



CONSTRUCTION INDUSTRY COMPETENCY STANDARD (CICS)

CERTIFIED CONSTRUCTION MANAGER (CCM)

Code: CCM5



LEMBAGA PEMBANGUNAN INDUSTRI PEMBINAAN MALAYSIA



CONSTRUCTION INDUSTRY COMPETENCY STANDARD (CICS)

CERTIFIED CONSTRUCTION MANAGER (CCM)

Code: CCM5

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Message from Chief Executive

Construction managers' play central roles in-part to elevate the level of quality, safety and professionalism in the construction industry, as outlined in the Construction Industry Transformation Programme (CITP) 2016-2020. This Construction Industry Competency Standard (CICS) for Construction Manager was mooted in recognition of the need to certify Competent Construction Managers (CCM) needed by the Malaysian construction industry. The industry acknowledge that the construction manager's job is among the most arduous, demanding and responsible single function in the building construction process. They play central roles to plan, organise, recruit, monitor and control the construction activities to achieve the project targets while operating in very demanding time scales in harsh working environment. Most often they are the ones who shoulder the responsibility when things go wrong.

The industry is cognisant of the need to formally recognise the valuable contribution of the construction managers. The establishment of this document is a strategic step forward for this. A pre-requisite to this is to recognise the core competencies that they need to possess, and to certify them before the aspiration for projects to be delivered with quality, safety and professionally are to be achieved. The establishment of this document will also be very significant in assisting to augment efforts to facilitate the education, training and certification of competent Construction Managers.

I take this opportunity to thank all parties that have contributed to the development of this CICS.

DATO' IR. AHMAD 'ASRI ABDUL HAMID

Chief Executive

Construction Industry Development Board (CIDB)

Malaysia

Message from Sector Head of Personnel and Contractor Development

The CICS for Construction Managers was developed to certify and register Certified Construction Managers (CCM) in the Malaysian construction industry as required by CIDB Act 520, Part VII. To facilitate this, the former National Competency Standard (NCS) have been upgraded to CICS and construction managers competencies have been mapped at Level 5 of the Occupational Structure in Building and Construction in the Civil Engineering Sub Sector.

This CICS will allow the industry to recognise who the competent construction managers are, what core competencies they possess, and the responsibilities they shoulder when managing construction projects. The CICS is projected to serve as the key terms of reference for initiatives to improve the current provisions for educating and training of construction managers within the construction industry.

The construction managers' competencies identified in this CICS are bespoke to the Malaysian construction industry. This was established through comprehensive research carried out to identify the issues that have confronted Malaysian construction managers' qualification and certification processes. The construction managers' competencies identified were mapped against the competencies identified by local and international construction professional institutions such as the Chartered Institute of Building (CIOB), Royal Institution of Chartered Surveyors (RICS) and the Project Management Institute (PMI), together with those recognised by the construction industries in Australia, United Kingdom (UK) and the United States of America (USA). This was in consideration to ensure their compliance to the international standards for recognition and accreditation.

MEGAT KAMIL AZMI MEGAT RUS KAMARANI

Sector Head

Personnel and Contractor Development

Construction Industry Development Board (CIDB)

Foreword

The Expert Panel team was formed by CIDB Malaysia to assist the development of the Construction Industry Competency Standard (CICS) for Certified Construction Managers (CCM). This was the product of a joint effort between the public and private construction industry stakeholders to establish the CCM certification process.

The need to certify competent Construction Managers in the Malaysian construction industry arose from the need for the industry to continually develop and produce competent construction managers. Concurrent to this is the necessity to differentiate the competences of the Certified Construction Manager (CCM) from the competencies of the Certified Construction Project Managers (CCPM) who are tasked to manage the project's design and construction processes. This is also mindful of the necessity to ensure that the industry's construction managers' competency profile is constantly upgraded and at par with changes in technology, procurement systems and implementation processes that have taken place. With this CICS, the industry can commonly identify what competencies that construction managers must possess, what are their roles and responsibilities.

Consequent to this, this document is also intended to serve as a reference document to facilitate and streamline the construction management education, training, and continuous professional development (CPD) offered to professionals in the construction industry.

For comments and feedback, please channel to www.cidb.gov.my

Associate Professor Sr. Dr Fadzil Hassan
Expert Panel Leader

1.0 Introduction

1.1 Purpose of the Construction Industry Competency Standard (CICS) for Certified Construction Managers (CCM)

This CICS for CCM was developed to specify the minimum level of competencies for verifying Certified Construction Managers (CCCM) for the Malaysian construction industry.

1.1.1 Definition of CICS

CICS is defined as the specification of competencies expected of construction managers employed by a contractor to effectively manage construction projects at the construction project sites.

1.1.2 Competencies for Construction Managers in the CICS

The construction managers' competencies in this CICS are underlined in (i) Competency Profile and (ii) Job Profile section of this document.

1.1.3 Job Profile

Job Profile defines the duties and tasks required to be performed by the Construction Manager.

1.1.4 Competency Profile

Competency Profile defines Competency Unit (CU) i.e., the process, knowledge, skills, attitudes, Evidence Guide and Tools/Equipment needed to accomplish the project management tasks as detailed in section 4.3.1-4.9.1.

1.2 Certified Construction Manager (CCM)

1.2.1 Significance of Construction Managers (CM)

Construction managers play very significant roles in determining the outcome of construction projects. Their responsibilities cover all activities related to the construction production process and the execution of the job at the construction site as stipulated in the construction contracts. The significant contribution of construction managers to the construction industry has been exemplified in the initiatives to ensure their competency in the Construction Industry Master Plan (CIMP) 2006-2015 and the Construction Industry Transformation Programme (CITP) 2016-2020.

1.2.2 Scope of Construction Management

The conceptualisation of construction management, and the duties of the construction manager within the context of the Project Life Cycle drawn for this CICS, is as shown in Figure 1, 2 and 3 (Adapted from Hairuddin et al 2018¹). The as scope of construction management which span across the project's Tendering, Site Mobilisation, Construction and Hand Over stage as shown in Figures 2. The duties in construction management are conceptualised in Table 3. This shall include all types of construction projects outlined in 4.6

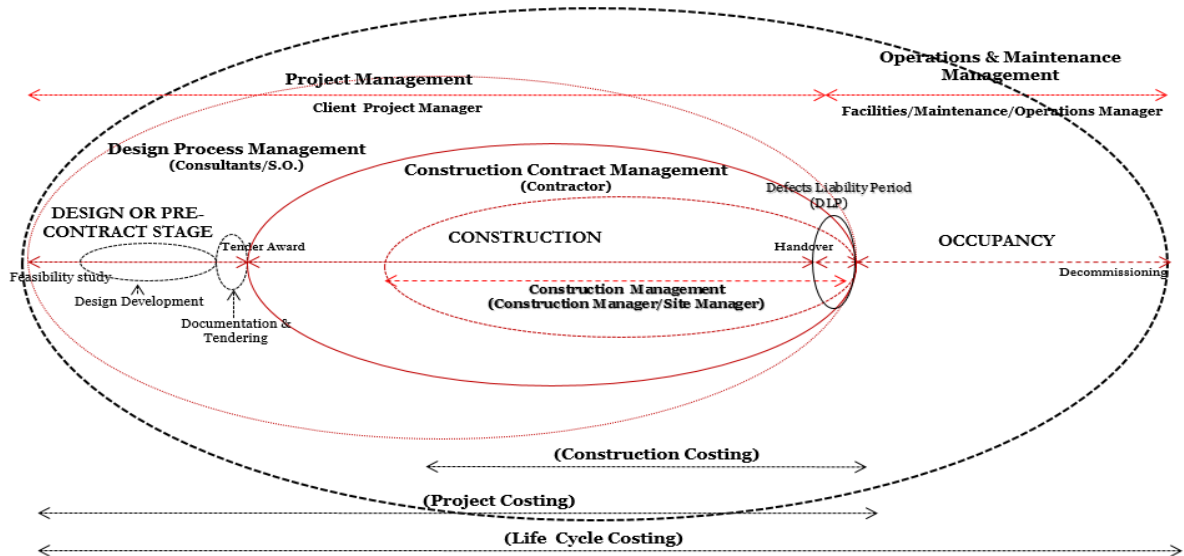


Figure 1: Management activities within the Project Life Cycle

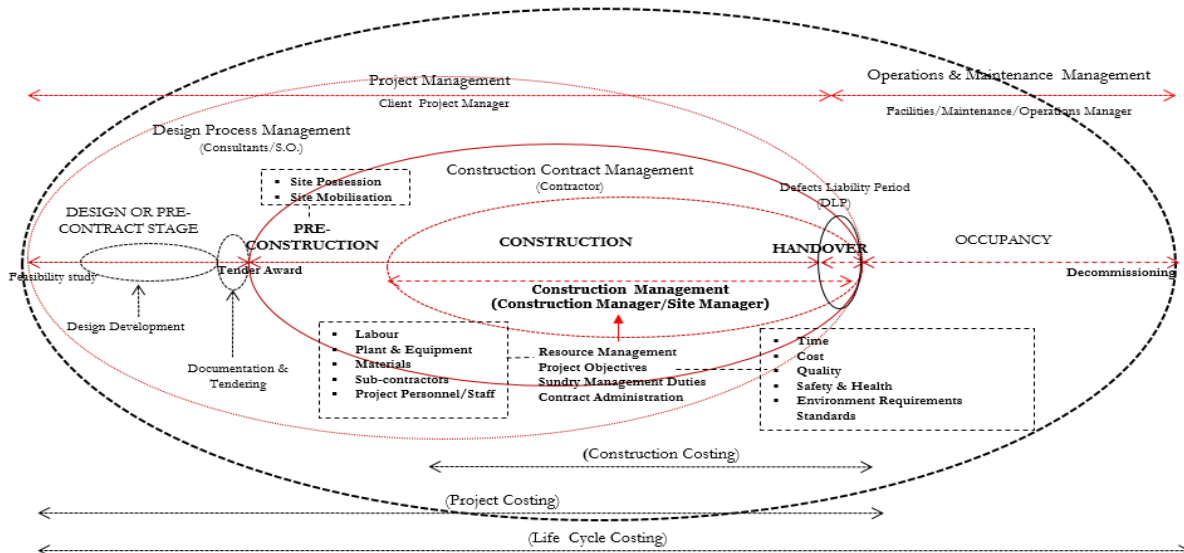


Figure 2: Activities to be performed within the construction management phases of a construction project

¹ Hairuddin M., P.F Hassan & Siti Khalijah Y (2018), Construction Handbook Series: Project Management, Construction Management, & Site Management, Penerbit UTHM.

1.2.3 Definition of Construction Managers

The Construction Manager is defined as the individual employed by the contractor to lead the construction implementation process at the project site. He/she shall possess the competency to plan, coordinate, monitor, and controls the construction project activities at the project site. In the course of these undertaking, he or she must be capable of communicating the process, lead and motivate the project team and stakeholders towards achieving the project objectives. The duties are as conceptualised in Figure 3 and detailed in Section 13 of this CICS.

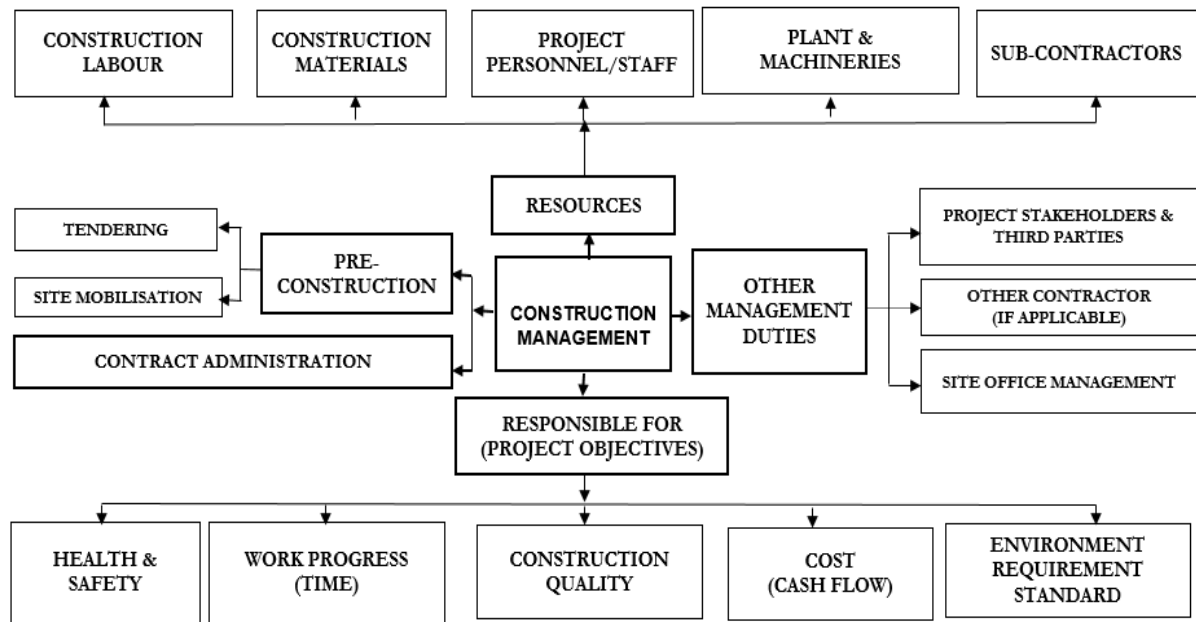


Figure 3: Conceptualisation of the construction managers' duties and tasks

2.0 Scope of the CICS

The CICS stipulates the scope and requirements for the qualification and accreditation of Construction Managers in the Malaysian construction industry. The accreditation shall provide recognition of the qualifications and competence of this job function in the construction industry.

3.0 Abbreviation

The abbreviations are used throughout this document are as follows:

- BQ : Bill of Quantities
- BOT/BOOT : Build, Operate and Transfer / Build Operate Own and Transfer

BOWEC	:	Building Operations and Works of Engineering Construction
CBA	:	Cost Benefit Analysis
CCC	:	Certificate Completion and Compliance
CCM	:	Certified Construction Manager
CICS	:	Construction Industry Competency Standard
CIS	:	Construction Industry Standard
CD/A	:	Clash Detection/Analysis
CIDB	:	Construction Industry Development Board
CMMS	:	Computerised Maintenance Management System
CONQUAS	:	Construction Quality Assessment (Singapore)
COPQ	:	Cost Of Poor Quality
CPM (1)	:	Certified Project Manager
CPM (2)	:	Critical Path Method
CSR	:	Corporate Social Responsibility
D&B	:	Design and Build
DSC	:	Domestic Sub-contractor
DLP	:	Defects Liability Period
EA	:	Environmental Audit
ECA	:	Elemental Cost Analysis
EIA	:	Environmental Impact Assessment
EIP	:	Environmental Implementation Plan
EMP	:	Environmental Management Plan
EMS	:	Environmental Management System
EPC	:	Engineering, Procurement and Construction
EPCC	:	Engineering, Procurement, Construction and Commissioning
ERP	:	Emergency Response Plan
FS	:	Feasibility Study
GBI	:	Green Building Index
GFA	:	Gross Floor Area
GreenRE	:	A green building rating tool in Malaysia
HIRARC	:	Hazard Identification, Risk Assessment and Risk Control
HSIP	:	Health & Safety Implementation Plan
HSMS	:	Health & Safety Management System
LoB	:	Line of Balance
MyCREST	:	Malaysian Carbon Reduction and Environmental Sustainable Tool
NPV	:	Net Present Value
NS	:	Nominated Supplier

NSC	:	Nominated Sub-contractor
OSH	:	Occupational Safety & Health
PERT	:	Program Evaluation Review Techniques
PIM	:	Project Implementation Manual
PIP	:	Project Implementation Plan
PQP	:	Project Quality Plan
QA&QC	:	Quality Assurance and Quality Control
QIP	:	Quality Implementation Plan
QLASSIC	:	Quality Assessment System in Construction
QMP	:	Quality Management Plan
QMS	:	Quality Management System
ROI	:	Return of Investment
SHASSIC	:	Safety and Health Assessment System in Construction
WBS	:	Work Breakdown Structure

4.0 Terms and Definition

For the purpose of this CICS, the following terms and definitions apply.

4.1 Accreditation

Accreditation is the procedure by which the CIDB or any party authorised by it, gives formal recognition that a body or person is competent to carry out a specific task relating to the construction industry.

4.2 Applicant

Individual who is seeking certification in accordance with this CICS.

4.3 Competency

Competency is the combination of Knowledge, Skill and Attitude (KSA) needed to perform a task successfully and efficiently. In this document, KSA is being described in the Competency Unit (CU).

4.3.1 Competency Unit (CU)

Competency Unit (CU) is the description of the competencies needed to perform a project management activity. These are described as follows:

4.3.1.1 Duty and Task

Duties are responsibilities, while tasks are work or activities that need performed to accomplish a project management activity.

4.3.1.2 Key Processes

Key processes are the series of important actions, activities or steps that need to be undertaken to perform a particular responsibility and/or task

4.3.1.3. Knowledge

Knowledge are facts or information needed to perform a specific duty or task

4.3.1.4. Skills

Skills are the ability to perform a duty or task which can be divided into Technical Skills and Soft or Human Skills

4.5.1.5. Technical skill

Technical skill is the technical ability to execute a task which is job specific

4.3.1.6. Soft or Human Skills

Soft or human skill is the behavioural interpersonal ability to interact with people to encourage performance which commonly relates to the ability to communicate, lead and motivate.

4.3.1.7 Attitude

Attitude is the set of values needed to execute a duty or task

4.3.1.8 Evidence Guide

Evidence Guide describes the documented evidence as justification that the project manager has successfully executed/performed the duty and task.

4.3.1.9 Tools/ Equipment /Material

Tools/ Equipment/Material describes any tool that are used to assist the project manager to perform a duty and task.

4.4 Certification

The procedure by which CIDB under Act 520, or any party authorised by CIDB, gives written assurance that a process, practice or service conforms to specified requirements.

4.5 Certification Body

CIDB is the organisation that awards the Competent Construction Manager (CCM) certificate to individuals who have met the competency requirements and assessment set out in this CICS.

4.6 Construction Industry

The construction industry is the sector of the economy which is concerned with the construction of the built environment which include built structures and facilities.

4.7 Construction Resources

These are stock or supply of money, material, manpower and machinery that is needed to implement the construction project at the project site.

4.8 Construction Management

Construction management is defined as process to accomplish the project goals of time, cost and quality. This is achieved through the process of planning, organising, recruiting, monitoring and controlling the project implementation process the tasks conceptualised in Figure 3. In the course, he/she is expected to be capable of communicating the process, lead and motivate the project team towards the project objectives.

4.9 Contract Award:

Contract award refers to the process of formally notifying a tenderer that they have been successful in their tender bid to be awarded the contract.

4.10 Construction Works

As defined in Act 520 LEMBAGA PEMBANGUNAN INDUSTRI PEMBINAAN MALAYSIA 1994, construction works refers to the construction, extension, installation, repair, maintenance, renewal, removal, renovation, alteration, dismantling, or demolition of:

- a. Any building, erection, edifice, structure, wall, fence or chimney, whether constructed wholly or partly above or below ground level;
- b. Any road, harbour works, railway, cableway, canal or aerodrome;
- c. Any drainage, irrigation or river control works;

- d. Any electrical, mechanical, water, gas, petrochemical or telecommunication works; or
- e. Any bridge, viaduct, dam, reservoir, earthworks, pipeline, sewer, aqueduct, culvert, drive, shaft, tunnel or reclamation works,

This includes –

- (A) Any works which form an important and integral part of or are preparatory to or temporary for the works described in paragraphs (a) to (e), including site clearance, soil investigation and improvement, earth-moving, excavation, laying of the foundation, site restoration and landscaping; or
- (B) Procurement of construction materials, equipment or workers necessarily required for any work described in paragraphs (a) to (e).

4.11 Materials Requisition

Materials requisition is the process to acquire materials required for the construction process.

4.12 Method Statement

The document that details the step-by-step guide on how to perform the work task and job safely.

4.13 Preliminaries

Preliminaries are activities and/or provisions that need to be provided by the contractor to construct the project. Preliminaries are incorporated in a tender and contract document to provide a description and provision for pricing preparatory items that need carry out the construction works.

4.14 Project Life Cycle

Project Life Cycle refers to the project management processes that are follows from its initial inception to closure. In construction, the processes involved typically covers the inception, design development, tendering, construction, handover, and operations and maintenance phases.

4.15 Plant & Equipment Requisition

Plant and equipment requisition is the process of acquiring plant and equipment required for the construction process.

4.16 Resources Scheduling

Resource scheduling refers to the set of actions and methodology used by the project to efficiently assign the resources needed to complete construction activities and tasks, based on the based on the scheduled start and end dates of each activity or task, and resource availability.

4.17 Resources Levelling

Resource levelling is a technique in which start, and finish dates are adjusted based on resource constraints with the goal of balancing demand for resources with the available supply.

4.18 Setting Out

Setting out is the process of establishing the physical positions of the building and/or infrastructure facility, and it's done by transferring pre-computed / designated positions and dimensions from the layout plan to the actual ground via land surveying techniques.

4.19 Construction Management Competencies

Construction management competencies identified in this document are classified as identified in Figure 3.

4.20 Site Possession

Site possession is defined as the permission and process of occupying occupy the project site.

4.21 Stakeholder Management

The systematic identification, analysis, planning and implementation of actions designed to engage and positively influence the stakeholders for the achievement of the construction objectives.

4.22 Site Mobilisation

Site mobilisation refers to the activities that are carried out by the main contractor after the award of the project by the client. It is a stage of the project where the contractor can commence to prepare the project site before the actual construction work can start.

5.0 Occupational Structure

The occupational structure for the Construction Manager in the Building and Construction noted for this document is highlighted in **Table 1**.

Table 1: Occupational Structure of Construction Manager in Building and Construction –Civil Engineering Sub Sector

SECTOR	BUILDING & CONSTRUCTION	
SUB SECTOR	CIVIL ENGINEERING	
AREA	CONSTRUCTION	PROJECT MANAGEMENT
LEVEL 6	CONSTRUCTION PROJECT MANAGER	
LEVEL 5	CONSTRUCTION MANAGER	
LEVEL 4	CONSTRUCTION SITE COORDINATOR	CONSTRUCTION PROJECT EXECUTIVE
LEVEL 3	CONSTRUCTION SITE SUPERVISOR	CONSTRUCTION PROJECT INSPECTOR
LEVEL 2	CONSTRUCTION SITE TECHNICIAN / FOREMAN	CONSTRUCTION PROJECT TECHNICIAN
LEVEL 1	CONSTRUCTION TRADESMAN	

6.0 Occupational Area Structure

The occupational area structure for the Construction Manager in the Building and Construction noted for this document is highlighted in **Table 2**.

Table 2: Occupational Area Structure for Construction Project Management in Building and Construction – Sub-Sector of Civil Engineering

SECTOR	BUILDING & CONSTRUCTION
SUB SECTOR	CIVIL ENGINEERING
AREA	CONSTRUCTION
LEVEL 6	CONSTRUCTION PROJECT MANAGEMENT

LEVEL 5	CONSTRUCTION MANAGEMENT
LEVEL 4	CONSTRUCTION PROJECT COORDINATION/ CONSTRUCTION SITE MANAGEMENT
LEVEL 3	CONSTRUCTION PROJECT SUPERVISION
LEVEL 2	SKILL CONSTRUCTION OPERATION
LEVEL 1	

7.0 Competency Levels Definition

The CICS is developed for various occupational areas. Candidates who wish to be certified must be assessed at certain levels to substantiate their competencies. Below is a guideline of each competency level as defined by the Department of Skills Development, Ministry of Human Resources, Malaysia.

Table 3: The Competency Levels in Building and Construction – Sub-Sector of Civil Engineering

Malaysia Skills Certificate Level 1: (Operation Level)	Competent in performing a range of varied work activities, most of which are routine and predictable.
Malaysia Skills Certificate Level 2: (Operation Level)	Competent in performing a significant range of varied work activities, performed in a variety of contexts. Some of the activities are non-routine and require individual responsibility and autonomy.
Malaysia Skills Certificate Level 3: (Supervisory Level)	Competent in performing a broad range of varied work activities, performed in a variety of contexts, most of which are complex and non-routine. This also include taking a considerable amount of responsibility, autonomy and control, and guidance others to perform the tasks.
Malaysia Skills Diploma Level 4: (Executive Level)	Competent in performing a broad range of complex technical or professional work activities which takes place within a variety of contexts with autonomy. This also include in-part taking responsibility over the allocation of resources and work of others.

Malaysia Skills Advanced Diploma Level 5: (Managerial Level)	Competent in performing a range of duties which involves the application of complex techniques within a wide range and often unpredictable circumstances. This include taking significant responsibility for the work of others, allocation of substantial resources and the planning, organising, monitoring and control of the project processes.
Malaysia Skills Degree LEVEL 6: (Strategic Level)	Competent in applying a significant range of fundamental principles and complex technique across a wide and often significant responsibilities for the work of others and for the allocation of substantial resources featured strongly, as do diagnosis, responsible for planning, execution to underpin substantial change or development, and evaluation. as well as exercising broad autonomy and judgment

8.0 Qualification and Certification

8.1 Methods

There are **THREE (3)** methods for a candidate to become a CCCM, namely:

i. **Method 1: Training and Assessment**

Fulfil all fifteen (15) training packages and pass the assessment. The learning method: Lectures, Case Studies, Group Presentations and Tutorials.

ii. **Method 2: Assessment Only**

Undertake written assessment with 120 questions in three (3) hours. Assessment method: Written Knowledge Assessment (KA) and Practical Assessment (PA) Test.

iii. **Method 3: Certification Through Prior Experience and Education**

Attend an interview where the candidate will be assessed on their experience, skills, and knowledge with the realm of construction management competencies underlined in this document. Assessment method: Interview.

The qualification level routes to certification through the selected methods are as follows:

Table 4: Qualification Level

Category	Minimum Qualification Requirement	Minimum Years of Experience in Construction / Related Field		
		Method 1	Method 2	Method 3
1	Registered Professional (Ir., Ar., Sr.)	-	3	5
2	Master's in construction management / related area of construction	3	5	6
3	International Master's in construction management e.g. CPM (UK), CPM (IPMA), & CIOB	3	6	8
4	Bachelor's Degree in construction related area	5	7	10
5	Bachelor's degree not in construction related area	8	10	12
6	Diploma in construction related area	8	10	12
7	Diploma not in construction related area	10	12	15
8	Certificate in construction related area	10	12	15
9	Sijil Kemahiran Malaysia – Construction Site Coordinator (Level 4)	5	7	10

8.3 Certification and Eligibility Requirements

Upon successful assessment, verification and having fulfilled the CIDB certification requirements, candidates shall be awarded a Certified Construction Manager (CCM) certificate.

The assessment must be in accordance with the training and assessment of construction managers according to CIDB training and assessment policy.

9.0 Use of CCM Professional Designation

Individuals certified to have fulfilled the competency requirements of this CICS shall be eligible to use the title **Certified Construction Manager (CCM)** as long as the individual maintains an active certification status. CIDB corporate rules and regulations stipulates that the accredited individuals are authorised to affix the CCM designation in block letters after their name on business cards, personal letterhead, resumes, websites and in their email signature.

Accredited individuals are **NOT ALLOWED** to use the CCM designation in company names, domain names, product names, or any other unauthorised manner.

10.0 Occupational Definition

10.1 Certified Construction Manager (CCM)

A certified Competent Construction Manager (CCM) is the individual who is certified by CIDB to have met the competency standards underlined in this CICS and have qualified through any of the three (3) certification routes highlighted in Section 8.0 of this document.

10.1. He or she is expected to possess adequate management knowledge, skill and ability on the followings:

1. TENDERING MANAGEMENT
2. SITE MOBILISATION MANAGEMENT
3. CONSTRUCTION OBJECTIVES MANAGEMENT:
 - a. PLANNING & IMPLEMENTATION
 - b. CASH FLOW MANAGEMENT
 - c. CONSTRUCTION QUALITY MANAGEMENT
 - d. SAFETY & HEALTH MANAGEMENT
 - e. ENVIRONMENTAL COMPLIANCE REQUIREMENTS MANAGEMENT
4. CONSTRUCTION RESOURCES MANAGEMENT:
 - a. PROJECT PERSONNEL/STAFF MANAGEMENT
 - b. CONSTRUCTION MATERIALS MANAGEMENT
 - c. CONSTRUCTION LABOUR MANAGEMENT
 - d. SUB-CONTRACTORS MANAGEMENT
 - e. PLANT & MACHINERIES MANAGEMENT
5. SUNDRY CONSTRUCTION MANAGEMENT DUTIES:
 - a. SITE OFFICE MANAGEMENT
 - b. CONTRACT ADMINISTRATION
 - c. CONSTRUCTION STAKEHOLDERS MANAGEMENT

6. PROJECT HANDOVER MANAGEMENT:
 - a. PROJECT HANDOVER MANAGEMENT
 - b. DEFECTS LIABILITY PERIOD MANAGEMENT
 - c. FINAL ACCOUNT & PROJECT CLOSEOUT MANAGEMENT

11.0 CCM Occupational Chart

The CCM Occupational Chart showing the structure for the Construction Manager is as shown in **Table 6**.

Table 5: Occupational Chart for CCM

SECTOR	BUILDING & CONSTRUCTION		
SUB SECTOR	CIVIL ENGINEERING		
JOB AREA	CONSTRUCTION PROJECT MANAGEMENT		
CICS TITLE	CONSTRUCTION MANAGER		
JOB LEVEL	FIVE (5)	CICS CODE	

12.0 Job Profile Chart: CCM Duty and Task

The description of the Duties and Tasks that need to be performed in each activity within each project management phase are detailed out in the preceding sections of this document as follows:



CONSTRUCTION PROJECT TENDERING	Evaluate Tender Document		Price and Submit Tender	
1.0	1.01	L5	1.02	L5

CONSTRUCTION SITE MOBILISATION	Administer Project Award		Administer Site Possession		Establish Site Layout Plan		Establish Project Preliminaries	
2.0	2.01	L5	2.02	L5	2.03	L5	2.04	L5

CONSTRUCTION OBJECTIVES MANAGEMENT	Manage Project Planning & Implementation Programme		Manage Construction Cash Flow		Manage Construction Quality		Manage Construction Safety and Health		Manage Construction Environmental Compliance Requirements	
3.0	3.01	L5	3.02	L5	3.03	L5	3.04	L5	3.05	L5

CONSTRUCTION RESOURCES MANAGEMENT	Manage Construction Personnel/Staff		Manage Construction Materials		Manage Construction Labour		Manage Sub-Contractors & Supplier (Including NS, DSC, & NSC)		Manage Plant & Machinery	
4.0	4.01	L5	4.02	L5	4.03	L5	4.04	L5	4.05	L5



SUNDRY CONSTRUCTION MANAGEMENT DUTIES	Manage Site Office		Administer Construction Contract		Manage Construction Stakeholders	
5.0	5.01	L5	5.02	L5	5.03	L5

CONSTRUCTION PROJECT HANDOVER MANAGEMENT	Manage Construction Project Handover		Manage Defect Liability Period (DLP)		Manage Final Account and Project Closeout	
6.0	6.01	L5	6.02	L5	6.03	L5

13.0 Competency Profile Chart: CCPM Competency Unit (CU)

1.0 CONSTRUCTION PROJECT TENDERING

1.01 Evaluate Tender Document

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)				
DUTY NO:	1.0	DUTY:	CONSTRUCTION PROJECT TENDERING	
TASK NO.:	1.01	TASK:	EVALUATE TENDER DOCUMENT	
KEY PROCESSES/CRITERIA		ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/MATERIALS
<p>1.1 Analyse Tender Table Document:</p> <ul style="list-style-type: none"> Analyse Invitation to Tender Conditions for Tendering Tender Period Tender Validity Period Contract Form/Conditions Special Provisions Project Drawings Site Briefing <p>1.2 Evaluate the capability to Tender:</p> <ul style="list-style-type: none"> Financial evaluation Technical evaluation Project experience Financial standing/capability Credit facilities Project staff qualifications & experience Project in hand 		<p>Knowledge in:</p> <ul style="list-style-type: none"> Tender Document Forms of Contract Performance Standards Method Statement & construction methods Project planning & programming Tendering & tender evaluation methods Tender evaluation techniques Cost evaluation Procurement process & documentation. <p>Skills:</p> <ul style="list-style-type: none"> Technical skills: Consultancy capability People management skills: <ul style="list-style-type: none"> Communication using written & oral medium <p>Attitude:</p> <ul style="list-style-type: none"> Ethical Analytical Objective 	<ul style="list-style-type: none"> Tender documents Project drawings Forms of Contract 	

1.02 Tender Pricing and Submission

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)				
DUTY NO:	1.0	DUTY:	CONSTRUCTION PROJECT TENDERING	
TASK NO.:	1.02	TASK:	PRICE AND SUBMIT TENDER	
KEY PROCESSES/CRITERIA		ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/MATERIALS
<p>1.1 Pricing Tenders:</p> <ul style="list-style-type: none"> • Site Investigation to determine site conditions, supply chain, logistics & preliminaries requirements. • Pricing for special provisions • Determine/re-measure/check work quantities in the tender • Materials, sub-contractors, plant & machineries quotations. • Incorporate risk mitigation in tender: <ul style="list-style-type: none"> - Pricing & financing risks - Construction risks - Quality risks - Health & safety risks - Environmental compliance risks • Build up rates for pricing tender • Pricing strategy/adjudication • Payment methods <p>1.2 Preliminary planning and estimating:</p> <ul style="list-style-type: none"> • Preliminary Work Programme • Pre-tender Planning (accessibility, site layout plan, traffic management, temporary works & services. 		<p>Knowledge in:</p> <ul style="list-style-type: none"> • Standard Methods of Measurement (SMM), Malaysian Civil Engineering Standard Method of Measurement (MyCESMM) • Construction contracts • Built-up rates • Labour constants • Tendering methods • Construction methodology & sequence of operation • Construction technology • Statutory requirement <p>Skills:</p> <ul style="list-style-type: none"> • Technical skills: • Tendering process and procedure • People management skills: <ul style="list-style-type: none"> - Communication using written & oral medium <p>Attitude:</p> <ul style="list-style-type: none"> • Diligent • Analytical • Objective 	<ul style="list-style-type: none"> • Submitted Tender Documents • Priced Bill of Quantities (BQ) • Form of Contract • Schedule of Rates • Sub-contract quotations • Materials prices 	<ul style="list-style-type: none"> • MS Project and/or Primavera

2.0 CONSTRUCTION SITE MOBILISATION

2.01 Administer Project Award Process

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)			
DUTY NO:	2.0	DUTY:	CONSTRUCTION SITE MOBILISATION
TASK NO.:	2.01	TASK:	ADMINISTER PROJECT AWARD PROCESS
KEY PROCESSES/CRITERIA	ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/ MATERIALS
<p>1.1 Organise acceptance of Tender Award:</p> <ul style="list-style-type: none"> • Submissions preceding tender award • Tender negotiation strategy <p>1.2 Administer Tender Award Conditions:</p> <ul style="list-style-type: none"> • Insurances • Advance Payment (if applicable) • Bonds • Permits • Local authority requirements and contributions • SOCSO requirements • Licences • CIDB Levy • Foreign workers levy & requirements • Site organisational chart • Construction work program • Sub-Contractor company registration • Site registration/permit 	<p>Knowledge in:</p> <ul style="list-style-type: none"> • Construction contract practice & procedures • Tendering methods • Tender negotiation • Project Programming techniques • Statutory/authorities' requirements <p>Skills:</p> <ul style="list-style-type: none"> • Technical skills: • Contract administration • Negotiation • People management skills: <ul style="list-style-type: none"> - Communication using written, electronic & oral medium <p>Attitude:</p> <ul style="list-style-type: none"> • Diligent • Analytical • Objective 	<ul style="list-style-type: none"> • Letter of Award • Insurances • Levy payments • Authorities contributions • Permits • Site organisation chart • Contract document • Site layout plan 	<ul style="list-style-type: none"> • Filing system (e.g. EDMS, Acone-X, etc.)

2.02 Administer Site Possession

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)			
DUTY NO:	2.0	DUTY:	CONSTRUCTION SITE MOBILISATION
TASK NO.:	2.02	TASK:	ADMINISTER SITE POSSESSION
KEY PROCESSES/CRITERIA	ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/ MATERIALS
<p>1.1 Administer Permits, Fees & Contributions:</p> <ul style="list-style-type: none"> Workers permits, levy & living quarters Authorities contributions and charges <p>1.2 Organise Site Possession Process</p> <ul style="list-style-type: none"> Survey existing site: <ul style="list-style-type: none"> Topography Restrictions Existing structures & services Obstructions Vegetation & soil Access & egress Utility piloting & mapping Site possession procedure: <ul style="list-style-type: none"> Site handover Kick off meeting Site possession documentation Project signboard <p>1.3 Communicate Site Possession Process to Project Implementation Team.</p> <p>1.4 Monitor and Control Site Possession Process.</p>	<p>Knowledge in:</p> <ul style="list-style-type: none"> Insurances procedures Bonds procedures Permit procedures Licences procedures Organisational structure Payment procedure Authorities requirements <p>Skills:</p> <ul style="list-style-type: none"> Technical skills: Consultancy capability & competency assessment People management skills: <ul style="list-style-type: none"> Creating a positive working culture Communication using written & oral medium Team leadership skill Negotiation skill <p>Attitude:</p> <ul style="list-style-type: none"> Diligent Analytical Objective 	<ul style="list-style-type: none"> Letter of Award Insurances Levy payments Authorities contributions Permits Site organisation chart Minutes of Meetings Site layout drawing Survey drawing 	<ul style="list-style-type: none"> Site layout drawing Construction plans & drawings

2.03 Establish Site Layout Plan

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)			
DUTY NO:	2.0	DUTY:	CONSTRUCTION SITE MOBILISATION
TASK NO.:	2.03	TASK:	ESTABLISH SITE LAYOUT PLAN
KEY PROCESSES/CRITERIA	ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/ MATERIALS
<p>1.1 Plan Site Layout:</p> <ul style="list-style-type: none"> • Access, egress & traffic control • Temporary buildings (site office, materials storage/yard, plant and machineries location & maintenance yard, fabrication areas, workers' quarters, canteen, toilets and washing areas, etc.) • Signage, temporary services & security. • Safety & health, environmental control provisions • Dump Site <p>1.2 Setting Out Project Site:</p> <ul style="list-style-type: none"> • Temporary Bench Marks (TBMs) & Baselines & working spaces • Horizontal & vertical controls <p>1.3 Communicate Site Layout Plan to Project Implementation Team & Community Engagement Plan</p> <p>1.4 Monitor and Control Site Layout Establishment.</p>	<p>Knowledge in:</p> <ul style="list-style-type: none"> • Site layout planning & setting out • Method statement • Construction productivity • Reading survey plans/drawings: <ul style="list-style-type: none"> - Platform levels - Lines and levels - Datum levels & benchmarks • Planning standards and requirements • Risk management <p>Skills:</p> <ul style="list-style-type: none"> • Technical skills: • Site surveying • People management skills: <ul style="list-style-type: none"> - Creating a positive working culture - Communication using written, electronic & oral medium - Team leadership skill <p>Attitude:</p> <ul style="list-style-type: none"> • Diligent • Analytical • Objective 	<ul style="list-style-type: none"> • Site plans and drawings • Site surveying report • Site layout drawings 	<ul style="list-style-type: none"> • Survey equipment • Approved building materials

2.04 Establish Project Preliminaries

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)				
DUTY NO:	2.0	DUTY:	CONSTRUCTION SITE MOBILISATION	
TASK NO.:	2.04	TASK:	ESTABLISH PROJECT PRELIMINARIES	
KEY PROCESSES/CRITERIA		ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/ MATERIALS
<p>1.1 Plan the Establishment of Project Preliminaries:</p> <ul style="list-style-type: none"> • The temporary building, plant/equipment and materials storage, and access/egress: <ul style="list-style-type: none"> - Site office, materials storage, plant & equipment yard/storage, workers quarters, canteen, toilets, site access/egress, traffic control & site hoarding • Temporary services: <ul style="list-style-type: none"> - Water supply and sewerage, telecommunication/Internet, electrical supply, lighting, etc. • Permits, licences & insurances • Authorities levies, contributions & charges • Quality inspections and tests • Construction workers welfare provisions: <ul style="list-style-type: none"> - Including construction labour quarters (CLQ) • Construction safety & health provisions: 		<p>Knowledge in:</p> <ul style="list-style-type: none"> • Construction contract conditions • Professional practice • Site layout planning • Authorities requirements • Emergency contact number <p>Skills:</p> <ul style="list-style-type: none"> • Technical skills: • Site planning • People management skills: <ul style="list-style-type: none"> - Creating a positive working culture - Communication using written, electronic & oral medium - Team leadership skill <p>Attitude:</p> <ul style="list-style-type: none"> • Diligent • Analytical • Observant 	<ul style="list-style-type: none"> • Site Layout Plan/Drawings • Document Contract • Evidence/Photos of: <ul style="list-style-type: none"> - Temporary building, - Temporary Services: - Permits, licences & Insurances - Workers quarters & welfare amenities, site safety & environmental compliance requirements - Site office - Site office establishment & operation report - Project signboard • Other deliverable items 	<ul style="list-style-type: none"> • Expert judgment • Camera • Contractor requirement • Authority requirement

<ul style="list-style-type: none"> - Including Emergency Response Team (ERT) • Construction environmental compliance requirements • Site office organisation & operation • Site hoarding • Project signboard • Workers logistic <p>1.2 Organise Project Preliminaries:</p> <ul style="list-style-type: none"> • Temporary building, • Temporary services: • Permits, licences and Insurances • Workers quarters & welfare amenities, site safety, & environmental compliance requirements • Site office establishment & operation • Quality inspections & tests • Site meetings & project monitoring <p>1.3 Communicate Project Preliminaries Installation/Setup Process to Project Implementation Team:</p> <ul style="list-style-type: none"> • Assign responsibilities (who does what, when, & how) <p>1.4 Monitor and Control Establishment of Project preliminaries.</p>	<ul style="list-style-type: none"> • Objective 		
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3.0 CONSTRUCTION OBJECTIVES MANAGEMENT

3.01 Manage Construction Plan & Implementation Programme

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)			
DUTY NO:	3.0	DUTY:	CONSTRUCTION OBJECTIVES MANAGEMENT
TASK NO.:	3.01	TASK:	ESTABLISH PROJECT PLAN & IMPLEMENTATION PROGRAMME
KEY PROCESSES/CRITERIA	ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/ MATERIALS
<p>1.1 Develop Construction Implementation Plan and Programme:</p> <ul style="list-style-type: none"> • Determine Resource Schedules and Levelling • Establish Work Breakdown Structure (WBS) & Programme • Establish the project Method Statement <p>1.2 Establish Construction Progress Monitoring & Control Process:</p> <ul style="list-style-type: none"> • Progress monitoring mechanism <ul style="list-style-type: none"> - Mid-term/short term program • Progress reporting procedure (reports, progress meetings, etc.) • Project re-planning provisions, process & procedures <p>1.3 Organise Construction Implementation:</p> <ul style="list-style-type: none"> • Identify the project stakeholders: <ul style="list-style-type: none"> - Construction management & supervisory staff - Domestic sub-contractors (DC), Nominated Sub-Contractors (NSC) & 	<p>Knowledge in:</p> <ul style="list-style-type: none"> • Construction BQ, drawing, layout, specification • Project Implementation Manual (PIM) • Project scope, dateline • Construction work quantities • Method statement • Productivity • Project Implementation Plans (PIP) • Construction planning & scheduling: <ul style="list-style-type: none"> - Bar/Gantt chart - Network Analysis/Critical Path Method/Lind of Balance - Material management (ordering, delivery, storage, etc.) • Constructability/buildability (Industrialised Building System (IBS), prefabrication, construction systems, etc.) • Building materials, machinery, plant, equipment 	<ul style="list-style-type: none"> • Project plans and schedules • Method Statements • Standard Operating Procedures (SOP) • PIM Documents • Project Implementation Plans (PIP) • Resource Schedules 	<ul style="list-style-type: none"> • Project planning software: <ul style="list-style-type: none"> - Sample BQ - MS Excel, MS Office, Adobe, internet-based, etc. - MS Project, Primavera, CAD, scheduling, estimating, accounting, etc.

<p>suppliers</p> <ul style="list-style-type: none"> - Suppliers, Third Parties, etc. • Establish each project team roles & responsibilities: <ul style="list-style-type: none"> - Project organisation structure - Allocation of duties, tasks & responsibilities • Establish Project Operating Procedure (SOP) • Evaluate the site planning layout: <ul style="list-style-type: none"> - Access & egress, storage, fabrication spaces, plant & machineries yard, working spaces. • Evaluate proposed plant & machineries required. <p>1.4 Communicate Construction Progress Monitoring and Control Process to Project Team :</p> <ul style="list-style-type: none"> • Assign responsibilities (who does what, when, & how) <p>1.5 Monitor & Control Construction Implementation Plan:</p> <ul style="list-style-type: none"> • Project progress reports: <ul style="list-style-type: none"> - Actual vs Planned, critical & non-critical activities, delays, activity 'crashing' - Existing information (existing as-built drawing, utilities, etc.) and drawings - Operation audits - Resource usage & scheduling - Weather report - Variations and extension of time • Project rescheduling & mitigation plans 	<p>Skills:</p> <ul style="list-style-type: none"> • Technical skills: <ul style="list-style-type: none"> - Construction management - Site surveying - Planning & scheduling - Resource scheduling - Job competency assessments • People management skills: <ul style="list-style-type: none"> - Creating positive working culture - Communication using written, electronic & oral medium - Team leadership skill - Negotiation skill <p>Attitude:</p> <ul style="list-style-type: none"> • Diligent • Observant • Analytical • Objective 		
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3.02 Manage Construction Cash Flow

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)			
DUTY NO:	3.0	DUTY:	CONSTRUCTION OBJECTIVES MANAGEMENT
TASK NO.:	3.02	TASK:	MANAGE CONSTRUCTION CASH FLOW
KEY PROCESSES/CRITERIA	ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/ MATERIALS
<p>1.1 Forecast Project Cash Flow:</p> <ul style="list-style-type: none"> • Establish project S-Curve 'Saw-Tooth Diagram' • Establish project cash inflow & outflow pattern: <ul style="list-style-type: none"> - Inflow (claims, financial facilities, service factoring, advance payment, etc.) - Outflow (overheads, authorities charges, materials claims, sub-contractors claims, labour claims, site office administration, financing charges) - Fluctuation & labour law requirements • Impact on delays by NSC /others • Complying with stakeholders' requirement (e.g. Bankers, Local Authorities, and Customs, etc.) • Possible impact of LAD • Costing for possible defects <p>1.2 Evaluate Project Cash Flow::</p> <ul style="list-style-type: none"> • Capital lock-up • Cash flow surplus/deficits 	<p>Knowledge in:</p> <ul style="list-style-type: none"> • Construction programming • Accounting & financing techniques. • Contract administration. • Work process. • Construction costing. • Current construction issues/market impact <p>Skills:</p> <ul style="list-style-type: none"> • Technical skills: <ul style="list-style-type: none"> - Consultancy capability • People management skills: <ul style="list-style-type: none"> - Creating a positive working culture - Communication using written, electronic & oral medium - Team leadership skill <p>Attitude:</p> <ul style="list-style-type: none"> • Ethical • Observant • Analytical • Objective 	<ul style="list-style-type: none"> • Financial & cost records 	-

<ul style="list-style-type: none"> • Financing shortfall periods/duration • Sensitivity analysis • Payback period • Capital financing & financing cost • Contingencies <p>1.3 Establish a Cash Flow Management & Control Process:</p> <ul style="list-style-type: none"> • Payment system to sub-contractors, suppliers etc. • Mapping receipts and payments process (amount, timing, delays, outstanding) • Re-planning cash flow • Implications to project progress • Lessons learnt <p>1.4 Communicate Project Cash Flow Monitoring and Control Process to Project Team :</p> <ul style="list-style-type: none"> • Assign responsibilities (who does what, when & how) <p>1.5 Monitor & Control Project Cash Flow Performance:</p> <ul style="list-style-type: none"> • Project claims • Project payments: <ul style="list-style-type: none"> - Sub-contractors, materials, plant & equipment, overhead, financing charges, fees, etc.) • Use of financial facilities: <ul style="list-style-type: none"> - Overdraft, loans, factoring charges, credit facilities, etc.) • Cash flow audits & re-planning/ adjustment project cash flow 			
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3.03 Manage Construction Quality

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)			
DUTY NO:	3.0	DUTY:	CONSTRUCTION OBJECTIVES MANAGEMENT
TASK NO.:	3.03	TASK:	MANAGE CONSTRUCTION QUALITY
KEY PROCESSES/CRITERIA	ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/ MATERIALS
<p>1.1 Plan Project Quality Management System (QMS):</p> <ul style="list-style-type: none"> Assurance & Quality Control (QA/QC) Policy Statement Establish Quality Risk Register Identify material quality Identify workmanship quality: <ul style="list-style-type: none"> Method statement <p>1.2 Organise the Quality Management System (QMS) Implementation:</p> <ul style="list-style-type: none"> Identify quality management duties/tasks: <ul style="list-style-type: none"> Identify inspection test plan & holdpoint (the person who is responsible) Communicate the quality management responsibilities to the respective project team members <p>1.3 Communicate Project Quality Management System (QMS)</p>	<p>Knowledge in:</p> <ul style="list-style-type: none"> Quality Assurance & Quality Control (QA/QC) Quality Audit Systems Quality Management System (QMS) requirements Process mapping/mind mapping activities Quality Management Plan (QMP) Quality Implement Plan (QIP) Project Quality Plan (PQP) Material specifications Good workmanship & best practices COPQ (Cost of poor quality) Constructability/Buildability <p>Skills:</p> <ul style="list-style-type: none"> Technical skills: <ul style="list-style-type: none"> Developing a Quality Compliance Checklist Review PQP/Document 	<ul style="list-style-type: none"> Quality Assurance and Quality Control (QA/QC) Documents CIS7 PQP Documents QIP Documents QMP Documents 	<ul style="list-style-type: none"> Project Quality Management System ISO9001:2015 Quality Assessment System in Construction (QLASSIC) Quality Compliance Checklist

<p>Implementation Process to Project Team :</p> <ul style="list-style-type: none"> • Assign responsibilities (who does what, when & how) <p>1.4 Monitor & Control Project Quality Management System (QMS) Performance:</p> <ul style="list-style-type: none"> • Evaluation of performance: <ul style="list-style-type: none"> - Supplier - Sub-contractor • Trade work training (if required) • Quality compliance: <ul style="list-style-type: none"> - Tests - Test reports • NCR/CQI • Audit Project Quality Compliance: <ul style="list-style-type: none"> - Quality assessment compliance (QMS Specifications, QCLASSIC, CONQUAS, etc.) 	<ul style="list-style-type: none"> - Motivate/guide project stakeholders/parties towards quality targets - Setting quality target/objectives - Quality coaching/facilitation - Troubleshooting/problem solving <ul style="list-style-type: none"> • People management skills: <ul style="list-style-type: none"> - Creating a positive working relationship & environment - Communication using written, electronic & oral medium - Team leadership skill <p>Attitude:</p> <ul style="list-style-type: none"> • Ethical • Analytical • Objective • Observant 		
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3.04 Manage Construction Safety and Health

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)			
DUTY NO:	3.0	DUTY:	CONSTRUCTION OBJECTIVES MANAGEMENT
TASK NO.:	3.04	TASK:	MANAGE CONSTRUCTION SAFETY AND HEALTH
KEY PROCESSES/CRITERIA	ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/ MATERIALS
<p>1.1 Establish the Safety & Health Management Plan:</p> <ul style="list-style-type: none"> • Safety & health policy • Safety & health risk, & hazard assessment • Identify safety & health resources (depend on the size of the project): <ul style="list-style-type: none"> - Safety & health officer/supervisor - Safety & health committee - Safety & health training, fire drills • Safety & health monitoring & control procedure • Safety & health audit <p>1.2 Organise Safety& Health Implementation:</p> <ul style="list-style-type: none"> • Identify safety & health duties/tasks • Communicate the safety & health responsibilities to the respective project team members • Emergency plan: <ul style="list-style-type: none"> - Evacuation plan - Contact person 	<p>Knowledge in:</p> <ul style="list-style-type: none"> • Building Operations & Works of Engineering Construction (BOWEC) • Hazard Identification, Risk Assessment & Risk Control (IRARC) • Health & Safety Implementation Plan (HISP) • Health & Safety Management System (HSMS) : • Operationalising/structuring Health & Safety Management, & Audit implementation: • Establishing team/ structure/ responsibilities/ deliverables <ul style="list-style-type: none"> - HIRARC implementation framework - Health & safety communication structure - Assigning health & safety responsibilities of different parties 	<ul style="list-style-type: none"> • CIS 10 • BOWEC Documents • HIRARC Documents • HISP Documents • HSMS Documents 	<ul style="list-style-type: none"> • Project Health & Safety Management System • ISO45001 • Safety & Health Assessment System in Construction (SHASSIC) • Health & Safety Compliance Checklist • MS2593:2015 • CIS 25 (Construction Activities Risk Assessment (CARA) Hazard Identification Risk Assessment & Risk Control

<p>1.3 Communicate Project Safety & Health Management Plan Implementation Process to Project Team:</p> <ul style="list-style-type: none"> • Assign responsibilities (who does what, when & how) <p>1.4 Monitor & Control Safety & health Compliance:</p> <ul style="list-style-type: none"> • Safety and health management procedures • Safety & health officer • Safety & health committee • Safety & health performance and achievements: <ul style="list-style-type: none"> - Workforce welfare, welfare facilities & construction labour quarters (CLQ) - Occupational health management - Safety & health reporting and documentation - Hazardous substances - Personal protective equipment - Health & safety work instructions and provision - Project site hazard, risk & harm - Design & construction hazard <p>1.5 Audit Project Safety & Health Compliance:</p> <ul style="list-style-type: none"> • Safety and health compliance assessment (Project safety & health specifications, Safety and Health Assessment System in Construction or SHASSIC, etc.) 	<ul style="list-style-type: none"> - Promoting appreciation of HIRARC (audit, specifications, submission/approval, progress, etc.) <p>Skills:</p> <ul style="list-style-type: none"> • Technical skills: <ul style="list-style-type: none"> - Evaluating/review HIRARC Document - Setting health & safety targets/objectives - Motivate/guide project parties towards quality targets - Health & safety coaching/facilitation • People management skills: <ul style="list-style-type: none"> - Creating a positive working relationship and environment - Communication using written, electronic & oral medium - Team leadership skill - Facilitation/coaching <p>Attitude:</p> <ul style="list-style-type: none"> • Ethical • Analytical • Objective • Observant 		
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3.05 Manage Environmental Compliance Requirements

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)			
DUTY NO:	3.0	DUTY:	CONSTRUCTION OBJECTIVES MANAGEMENT
TASK NO.:	3.05	TASK:	MANAGE CONSTRUCTION ENVIRONMENTAL COMPLIANCE REQUIREMENTS
KEY PROCESSES/CRITERIA	ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/ MATERIALS
<p>1.1 Establish Project Environmental Protection Policy/System:</p> <ul style="list-style-type: none"> • Environmental Protection Policy Statement • Roles of project stakeholders in maintaining project's environmental protection: <ul style="list-style-type: none"> - Identify environmental staff requirement • Environmental related laws • Project Environmental Protection Assessment: <ul style="list-style-type: none"> - Environmental Impact Assessment (EIA) - Environmental risks analysis - Environmental risks mitigation - Environmental Audits (MyCREST, GBI, GreenRE, etc.) - Tests: water, sound, air <p>1.2 Organise Project Environmental Protection Planning Process:</p> <ul style="list-style-type: none"> • Environmental control procedures: 	<p>Knowledge in:</p> <ul style="list-style-type: none"> • Environmental Management System (EMS) • EMS Legal Framework • Environmental Impact Assessment (EIA) • Sustainable built environment and sustainable construction practices • Environmental Management System (EMS) requirements <ul style="list-style-type: none"> - Process mapping/mind mapping activities - Environmental Impact Assessment (EIA) - EMS team/structure - Contents of EMS policy • Environmental Implementation Plan (EIP) <p>Skills:</p> <ul style="list-style-type: none"> • Technical skills: <ul style="list-style-type: none"> - Reviewing HIRARC document 	<ul style="list-style-type: none"> • ISO45001 • CIS 19 • EMS Documents • EIA Reports • EIP Documents 	<ul style="list-style-type: none"> • Project Environmental Management System (EMS) document • MyCREST, Green Building Index (GBI), GreenRE • Environmental compliance requirement checklist

<ul style="list-style-type: none"> - Sediment & erosion control • Environmental protection control procedures: <ul style="list-style-type: none"> - Silt trap maintenance, water discharge <p>1.3 Communicate Project Environmental Protection Planning Process to Project Team :</p> <ul style="list-style-type: none"> • Assign responsibilities (who does what, when & how) <p>1.4 Monitor and report environmental requirement compliance:</p> <ul style="list-style-type: none"> • Environmental implementation control: <ul style="list-style-type: none"> - Land use - Existing site dereliction - Impact towards neighbouring areas (flood, etc.) - Natural habitat destruction - Use of natural resources (water and air) - Pollution emission (water, and air) - Waste - Comfort disturbance - Health and safety - Energy consumption - Environmental work instructions & provisions 	<ul style="list-style-type: none"> - Developing environmental compliance requirement checklist - Setting health and safety targets/objectives <ul style="list-style-type: none"> • People management skills: <ul style="list-style-type: none"> - Creating a positive working relationship and environment - Communication using written, oral and digital medium - Team leadership skill - Motivation - Facilitation/coaching <p>Attitude:</p> <ul style="list-style-type: none"> • Ethical • Analytical • Objective 		
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4.0 CONSTRUCTION RESOURCEMANAGEMENT

4.01 Manage Construction Personnel/Staff

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)				
DUTY NO:	4.0	DUTY:	CONSTRUCTION RESOURCE MANAGEMENT	
TASK NO.:	4.01	TASK:	MANAGE CONSTRUCTION PERSONNEL/STAFF	
KEY PROCESSES/CRITERIA		ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/ MATERIALS
<p>1.1 Establish Staff Requirement Plan:</p> <ul style="list-style-type: none"> • Staff requirement forecasting • Staff appointment, deployment & remuneration. • Staff organisation structure • Staff teams, job scope, roles, duties & responsibility • Salaries, claims & overtime • Staff development & training • Staff welfare provisions (lodging, transport, meals, allowances, leaves/recreation) • Dismissals <p>1.4 Organise Staff Performance Monitoring Process:</p> <ul style="list-style-type: none"> • Work progress monitoring & control • Health and safety monitoring & control • Quality monitoring and control • Environmental compliance monitoring & control • Performance & productivity appraisal 		<p>Knowledge in:</p> <ul style="list-style-type: none"> • Construction planning and scheduling • Labour Laws, Employment Acts & Regulations, staff recruitment process, Human Resource Management (HRM) & productivity <p>Skills:</p> <ul style="list-style-type: none"> • Technical skills: <ul style="list-style-type: none"> - Staff recruitment, gap analysis, competency & productivity assessment • People management skills: <ul style="list-style-type: none"> - Creating a positive working culture - Communication using written, electronic & oral medium - Team leadership skill 	<ul style="list-style-type: none"> • Staff recruitment schedules • Appointment letters • Conditions of employment • Related staff records • Project monitoring reports/documents • References letter • Progress report • Minutes of meetings • Certificate of achievement • Competency certificates • Training records 	

<p>1.5 Communicate Staff Employment Terms & Welfare Provisions to Construction all Project Staff</p>	<ul style="list-style-type: none"> - Conflict management - Motivation <p>Attitude:</p> <ul style="list-style-type: none"> • Diligent • Understanding • Observant • Analytical • Objective 		
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4.02 Manage Construction Materials

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)			
DUTY NO:	4.0	DUTY:	CONSTRUCTION RESOURCE MANAGEMENT
TASK NO.:	4.02	TASK:	MANAGE CONSTRUCTION MATERIALS
KEY PROCESSES/CRITERIA	ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/ MATERIALS
<p>1.1 Plan Materials Requisition:</p> <ul style="list-style-type: none"> • Material Requirement Forecasting <ul style="list-style-type: none"> - Taking off quantities - Specification & samples - Materials requirement schedules <p>1.2 Administer Materials Requisition:</p> <ul style="list-style-type: none"> • Supplier liaison • Economical consideration • Delivery schedules • Materials procurement <ul style="list-style-type: none"> - Quotations - Payment terms - Credit facilities - Transportation - Insurances - Permits/temporary storage <p>1.3 Administer Material Delivery & Storage:</p> <ul style="list-style-type: none"> • Quality checks • Loading & unloading • Storage • Materials inventory 	<p>Knowledge in:</p> <ul style="list-style-type: none"> • Taking off quantities, Standard Methods of Measurements (SMM), and Malaysian Civil Engineering Standard of Measurements (MyCESMM) • Method Statement, construction planning & scheduling, resource scheduling & levelling • Materials quality, standards, specification & tests • Materials storage <p>Skills:</p> <ul style="list-style-type: none"> • Technical skills: <ul style="list-style-type: none"> - Materials procurement & inventory management - Materials scheduling & levelling - Materials usage & monitoring • People management skills: <ul style="list-style-type: none"> - Communication using written, electronic & oral medium 	<ul style="list-style-type: none"> • Bills of Quantities • Schedule of Rates • Materials schedules • Materials Requisition Forms • Purchase Orders • Delivery Orders • Materials inventory records • Materials Invoices • Material claims & payment records • Photos of materials storage • Stock take records 	<ul style="list-style-type: none"> • Associated computer software

<p>1.4 Communicate Materials Management Monitoring and Control Procedures to Project Team:</p> <ul style="list-style-type: none"> • Assign responsibilities (who does what, when & how) • Testing, commissioning and documentation <p>1.5 Monitor Material Usage:</p> <ul style="list-style-type: none"> • Materials storage & protection procedures • Waste management • Stock checks (daily/weekly/monthly) • Usage monitoring • Materials inventory monitoring <p>1.6 Materials Claims & Payments:</p> <ul style="list-style-type: none"> • Materials on-site in project progress payment claim • Invoice payments to suppliers 	<p>- Negotiation skill</p> <p>Attitude:</p> <ul style="list-style-type: none"> • Diligent • Ethical • Analytical • Objective 		
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4.03 Manage Construction Labour

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)			
DUTY NO:	4.0	DUTY:	CONSTRUCTION RESOURCE MANAGEMENT
TASK NO.:	4.03	TASK:	MANAGE CONSTRUCTION LABOUR
KEY PROCESSES/CRITERIA	ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/ MATERIALS
<p>1.1. Plan Labour Requirement & Requisition:</p> <ul style="list-style-type: none"> • Labour requirement forecasting: <ul style="list-style-type: none"> - Taking off quantities - Labour requirement schedules - Types, numbers and competencies <p>1.2 Administer Labour Requisition:</p> <ul style="list-style-type: none"> • Labour sourcing/recruitment – Employment including permits & levies & dismissal. • Labour employment provisions: <ul style="list-style-type: none"> - Remuneration (wages/salaries and overtime) - Health and safety training - Lodging, welfare, food & transportation (if applicable) - Compliance with labour law <p>1.3 Monitor and Control Labour Performance:</p> <ul style="list-style-type: none"> • Performance monitoring • Productivity appraisal <p>1.4 Communicate Labour Management</p>	<p>Knowledge in:</p> <ul style="list-style-type: none"> • Method Statement, construction planning & scheduling, resource scheduling and levelling • Labour management • Employment laws & legislation <p>Skills:</p> <ul style="list-style-type: none"> • Technical skills: <ul style="list-style-type: none"> - Productivity assessment • People management skills: <ul style="list-style-type: none"> - Creating a positive working culture - Communication using written, electronic & oral medium - Team leadership skills - Conflict management - Motivation skills <p>Attitude:</p> <ul style="list-style-type: none"> • Diligent • Ethical • Objective 	<ul style="list-style-type: none"> • Related labour records • Project references • Attendance/ biometric records • Records of levies • Green card CIDB records • Health & history records 	

<p>Monitoring & Control Procedures to Project Team:</p> <ul style="list-style-type: none">• Assign responsibilities (who does what, when and how) <p>1.5 Administer Labour Claims and Payments:</p> <ul style="list-style-type: none">• Salaries/ Wages & Overtime payments• Other associated claims			
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4.04 Manage Sub-Contractors & Supplier (Including NS, DSC, & NSC)

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)				
DUTY NO:	4.0	DUTY:	CONSTRUCTION RESOURCE MANAGEMENT	
TASK NO.:	4.06	TASK:	MANAGE SUB-CONTRACTORS & SUPPLIER (INCLUDING NS, DSC,& NSC)	
KEY PROCESSES/CRITERIA		ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/ MATERIALS
<p>1.1. Plan Sub-Contractor Appointment</p> <ul style="list-style-type: none"> Establish sub-contract work packages/ sub-contract documentation Forecast sub-contractor Requirement Establish labour requirement schedules <p>1.2 Administer Sub-Contractors Appointment:</p> <ul style="list-style-type: none"> Sub-contractor resourcing/quotation Sub-contractor appointment: <ul style="list-style-type: none"> Contract amount and terms Sub-contractor deployment & logistics, Welfare provisions Health & safety training Termination & dismissal <p>1.3 Communicate Sub-Contractors Performance Monitoring and Control Process to Project Team & Sub-Contractors:</p> <ul style="list-style-type: none"> Assign responsibilities (who does what, when & how) 		<p>Knowledge in:</p> <ul style="list-style-type: none"> Sub-contractor employment contracts Employment Laws Sub-contractor scheduling & levelling Sub-contractor appointment and termination/ dismissal Understanding of ADR <p>Skills:</p> <ul style="list-style-type: none"> Technical skills: <ul style="list-style-type: none"> Sub-contractor competency & productivity assessment Sub-contractor team management People management skills: <ul style="list-style-type: none"> Creating a positive working culture Communication using written, electronic and oral medium Team leadership skills Conflict management 	<ul style="list-style-type: none"> Related sub-contractor records Comply with relevant act 	

<p>1.4 Monitor & Control Sub-contractors' Performance:</p> <ul style="list-style-type: none"> • Performance & productivity appraisal • Dispute avoidance, mitigation & resolution <p>1.5 Administer Sub-contractors Claims & Payments</p>	<p>- Motivation skills</p> <p>Attitude:</p> <ul style="list-style-type: none"> • Ethical • Diligent • Analytical • Objective 		
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4.05 Manage Construction Plant & Machineries

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)			
DUTY NO:	4.0	DUTY:	CONSTRUCTION RESOURCE MANAGEMENT
TASK NO.:	4.05	TASK:	MANAGE CONSTRUCTION PLANT & MACHINERIES
KEY PROCESSES/CRITERIA	ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/ MATERIALS
<p>1.1 Plan Plant & Machinery Requirement:</p> <ul style="list-style-type: none"> • Types & quantity • Method Statement • Plant & machineries requisition schedules <p>1.2 Administer Plant & Machineries Requisition:</p> <ul style="list-style-type: none"> • Liaison with plant & machineries suppliers • Plant and Machinery procurement: <ul style="list-style-type: none"> - Quotations & Purchase Order (P.O) - Procurement/payment terms - Transportation & insurances - Delivery schedules - Plant & machineries maintenance - Plant & machineries operator - Permits/temporary storage (if applicable) <p>1.3 Organise Plant & Machineries Delivery, Storage & Maintenance:</p> <ul style="list-style-type: none"> • Delivery Order (D.O), loading & unloading, • Storage, workshop & maintenance <p>1.4 Communicate Plant & Machineries Usage</p>	<p>Knowledge in:</p> <ul style="list-style-type: none"> • Method Statement, construction planning & scheduling, resource scheduling & levelling • Plant & machineries procurement (purchase, lease & rent) • Plant depreciation <p>Skills:</p> <ul style="list-style-type: none"> • Technical skills: <ul style="list-style-type: none"> - Plant & machineries operation - Plant & machineries output assessment skills • People management skills: <ul style="list-style-type: none"> - Creating a positive working culture - Communication using written, electronic & oral medium - Team leadership skill - Negotiation skill <p>Attitude:</p> <ul style="list-style-type: none"> • Diligent 	<ul style="list-style-type: none"> • Related PME records & documents 	

<p>Monitoring & Control Process to Project Team & Sub-Contractors:</p> <ul style="list-style-type: none"> • Assign responsibilities (who does what, when & how) <p>1.5 Monitor Plant & Machineries Usage:</p> <ul style="list-style-type: none"> • Plant & machineries operations records (daily/weekly/monthly) • Check idling times/breakdowns <p>1.6 Plant and Machineries Claims & Payments:</p> <ul style="list-style-type: none"> • Rental and rental associated claims • Instalment payment (purchase) • Maintenance and storage costs • Operator cost • Documentation 	<ul style="list-style-type: none"> • Ethical • Objective 		
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5.0 SUNDRY CONSTRUCTION MANAGEMENT DUTIES

5.01 Manage Site Office

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)				
DUTY NO:	5.0	DUTY:	GENERAL CONSTRUCTION MANAGEMENT DUTY	
TASK NO.:	5.01	TASK:	MANAGE SITE OFFICE	
KEY PROCESSES/CRITERIA		ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/ MATERIALS
<p>1.1 Establish Project's Site Office Administration Procedures:</p> <ul style="list-style-type: none"> • Site office administration: <ul style="list-style-type: none"> - Organisation structure, organisation chart, reporting procedures - Establish Information Technology (IT system) - Office layout & utilities • Office Administration Document & Records Management: <ul style="list-style-type: none"> - Maintain & control all job site and office records, including construction drawings - Filing & correspondences (procurement, delivery orders & schedules, invoices, payment filing index, etc.) - Set up an expediting log & procurement - Identify, disseminate & record appropriate critical project issues - Documenting meetings - Verify all deficiencies & outstanding documents are completed - Office cleaning & upkeep 		<p>Knowledge in:</p> <ul style="list-style-type: none"> • Construction organisation structure • Construction payroll standards and procedures • Construction meetings facilitation • Construction inspections • Blueprint, construction & shop drawings • Clashes in plans, drawings & specifications • Plans, drawings & specifications administration: <ul style="list-style-type: none"> - Identify - Analyse - Check/review - Interpret - Read - Understand - Coordinate 	<ul style="list-style-type: none"> • Minutes of meeting • Relevant submission documents • PQP • EMP • Safety plan • ITP • Progress report • Documentation of organisation chart 	<ul style="list-style-type: none"> • Office and IT equipment • Maintenance tools • Welfare equipment

<ul style="list-style-type: none"> - Safety equipments • Project Correspondence, Document & Records Management: <ul style="list-style-type: none"> - Drawings & contract documents - Minutes of meetings - Resource management records (plant & machineries, labour, materials & subcontractors) - Shop drawings/As-built drawings - Authorities submission & approvals - Project implementation manuals, standard operating procedures (SOP) & method statements - Project correspondences - Architect's or SO Instructions - Authorities submissions & approvals - Permits - Testing & commissioning manuals, records, procedures and warranties, etc. - Project handover procedures & records - Others miscellaneous office administration - Long lead item list <p>1.2 Organise Project's Site Office Administration Procedures:</p> <ul style="list-style-type: none"> • Communicate site office administration procedures to project staff • Assign site office administration responsibilities (who does what, when & how). <p>1.3 Monitor & Control Site Office Administration Procedures:</p> <ul style="list-style-type: none"> • Administration meeting • Project database management system • Allocation for emergency (sick bay/ first aid) 	<ul style="list-style-type: none"> - Work with detailed • Site dairies • Request for Information (RFI) • Logs • Submittal • Daily/weekly construction reports • Photos • Meetings • MS Excel, MS Office, Adobe, internet-based, etc. • AutoCAD <p>Skills:</p> <ul style="list-style-type: none"> • Technical skills: <ul style="list-style-type: none"> • Consultancy capability • Soft skills management: <ul style="list-style-type: none"> - Creating positive working culture - Communication using written & oral medium <p>Attitude:</p> <ul style="list-style-type: none"> • Ethical • Observant • Analytical • Objective 		
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5.02 Administer Construction Contract

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)			
DUTY NO:	5.0	DUTY:	GENERAL CONSTRUCTION MANAGEMENT DUTY
TASK NO.:	5.02	TASK:	ADMINISTER CONSTRUCTION CONTRACT
KEY PROCESSES/CRITERIA	ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/ MATERIALS
<p>1.1 Plan Construction Contracts Administration Procedure:</p> <ul style="list-style-type: none"> • Set up & establish contract administration procedures for all contract provisions: <ul style="list-style-type: none"> - Payments & claims - Extension of Time - Variations Order/ Change order - Determination - Sub-Contracting - Dispute Resolution - Site evaluation & joint measurement - Sampling submission - Program chart • Query list, verbal instructions, review and approve change orders, coordination, liaison of works • Payments, costs & trends • Completion & transfer dates • Change management/variation: <ul style="list-style-type: none"> - Change orders, review, approve & initiating change - Prepare, review & distribute addenda 	<p>Knowledge in:</p> <ul style="list-style-type: none"> • Contract Document: <ul style="list-style-type: none"> - Interpreting contract documents - Contract document drafting • Contracting methods, strategies & project delivery • Payment application & reports • Knowledge and understanding of project specifications: <ul style="list-style-type: none"> - Plans interpretation/blueprint reading/understanding construction & shop drawings - Interpretation of specifications <p>Skills:</p> <ul style="list-style-type: none"> • Technical skills: 	<ul style="list-style-type: none"> • Project references: <ul style="list-style-type: none"> - Workers Attendance list - Progress report (S-curve, progress photographs, machineries, etc.) - Progress claim - Purchase Order (P.O), Delivery Order (D.O records) - IPC (Interim progress claim) - IPO (interim progress order) - Product certificates, catalogues, warranties, etc.) - Company certificate (bank information/company/etc.) - Sample submission - Program chart 	<ul style="list-style-type: none"> • Material on site • Inspection and observation • Variance analysis • Identify alternative • Planning software • Claim software

<p>1.2 Organise Construction Contracts Administration Procedure:</p> <ul style="list-style-type: none"> • Communicate contract administration procedures to project staff • Assign site contract administration duties and responsibilities (who does what, when & how) to project team. <p>1.3 Monitor & Control Contract Performance:</p> <ul style="list-style-type: none"> • Payments & claims • Extension of Time • Variations • Determination • Sub-Contracting • Dispute Resolution • Etc. 	<ul style="list-style-type: none"> • Consultancy capability • Soft skills management: <ul style="list-style-type: none"> - Communication using written & oral medium - Negotiation skill <p>Attitude:</p> <ul style="list-style-type: none"> • Ethical • Observant • Analytical • Objective 		
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5.03 Manage Construction Stakeholders

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)			
DUTY NO:	5.0	DUTY:	GENERAL CONSTRUCTION MANAGEMENT DUTY
TASK NO.:	5.03	TASK:	MANAGE CONSTRUCTION STAKEHOLDERS
KEY PROCESSES/CRITERIA	ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/ MATERIALS
<p>1.1 Establish Public Engagement Procedures for Compliance to Third Parties, Corporate Communication, Community & Other Statutory/Legal Requirements & Request:</p> <ul style="list-style-type: none"> • Authorities (Local Council, BOMBA, Police, Service Providers, Resident's Associations, etc.) • Permits, levies, insurances & other contributions • Information & media centre, heritage management (if applicable) • Corporate Social Responsibility (CSR) events • Emergency Response Team (ERT) <p>1.2 Organise Procedures for Compliance to Third Parties, Community & Other Statutory, Legal Requirements & Requests:</p> <ul style="list-style-type: none"> • communicate procedures for compliance to third parties, community & other statutory, legal 	<p>Knowledge in:</p> <ul style="list-style-type: none"> • Construction law, legislation & legal environment, client & consumer protection law • Associated building codes & regulations • Construction Related Businesses: <ul style="list-style-type: none"> - Sales and commercial: <ul style="list-style-type: none"> ○ Commercial appraisal ○ Construction trade ○ Purchasing practices - Company strategic plan, policies and procedures (identify & enforce company standards when necessary) - Economic analysis of projects & analysis of alternatives: <ul style="list-style-type: none"> ○ Economic analysis ○ Cost/benefit ○ Return on investment ○ Net present value • Construction variation 	<ul style="list-style-type: none"> • Economic analysis report • Related progress reports • Project references • Townhall report • Correspondence register • Risk & disaster management • Corporate Social Responsibility (CSR) reports 	<ul style="list-style-type: none"> • Stakeholder analysis • Notice board • Mobile kiosk • Contingency fund • Risk analysis

<p>requirements & requests to project staff</p> <ul style="list-style-type: none"> • Assign procedures for compliance to third parties, community & other statutory, legal requirements & requests (who does what, when & how) to project team. <p>1.3 Monitor Procedures for Compliance to Third Parties, Community & Other Statutory, Legal Requirements Performance.</p>	<ul style="list-style-type: none"> • MS Excel, MS Office, Adobe, internet-based, etc. • MS Project, Primavera, CAD, scheduling, estimating, accounting, etc. <p>Skills:</p> <ul style="list-style-type: none"> • Technical skills: <ul style="list-style-type: none"> • Consultancy capability • Inspection capability • Soft skills management: <ul style="list-style-type: none"> - Creating a positive working culture - Communication using written & oral medium - Team leadership skill - Negotiation skill <p>Attitude:</p> <ul style="list-style-type: none"> • Ethical • Observant • Analytical • Objective 		
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6.0 CONSTRUCTION PROJECT HANDOVER MANAGEMENT

6.01 Manage Construction Project Handover

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)				
DUTY NO:	6.0	DUTY:	CONSTRUCTION PROJECT HANDOVER MANAGEMENT	
TASK NO.:	6.01	TASK:	MANAGE CONSTRUCTION PROJECT HANDOVER	
KEY PROCESSES/CRITERIA		ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENTS/ MATERIALS
<p>1.1 Plan the Procedures for Project Handover:</p> <ul style="list-style-type: none"> • The control and coordinating project handover procedures: <ul style="list-style-type: none"> - Final permitting inspections - Subcontractor punch list - Owner training/commissioning - Commissioning, testing, balancing of all systems - Post-occupancy evaluation - Rectify deficiencies • Verifying: <ul style="list-style-type: none"> - All guarantees, manuals, and documentation are received - Final accounting - Authorities' certificates and permits - Warranties • Arranging: <ul style="list-style-type: none"> - Accepted and approval of completed facilities - Transfer facility <p>1.2 Organise Procedures for Project Handover:</p> <ul style="list-style-type: none"> • Communicate the procedures for project handover to project staff, team and the related 		<p>Knowledge in:</p> <ul style="list-style-type: none"> • Authorities requirements & Building Codes • Plant and equipment testing & commissioning procedures • Testing & commissioning certificates • Certificate Completion & Compliance (CCC) • Computerized Maintenance Management System (CMMS) • Warranties • Relevant inspections • Relevant building system <p>Skills:</p> <ul style="list-style-type: none"> • Technical skills: <ul style="list-style-type: none"> • Assessment for inspection • Soft skills management: <ul style="list-style-type: none"> - Communication using written & oral medium - Negotiation skill <p>Attitude:</p>	<ul style="list-style-type: none"> • Certificate of Completion & Compliance (CCC) Documents • Computerized Maintenance Management System (CMMS) • documents • Inspection checklist 	

<p>sub-contractors)</p> <ul style="list-style-type: none"> Assign procedures for compliance to third parties, community and other statutory, legal requirements and requests (who does what, when & how) to project team. <p>1.3 Monitor Project Handover Procedure & Performance.</p>	<ul style="list-style-type: none"> Ethical Observant Analytical Objective 		
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6.02 Manage Defects Liability Period (DLP)

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)			
DUTY NO:	6.0	DUTY:	CONSTRUCTION PROJECT HANDOVER MANAGEMENT
TASK NO.:	6.02	TASK:	MANAGE DEFECTS LIABILITY PERIOD (DLP)
KEY PROCESSES/CRITERIA	ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/ MATERIALS
<p>1.1 Plan the Procedures for Project Managing Defects:</p> <ul style="list-style-type: none"> • Certificate of Practical Completion (CPC) • Defects inspection & evaluation • Defect checklist • Instruction to repair (making good): • The period for making good • Inspection of rectified work • Signed off by the Architect/SO • 'Close-out' the rectified work <p>1.2 Organise Procedures for Managing Defects:</p> <ul style="list-style-type: none"> • Communicate the procedures for managing defects to project staff, team and the related sub-contractors) • Assign procedures for defects ratification (who does what, when & how) to project team. <p>1.4 Monitor Defects Management Performance.</p>	<p>Knowledge in:</p> <ul style="list-style-type: none"> • DLP process and procedures • Contractual approach • QLASSIC <p>Skills:</p> <ul style="list-style-type: none"> • Technical skills: <ul style="list-style-type: none"> • Consultancy capability • Quality assessment • Soft skills management: <ul style="list-style-type: none"> - Creating a positive working culture - Communication using written & oral medium <p>Attitude:</p> <ul style="list-style-type: none"> • Ethical • Observant • Analytical • Objective 	<ul style="list-style-type: none"> • DLP reports 	

6.03 Manage Final Account and Project Closeout

OCCUPATION: CERTIFIED CONSTRUCTION MANAGER (LEVEL 5)			
DUTY NO:	6.0	DUTY:	CONSTRUCTION PROJECT HANDOVER MANAGEMENT
TASK NO.:	6.03	TASK:	MANAGE FINAL ACCOUNT AND PROJECT CLOSEOUT
KEY PROCESSES/CRITERIA	ENABLING REQUIREMENTS (KNOWLEDGE, SKILLS, ATTITUDE AND SAFETY)	EVIDENCE GUIDE	TOOLS/EQUIPMENT/ MATERIALS
<p>1.1 Plan the Procedures for Final Account & project Closeout:</p> <ul style="list-style-type: none"> • CPC/ CCC /Penultimate claim • Certificate of Making Good Defects (CMGD) • Ensuring the end of DLP • Final Claim • Final Account • Final Certificate • Payment/release of all claims and balance retention money <p>1.2 Organise Procedures for Managing Final Account & Project Closeout:</p> <ul style="list-style-type: none"> • Communicate the procedures for managing defects to project staff, team & the related sub-contractors) • Assign procedures for defects ratification (who does what, when & how) to project team. <p>1.3 Ensure Project Final Account & Project Closeout.</p>	<p>Knowledge in:</p> <ul style="list-style-type: none"> • Management of claim • Management of account <p>Skills:</p> <ul style="list-style-type: none"> • Technical skills: <ul style="list-style-type: none"> - Consultancy capability • Soft skills management: <ul style="list-style-type: none"> - Communication using written and oral medium - Negotiation skill <p>Attitude:</p> <ul style="list-style-type: none"> • Ethical • Observant • Analytical • Objective 	<ul style="list-style-type: none"> • Construction project relevant certificate 	