements of the construction schedule.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:**

OCCUPATION	ARCHITECTURAL ENGINEER	**OCCUPATION CODE**	
DUTY TITLE	IMPLEMENTATION OF THE CONSTRUCTION SAFETY ENVIRONMENT	**DUTY NO.**	705
TASK TITLE	PRE-CONTROL OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH AND SAFETY, AND IMPLEMENTATION OF EMERGENCY RESPONSE PLANS FOR SAFETY INCIDENTS AT THE CONSTRUCTION SITE	**TASK NO.**	7051
PERFORMANCE CRITERIA	The person performing this task must be able to make a reasonable arrangement of the technical personnel to implement emergency response plans for safety incidents at the construction site in accordance with relevant laws and regulations and technical requirements.		
RANGE STATEMENT	The task can be performed in construction areas under the supervision of senior architectural engineers. The tools and equipment to be used include: 1. Communication devices; 2. Safety construction equipment; 3. Environmental testing equipment; 4. First aid equipment.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Analyse the environmental and occupational health and safety conditions at the site; 2. Pre-control environmental and occupational health and safety risks; 3. Implement emergency response plans for safety incidents at the construction site.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Analyse site safety conditions; 1.2 Pre-control safety risks; 1.3 Implement emergency response plans. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Purpose of preparing emergency response plans for safety incidents at the construction site; 2.2 Pre-control of environmental and occupational health and safety risks. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Requirements of relevant laws and regulations and

	technical documents; 3.2 Pre-control schemes for environmental safety and occupational health and safety risks; 3.3 Emergency response plans for safety incidents at the construction site. **4.0 Essential Skills** 4.1 Environmental and occupational health and safety risk analysis skills; 4.2 Comprehension; 4.3 Communication skills; 4.4 Teamwork skills; 4.5 Competence to implement emergency response plans for safety incidents at the construction site.
DESCRIPTION OF THE END PRODUCT / SERVICE	Emergency response plans for safety incidents at the construction site are implemented, and environmental and occupational health and safety risks are pre-controlled in accordance with the requirements of relevant laws and regulations and technical documents.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:**

OCCUPATION	ARCHITECTURAL ENGINEER	**OCCUPATION CODE**	
DUTY TITLE	IMPLEMENTATION OF THE CONSTRUCTION SAFETY ENVIRONMENT	**DUTY NO.**	705
TASK TITLE	MANAGEMENT OF THE CONSTRUCTION SITE ENVIRONMENT AND IMPLEMENTATION OF THE ENVIRONMENTAL MANAGEMENT OPERATION PLAN	**TASK NO.**	7052
PERFORMANCE CRITERIA	The person performing this task must be able to correctly manage the construction site environment and implement the environmental management operation plan in accordance with relevant laws and regulations and technical requirements.		
RANGE STATEMENT	The task can be performed in construction areas under the supervision of senior architectural engineers. The tools and equipment to be used include: 1. Communication devices; 2. Safety construction equipment; 3. Environmental testing equipment.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Manage environmental issues such as sanitation and noise associated with on-site construction; 2. Comply with the environmental management operation plans for sanitation and noise; 3. Implement the environmental management operation plans for sanitation and noise.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Manage the site construction environment; 1.2 Implement environmental management operation plans. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Purpose of managing the site construction environment; 2.2 Preparation of environmental management operation plans; 2.3 Requirements for the implementation of environmental management operation plans. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Requirements of relevant laws and regulations and technical documents;

	3.2 Methods of construction environment management; 3.3 Measures to implement environmental management operation plans. **4.0 Essential Skills** 4.1 Competence to analyse and judge the conditions of the on-site construction environment; 4.2 Comprehension; 4.3 Communication skills; 4.4 Teamwork skills; 4.5 Competence to implement environmental management operation plans.
DESCRIPTION OF THE END PRODUCT / SERVICE	The environment at the construction site is managed and the environmental management operation plan is implemented in accordance with relevant laws and regulations and technical requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:**

OCCUPATION	ARCHITECTURAL ENGINEER	**OCCUPATION CODE**	
DUTY TITLE	IMPLEMENTATION OF THE CONSTRUCTION SAFETY ENVIRONMENT	**DUTY NO.**	705
TASK TITLE	IDENTIFICATION OF THE SOURCE OF HAZARDS AT THE CONSTRUCTION SITE AND ANALYSIS AND HANDLING OF SAFETY AND ENVIRONMENTAL ISSUES	**TASK NO.**	7053
PERFORMANCE CRITERIA	The person performing this task must be able to accurately identify hazards at the construction site and analyse and handle with safety and environmental issues in accordance with relevant laws and regulations and technical requirements.		
RANGE STATEMENT	The task can be performed in construction areas under the supervision of senior architectural engineers. The tools and equipment to be used include: 1. Communication devices; 2. Safety construction equipment; 3. Environmental testing equipment; 4. Construction safety testing equipment.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Identify the hazards to on-site construction personnel, fire protection, etc.; 2. Analyse and handle with safety and environmental issues associated with personnel and fire protection.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Identify hazards to on-site construction; 1.2 Analyse and handle with safety and environmental issues. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Identification of hazards to on-site construction; 2.2 Analysis of safety and environmental issues; 2.3 Handling of safety and environmental issues; **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Requirements of relevant laws and regulations and technical documents;

	3.2 Methods for identifying construction hazards; 3.3 Measures to handle with safety and environmental issues. **4.0 Essential Skills** 4.1 Competence to identify hazards to on-site construction; 4.2 Competence to analyse safety and environmental issues; 4.3 Comprehension; 4.4 Communication skills; 4.5 Teamwork skills; 4.6 Competence to handle with safety and environmental issues.
DESCRIPTION OF THE END PRODUCT / SERVICE	The hazards at the construction site are identified and safety and environmental issues are analysed and handled in accordance with relevant laws and regulations and technical requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:**

OCCUPATION	ARCHITECTURAL ENGINEER	**OCCUPATION CODE**	
DUTY TITLE	ORGANIZATION OF CONSTRUCTION DATA INFORMATION	**DUTY NO.**	706
TASK TITLE	IMPLEMENTATION OF CONSTRUCTION DATA MANAGEMENT PLANS AND MANAGEMENT SYSTEMS	**TASK NO.**	7061
PERFORMANCE CRITERIA	The person performing this task must be able to reasonably implement the construction data management plans and management systems in accordance with relevant laws and regulations and technical requirements.		
RANGE STATEMENT	The task can be performed in construction areas and offices under the supervision of senior architectural engineers. The tools and equipment to be used include: 1. Communication devices; 2. Safety construction equipment; 3. Computers; 4. Printers.		

EVIDENCE REQUIREMENT

PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Analyse construction and indoor data management systems; 2. Implement the construction and indoor data management plans; 3. Implement the construction and indoor data management systems.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Implement the construction and indoor data management plans; 1.2 Implement the construction and indoor data management systems. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Preparation of construction data management systems; 2.2 Purpose of preparing construction data management plans; 2.3 Requirements for implementing construction data management systems. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Requirements of relevant laws and regulations and technical documents;

	3.2 Methods for preparing construction data management systems; 3.3 Methods for preparing construction data management plans; 3.4 Measures to implement construction data management systems. **4.0 Essential Skills** 4.1 Competence to implement the construction data management plans; 4.2 Competence to analyse site management issues; 4.3 Comprehension; 4.4 Communication skills; 4.5 Teamwork skills; 4.6 Competence to implement construction data management systems.
DESCRIPTION OF THE END PRODUCT / SERVICE	The construction data management plans and management systems are implemented in accordance with relevant laws and regulations and technical requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:**

OCCUPATION	ARCHITECTURAL ENGINEER	**OCCUPATION CODE**	
DUTY TITLE	ORGANIZATION OF CONSTRUCTION DATA INFORMATION	**DUTY NO.**	706
TASK TITLE	SUMMARIZING, ORGANIZATION AND HANDOVER OF CONSTRUCTION DATA	**TASK NO.**	7062
PERFORMANCE CRITERIA	The person performing this task must be able to accurately summarize, organize and hand over construction data in accordance with relevant laws and regulations and technical requirements.		
RANGE STATEMENT	The task can be performed in the office area under the supervision of senior architectural engineers. The tools and equipment to be used include: 1. Communication devices; 2. Office supplies; 3. Computers; 4. Printers.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Analyse information management systems for construction data, indoor data, etc.; 2. Summarize construction data, indoor data, etc.; 3. Organize construction data, indoor data, etc.; 4. Hand over construction data, indoor data, etc.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Accurately summarize, organize and hand over construction data. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Reasons for preparing construction data management systems; 2.2 Purpose of summarizing, organizing and handing over construction data; 2.3 Requirements for summarizing, organizing and handing over construction data. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Requirements of relevant laws and regulations and technical documents; 3.2 Methods for preparing construction data management systems; 3.3 Methods for summarizing construction data;

	3.4 Methods for organizing construction data; 3.5 Methods for handing over construction data. **4.0 Essential Skills** 4.1 Competence to summarize construction data; 4.2 Competence to organize construction data; 4.3 Competence to hand over construction data; 4.4 Comprehension; 4.5 Communication skills; 4.6 Teamwork skills; 4.7 Competence to implement construction data management systems.
DESCRIPTION OF THE END PRODUCT / SERVICE	The construction data are accurately summarized, organized and handed over in accordance with relevant laws and regulations and technical requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:**

OCCUPATION	ARCHITECTURAL ENGINEER	**OCCUPATION CODE**	
DUTY TITLE	ORGANIZATION OF CONSTRUCTION DATA INFORMATION	**DUTY NO.**	706
TASK TITLE	PROCESSING OF ENGINEERING CONSTRUCTION DATA USING COMPUTER SOFTWARE	**TASK NO.**	7063
PERFORMANCE CRITERIA	The person performing this task must be able to make reasonable use of computer software to process engineering construction data in accordance with relevant laws and regulations and technical requirements.		
RANGE STATEMENT	The task can be performed in the office area under the supervision of senior architectural engineers. The tools and equipment to be used include: 1. Communication devices; 2. Computer software; 3. Computers; 4. Printers; 5. Office supplies.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Analyse construction data information management systems; 2. Process engineering construction data using computer software.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Process indoor data and technical data of engineering construction using relevant computer software. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Processing of engineering construction data; 2.2 Application of computer software; 2.3 Basic knowledge of computers; 2.4 Application of specialized computer software. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Requirements of relevant laws and regulations and technical documents; 3.2 Methods for processing engineering construction data using computer software.

	4.0 Essential Skills 4.1 Computer application skills; 4.2 Computer software learning skills; 4.3 Comprehension; 4.4 Communication skills; 4.5 Teamwork skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Engineering construction data are processed by making reasonable use of relevant computer software in accordance with relevant laws and regulations and technical requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:**

OCCUPATION	ARCHITECTURAL ENGINEER	**OCCUPATION CODE**	
DUTY TITLE	INTEGRATION AND IMPLEMENTATION OF PROJECT RESOURCES	**DUTY NO.**	707
TASK TITLE	IMPLEMENTATION OF CONSTRUCTION RESOURCE DEMAND PLANS AND MANAGEMENT SYSTEMS	**TASK NO.**	7071
PERFORMANCE CRITERIA	The person performing this task must be able to accurately implement the construction resource demand plans and management systems in accordance with relevant laws and regulations and technical requirements.		
RANGE STATEMENT	The task can be performed in construction areas and offices under the supervision of senior architectural engineers. The tools and equipment to be used include: 1. Communication devices; 2. Safety construction equipment; 3. Computers; 4. Printers.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Analyse construction resource management systems; 2. Implement construction resource demand plans.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Implement construction resource demand plans; 1.2 Implement construction resource management systems. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Preparation of construction resource management systems; 2.2 Purpose of construction resource demand plans; 2.3 Requirements of construction resource demand plans. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Requirements of relevant laws and regulations and technical documents; 3.2 Methods for preparing construction resource management systems;

	3.3 Measures to implement the construction resource demand plans. 3.4 Measures to implement construction resource management systems. **4.0 Essential Skills** 4.1 Competence to implement the construction resource demand plans; 4.2 Competence to implement construction resource management systems; 4.3 Competence to analyse resource management at the construction site; 4.4 Comprehension; 4.5 Communication skills; 4.6 Teamwork skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The construction resource demand plans and management systems are accurately implemented in accordance with relevant laws and regulations and technical requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:**

OCCUPATION	ARCHITECTURAL ENGINEER	**OCCUPATION CODE**	
DUTY TITLE	INTEGRATION AND IMPLEMENTATION OF PROJECT RESOURCES	**DUTY NO.**	707
TASK TITLE	SELECTION AND RE-INSPECTION OF CONSTRUCTION MATERIALS AND EQUIPMENT	**TASK NO.**	7072
PERFORMANCE CRITERIA	The person performing this task must be able to accurately select and re-inspect construction materials and equipment in accordance with relevant laws and regulations and technical requirements.		
RANGE STATEMENT	The task can be performed in construction areas under the supervision of senior architectural engineers. The tools and equipment to be used include: 1. Communication devices; 2. Safety construction equipment; 3. Material inspection equipment; 4. Equipment inspection instruments.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Select materials and mechanical equipment for construction; 2. Re-inspect materials and mechanical equipment for construction.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Select construction materials; 1.2 Select construction equipment; 1.3 Re-inspect construction materials; 1.4 Re-inspect construction equipment; **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Selection of construction materials; 2.2 Selection of construction equipment; 2.3 Re-inspection of construction materials; 2.4 Re-inspection of construction equipment. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Requirements of relevant laws and regulations and technical documents; 3.2 Methods for selecting construction materials and equipment;

	3.3 Methods for re-inspecting construction materials and equipment. **4.0 Essential Skills** 4.1 Competence to inspect construction materials and equipment; 4.2 Competence to identify construction materials and equipment; 4.3 Comprehension; 4.4 Communication skills; 4.5 Teamwork skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The construction materials and equipment are accurately selected and re-inspected in accordance with relevant laws and regulations and technical requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:**

OCCUPATION	ARCHITECTURAL ENGINEER	**OCCUPATION CODE**	
DUTY TITLE	INTEGRATION AND IMPLEMENTATION OF PROJECT RESOURCES	**DUTY NO.**	707
TASK TITLE	INVESTIGATION AND TRAINING OF CONSTRUCTION PERSONNEL	**TASK NO.**	7073
PERFORMANCE CRITERIA	The person performing this task must be able to properly investigate and train construction personnel in accordance with relevant laws and regulations and technical requirements.		
RANGE STATEMENT	The task can be performed in construction areas and offices under the supervision of senior architectural engineers. The tools and equipment to be used include: 1. Communication devices; 2. Safety construction equipment; 3. Computers; 4. Printers; 5. Projectors; 6. Certificate recognition instruments.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Review the qualifications of the on-the-job personnel; 2. Train construction personnel on construction technology, and safety and data management skills.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Review the professional qualifications of construction personnel; 1.2 Train construction personnel on construction technology, etc. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 On-the-job personnel investigation; 2.2 Purpose of construction personnel training; 2.3 Requirements of construction personnel training. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Requirements of relevant laws and regulations and technical documents; 3.2 Methods of on-the-job personnel investigation; 3.3 Methods of construction personnel training.

	4.0 Essential Skills 4.1 Competence to identify certificates; 4.2 Training presentation skills; 4.3 Comprehension; 4.4 Communication skills; 4.5 Teamwork skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The construction personnel are properly investigated and trained in accordance with relevant laws and regulations and technical requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:**

TABLE 1: DACUM CHARTS FOR ARCHITECTURAL ENGINEER - NTA 7

DUTIES	TASKS	ENABLERS
1.0 Construction organization and implementation	1.1 Implementation of construction organization design. 1.2 Preparation of construction schemes. 1.3 Implementation of management systems.	**General skills and knowledge** · Competence to analyse the preparation of personnel, materials, etc. at the construction site · Competence to comprehend schemes, systems, etc. · Team communication skills · Teamwork skills · Computer operation skills · Competence to implement the construction organization design · Competence to present the elements of a construction organization design **Tools and equipment** · Computers · Printers · Projectors · Safety construction equipment · Communication devices **Materials** · Paper and pens **Requirements for employees** · Observance of law and discipline · Teamwork spirit · Integrity · Emphasis on commitment
2.0 Disclosure of construction technology schemes	2.1 Analysis and implementation of technical verification. 2.2 Preparation and implementation of technical disclosure. 2.3 Implementation of technical review.	**General skills and knowledge** · Competence to analyse the preparation of personnel, materials, etc. at the construction site · Competence to comprehend schemes, systems, etc. · Team communication skills · Teamwork skills · Computer operation skills · Site construction capacity **Tools and equipment** · Computers · Printers

DUTIES	TASKS	ENABLERS
		· Projectors · Safety construction equipment · Communication devices **Materials** · Paper and pens **Requirements for employees** · Observance of law and discipline · Teamwork spirit · Integrity · Emphasis on commitment
3.0 Construction quality analysis and processing	3.1 Implementation of quality control systems, and analysis and implementation of quality plans. 3.2 Implementation of quality pre-control, analysis and handling of quality problems, and implementation of measures to handle quality accidents.	**General skills and knowledge** · Competence to analyse the preparation of personnel, materials, etc. at the construction site · Competence to comprehend schemes, systems, etc. · Team communication skills · Teamwork skills · Computer operation skills · Competence to analyse construction quality **Tools and equipment** · Safety construction equipment · Communication devices **Materials** · Paper and pens **Requirements for employees** · Observance of law and discipline · Teamwork spirit · Integrity · Emphasis on commitment
4.0 Implementation of the construction schedule	4.1 Implementation of construction operation plans 4.2 Dynamic management of the construction plane layout	**General skills and knowledge** · Competence to analyse the preparation of personnel, materials, etc. at the construction site · Competence to comprehend schemes, systems, etc. · Team communication skills · Teamwork skills

DUTIES	TASKS	ENABLERS
		· Computer operation skills · Competence to implement the construction organization design **Tools and equipment** · Computers · Printers · Projectors · Safety construction equipment · Communication devices **Materials** · Paper and pens **Requirements for employees** · Observance of law and discipline · Teamwork spirit · Integrity · Emphasis on commitment
5.0 Implementation of the construction safety environment	5.1 Pre-control of environmental and occupational health and safety, and implementation of emergency response plans for safety incidents at the construction site. 5.2 Management of the construction site environment and implementation of the environmental management operation plan. 5.3 Identification of hazards at the construction site and analysis and handling of safety and environmental issues.	**General skills and knowledge** · Competence to analyse the preparation of personnel, materials, etc. at the construction site · Competence to comprehend schemes, systems, etc. · Team communication skills · Teamwork skills · Computer operation skills · Competence to implement construction safety management systems **Tools and equipment** · Safety construction equipment · Communication devices **Materials** · Paper and pens **Requirements for employees** · Observance of law and discipline · Teamwork spirit · Integrity · Emphasis on commitment

DUTIES	TASKS	ENABLERS
6.0 Organization of construction data information	6.1 Implementation of construction data management plans and management systems 6.2 Summarizing, organization and handover of construction data. 6.3 Processing of engineering construction data using computer software.	**General skills and knowledge** · Competence to analyse the preparation of personnel, materials, etc. at the construction site · Competence to comprehend schemes, systems, etc. · Team communication skills · Teamwork skills · Computer operation skills · Competence to organize construction data **Tools and equipment** · Computers · Printers · Projectors · Safety construction equipment · Communication devices **Materials** · Pens, paper, folders and staplers **Requirements for employees** · Observance of law and discipline · Teamwork spirit · Integrity · Emphasis on commitment
7.0 Integration and implementation of project resources	7.1 Implementation of construction resource demand plans and management systems. 7.2 Selection and re-inspection of construction materials and equipment. 7.3 Investigation and training of construction personnel.	**General skills and knowledge** · Competence to analyse the preparation of personnel, materials, etc. at the construction site · Competence to comprehend schemes, systems, etc. · Team communication skills · Teamwork skills · Computer operation skills · Competence to integrate construction resources **Tools and equipment** · Computers · Printers · Projectors · Safety construction equipment

DUTIES	TASKS	ENABLERS
		· Communication devices · Testing instruments **Materials** · Pens, paper and ID cards **Requirements for employees** · Observance of law and discipline · Teamwork spirit · Integrity · Emphasis on commitment