











Skills Framework for Built Environment

A Guide to Occupations and Skills

An Initiative of

SKILLSfuture

Contents

About the Skills Framework	1
Singapore's Built Environment Sector: Working Together to BuildSG	2
Key Statistics of Built Environment Sector	3
Transforming the Way we Build	4
Skills in Demand and Desired Attributes	8
Take Your Career Further	10
Realise Your Potential – Take the Next Step Forward	13
Built Environment Career Tracks and Skills Map	
 Architectural Consultancy and Design	18
 Engineering Consultancy and Design	36
 Quantity Surveying	58
 Construction Management (Production)	70
 Construction Management	90
 Project Management	102
 Digital Delivery Management	112
 Facilities Management	122
Overview of Technical Skills and Competencies	145
Overview of Generic Skills and Competencies	156
Supporting Organisations and Acknowledgements	159
Wage Information	160
The Built Environment Cluster	162
Skills Framework for Built Environment: Career Pathways	163

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About the Skills Framework

The Skills Framework is a SkillsFuture initiative developed for the Singapore workforce to promote skills mastery and lifelong learning. Jointly developed by SkillsFuture Singapore, Workforce Singapore, the Building and Construction Authority, together with employers, industry associations, education and training providers, and unions, the Skills Framework for Built Environment provides useful information on:



With the Skills Framework, individuals are equipped to make informed decisions about career choices, as well as take responsibility for skills upgrading and career planning.



Assess Career Interests

- Discover employment opportunities
- Understand career pathways
- Recognise personal attributes required



Prepare for Desired Jobs

- Understand skills and competencies required



Find Avenues to Close Skills Gap

- Identify relevant training programmes to equip oneself with the required skills and competencies
- Participate in on-the-job training opportunities provided by companies



Renew, Upgrade and Deepen Skills

- Plan for career development/transition
- Recognise skills and competencies required for the intended job role
- Identify training programmes to upgrade and deepen skills

Singapore's Built Environment Sector: Working Together to **BuildSG**



All of us live, work and play within the Built Environment. The Built Environment comprises both visible structures such as buildings and invisible infrastructure such as pipes and cabling that enable the connectivity and conveniences of modern life. Multiple stakeholders, including developers, consultants, builders and facility managers, form the backbone of the sector that allows us to thrive within a safe, smart, sustainable and inclusive built environment.



Developers



Consultants



Builders



Facility Managers

The BE sector has played a major role in transforming Singapore into the contemporary city it is today. However, rapid technological advancement, increasing complexity of engineering projects and evolving human needs have provided a strong impetus for industry transformation.

An outcome of close tripartite efforts, the Construction Industry Transformation Map (Construction ITM) was developed to propel a new phase of growth for the sector. It outlines the collective vision of (i) an advanced and integrated sector with widespread adoption of leading technologies, (ii) led by progressive and collaborative firms well-poised to capture business opportunities, and (iii) supported by a skilled and competent workforce, offering good jobs for Singaporeans.

To realise this vision, stakeholders in the BE sector will work hand in hand to:

- Design, operate and maintain our buildings in a more sustainable and efficient through Design for Maintainability, Green Building initiatives and Smart Facilities Management
- Build more productively and digitally through Design for Manufacturing and Assembly (DfMA) and Integrated Digital Delivery (IDD)
- Enhance service delivery and ramp up capability building in firms
- Offer meaningful careers to meet the aspirations of our workforce

Transformation is likely to bring us along the road less travelled, as we seek new and innovative ways to build a future-ready Singapore. The BE sector will remain a mainstay of Singapore's economy, with transformation underway to better equip our BE firms for success and sustainable growth that will in turn translate into exciting career opportunities for Singaporeans.

Key Statistics of Built Environment Sector



The Built Environment sector accounts for approximately **5%** of Singapore's total gross domestic product



Total construction demand of **\$33.5 billion** in 2019



More than **18,000** Built Environment firms

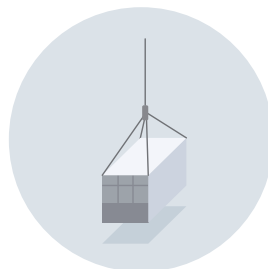


More than **500,000** employees

Targets to Support Transformation Drive



Implement IDD in **40** to **60** projects by 2020



Raise DfMA adoption to **40%** by 2020



Green **80%** of buildings by 2030



Train **20,000** in Building Information Modelling/IDD by 2025



Train **35,000** in DfMA by 2025



Train **25,000** in green building technology by 2025

Transforming the Way we Build

The Built Environment (BE) sector has made good progress since the launch of the Construction ITM and Real Estate ITM. Increasingly, the sector is adopting advanced technologies through digitalisation to integrate work processes and connect stakeholders throughout the entire building lifecycle. To keep ahead of the curve and be future-proof, individuals and businesses must strive to stay at the forefront of technology, and to develop their skills, knowledge and expertise continuously.

INTEGRATED DIGITAL DELIVERY

Integrated Digital Delivery (IDD) aims to fully integrate processes and stakeholders along the value chain from design, fabrication, to assembly on-site, as well as operations and maintenance of buildings when construction has completed through advanced info-communications technology (ICT) and smart technologies.

With IDD, all project stakeholders are able to have a real-time view of construction process as well as access and share information. Such centralised and up-to-date data enables teams to plan better, make faster decisions and ultimately, avoid cost delays and reworks.

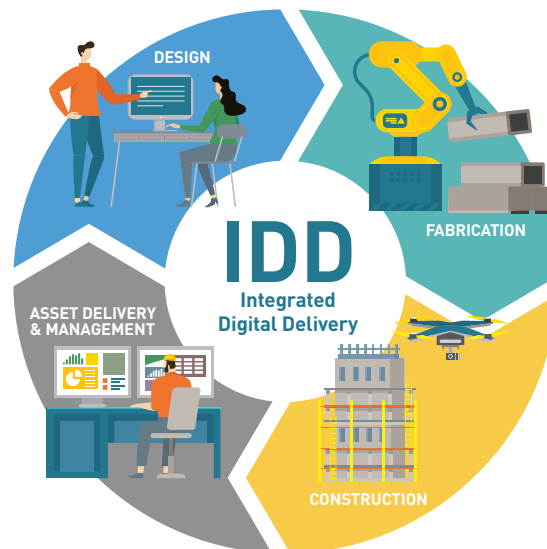
IDD is set to enhance four key areas of the construction process:

Digital Design

Engaging stakeholders to achieve optimised and coordinated design that meets client's, regulatory and downstream requirements.

Digital Asset Delivery & Management

Real time monitoring for operations and maintenance to enhance asset values.



Digital Fabrication

Translating design to standardised components for automating off-site production.

Digital Construction

Just-in-time delivery, installation and monitoring of on-site activities to maximise productivity and minimise rework.

The move to embrace digital technology means making investment not only in the vital hardcore and software tools necessary to embrace a digital future, but also to equip our workforce with the right skills to enhance design and communication.

DESIGN FOR MANUFACTURING AND ASSEMBLY

Design for Manufacturing and Assembly (DfMA) is a game-changing method of construction which involves construction being designed for manufacturing off-site in a controlled environment, before being assembled on-site. It comprises a continuum of technologies and methodologies that promote offsite fabrication. These technologies range from prefabricated components to fully integrated assemblies across the Structural, Architectural, and Mechanical, Electrical and Plumbing (MEP) disciplines.

The DfMA approach is leading the transformation of the the Built Environment sector through leveraging advanced technology, improved quality and precision of construction while reducing the reliance on manpower and ultimately, higher productivity.



Photo credit: Integrated Precast Solutions

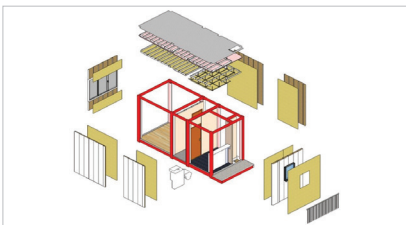
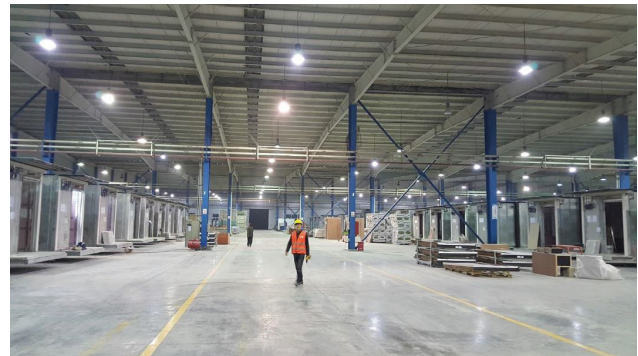


Photo credit: TK Modular

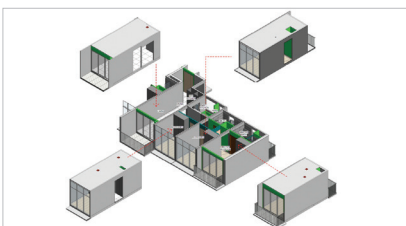


Photo credit: Greyform



Photo credit: Teambuild



Photo credit: Woh Hup



Photo credit: BBR Construction Systems

Design for

Manufacturing
(off-site and automation)

and Assembly
(on-site)

GREEN BUILDINGS

Singapore is a highly urbanised island state, with buildings accounting for over 20% of Singapore's emissions. Hence, this is an important aspect of our transformation--to remake our city to meet the challenges of climate change. Green buildings is an important part of our climate change mitigation strategy, and this is why it is important for the built environment to be designed, constructed and operated as green and sustainably as possible. In 2009, Singapore's Inter-Ministerial Committee on Sustainable Development (IMCSD) set a target to green at least 80% of the buildings' gross floor area (GFA) in Singapore by 2030.



Integrated green buildings strategies in building a greener and more environmentally sustainable Singapore for all

While considerable progress has been made, we can set our sets higher amidst the global call for greater ambition and Singapore's raised commitments under the Long-term Emissions Development Strategy (LEDS) for 2050. In the next wave of Singapore's Green Building movement, the sector will push the boundaries for best-in-class energy performance and cost-effective Super Low Energy (SLE) buildings.

As we transform the sector, downstream facility management and operations should also be executed in an integrated and efficient manner. This will involve Design for Maintainability upstream and downstream adoption of smart FM elements during the building's operations phase.

DESIGN FOR MAINTAINABILITY

Pushing the boundaries of sustainable and high-performance developments makes maintainability increasingly relevant, particularly in terms of minimising costs and resources required for them to function optimally throughout their lifespan. But maintainability cannot be an afterthought; it needs to be triggered early. Design for Maintainability (DfM) is, therefore, the practice of integrating operations and maintenance considerations into project planning and design to achieve ease, safety, and economy of maintenance tasks during the life of a facility. An easy approach to implement DfM is through the F.A.M.E principle, facilitated through design collaboration and technology adoption.

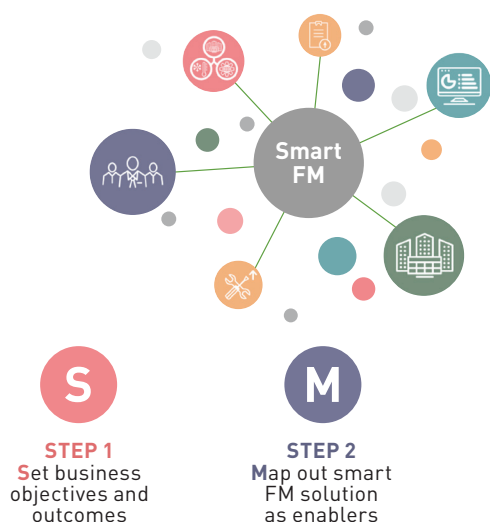
- Forecasting downstream maintenance activities and designing for them accordingly upstream;
- Access for maintenance, requiring designers to institute safe and easy access for maintenance crews;
- Minimising maintenance interventions through selection of durable materials and adoption of appropriate detailing standards;
- Enabling simple maintenance through standardised components for easy and efficient repair and replacement



Access for Maintenance: A building maintenance unit (BMU) allows safe, easy access for maintenance crews; it obviates riskier and more labour-intensive methods, such as scaffolding.

SMART FACILITIES MANAGEMENT

Smart Facilities Management (FM) is about integrating technologies, people and processes to enhance the management of a building's facilities. It complements the industry's efforts to transform, gear towards digitalisation and IDD, and be future-ready.



The adoption of smart FM solutions, for example, remote monitoring, digitalised workflow automation, on-demand energy management, command-and-control security and resource deployment, multi-functional FM robotics, Building Information Modelling (BIM) for FM, digital twin simulation and modelling etc, can streamline work processes, drive behavioural change, enhance property asset values and improve the productivity and service delivery of facilities management over the life-cycle of buildings and even districts.

The 5-step SMART process under the 'Guide to Smart FM' aims to help building owners and FM managers embark on their Smart FM journey

¹ Download the Guide to Smart FM at <http://go.gov.sg/guide-to-smart-fm>, and infographics on the 5-step SMART process at <https://go.gov.sg/bca-fm-5-step-smart-process>.

Skills in Demand

As the sector continues to transform, these are some examples of skills in demand which consist of existing skills augmented by emerging skills. Those seeking successful careers in the Built Environment sector can set themselves apart by acquiring these skills in demand.

Emerging Trends



Collaborative Contracting

Encourages collaborative working between industry stakeholders from the moment they tender for projects. Encourages dispute avoidance, prevention and early dispute resolution



Design for Maintainability (DfM)

The practice of integrating operations and maintenance considerations into project planning and design



Design for Manufacturing and Assembly (DfMA)

A construction approach where most of the prefabrication and construction of building components are completed off-site within a controlled factory environment, before final assembly on-site.



Green Building and Sustainability

It is the practice to incorporate sustainability in the Built Environment from the start of project conceptualisation and design, to construction and maintenance



Integrated Digital Delivery (IDD)

The use of digital technologies to integrate work-processes and connect stakeholders working on the same project throughout the construction and building life-cycle



Smart Facilities Management (FM)

The integration of systems, processes, technologies and personnel to enhance the management of building facilities

Emerging Skills

- Engineering Contract Management
- Contract Administration and Management
- Dispute Resolution

- 3D Modelling
- Artificial Intelligence Application
- Design for Maintainability
- Life Cycle Costing and Analysis
- Integrated Digital Delivery
- Smart Facilities Management

- Additive Manufacturing
- Building Information Modelling (BIM) Application
- Design for Manufacturing and Assembly
- Integrated Digital Delivery Applications
- Internet of Things Management

- Biophilic Design in Built Environment
- Design for Maintainability
- Green Building Strategy Implementation
- Green Facilities Management
- Placemaking and Programming of Spaces
- Smart Facilities Management

- Augmented Reality Application
- Artificial Intelligence Application
- Building Information Modelling (BIM) Application
- Common Data Environment Management
- Computational Design
- Data Collection and Analysis
- Integrated Digital Delivery Application

- Artificial Intelligence Application
- Building Management System Implementation and Control
- Design for Maintainability
- Green Building Strategy Implementation
- Smart Facilities Management

Desired Attributes

The Built Environment sector is innovating for the future and promises exciting and rewarding careers for those who want to build on their ambition. If you have the following attributes, a career in the Built Environment will offer you excellent opportunities to play a part in building Singapore's future.



Analytical

Enjoy analysing things from all angles and thinking of ways to make things work better



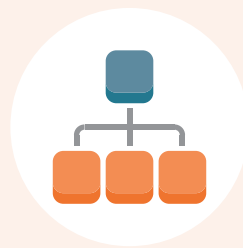
Inquisitive

Always staying on top of developments in the industry and keeping abreast of new research and ideas



Safety Conscious

Recognise hazards, safety risks and unsafe practices at the workplace in relation to product/services, placing safety as a top priority for self and others



Structured and Systematic

Like to work with numbers, records, or machines in an orderly manner, and in compliance with procedures, regulatory and safety requirements



Team Player

Understand that each person is part of a larger team working together to bring about the success of any project

Take Your Career Further

A skilled workforce is essential in sustaining Singapore's global competitiveness as a leader in the Built Environment sector. There is a wide range of initiatives and schemes available to both individuals and employers to promote skills acquisition and upgrading.



FOR INDIVIDUALS

SkillsFuture Study Awards for Built Environment Sector

Provides funding support to Singaporeans in the development and deepening of specialist skills in areas of demand in the BE sector.

(<https://programmes.myskillsfuture.sg/Portal/ProgramListing.aspx?Source=SFSA>)

iBuildSG Club

An initiative under the BuildSG movement to promote interest and raise greater awareness of the Built Environment (BE) sector and its careers; highlighting the industry's transformation efforts in the area of Design for Manufacturing and Assembly (DfMA), Integrated Digital Delivery (IDD) and Green Buildings. Students ranging from secondary schools to Institutes of Higher Learning are nominated by their schools to learn together through learning journeys, workshops and competitions.

(<https://www.buildingcareers.gov.sg/Programmes-Initiatives/iBuildSG-Club>)

MySkillsFuture

MySkillsFuture is a one-stop online portal that enables Singaporeans to chart their own career and lifelong learning pathways, through access to industry information and tools to search for training programmes. It is an integrated platform for users to access resources related to jobs, education and skills training.

(<http://myskillsfuture.sg/>)

SkillsFuture Mid-Career Enhanced Subsidy

Singaporeans aged 40 and above will receive higher subsidies of up to 90% of course fees for over 8,000 SSG-supported courses and at least 90% of programme cost for Ministry of Education-subsidised full-time and part-time courses.

(<https://www.skillsfuture.sg/enhancedsubsidy>)

SkillsFuture Credit

This initiative aims to encourage individuals to take ownership of skills development and lifelong learning. All Singaporeans aged 25 and above will receive an opening credit of \$500 which will not expire.

(<https://www.skillsfuture.sg/Credit>)



FOR INDIVIDUALS AND EMPLOYERS

iBuildSG Workforce Training and Upgrading

For Built Environment firms' upgrading of workers' skills via co-funding of selected skills assessment and training courses.

(<https://www1.bca.gov.sg/buildsg/buildsg-transformation-fund/workforce-training-and-upgrading-scheme-wtu>)

iBuildSG Scholarship and Sponsorship Programmes

A collaboration between BCA and industry firms to offer scholarships and sponsorships to students of high caliber and in-service personnel pursuing full-time and part-time built environment related courses at local universities, polytechnics, ITE or BCA Academy.

(<https://www1.bca.gov.sg/public/students/ibuildsg-scholarship-and-sponsorship-programmes>)

iBuildSG BE Formation Programme

A 4-day pre-internship programme to better prepare students for internship, to deepen their understanding on the rationale and importance of industry transformation and to convey a higher sense of purpose and infuse excitement in joining the built environment sector.

(<https://www.bca.gov.sg/Professionals/manpower/BE-Formation-Programme.html>)

iBuildSG LEAD Framework

A robust leadership development framework to build a core group of committed and forward-thinking industry leaders to drive sustained industry transformation efforts. The framework recognises and celebrates 4 levels of leaderships specific to the built environment sector, across the entire construction value chain: (i) Future Leaders (ii) Young Leaders (iii) Senior Leaders (iv) Distinguished Leaders.

(<https://bca.gov.sg/professionals/lead.html>)

SkillsFuture Enterprise Credit (SFEC)

The SkillsFuture Enterprise Credit (SFEC) encourages employers to invest in enterprise transformation and capabilities of their employees. Eligible employers will receive a one-off \$10,000 credit to cover up 90% of out-of-pocket expenses on qualifying costs for supportable initiatives, over and above the support levels of existing schemes.

(<https://www.skillsfuture.sg/sfec>)

SkillsFuture Work-Study Programmes

The SkillsFuture Work-Study Programmes offer various work-study opportunities for Singaporeans to gain a head start in careers related to their discipline of study. These include Work-Study Diploma, Work-Study Post-Diploma, Work-Study Degree, Work-Study Post-Graduate and Work-Study Certificate.

(<https://www.skillsfuture.sg/workstudy>)

SkillsFuture for Digital Workplace

SkillsFuture for Digital Workplace is structured as a 2-day training programme that will equip Singaporeans with basic digital skills required at the workplace and in their daily lives.

(<https://www.skillsfuture.sg/digitalworkplace>)



FOR INDIVIDUALS AND EMPLOYERS

Capability Transfer Programme (CTP)

The Capability Transfer Programme (CTP) supports companies / associations / professional bodies in speeding up the transfer of global capabilities into Singapore. This initiative will complement existing capability development programmes administered by other Government agencies, to plug capability gaps quickly in today's fast-changing global market.

(www.wsg.gov.sg/programmes-and-initiatives/capability-transfer-programme.html)

Career Matching Services

WSG's Careers Connect and NTUC's e2i centres offer a suite of customised career matching services to guide individuals to search for a job and achieve their longer term career aspirations. Careers Connect and e2i centres also work closely with employers by recommending suitable jobseekers and advising on strategies for successful recruitment.

(www.wsg.gov.sg/career-services)

P-Max Programme

P-Max programme aims to help SMEs to better recruit, train, manage and retain their newly-hired Professionals, Managers, Executives and Technicians (PMETs). The programme encourages SMEs in the adoption of progressive human resource practices and helps to place job-seeking PMETs into suitable SME jobs.

(www.wsg.gov.sg/programmes-and-initiatives/p-max-employer.html)

Professional Conversion Programme (PCP) for Built Environment

PCPs are career conversion programmes targeted to help mid-career Professionals, Managers, Executives and Technicians (PMETs), undergo skills conversion and move into new occupations or sectors that have good prospects. Examples of PCPs in the Built Environment sector include those for Building Information Modelling (BIM) Professionals, Design for Manufacturing and Assembly (DfMA) Professionals as well as Lift Specialists.

(www.wsg.gov.sg/programmes-and-initiatives/professionalconversion-programmes-individuals.html)

Support for Job Redesign under Productivity Solutions Grant (PSG-JR)

Support for Job Redesign under the Productivity Solutions Grant (PSG-JR) provides enterprises with funding support (up to \$30,000 per company) to work with pre-approved consultants to spur business transformation through redesigning work processes and making jobs more productive and attractive for employees.

(www.wsg.gov.sg/productivity-solutions-grant-job-redesign.html)

MyCareersFuture.sg

Individuals and employers can access MyCareersFuture, an online job matching portal, to search and apply for jobs and to post jobs and search for candidates respectively.

(www.mycareersfuture.gov.sg)

Initiatives and Schemes by:

■ SkillsFuture Singapore

■ Workforce Singapore

■ Building and Construction Authority

For more information on the initiatives and schemes, please visit
skillsfuture.sg | wsg.gov.sg | bca.gov.sg

Realise Your Potential - Take the Next Step Forward

Now that you have some idea of what a career in the Built Environment sector can offer and the available government initiatives and schemes to support your career goals, you are ready to take the next step!

NEW ENTRANTS

Use the Skills Framework for Built Environment to find out about careers in the sector



UNDERSTAND the career pathways and the attributes needed to take on a particular occupation in the sector



UNDERSTAND the skills and competencies required for the job role and identify relevant training programmes to help you become a qualified personnel

EXPERIENCED PROFESSIONALS

Use the Skills Framework for Built Environment to find out how to chart your career



PLAN for vertical career progression within the track that you are currently in, or for lateral career moves across the tracks



IDENTIFY skill gaps that you are lacking in your current or next job role

IDENTIFY relevant training programmes

TRAINING PROGRAMMES

Embark on your career in Built Environment

Programmes that equip new entrants with skills and knowledge for specific occupations in the sector at their respective entry levels

Programmes for experienced employees or individuals to broaden or deepen specific skills and knowledge for various occupations in the sector

Lifelong learning for skills deepening to meet existing and emerging demands of the sector

For a list of training programmes available for the Built Environment sector, please visit: www.skillsfuture.sg/skills-framework

Notes

Built Environment Career Tracks and Skills Map



ARCHITECTURAL CONSULTANCY AND DESIGN

The Architectural Consultancy and Design track involves the design of buildings and working with the clients to ensure that the building design meets the project objective from the planning to handover phases.

This includes overseeing the tendering process, providing specifications and detailed drawings on architectural works, and supervising the construction of buildings and other physical landscapes.

PAGE 18-35



ENGINEERING CONSULTANCY AND DESIGN

The Engineering Consultancy and Design track involves the design work for building construction in Civil and Structural, Mechanical, or Electrical engineering specialisations.

This includes conducting feasibility studies to inform the design development, participating in the tendering process, and reviewing the work of contractors and subcontracts against design plans.

PAGE 36-57



QUANTITY SURVEYING

The Quantity Surveying track involves the development of project's cost, budget and adherence to contractual terms. Quantity Surveyors advise on construction costs and contracts from the project planning to the construction phases, drive cost planning and controls by analysing measurements, verifying claims, and establishing payment regimes.

This includes producing the Bills of Quantities. It is supported by competencies in life-cycle costing and analysis, and measurement of building and construction works.

PAGE 58-69



CONSTRUCTION MANAGEMENT (PRODUCTION)

The Construction Management (Production) track involves the production of building modules completed with internal finishes, fixtures and fittings. Production is carried out in an off-site production facility, before the constructed modules are delivered to and installed on-site.

This includes prefabrication, steel fabrication and mechanical, electrical and plumbing works. It is supported by competencies in construction technologies, production planning and scheduling, and value engineering.

PAGE 70-89



CONSTRUCTION MANAGEMENT

The Construction Management track involves ensuring all the construction works are completed in a safe, timely and cost effective manner.

This is achieved by close coordination with the client, subcontractors, and authorities to drive the construction and completion of the project in accordance with the design plan.

This includes validating the construction, installation and assembly of components, equipment and systems, and on-site construction activities.

PAGE 90-101



PROJECT MANAGEMENT

The Project Management track involves overseeing all whole construction phases, drives the progress of the project and mitigates risks across the entire project lifecycle. Project Managers coordinate with contractors, subcontractors and authorities to ensure that the project is completed in accordance to quality expectations in a timely and cost-effective manner.

This includes supervision and organisation of project activities, and is supported by competencies in project management and project risk management.

PAGE 102-111



DIGITAL DELIVERY MANAGEMENT

The Digital Delivery Management track involves the adoption and implementation of up-to-date emerging digital technologies to optimise operations and processes, improve collaboration and enhance work efficiency.

This includes the provision of training to uplift digital capabilities, development of digital solutions and redesign of workflows. It is supported by competencies in 3D modelling, mixed reality, data analytics and process re-engineering.

PAGE 112-121



FACILITIES MANAGEMENT

The Facilities Management track involves the effective maintenance and operations of buildings and facilities to perform at optimal level. It leverages integrated digital delivery and building technologies to provide a safe, healthy, clean and conducive environment for people to work, live and play in.

This includes integration of multi-disciplinary expertise, systems and processes to enhance Facilities Management in the built environment.

PAGE 122-142

Notes

Architectural Consultancy and Design

JOB ROLES	PAGE
Architectural Associate	20
Architect	22
Senior Architect	24
Architectural Assistant	27
Architectural Executive	28
Senior Architectural Executive	30
Associate Director (Architecture)/Principal Architectural Executive	32
Director/Managing Director/Chief Executive/General Manager	143



Architectural Executive

Norhasnani Bte Azman
SAA Architects Pte. Ltd.

STEPPING UP TO THE CHALLENGE

With over eight years of experience and high-profile projects, Norhasnani Bte Azman is on the road to becoming a registered architect. After graduating with a Diploma in Interior Design, Norhasnani interned with Singapore Polytechnic's architecture department and found her calling. "I realised that architecture is better suited for my interest and working style," she explains.

This natural compatibility helped Norhasnani weather a steep learning curve. The internship was intensive and she provided background support by colouring layouts and drafting plans. Making the smallest mistake meant starting over. This training instilled in her qualities an architect must develop: diligence, organisation, good time management, and the willingness to learn constantly.

During this internship, her experience grew from designing four-walled rooms to bringing the biggest shopping mall in the world to life in Dubai. Her roles expanded: once accustomed to toiling in background production, she has now become a frontline project member.

To excel as an Architectural Executive, Norhasnani steps up her people skills. Before leading a client presentation, she pores over every detail and seeks her consultants' input.

"I am currently learning a lot of technical details or construction methods from experienced colleagues. If there are issues I am unfamiliar with, I will ask questions or read up on it. Never stop learning because one can never know too much."

"Not only do you need to manage and guide your juniors, you also need to manage your seniors, the client, the contractor and consultants to make sure everyone is performing their individual roles and are aligned in our shared goals."

This learning process has its ups and downs, but she has never stopped giving her best. "I am currently learning a lot of technical details or construction methods from experienced colleagues. If there are issues I am unfamiliar with, I will ask questions or read up on it. Never stop learning because one can never know too much."

What's next on her agenda? Having built her career as an architect through years of hard work, she hopes to ace the next milestone: passing her Architect's Qualified Practitioner's Exam. Beyond growing professionally, she intends to use her skills to give back to the community.

In her quest to refine her capabilities, she believes having the Skills Framework will aid her in charting the path forward.

The Skills Framework for the Built Environment encourages continuous learning to build up skills and competencies. It allows one to widen their knowledge of various positions in the industry, such as an architect, a project manager, or a contractor.

Architectural Associate

JOB ROLE DESCRIPTION

The Architectural Associate supports the pre-design and design work based on project requirements. He/She assists in gathering the necessary documents and information for contracting and procurement. He tracks construction work to ensure alignment with design objectives.

He is able to work independently as well as in a team. He is able to work under pressure to meet tight deadlines. He is detail-oriented and possess interpersonal skills. He is usually based in the office.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage feasibility and design phase	<ul style="list-style-type: none"> • Support pre-design work and feasibility studies • Support the design processes to meet project objectives • Support the preparation of reports on the outcomes of site and zoning analyses • Assist to design to the client's briefs, budgets, timelines and in compliance with authorities' requirements • Assist in the development of designs taking into consideration technical aspects, relevant codes and standards, and good practice • Support design developments and resolution of technical issues • Document the designs for pricing purposes 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Fire Safety Act • Workplace Safety and Health (WSH) Act
Oversee documentation and tendering	<ul style="list-style-type: none"> • Draft project schedules • Administer a standard forms of contracts • Gather necessary information for work approvals based on regulatory and legislative prerequisites • Conduct a procurement exercises 	
Manage construction and completion	<ul style="list-style-type: none"> • Take notes during site meetings • Check designs for compliance with authorities' requirements • Check that construction work satisfies the design intent 	
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Gather information on continuous improvement opportunities to architectural services • Support the use of the latest built environment trends and technologies • Adopt environmental sustainability and green building methods 	
		Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

Architectural Associate

TECHNICAL SKILLS AND COMPETENCIES			
3D Modelling	Level 2	Design Standards and Specification	Level 3
Aesthetic and Design Sensibility	Level 3	Design Thinking Practice	Level 3
Architecture Design	Level 2	Façade Design	Level 2
Augmented Reality Application	Level 1	Green Building Strategy Implementation	Level 3
Building Information Modelling Application	Level 3	Integrated Digital Delivery Application	Level 2
Construction Technology	Level 2	Material Studies and Production Processes	Level 3
Continuous Improvement Management	Level 2	Placemaking and Programming of Spaces	Level 4
Critical Thinking	Level 3	Procurement Coordination and Policy Development	Level 3
Data Collection and Analysis	Level 3	Project Feasibility Assessment	Level 4
Design for Maintainability	Level 1	Regulatory Submission and Clearance	Level 3
Design for Manufacturing and Assembly	Level 2	Stakeholder Management	Level 3
Design Sketching	Level 3	Technical Drawing	Level 3
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Digital Literacy	Basic	Transdisciplinary Thinking	Basic
Teamwork	Basic	Computational Thinking	Basic
Communication	Basic		

Architect

JOB ROLE DESCRIPTION

The Architect is responsible for the pre-design and design phases of the projects. He/She is involved with the design development and documentation. He provides relevant inputs during the construction and completion phases. He develops the overall project schedules and obtains necessary approvals for the works. He reviews designs and ensures they comply with relevant regulatory requirements. He assists with business development for prospective clients. He is also involved with continuous improvement initiatives and incorporating environmental sustainability best practices. He is able to perform the responsibilities of a Qualified Person in accordance with the Building Control Act.

He is creative with good aesthetic judgement and analytical. He possesses sound industry knowledge. He is organised and enjoys problem solving. He takes a holistic approach to design and works with relevant specialists as needed. He is able to communicate with different stakeholders both verbally and in written reports effectively. He is usually based in the office and is required to be on-site occasionally.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage feasibility and design phase	<ul style="list-style-type: none"> • Conduct pre-design work and feasibility studies • Manage the design processes to meet project objectives • Conduct site and zoning analyses • Define designs to the client's briefs, budgets, timelines and in compliance with the authorities' requirements • Develop designs taking into consideration technical aspects, relevant codes and standards, and good practices • Provide inputs to resolve design developments and technical issues taking materials into consideration • Review the designs for pricing purposes • Deliver design presentations 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Fire Safety Act • Workplace Safety and Health (WSH) Act
Oversee documentation and tendering	<ul style="list-style-type: none"> • Develop the overall project schedule • Administer any building contract • Obtain necessary work approvals based on regulatory and legislative prerequisites to conduct site visits • Advise on appropriate procurement methods and selection of type of building contract to meet project objectives 	
Manage construction and completion	<ul style="list-style-type: none"> • Conduct regular reviews of site meeting outcomes • Ensure that designs and construction comply with authorities' requirements • Facilitate the construction of the designs by the builders • Manage handover of projects 	
Manage people and organisational functions	<ul style="list-style-type: none"> • Lead teams by planning work activities and manpower allocation for project delivery • Manage communication among the project teams and other relevant parties • Perform on-the-job coaching • Track team productivity • Maintain ethical business practices • Ascertain budgets, programme and other project objectives • Research prospective clients' needs for business development opportunities 	

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Drive continuous improvement initiatives	<ul style="list-style-type: none">• Propose continuous improvement initiatives to architectural services• Propose opportunities to use latest built environment trends and technologies• Manage risks in alignment with organisation’s risk management framework• Propose the use of environmental sustainability and green building methods	Note: Performance Expectations are non-exhaustive and subject to prevailing regulations
FOR ARCHITECT IN CONTRACTOR FIRMS		
Manage drawings	<ul style="list-style-type: none">• Develop shop drawings• Develop as-built drawings	

TECHNICAL SKILLS AND COMPETENCIES

3D Modelling	Level 3	Dispute Resolution	Level 4
Aesthetic and Design Sensibility	Level 3	Façade Design	Level 3
Architecture Design	Level 3	Green Building Strategy Implementation	Level 4
Augmented Reality Application	Level 2	Integrated Digital Delivery Application	Level 3
Building Information Modelling Application	Level 3	Material Studies and Production Processes	Level 3
Construction Technology	Level 3	People Management	Level 3
Continuous Improvement Management	Level 3	Placemaking and Programming of Spaces	Level 4
Contract Administration and Management	Level 3	Procurement Coordination and Policy Development	Level 4
Critical Thinking	Level 4	Project Feasibility Assessment	Level 4
Cultural, Heritage and Socio-economic Sensitivity for Design	Level 3	Project Management	Level 3
Data Collection and Analysis	Level 4	Project Risk Management	Level 3
Design for Maintainability	Level 2	Regulatory Submission and Clearance	Level 4
Design for Manufacturing and Assembly	Level 4	Site Assessment and Analysis	Level 3
Design for Safety	Level 3	Stakeholder Management	Level 4
Design Sketching	Level 4	Technical Drawing	Level 3
Design Standards and Specification	Level 3	Technical Presentation	Level 4
Design Thinking Practice	Level 4	Technology Application	Level 3

GENERIC SKILLS AND COMPETENCIES (TOP 5)

Creative Thinking	Intermediate	Decision Making	Intermediate
Problem Solving	Intermediate	Service Orientation	Intermediate
Communication	Intermediate		

Senior Architect

JOB ROLE DESCRIPTION

The Senior Architect is responsible for reviewing pre-design and design phases of the projects. He/She provides direction on the design development and documentation processes. He reviews contracts and procurement methods. He reviews the overall project schedule. He reviews designs and ensures they comply with relevant regulatory requirements. He develops relationships with clients for business development opportunities. He implements continuous improvement initiatives and drives the incorporation of environmental sustainability best practices. He may be expected to perform the responsibilities of a Qualified Person in accordance with the Building Control Act.

He possesses strong analytical and management skills. He is able to lead the team in delivery of the projects and is able to resolve issues that arise throughout the projects. He is collaborative and able to think strategically on how best to work with others and specialists. He is usually based in the office and is required to be on-site occasionally.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage feasibility and design phase	<ul style="list-style-type: none"> • Review the outcomes of pre-design work and feasibility studies • Drive the design processes to meet project objectives • Review the outcomes of site and zoning analyses for verification of compliance with relevant zoning codes • Review designs to the client's briefs, budgets, timelines and in compliance with the authorities' requirements • Review designs taking into consideration technical aspects, relevant codes and standards, and good practices • Resolve design developments and technical issues taking materials into consideration • Validate the designs for pricing purposes • Deliver design presentations 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Fire Safety Act • Workplace Safety and Health (WSH) Act
Oversee documentation and tendering	<ul style="list-style-type: none"> • Review project schedules for adherence to project requirements and goals • Review contract administration • Review contractors' and subcontractors' work against project requirements for compliance with regulatory and legislative prerequisites • Review procurement methods and selected building contracts in alignment with project objectives 	
Manage construction and completion	<ul style="list-style-type: none"> • Attend milestone meetings • Identify when engagement of specialists are required • Operationalise processes to ensure that designs and construction comply with authorities' requirements • Review the construction of the designs by the builders • Oversee handover of projects 	
Manage people and organisational functions	<ul style="list-style-type: none"> • Re-prioritise work activities and manpower allocation to mitigate delays in project delivery • Drive collaboration between project teams and other relevant parties • Identify recruitment needs and areas for technical and business management training and development • Monitor achievement of performance metrics • Monitor financial health of daily operations • Develop relationships with prospective clients for business development opportunities 	

Senior Architect

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Evaluate recommendations to improve architectural services • Implement latest built environment trends and technologies according to organisation's strategic direction • Conduct cost-benefit analyses on implementation of new technologies • Analyse viability of proposed continuous improvement initiatives and drive changes • Develop risk management plans and risk controls in alignment with organisation's risk management framework • Drive implementation of environmental sustainability and green building strategies 	
APPLICABLE TO PROJECT ARCHITECT IN CONTRACTOR FIRMS		Note: Performance Expectations are non-exhaustive and subject to prevailing regulations
Manage drawings	<ul style="list-style-type: none"> • Develop shop drawings • Develop as-built drawings 	

TECHNICAL SKILLS AND COMPETENCIES

3D Modelling	Level 4	Dispute Resolution	Level 4
Aesthetic and Design Sensibility	Level 4	Façade Design	Level 4
Architecture Design	Level 4	Green Building Strategy Implementation	Level 5
Augmented Reality Application	Level 3	Integrated Digital Delivery Application	Level 4
Building Information Modelling Application	Level 4	Material Studies and Production Processes	Level 4
Business Development	Level 4	People Management	Level 4
Construction Technology	Level 4	Placemaking and Programming of Spaces	Level 5
Continuous Improvement Management	Level 4	Procurement Coordination and Policy Development	Level 5
Contract Administration and Management	Level 4	Project Feasibility Assessment	Level 5
Critical Thinking	Level 4	Project Management	Level 4
Cultural, Heritage and Socio-economic Sensitivity for Design	Level 4	Project Risk Management	Level 4
Data Collection and Analysis	Level 5	Regulatory Submission and Clearance	Level 4
Design for Maintainability	Level 3	Site Assessment and Analysis	Level 4
Design for Manufacturing and Assembly	Level 4	Stakeholder Management	Level 5
Design for Safety	Level 5	Technical Drawing	Level 4
Design Sketching	Level 5	Technical Presentation	Level 4
Design Standards and Specification	Level 4	Technology Application	Level 4
Design Thinking Practice	Level 5	Technology Scanning	Level 4

Senior Architect

GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Leadership	Intermediate	Communication	Advanced
Decision Making	Advanced	Interpersonal Skills	Advanced
Teamwork	Advanced		

Architectural Assistant

JOB ROLE DESCRIPTION

The Architectural Assistant supports the execution of the pre-design and design work by assisting with the analysis of data. He/She uses digital tools and platforms as well as data from computational models to assist with the pre-design and design phases. He also assists with the documentation phases by gathering the relevant information.

He is technologically savvy. He is analytical and detail oriented. He is able to work under pressure to meet tight deadlines. He is usually based in the office.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage feasibility and design phase	<ul style="list-style-type: none"> Analyse data obtained from site analyses Assist in the development of computational designs using digital tools and platforms Identify appropriate materials for application to projects Maintain design databases and documentation 	In accordance with: <ul style="list-style-type: none"> Building Control Act Fire Safety Act Workplace Safety and Health (WSH) Act
Oversee documentation and tendering	<ul style="list-style-type: none"> Administer standard forms of contracts Gather necessary information for work approvals based on regulatory and legislative prerequisites Conduct procurement exercises Analyse performance of buildings against computational designs 	
Drive continuous improvement initiatives	<ul style="list-style-type: none"> Gather information on continuous improvement opportunities for architectural services Support the use of the latest built environment trends and technologies Adopt environmental sustainability and green building methods 	

Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

TECHNICAL SKILLS AND COMPETENCIES

3D Modelling	Level 2	Ethical Climate	Level 3
Aesthetic and Design Sensibility	Level 3	Façade Design	Level 2
Augmented Reality Application	Level 1	Integrated Digital Delivery Application	Level 2
Building Information Modelling Application	Level 3	Lighting Design Optimisation	Level 2
Computational Design	Level 2	Natural Ventilation Design	Level 2
Construction Technology	Level 2	Placemaking and Programming of Spaces	Level 4
Continuous Improvement Management	Level 2	Procurement Coordination and Policy Development	Level 3
Critical Thinking	Level 3	Project Feasibility Assessment	Level 4
Design for Maintainability	Level 1	Regulatory Submission and Clearance	Level 3
Design for Manufacturing and Assembly	Level 2	Stakeholder Management	Level 3
Design for Safety	Level 2	Technical Drawing	Level 3
Design Thinking Practice	Level 3		

GENERIC SKILLS AND COMPETENCIES (TOP 5)

Digital Literacy	Basic	Transdisciplinary Thinking	Basic
Teamwork	Basic	Interpersonal Skills	Basic
Virtual Collaboration	Basic		

Architectural Executive

JOB ROLE DESCRIPTION

The Architectural Executive is responsible for reviewing data during the feasibility and design phases. He/She is involved with developing computational models. He provides advice on procurement methods to meet objectives. He collaborates with others and communicates with relevant teams as necessary. He continually looks for improvement opportunities. He also looks for opportunities to incorporate the latest industry trends into his work.

He is analytical, technologically savvy and is able to use the latest digital tools in the course of his work. He is able to communicate with different stakeholders effectively. He is usually based in the office and is required to be on-site occasionally.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage feasibility and design phase	<ul style="list-style-type: none"> • Review data obtained from site analyses • Develop computational designs using digital tools and platforms • Provide inputs and alternatives on construction and build materials based on material analyses • Analyse design databases and documentation 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Fire Safety Act • Workplace Safety and Health (WSH) Act
Oversee documentation and tendering	<ul style="list-style-type: none"> • Administer any building contracts • Obtain necessary work and statutory approvals based on regulatory and legislative prerequisites • Advise on appropriate procurement methods and selection of types of building contracts to meet project objectives • Validate performance of building against computational design 	
Manage people and organisational functions	<ul style="list-style-type: none"> • Lead teams by planning work activities and manpower allocation for project delivery • Manage communication among the project teams and other relevant parties • Perform on-the-job coaching • Track team productivity • Maintain ethical business practices • Ascertain budgets, programme and other project objectives 	
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Propose continuous improvement initiatives to architectural services • Propose opportunities to use latest built environment trends and technologies • Manage risks in alignment with organisation's risk management framework • Propose the use of environmental sustainability and green building methods 	
		Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

Architectural Executive

TECHNICAL SKILLS AND COMPETENCIES			
3D Modelling	Level 3	Façade Design	Level 3
Aesthetic and Design Sensibility	Level 3	Integrated Digital Delivery Application	Level 3
Augmented Reality Application	Level 2	Lighting Design Optimisation	Level 3
Biophilic Design in Built Environment	Level 4	Natural Ventilation Design	Level 3
Building Information Modelling Application	Level 3	Placemaking and Programming of Spaces	Level 4
Computational Design	Level 3	Procurement Coordination and Policy Development	Level 4
Construction Technology	Level 3	Project Feasibility Assessment	Level 4
Continuous Improvement Management	Level 3	Project Management	Level 3
Critical Thinking	Level 4	Project Risk Management	Level 3
Design for Maintainability	Level 2	Regulatory Submission and Clearance	Level 4
Design for Manufacturing and Assembly	Level 4	Stakeholder Management	Level 3
Design for Safety	Level 3	Technical Drawing	Level 3
Design Thinking Practice	Level 4	Technical Presentation	Level 4
Ethical Climate	Level 4	Technology Application	Level 3
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Creative Thinking	Intermediate	Service Orientation	Intermediate
Computational Thinking	Basic	Leadership	Basic
Communication	Intermediate		

Senior Architectural Executive

JOB ROLE DESCRIPTION

The Senior Architectural Executive is responsible for reviewing and validating data during the pre-design and design phases of the projects. He/She uses digital tools to help align designs with the client's briefs. He participates in contract administration and helps to establish procurement methods. He also evaluates performance against computational designs. He maintains abreast of the latest industry trends and opportunities to drive continuous improvement initiatives.

He is technologically savvy and is constantly seeking to incorporate technology into the design processes. He is a forward thinker and possess tenacity to pursue new ideas. He has strong management skills. He is able to lead the teams in delivery of the project and able to resolve issues as they arise. He is analytical and collaborative. He is usually based in the office and is required to be on-site occasionally.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage feasibility and design phase	<ul style="list-style-type: none"> • Determine relevancy of data from site analyses for application to the projects • Review designs to the client's briefs, budgets, timelines and in compliance with the authorities' requirements • Review computational designs using digital tools and platforms • Validate the use of materials for projects based on material analyses • Validate design databases and documentation 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Fire Safety Act • Workplace Safety and Health (WSH) Act
Oversee documentation and tendering	<ul style="list-style-type: none"> • Review contract administration • Review contractors' and subcontractors' work against project requirements for compliance with regulatory and legislative prerequisites • Review procurement methods and selected building contracts in alignment with project objectives • Evaluate performance of buildings against parametric designs 	
Manage people and organisational functions	<ul style="list-style-type: none"> • Re-prioritise work activities and manpower allocation to mitigate delays in project delivery • Drive collaboration between project teams and other relevant parties • Identify recruitment needs and areas for technical and business management training and development • Monitor achievement of performance metrics • Monitor financial health of daily operations 	
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Evaluate recommendations to improve architectural services • Implement latest built environment trends and technologies according to organisation's strategic direction • Conduct cost-benefit analyses on implementation of new technologies • Analyse viability of proposed continuous improvement initiatives and drive changes • Develop risk management plans and risk controls in alignment with organisation's risk management framework • Drive implementation of environmental sustainability and green building strategies 	
		Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

Senior Architectural Executive

TECHNICAL SKILLS AND COMPETENCIES			
3D Modelling	Level 4	Integrated Digital Delivery Application	Level 4
Aesthetic and Design Sensibility	Level 4	Lighting Design Optimisation	Level 4
Augmented Reality Application	Level 3	Natural Ventilation Design	Level 4
Biophilic Design in Built Environment	Level 5	People Management	Level 4
Building Information Modelling Application	Level 4	Placemaking and Programming of Spaces	Level 5
Computational Design	Level 4	Procurement Coordination and Policy Development	Level 5
Construction Technology	Level 4	Project Feasibility Assessment	Level 5
Continuous Improvement Management	Level 4	Project Management	Level 4
Critical Thinking	Level 4	Project Risk Management	Level 4
Design for Maintainability	Level 3	Regulatory Submission and Clearance	Level 4
Design for Manufacturing and Assembly	Level 4	Stakeholder Management	Level 4
Design for Safety	Level 4	Technical Drawing	Level 4
Design Thinking Practice	Level 5	Technical Presentation	Level 4
Ethical Climate	Level 5	Technology Application	Level 4
Façade Design	Level 4	Technology Scanning	Level 4
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Creative Thinking	Advanced	Interpersonal Skills	Intermediate
Decision Making	Intermediate	Problem Solving	Intermediate
Teamwork	Advanced		

Associate Director (Architecture)/ Principal Architectural Executive

JOB ROLE DESCRIPTION

The Associate Director (Architecture)/Principal Architectural Executive is responsible for driving the pre-design and design development phases to ensure alignment with client's requirements and organisational standards. He/She drives the development of project schedules. He oversees contract administration and the performance of contractors and subcontractors. He may be expected to perform the responsibilities of a Qualified Person in accordance with the Building Control Act.

He possesses excellent relationship building and leadership skills. He is strategic and remains abreast of the industry's best practices and trends. He is able to multi-task in a fast paced environment. He is resilient and able to promote a collaborative environment that incorporates new and emerging technologies. He is usually based in the office and is required to be on-site occasionally.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage feasibility and design phase	<ul style="list-style-type: none"> • Endorse the outcomes of pre-design work and feasibility studies • Endorse the design processes to meet project objectives • Establish procedures to ensure compliance with relevant zoning codes • Provide subject matter expertise on designs in alignment with the client's briefs, budgets, timelines and in compliance with the authorities' requirements • Sign-off on designs to verify compliance with relevant codes and standards • Develop the organisation's processes and procedures to resolve design developments and technical issues taking material quality and standards into consideration • Establish organisation's policies and procedures for record keeping and documentation • Facilitate design presentations discussions 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Fire Safety Act • Workplace Safety and Health (WSH) Act
Oversee documentation and tendering	<ul style="list-style-type: none"> • Endorse project schedules • Oversee contract administration • Verify compliance of contractors and subcontractors in alignment with statutory, regulatory and legislative prerequisites • Establish procurement methods and processes for selection of types of building contracts • Develop strategies for evaluation of buildings against parametric designs 	
Manage construction and completion	<ul style="list-style-type: none"> • Oversee progress of construction in alignment with project schedules • Drive collaboration with specialists • Establish processes for evaluating designs and construction compliance with authorities' requirements • Drive synergies between construction by the builders and the designs • Define organisation policies and procedures for handover of projects 	

Associate Director (Architecture)/ Principal Architectural Executive

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage people and organisational functions	<ul style="list-style-type: none"> • Formulate strategies to optimise project staffing and acquisition of project team members • Establish a culture of collaboration between internal and external parties • Drive talent recruitment and development initiatives for the departments in alignment with organisational strategy • Drive departments' performance to achieve organisational goals • Manage the practices' financial inflow and outflow against allocated budgets and forecasts • Establish strategic business development objectives 	<p>Note: Performance Expectations are non-exhaustive and subject to prevailing regulations</p>
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Endorse recommendations on improvements to architectural services • Lead the adoption of latest built environment trends and technologies • Evaluate benefits, trade-offs and impact of new technologies • Drive a culture of continuous improvement to obtain time, cost and quality improvements • Validate risk management plans and risk controls to ensure compliance with organisation's risk management framework • Keep abreast of latest developments of built environment trends and technologies 	

TECHNICAL SKILLS AND COMPETENCIES

3D Modelling	Level 5	Dispute Resolution	Level 5
Aesthetic and Design Sensibility	Level 5	Façade Design	Level 5
Architecture Design	Level 5	Green Building Strategy Implementation	Level 6
Building Information Modelling Application	Level 5	Integrated Digital Delivery Application	Level 5
Business Development	Level 5	Material Studies and Production Processes	Level 5
Competitive Business Strategy	Level 5	People Management	Level 5
Construction Technology	Level 5	Placemaking and Programming of Spaces	Level 5
Continuous Improvement Management	Level 5	Procurement Coordination and Policy Development	Level 5
Contract Administration and Management	Level 5	Project Feasibility Assessment	Level 5
Critical Thinking	Level 5	Project Management	Level 5
Cultural, Heritage and Socio-economic Sensitivity for Design	Level 5	Project Risk Management	Level 5
Data Collection and Analysis	Level 5	Regulatory Submission and Clearance	Level 5
Design for Maintainability	Level 4	Site Assessment and Analysis	Level 5
Design for Manufacturing and Assembly	Level 5	Stakeholder Management	Level 6
Design for Safety	Level 5	Technical Drawing	Level 5
Design Standards and Specification	Level 5	Technical Presentation	Level 5
Design Thinking Practice	Level 6	Technology Scanning	Level 5
Design Sketching	Level 5		

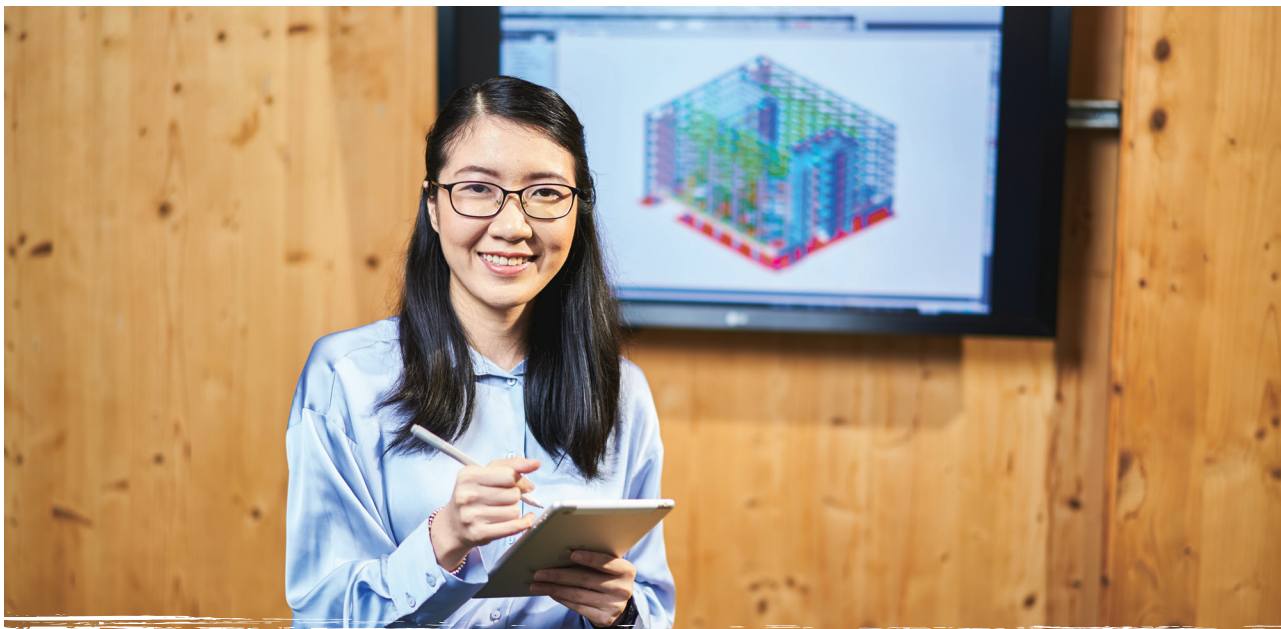
Associate Director (Architecture)/ Principal Architectural Executive

GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Leadership	Advanced	Resource Management	Advanced
Decision Making	Advanced	Problem Solving	Advanced
Teamwork	Advanced		

Notes

Engineering Consultancy and Design

JOB ROLES	PAGE
Assistant Civil and Structural Engineer/Technical Executive (Civil and Structural Engineering)	38
Civil and Structural Engineer	40
Senior Civil and Structural Engineer	42
Associate Director (Civil and Structural Engineering)/Principal Civil and Structural Engineer	44
Assistant Mechanical Engineer/Assistant Electrical Engineer/Technical Executive (Mechanical Engineering)/Technical Executive (Electrical Engineering)	46
Mechanical Engineer/Electrical Engineer	48
Senior Mechanical Engineer/Senior Electrical Engineer	51
Associate Director (Mechanical Engineering/Electrical Engineering)/Principal Mechanical Engineer/Principal Electrical Engineer	54
Director/Managing Director/Chief Executive/General Manager	143



Executive Engineer

Teoh Pei Ling
ECAS Consultants

MAKING EVERY EXPERIENCE COUNT

The joy of building something tangible inspired Pei Ling to build her career in civil and structural engineering.

An Executive Engineer at ECAS Consultants, she feels immense satisfaction when a project comes together. “The real sense of accomplishment comes when you witness the process from a barren piece of land being excavated, columns and beams being hoisted, to facades and finishes being installed.”

Four years after entering the industry, she is proud of what she has achieved. “My director believes that we should be exposed to a range of projects, and I’m glad to be involved this way. Public housing developments have household shelters and multi-storey carparks. Schools have indoor sports halls. These structures require different considerations and compliance when designing.”

Although she is young, she is determined to take every opportunity to grow. “At the start, I focused on developing my foundation in design work. Under the guidance of seniors who would provide preliminary framings for the structures, I would run design checks and help with parts of each project. Now, I manage my own projects and attend meetings. I have to learn to collaborate and interact with other project team members as well.”

“The real sense of accomplishment comes when you witness the process from a barren piece of land being excavated, columns and beams being hoisted, to facades and finishes being installed.”

Pei Ling relishes the opportunity to learn something new from challenging projects. One example was a Pre-fabricated Pre-finished Volumetric Construction (PPVC) project involving irregularly-shaped models that proved challenging during the modelling stage. Despite these obstacles, she managed to bring the project to the finishing line as the engineer-in-charge.

When she found her skills lacking, she took the initiative to upskill herself. “Three years ago, I took a Master’s degree in civil engineering to broaden my knowledge.

“Willingness to learn is very important as every project is unique and they all have their own challenges,” she says.

For her next career milestone, Pei Ling hopes to gain more site experience by being more involved in project construction while keeping an eye on new construction technologies. The Skills Framework will be a valuable source of information to keep her abreast of the emerging skills and guide her in her career development journey as a design engineer.

“The Skills Framework outlines the career tracks and progression pathways which provide guidance on our career advancement and upgrading plans,” she says.

Assistant Civil and Structural Engineer/Technical Executive (Civil and Structural Engineering)

JOB ROLE DESCRIPTION

The Assistant Civil and Structural Engineer/Technical Executive (Civil and Structural Engineering) supports planning and development of projects and assists in the development of engineering designs based on project requirements, from conceptual to schematic and detailed designs. He/She assists in the designing and coordination of design models. He also executes risk assessments to identify risks associated with the projects.

He is meticulous and highly detail-oriented. He possesses good knowledge in civil and structural practices, is analytical and has good problem-solving skills. He is required to work both in office and at project sites.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Define project scope and requirements	<ul style="list-style-type: none"> • Support feasibility studies • Support solutions development based on feasibility studies • Support identification of potential project risks • Gather requirements for project scope 	In accordance with: <ul style="list-style-type: none"> • Resident Engineer Accreditation • Resident Technical Engineer Accreditation • Building Control Act • Fire Safety Act • Workplace Safety and Health (WSH) Act
Drive design development	<ul style="list-style-type: none"> • Assist in the development of conceptual designs based on project requirements • Assist in development of schematic designs • Assist in structural loads and stresses calculations • Support development of detailed designs based on technical feasibility and alignment with project requirements • Develop engineering analysis models based on design specifications to avoid any design and engineering conflicts • Assist in preparation of legislative submissions for all project stages • Adopt environmental sustainability and green building methods 	
Drive tendering processes	<ul style="list-style-type: none"> • Gather information for estimates of project costs and resources • Assist in the preparation of project schedules, resource requirements and project success metrics • Assist in preparation of tender and contractual terms 	
Oversee project execution	<ul style="list-style-type: none"> • Liaise with contractors and subcontractors for matters related to execution of project designs* • Support site work coordination while complying with safety requirements* • Assist in the execution of testing and commissioning processes for successful project handovers • Compile defect reports • Assist in development as-built designs 	

Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

Assistant Civil and Structural Engineer/Technical Executive (Civil and Structural Engineering)

TECHNICAL SKILLS AND COMPETENCIES			
3D Modelling	Level 2	Ethical Climate	Level 3
Building Information Modelling Application	Level 3	Green Building Strategy Implementation	Level 2
Computational Design	Level 2	Integrated Digital Delivery Application	Level 2
Construction Technology	Level 2	Quality System Management	Level 2
Data Collection and Analysis	Level 3	Regulatory Submission and Clearance	Level 3
Design for Maintainability	Level 2	Structural Testing	Level 2
Design for Manufacturing and Assembly	Level 3	Technical Writing	Level 2
Design for Safety	Level 2	Technology Application	Level 2
Engineering Contract Management	Level 3	Workplace Safety and Health Framework Development and Implementation	Level 2
Engineering Drawing Interpretation and Management	Level 2		
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Teamwork	Basic	Interpersonal Skills	Basic
Digital Literacy	Basic	Sense Making	Basic
Problem Solving	Basic		

Civil and Structural Engineer

JOB ROLE DESCRIPTION

The Civil and Structural Engineer manages planning and development of projects. He/She develops engineering designs based on project requirements, from conceptual to schematic and detailed designs. He conducts project assessments and is able to provide feasible and creative solutions based on the assessment results. He participates in the tendering processes and monitors the work of contractors and subcontractors. He plans the team's manpower allocation and provides on-the-job coaching to junior staff.

He is meticulous and highly detail-orientated. He is well versed in civil and structural engineering practices. He is analytical, has excellent problem-solving skills, and also possesses strong interpersonal skills essential for engagement with internal and external stakeholders. He is required to work both in office and at project sites.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Define project scope and requirements	<ul style="list-style-type: none"> • Conduct feasibility studies • Propose solutions to relevant stakeholders based on feasibility studies • Compile risks associated with the project • Define project scope and requirements 	In accordance with: <ul style="list-style-type: none"> • Resident Engineer Accreditation • Resident Technical Engineer Accreditation • Building Control Act • Fire Safety Act • Workplace Safety and Health (WSH) Act
Drive design development	<ul style="list-style-type: none"> • Develop conceptual designs based on project requirements • Develop schematic designs • Perform structural loads and stresses calculations • Develop detailed designs based on technical feasibility and alignment with project requirements • Analyse engineering analysis models based on design specifications to avoid any design and engineering conflicts • Develop legislative submissions for all project stages • Propose the use of environmental sustainability and green building methods 	
Drive tendering processes	<ul style="list-style-type: none"> • Develop quantitative estimates for project costs and resources with technical experts • Develop project schedules, resource requirements and project success metrics • Prepare tender and contractual terms • Conduct pre-qualification and assessments for tender selection 	
Oversee project execution	<ul style="list-style-type: none"> • Monitor the execution and quality of contractors' and subcontractors' work* • Supervise site works ensuring compliance with safety requirements* • Perform testing and commissioning for successful project handovers • Liaise with contractors to resolve the defects • Develop as-built designs 	
Manage people and organisational function	<ul style="list-style-type: none"> • Plan work activities and manpower allocation for project delivery • Perform on-the-job coaching • Track work progress • Research prospective clients' needs for business development opportunities • Liaise with relevant stakeholders to resolve variations and liquidated damages 	
		Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

* Where applicable, these Key Tasks may be performed in accordance with the Resident Engineer Registration or Resident Technical Engineer Registration

The information contained in this document serves as a guide.

Civil and Structural Engineer

TECHNICAL SKILLS AND COMPETENCIES			
3D Modelling	Level 3	Green Building Strategy Implementation	Level 3
Building Information Modelling Application	Level 3	Integrated Digital Delivery Application	Level 3
Business Negotiation	Level 3	Manpower Planning	Level 3
Civil and Structural Engineering Management	Level 4	Material Studies and Production Processes	Level 3
Computational Design	Level 2	People Management	Level 3
Construction Technology	Level 3	Project Feasibility Assessment	Level 4
Continuous Improvement Management	Level 3	Project Management	Level 3
Critical Thinking	Level 3	Project Risk Management	Level 3
Cultural, Heritage and Socio-economic Sensitivity for Design	Level 3	Quality System Management	Level 3
Data Collection and Analysis	Level 3	Regulatory Submission and Clearance	Level 3
Design for Maintainability	Level 3	Site Assessment and Analysis	Level 3
Design for Manufacturing and Assembly	Level 4	Stakeholder Management	Level 3
Design for Safety	Level 3	Structural Testing	Level 3
Design Thinking Practice	Level 3	Technical Inspection	Level 3
Dispute Resolution	Level 4	Technical Presentation	Level 4
Engineering Contract Management	Level 3	Technical Writing	Level 2
Engineering Drawing Interpretation and Management	Level 3	Technology Application	Level 3
Ethical Climate	Level 4	Workplace Safety and Health Framework Development and Implementation	Level 3
Geotechnical Engineering Management	Level 4		
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Teamwork	Intermediate	Lifelong Learning	Intermediate
Digital Literacy	Intermediate	Computational Thinking	Intermediate
Problem Solving	Intermediate		

Senior Civil and Structural Engineer

JOB ROLE DESCRIPTION

The Senior Civil and Structural Engineer drives the overall execution of projects based on project requirements. He/She reviews designs, specifications, calculations and other submittals. He oversees the project assessment phases. He ensures the designs and models developed are in accordance to project requirements. He leads the tendering processes. He manages a team of engineers and ensures continuous performance improvement. He may also be expected to perform the responsibilities of a Qualified Person in accordance with the Building Control Act.

He possesses excellent analytical, problem-solving and decision-making skills. He is adept in civil and structural practices and is skilled in project management. He possesses leadership skills and is an effective communicator. He is required to work both in office and at project sites.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Define project scope and requirements	<ul style="list-style-type: none"> Review the outcomes of feasibility studies Review the proposed solutions Develop risk management plans and risk controls Review project scope and requirements in alignment with relevant stakeholder objectives 	In accordance with: <ul style="list-style-type: none"> Professional Engineers Act Resident Engineer Accreditation Resident Technical Engineer Accreditation Building Control Act Fire Safety Act Workplace Safety and Health (WSH) Act
Drive design development	<ul style="list-style-type: none"> Review conceptual designs based on project requirements Review schematic designs for project viability Review structural loads and stresses calculations Review detailed designs based on technical feasibility and alignment with project requirements Review engineering analysis models for design and engineering conflicts to determine the impact on timeframe for completion Review legislative submissions for all project stages Drive implementation of environmental sustainability and green building strategies 	
Drive tendering processes	<ul style="list-style-type: none"> Review quantitative estimates for project costs and resources with technical experts Review project schedules, resource requirements and project success metrics Review contractual and tender terms in alignment with requirements and negotiated terms Review contractors' and subcontractors' tender bids 	
Oversee project execution	<ul style="list-style-type: none"> Review contractors' and subcontractors' work against project requirements and quality standards* Review the results of testing and commissioning for successful project handovers Review the defect resolutions Review as-built designs for accuracy 	

* Where applicable, these Key Tasks may be performed in accordance with the Resident Engineer Registration or Resident Technical Engineer Registration

The information contained in this document serves as a guide.

Senior Civil and Structural Engineer

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage people and organisational function	<ul style="list-style-type: none"> • Re-prioritise work activities and manpower allocation to mitigate delays in project delivery • Identify recruitment needs and areas for technical and business management training and development • Monitor achievement of key project milestones • Monitor financial health of daily operations • Develop relationships with prospective clients for business development opportunities • Review resolution of variations and liquidated damages 	<p>Note: Performance Expectations are non-exhaustive and subject to prevailing regulations</p>

TECHNICAL SKILLS AND COMPETENCIES

3D Modelling	Level 4	Integrated Digital Delivery Application	Level 4
Building Information Modelling Application	Level 4	Manpower Planning	Level 4
Business Negotiation	Level 4	Material Studies and Production Processes	Level 4
Civil and Structural Engineering Management	Level 5	People Management	Level 4
Computational Design	Level 3	Project Cost	Level 4
Construction Technology	Level 4	Project Feasibility Assessment	Level 5
Continuous Improvement Management	Level 4	Project Management	Level 4
Critical Thinking	Level 4	Project Risk Management	Level 4
Cultural, Heritage and Socio-economic Sensitivity for Design	Level 4	Quality System Management	Level 4
Data Collection and Analysis	Level 4	Regulatory Submission and Clearance	Level 4
Design for Maintainability	Level 4	Site Assessment and Analysis	Level 4
Design for Manufacturing and Assembly	Level 4	Stakeholder Management	Level 4
Design for Safety	Level 4	Structural Testing	Level 4
Design Thinking Practice	Level 4	Technical Inspection	Level 3
Dispute Resolution	Level 4	Technical Presentation	Level 4
Engineering Contract Management	Level 4	Technical Writing	Level 3
Engineering Drawing Interpretation and Management	Level 4	Technology Application	Level 4
Ethical Climate	Level 5	Technology Scanning	Level 4
Geotechnical Engineering Management	Level 5	Workplace Safety and Health Framework Development and Implementation	Level 4
Green Building Strategy Implementation	Level 4		

GENERIC SKILLS AND COMPETENCIES (TOP 5)

Leadership	Intermediate	Communication	Intermediate
Teamwork	Intermediate	Computational Thinking	Intermediate
Problem Solving	Intermediate		

Associate Director (Civil and Structural Engineering)/ Principal Civil and Structural Engineer

JOB ROLE DESCRIPTION

The Associate Director (Civil and Structural Engineering)/Principal Civil and Structural Engineer spearheads the overall planning, development and execution of projects to meet project requirements. He/She provides expert guidance for creative and innovative design solutions and reviews final design submittals. He also reviews the feasibility of the assessment solutions and manages the expectations of internal and external stakeholders. He drives the tendering processes and leads business negotiations. He oversees the talent recruitment and development processes of the organisation and is responsible for the department's financial positions. He may be required to perform the responsibilities of a Qualified Person in accordance with the Building Control Act.

He is a subject matter expert in civil and structural engineering. He possesses high level of technical and engineering competence, as well as social and leadership skills that allow him to manage internal and external stakeholders and lead his teams effectively. He is strategic thinker, is decisive and is able to excel in a fast-paced work environment.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Define project scope and requirements	<ul style="list-style-type: none"> • Endorse the outcomes of feasibility studies • Establish a team culture that allows for alternative project solutions to be suggested by all team members • Approve risk management plans and risk controls complying with organisation's risk management framework • Endorse project scope and requirements in agreement with relevant stakeholders 	In accordance with: <ul style="list-style-type: none"> • Professional Engineers Act • Building Control Act • Fire Safety Act • Workplace Safety and Health (WSH) Act
Drive design development	<ul style="list-style-type: none"> • Approve conceptual designs based on project requirements • Approve the schematic designs for project viability • Approve structural loads and stresses calculations • Endorse detailed designs based on technical feasibility and alignment with project requirements • Evaluate engineering analysis models taking into account design and engineering conflicts to mitigate the impact on timeframe for completion • Approve legislative submissions at all project stages • Keep abreast of latest green building trends and technologies 	
Drive tendering processes	<ul style="list-style-type: none"> • Endorse project estimations and resource planning • Endorse project schedules, resource requirements and project success metrics • Drive business negotiations • Evaluate contractors and subcontractors in tender processes 	
Oversee project execution	<ul style="list-style-type: none"> • Oversee performance of contractors and subcontractors in alignment with organisation and regulatory quality standards • Approve the results of testing and commissioning for successful project handovers • Approve the outcomes of defect resolutions • Approve as-built designs 	

Associate Director (Civil and Structural Engineering)/ Principal Civil and Structural Engineer

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage people and organisational function	<ul style="list-style-type: none"> • Formulate strategies to optimise project staffing and acquisition of project team members • Drive talent recruitment and development initiatives for the departments in alignment with organisational strategy • Drive departments' performance to deliver quality work within project scope and requirements • Manage the department's financial inflow and outflow against allocated budgets and forecasts • Establish strategic business development objectives • Establish resolution processes for variations and liquidated damages 	<p>Note: Performance Expectations are non-exhaustive and subject to prevailing regulations</p>

TECHNICAL SKILLS AND COMPETENCIES

3D Modelling	Level 5	Geotechnical Engineering Management	Level 6
Building Information Modelling Application	Level 5	Green Building Strategy Implementation	Level 5
Business Development	Level 5	Integrated Digital Delivery Application	Level 5
Business Negotiation	Level 5	Manpower Planning	Level 5
Civil and Structural Engineering Management	Level 6	Material Studies and Production Processes	Level 5
Competitive Business Strategy	Level 5	People Management	Level 5
Computational Design	Level 3	Project Cost	Level 5
Construction Technology	Level 5	Project Feasibility Assessment	Level 5
Continuous Improvement Management	Level 5	Project Management	Level 5
Critical Thinking	Level 5	Project Risk Management	Level 5
Cultural, Heritage and Socio-economic Sensitivity for Design	Level 5	Quality System Management	Level 5
Data Collection and Analysis	Level 5	Regulatory Submission and Clearance	Level 5
Design for Maintainability	Level 5	Site Assessment and Analysis	Level 5
Design for Manufacturing and Assembly	Level 5	Stakeholder Management	Level 5
Design for Safety	Level 5	Structural Testing	Level 4
Design Thinking Practice	Level 5	Technical Inspection	Level 4
Dispute Resolution	Level 5	Technical Presentation	Level 5
Engineering Contract Management	Level 5	Technical Writing	Level 4
Engineering Drawing Interpretation and Management	Level 5	Technology Scanning	Level 5
Ethical Climate	Level 6	Workplace Safety and Health Framework Development and Implementation	Level 5

GENERIC SKILLS AND COMPETENCIES (TOP 5)

Leadership	Advanced	Resource Management	Advanced
Decision Making	Advanced	Communication	Advanced
Problem Solving	Advanced		

Assistant Mechanical Engineer/Assistant Electrical Engineer/Technical Executive (Mechanical Engineering)/ Technical Executive (Electrical Engineering)

JOB ROLE DESCRIPTION

The Assistant Mechanical Engineer/Assistant Electrical Engineer/Technical Executive (Mechanical Engineering)/Technical Executive (Electrical Engineering) supports the planning and development of projects and assists in the development of engineering designs based on project requirements, from conceptual to schematic and detailed designs.

He/She is meticulous, detail-oriented, and possesses good knowledge in mechanical and/or electrical engineering. He is analytical and has good problem-solving and project coordination skills. He is required to work both in office and at project sites.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Define project scope and requirements	<ul style="list-style-type: none"> • Support feasibility studies • Support solutions development based on feasibility studies • Gather requirements for project scope • Assist in coordinating with utility providers and/or agencies based on project requirement 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Building Management and Strata Management Act • Public Utilities Act • Sewerage and Drainage Act • Gas Act • Electricity Act • Fire Safety Act • Workplace Safety and Health (WSH) Act
Drive design development	<ul style="list-style-type: none"> • Assist in the development of conceptual designs based on project requirements as well as sustainability and maintainability considerations • Assist in development of schematic designs • Assist in load analyses and calculations to determine equipment selection • Support development of detailed designs taking into consideration project requirements, technical aspects, relevant codes and standards as well as good practices • Assist in conducting simulation modelling and analyses • Support design changes and service coordination • Support preparation of submissions to authorities or agencies for all project stages 	
Drive tendering processes	<ul style="list-style-type: none"> • Assist in the preparation of baseline budgets, schedules and project success metrics • Support in preparation of tender terms, drawings and specifications • Invite contractors and subcontractors to tender for the projects 	
Oversee project execution	<ul style="list-style-type: none"> • Prepare shop drawings, installation methods as well as equipment and materials schedules for review • Liaise with contractors and subcontractors for matters related to execution of project designs • Assist in the execution of testing and commissioning processes for successful project handovers • Compile defect reports • Support in preparation of handover documents 	

Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

Assistant Mechanical Engineer/Assistant Electrical Engineer/Technical Executive (Mechanical Engineering)/ Technical Executive (Electrical Engineering)

TECHNICAL SKILLS AND COMPETENCIES			
Air Conditioning and Mechanical Ventilation System Design*	Level 2	Fire Protection System Design*	Level 2
Analytics and Computational Modelling	Level 2	Green Building Strategy Implementation	Level 3
Building Information Modelling Application	Level 3	Indoor Environmental Quality Improvement	Level 2
Building Management System Implementation and Control	Level 2	Integrated Digital Delivery Application	Level 2
Computational Design	Level 2	Life Cycle Costing and Analysis	Level 2
Construction Technology	Level 2	Lifts and Escalators Systems Design	Level 2
Data Collection and Analysis	Level 3	Lighting Design Optimisation**	Level 2
Design for Maintainability	Level 2	Lightning Protection Systems Design**	Level 2
Design for Manufacturing and Assembly	Level 3	Natural Ventilation Design	Level 2
Design for Safety	Level 2	Plumbing, Sanitary, Drainage and Gas Systems Design*	Level 2
Electrical Systems Design**	Level 2	Project Feasibility Assessment	Level 4
Engineering Contract Management	Level 2	Quality System Management	Level 2
Engineering Drawing and Design Specifications	Level 2	Regulatory Submission and Clearance	Level 3
Engineering Safety Standards Interpretation	Level 3	Solar Photovoltaic Systems Designs	Level 2
Ethical Climate	Level 3	Technology Application	Level 2
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Problem Solving	Basic	Interpersonal Skills	Basic
Teamwork	Basic	Service Orientation	Basic
Communication	Basic		

* Skills required only for the Mechanical Engineering specialisation

** Skills required only for the Electrical Engineering specialisation

The information contained in this document serves as a guide.

Mechanical Engineer/Electrical Engineer

JOB ROLE DESCRIPTION

The Mechanical Engineer/Electrical Engineer manages the planning and development of projects. He/She develops mechanical and/or electrical engineering designs based on project requirements, from conceptual to schematic and detailed designs. He is responsible for designing mechanical and electrical systems. He conducts project assessments and is able to provide feasible and creative solutions based on the assessment results. He participates in the tendering process and assists with the projects' costs and budgets. He plans the team's manpower and provides on-the-job coaching to junior staff.

He is meticulous, highly detail-oriented and has a keen interest to incorporate new technologies into engineering design projects. He possesses excellent knowledge in mechanical and/or electrical engineering fields, is analytical and has good problem-solving skills. He also possesses strong interpersonal and project coordination skills crucial for engagement with internal and external stakeholders. He is required to work both in office and at project sites.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Define project scope and requirements	<ul style="list-style-type: none"> • Conduct feasibility studies • Propose solutions to relevant stakeholders based on feasibility studies • Compile risks associated with the projects • Define project scope and requirements • Coordinate with utility providers and agencies on project progress 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Building Management and Strata Management Act • Public Utilities Act • Sewerage and Drainage Act • Gas Act • Electricity Act • Fire Safety Act • Workplace Safety and Health (WSH) Act
Drive design development	<ul style="list-style-type: none"> • Develop conceptual designs based on project requirements as well as sustainability and maintainability considerations • Develop schematic designs • Perform load analyses and calculations to determine equipment selection • Develop detailed designs taking into consideration project requirements, technical aspects, relevant codes and standards as well as good practices • Perform simulation modelling and analyses • Manage design changes and services coordination • Develop submissions to authorities or agencies for all project stages 	
Drive tendering processes	<ul style="list-style-type: none"> • Develop baseline budgets, schedules and project success metrics • Prepare tender terms, drawings and specifications • Conduct pre-qualification and assessment of contractors and subcontractors for tender selection 	
Oversee project execution	<ul style="list-style-type: none"> • Develop shop drawings, installation methods, as well as equipment and materials schedules for relevant stakeholders' approval • Monitor the execution and quality of contractors' and subcontractors' work • Oversee testing and commissioning for successful project handovers • Liaise with contractors to resolve defects issues • Develop handover documents • Liaise with authorities and agencies for close out inspections 	

Mechanical Engineer/Electrical Engineer

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage people and organisational function	<ul style="list-style-type: none"> • Perform on-the-job coaching • Track work progress • Research prospective clients' needs for business development opportunities • Liaise with relevant stakeholders to resolve variations and liquidated damages 	Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

TECHNICAL SKILLS AND COMPETENCIES

Air Conditioning and Mechanical Ventilation System Design*	Level 3	Engineering Safety Standards Interpretation	Level 3
Analytics and Computational Modelling	Level 2	Equipment and Systems Installation and Commissioning Management	Level 3
Building Information Modelling Application	Level 3	Equipment and Systems Testing	Level 2
Building Management System Implementation and Control	Level 3	Ethical Climate	Level 4
Computational Design	Level 2	Fire Protection System Design*	Level 3
Construction Technology	Level 3	Green Building Strategy Implementation	Level 4
Continuous Improvement Management	Level 3	Indoor Environmental Quality Improvement	Level 3
Critical Thinking	Level 3	Integrated Digital Delivery Application	Level 3
Data Collection and Analysis	Level 3	Life Cycle Costing and Analysis	Level 3
Design for Maintainability	Level 3	Lifts and Escalators Systems Design	Level 3
Design for Manufacturing and Assembly	Level 4	Lighting Design Optimisation**	Level 3
Design for Safety	Level 3	Lightning Protection Systems Design**	Level 3
Design Thinking Practice	Level 3	Natural Ventilation Design	Level 3
Electrical Systems Design**	Level 3	People Management	Level 3
Engineering Contract Management	Level 3	Plumbing, Sanitary, Drainage and Gas Systems Design*	Level 3
Engineering Drawing and Design Specifications	Level 3	Project Feasibility Assessment	Level 4

* Skills required only for the Mechanical Engineering specialisation

** Skills required only for the Electrical Engineering specialisation

The information contained in this document serves as a guide.

Mechanical Engineer/Electrical Engineer

TECHNICAL SKILLS AND COMPETENCIES			
Project Management	Level 3	Solar Photovoltaic Systems Designs	Level 3
Project Risk Management	Level 3	Stakeholder Management	Level 3
Quality System Management	Level 3	Technical Inspection	Level 3
Regulatory Submission and Clearance	Level 3	Technical Presentation	Level 4
Site Assessment and Analysis	Level 3	Technology Scanning	Level 4
Solar Photovoltaic Energy Assessment	Level 3		
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Problem Solving	Intermediate	Interpersonal Skills	Intermediate
Creative Thinking	Intermediate	Teamwork	Intermediate
Communication	Intermediate		

Senior Mechanical Engineer/ Senior Electrical Engineer

JOB ROLE DESCRIPTION

The Senior Mechanical Engineer/Senior Electrical Engineer drives the overall execution of projects based on project requirements. He/She reviews mechanical and/or electrical system designs, specifications, calculations and other submittals. He oversees the project assessment phases. He ensures the mechanical and/or electrical systems designs and models developed are in accordance to project requirements. He leads the tendering processes and is responsible for the projects' costs and budgets. He manages a team of engineers and ensures continuous performance improvement. He may also be expected to perform the responsibilities of a Qualified Person in accordance with the Building Control Act.

He is meticulous, highly detail-oriented and is keen to drive new technologies adoptions. He is an expert in mechanical and/or electrical engineering fields, is analytical and possesses strong problem-solving and decision-making skills. He demonstrates leadership in leading project teams and is an effective communicator. He is required to work in office and at project sites.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Define project scope and requirements	<ul style="list-style-type: none"> • Review the outcomes of feasibility studies • Review the proposed solutions • Develop risk management plans and risk controls • Review project scope and requirements in alignment with relevant stakeholder objectives • Oversee the coordination with utility providers and agencies on project progress 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Building Management and Strata Management Act • Public Utilities Act • Sewerage and Drainage Act • Gas Act • Electricity Act • Fire Safety Act • Workplace Safety and Health (WSH) Act
Drive design development	<ul style="list-style-type: none"> • Review conceptual designs based on project requirements as well as sustainability and maintainability considerations • Review schematic designs for project viability • Review load analyses, calculations and equipment selection • Review detailed designs based on technical feasibility, alignment with project requirements and redundancy considerations • Review simulation modelling and analysis outcomes • Review submissions to authorities or agencies for all project stages • Oversee design changes and services coordination 	
Drive tendering processes	<ul style="list-style-type: none"> • Review quantitative estimates for project costs and resources • Manage stakeholder buy-in on baseline budgets, schedules and project success metrics • Review tender terms, drawings and specifications for alignment with project requirements • Review contractors' and subcontractors' tender bids 	
Oversee project execution	<ul style="list-style-type: none"> • Review shop drawings, installation methods, as well as equipment and materials schedules for relevant stakeholders' approval • Review contractors' and subcontractors' work against project requirements and quality standards • Review the results of testing and commissioning for successful project handovers • Review the defect resolutions • Review handover documents • Manage authorities' and agencies' close out inspections 	

Senior Mechanical Engineer/ Senior Electrical Engineer

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage people and organisational function	<ul style="list-style-type: none"> Identify recruitment needs and areas for technical and business management training and development Monitor achievement of key project milestones Monitor financial health of daily operations Develop relationships with prospective clients for business development opportunities Review resolution of variations and liquidated damages 	Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

TECHNICAL SKILLS AND COMPETENCIES

Air Conditioning and Mechanical Ventilation System Design*	Level 4	Engineering Safety Standards Interpretation	Level 4
Analytics and Computational Modelling	Level 3	Equipment and Systems Installation and Commissioning Management	Level 4
Building Information Modelling Application	Level 4	Equipment and Systems Testing	Level 3
Building Management System Implementation and Control	Level 4	Ethical Climate	Level 5
Business Development	Level 4	Fire Protection System Design*	Level 4
Business Negotiation	Level 4	Green Building Strategy Implementation	Level 5
Computational Design	Level 3	Indoor Environmental Quality Improvement	Level 4
Construction Technology	Level 3	Integrated Digital Delivery Application	Level 4
Continuous Improvement Management	Level 4	Life Cycle Costing and Analysis	Level 4
Critical Thinking	Level 4	Lifts and Escalators Systems Design	Level 4
Data Collection and Analysis	Level 4	Lighting Design Optimisation**	Level 4
Design for Maintainability	Level 4	Lightning Protection Systems Design**	Level 4
Design for Manufacturing and Assembly	Level 4	Natural Ventilation Design	Level 4
Design for Safety	Level 4	People Management	Level 4
Design Thinking Practice	Level 4	Plumbing, Sanitary, Drainage and Gas Systems Design*	Level 4
Electrical Systems Design**	Level 4	Project Cost	Level 4
Engineering Contract Management	Level 4	Project Feasibility Assessment	Level 5
Engineering Drawing and Design Specifications	Level 4	Project Management	Level 4

* Skills required only for the Mechanical Engineering specialisation

** Skills required only for the Electrical Engineering specialisation

The information contained in this document serves as a guide.

Senior Mechanical Engineer/ Senior Electrical Engineer

TECHNICAL SKILLS AND COMPETENCIES			
Project Risk Management	Level 4	Solar Photovoltaic Systems Designs	Level 3
Quality System Management	Level 4	Stakeholder Management	Level 4
Regulatory Submission and Clearance	Level 4	Technical Inspection	Level 3
Site Assessment and Analysis	Level 4	Technical Presentation	Level 4
Solar Photovoltaic Energy Assessment	Level 3	Technology Scanning	Level 5
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Problem Solving	Advanced	Communication	Intermediate
Creative Thinking	Advanced	Teamwork	Advanced
Interpersonal Skills	Intermediate		

Associate Director (Mechanical Engineering/ Electrical Engineering)/Principal Mechanical Engineer/Principal Electrical Engineer

JOB ROLE DESCRIPTION

The Associate Director (Mechanical Engineering/Electrical Engineering)/Principal Mechanical Engineer/Principal Electrical Engineer spearheads the overall planning, development and execution of projects to meet project requirements. He/She provides expert guidance for creative and innovative design solutions and reviews final mechanical and electrical systems design submittals. He also reviews the feasibility of the assessment solutions and manages the expectations of internal and external stakeholders. He drives the tendering processes and leads business negotiations. He oversees the talent recruitment and development processes of the organisation and is responsible for the departments' financial positions. He may be expected to perform the responsibilities of a Qualified Person in accordance with the Building Control Act.

He is a subject matter expert in mechanical and/or electrical engineering. He possesses high level of technical and engineering competence, as well as social and leadership skills to manage internal and external stakeholders and lead his teams effectively. He has an eye for new technologies and passionate to technology adoptions. He is a strategic thinker, is decisive and thrive in a fast-paced environment.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Define project scope and requirements	<ul style="list-style-type: none"> • Endorse the outcomes of feasibility studies • Establish a team culture that allows for alternative project solutions to be suggested by all team members • Approve risk management plans and risk controls complying with organisation's risk management framework • Endorse project scope and requirements in agreement with relevant stakeholders • Establish project direction 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Building Management and Strata Management Act • Public Utilities Act • Sewerage and Drainage Act • Gas Act • Electricity Act • Fire Safety Act • Workplace Safety and Health (WSH) Act
Drive design development	<ul style="list-style-type: none"> • Approve conceptual designs based on project requirements as well as sustainability and maintainability considerations • Approve the schematic designs • Approve load analyses, calculations and equipment selection • Endorse detailed designs taking into consideration project requirements, technical aspects, relevant codes and standards as well as good practices • Evaluate simulation modelling and analysis outcomes • Approve design changes and coordination of services • Approve submissions to authorities or agencies for all project stages 	
Drive tendering processes	<ul style="list-style-type: none"> • Endorse project estimation and resource planning • Drive the sign-off on baseline budgets, schedules and project success metrics • Drive business negotiations • Evaluate contractors and subcontractors during the tender processes 	
Oversee project execution	<ul style="list-style-type: none"> • Endorse shop drawings, installation methods, as well as equipment and materials schedules for relevant stakeholders' approval • Oversee performance of contractors and subcontractors in alignment with organisation and regulatory quality standards • Approve the results of testing and commissioning for successful project handover • Approve the outcomes of defect resolutions • Endorse handover documents • Oversee authorities' and agencies' close out inspections outcomes 	

Associate Director (Mechanical Engineering/ Electrical Engineering)/Principal Mechanical Engineer/Principal Electrical Engineer

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage people and organisational function	<ul style="list-style-type: none"> • Formulate strategies to optimise project staffing and acquisition of project team members • Drive talent recruitment and development initiatives for the departments in alignment with organisational strategy • Drive departments' performance to deliver quality work within project scope and requirements • Manage the departments' financial inflow and outflow against allocated budgets and forecasts • Establish strategic business development objectives • Establish resolution processes for variations and liquidated damages 	Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

TECHNICAL SKILLS AND COMPETENCIES

Air Conditioning and Mechanical Ventilation System Design*	Level 5	Engineering Safety Standards Interpretation	Level 5
Analytics and Computational Modelling	Level 3	Equipment and Systems Installation and Commissioning Management	Level 5
Building Information Modelling Application	Level 5	Equipment and Systems Testing	Level 4
Building Management System Implementation and Control	Level 5	Ethical Climate	Level 6
Business Development	Level 5	Fire Protection System Design*	Level 5
Business Negotiation	Level 5	Green Building Strategy Implementation	Level 5
Competitive Business Strategy	Level 5	Indoor Environmental Quality Improvement	Level 5
Computational Design	Level 3	Integrated Digital Delivery Application	Level 5
Construction Technology	Level 4	Life Cycle Costing and Analysis	Level 5
Continuous Improvement Management	Level 5	Lifts and Escalators Systems Design	Level 5
Critical Thinking	Level 5	Lighting Design Optimisation**	Level 5
Data Collection and Analysis	Level 5	Lightning Protection Systems Design**	Level 5
Design for Maintainability	Level 5	Manpower Planning	Level 5
Design for Manufacturing and Assembly	Level 5	Natural Ventilation Design	Level 5
Design for Safety	Level 5	People Management	Level 5
Design Thinking Practice	Level 5	Plumbing, Sanitary, Drainage and Gas Systems Design*	Level 5
Electrical Systems Design**	Level 5	Project Cost	Level 5
Engineering Contract Management	Level 5	Project Feasibility Assessment	Level 5
Engineering Drawing and Design Specifications	Level 5	Project Management	Level 5

* Skills required only for the Mechanical Engineering specialisation

** Skills required only for the Electrical Engineering specialisation

The information contained in this document serves as a guide.

Associate Director (Mechanical Engineering/ Electrical Engineering)/Principal Mechanical Engineer/Principal Electrical Engineer

TECHNICAL SKILLS AND COMPETENCIES			
Project Risk Management	Level 5	Solar Photovoltaic Systems Designs	Level 4
Quality System Management	Level 5	Stakeholder Management	Level 5
Regulatory Submission and Clearance	Level 5	Technical Inspection	Level 4
Site Assessment and Analysis	Level 5	Technical Presentation	Level 5
Solar Photovoltaic Energy Assessment	Level 4	Technology Scanning	Level 6
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Leadership	Advanced	Resource Management	Advanced
Decision Making	Advanced	Communication	Advanced
Problem Solving	Advanced		

Notes

Quantity Surveying

JOB ROLES	PAGE
Assistant Quantity Surveyor/Assistant Cost Manager	60
Quantity Surveyor/Contracts Manager/Cost Manager	62
Senior Quantity Surveyor/Senior Contracts Manager/Senior Cost Manager	64
Associate Director (Quantity Surveying)/ Contracts Director	67
Director/Managing Director/Chief Executive/General Manager	143



Quantity Surveyor

Clive Poh
Surbana Jurong Consultants

LEARNING AT EVERY OPPORTUNITY

The making of a built environment is a multidisciplinary process with diverse roles — including those who ensure project costs and contracts are well-managed for smooth delivery.

Clive Poh excels at this role. A Quantity Surveyor at Surbana Jurong Consultants' Global Township since early 2018, he brings a range of expertise which includes tendering and contract administration, budgeting, estimating as well as finalising accounts after project completion. Whenever contractual disputes occur, it also falls on him to help all parties come to an amicable settlement. These responsibilities require not only financial, construction and legal writing skills, but also the ability to handle any situation with sensitivity.

How did he develop these skills? Clive had the BCA-Surbana Jurong iBuildSG Undergraduate Scholarship to thank for allowing him to complete his studies at the National University of Singapore without financial worries, graduating with a Bachelor of Sciences degree in Project and Facilities Management. While pursuing his Master's degree in Project Management, he sharpened his legal skills by working at a local law firm, settling contract disputes and researching legal-contractual issues in construction.

As part of his internship programme in NUS, he was involved in the building of Woodlands Health's 1,800-

“The Skills Framework is co-created with industry stakeholders to ensure relevancy to industry. It will certainly provide clarity and direction for us, not only to upskill ourselves, but also to grow to realise our potential and calling.”

bed integrated healthcare campus, a role that saw him showcasing the plans to stakeholders.

Keen to stay ahead, Clive has been exploring the potential of machine learning and web technologies to improve existing processes. As it happens, this interest aligns perfectly with BCA's Construction Industry Transformation Map that identifies integrated digital delivery as a key thrust to advance the Built Environment sector. Currently, he is building a web application to search, analyse, visualise and predict cost data effectively.

To become a good quantity surveyor, Clive believes that speed, teamwork and adaptability are key. “Under the mentorship received in Surbana Jurong, I learnt that working well with teams, asking the right questions and learning from seniors' experiences are key to good work. As every project has its own challenges and circumstances, the ability to unlearn and relearn fast is valuable.”

On the subject of learning and relearning, Clive sees the Skills Framework for Built Environment as a useful resource. “The Skills Framework is co-created with industry stakeholders to ensure relevancy to industry. It will certainly provide clarity and direction for us, not only to upskill ourselves, but also to grow to realise our potential and calling.”

Assistant Quantity Surveyor/ Assistant Cost Manager

JOB ROLE DESCRIPTION

The Assistant Quantity Surveyor/Assistant Cost Manager assists with taking measurements, supporting the tender process until award, and gathering information for the preparation of cost estimates. He/She gathers information for reports, payments, and assists in overall contract administration. He attends project progress meetings and records notes for updates to relevant stakeholders.

He is able to work independently in a fast-paced environment and able to meet tight deadlines. He is also detail-oriented. He will usually be stationed in the office and may have to visit sites depending on the project, to understand progress and make progress payments.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Prepare measurements and tender documentation	<ul style="list-style-type: none">• Use Building Information Modelling (BIM) or any relevant software for the extraction of quantities• Gather measurements for various forms of contract bills• Update schedules of rates• Conduct taking of measurements, admeasurements and re-measurements	<p>In accordance with:</p> <ul style="list-style-type: none">• Building Control Act• Workplace Safety and Health (WSH) Act
Drive cost planning and control	<ul style="list-style-type: none">• Compile cost data• Assist to prepare cost estimates• Support preparation of cost plans• Assist with cash flow projections• Assist with preparation of periodic cost reports	
Define tender and procurement strategies	<ul style="list-style-type: none">• Support preparation of tender documents• Collate information from tenderers submission for evaluation	
Manage post-contract administration	<ul style="list-style-type: none">• Support the preparation of valuations for interim payments and/or recommendations for payment to contractors, specialists and subcontractors including recommendations for payment• Verify claims and payment documents for final accounts• Support communication of payment regimes to relevant stakeholders• Record project meeting notes	
FOR CONTRACTING QUANTITY SURVEYOR		
Conduct tendering and estimation	<ul style="list-style-type: none">• Gather market research on prices for resources• Compile tenders received from contractors, specialists or subcontractors	<p>Note: Performance Expectations are non-exhaustive and subject to prevailing regulations</p>
Manage construction cost and resource procurement	<ul style="list-style-type: none">• Assist with cash flow forecasting• Compile information for management reports on profitability	

Assistant Quantity Surveyor/ Assistant Cost Manager

TECHNICAL SKILLS AND COMPETENCIES			
Building Information Modelling Application	Level 3	Life Cycle Costing and Analysis	Level 2
Construction Technology	Level 2	Measurement of Building and Construction Works	Level 2
Contract Administration and Management	Level 3	Procurement Coordination and Policy Development	Level 3
Critical Thinking	Level 3	Project Cost	Level 3
Data Collection and Analysis	Level 3	Research and Information Synthesis	Level 2
Design for Manufacturing and Assembly	Level 2	Stakeholder Management	Level 3
Ethical Climate	Level 3	Technical Writing	Level 2
Integrated Digital Delivery Application	Level 2	Technology Application	Level 2
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Teamwork	Basic	Communication	Basic
Service Orientation	Basic	Problem Solving	Basic
Interpersonal Skills	Basic		

Quantity Surveyor/Contracts Manager/ Cost Manager

JOB ROLE DESCRIPTION

The Quantity Surveyor/Contracts Manager/Cost Manager is responsible for taking measurements and drafting tender documentation. He/She is involved in preparing for tender and analysing the tender returns. He prepares cost estimates based on technical specifications and prepares costing details for further analyses. He is responsible for the complete cost management and contract administration of the project, including preparing claims and final account settlement.

He is detail-oriented and meticulous in his work. He possesses knowledge of the industry, construction materials, procurement methods and regulations. He communicates effectively with a wide range of stakeholders both verbally and in written reports. He possesses strong numeracy, analytical and problem-solving skills. He will usually be stationed in the office and may have to visit work sites to perform his duties.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Prepare measurements and tender documentation	<ul style="list-style-type: none"> • Use Building Information Modelling (BIM) or any relevant software for the extraction of quantities • Process measurements into various forms of contract bills • Prepare schedule of rates • Assist to draft preliminaries and trade preambles • Assist in the review of technical specifications prepared by technical consultants • Conduct measurements, admeasurements, and re-measurements 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Workplace Safety and Health (WSH) Act
Drive cost planning and control	<ul style="list-style-type: none"> • Conduct cost analyses • Prepare outline and detailed approximate cost estimates • Prepare cost plans • Prepare cost-in-use studies and life-cycle costing of building and installation and/or components • Prepare cash flow projections • Conduct cost checking during design development • Conduct cost evaluation of alternative design or method of construction • Prepare periodic cost reports 	
Define tender and procurement strategies	<ul style="list-style-type: none"> • Assist with pre-qualifications • Adhere to procurement strategies • Prepare tender documents and/or appropriate Conditions of Contract to invite tenders from contractors, specialists or subcontractors on a competitive or negotiated basis • Analyse tender returns • Support benchmarking activities 	
Manage post-contract administration	<ul style="list-style-type: none"> • Communicate payment regime to relevant stakeholders • Prepare valuations for interim payments and/or recommendations for payment to contractors, specialists and subcontractors including recommendations for payment • Measure variation of cost claims • Prepare claims on behalf of relevant parties • Prepare final accounts and/or relevant pricing variations • Attend project meetings 	

Quantity Surveyor/Contracts Manager/ Cost Manager

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS*
FOR CONTRACTING QUANTITY SURVEYOR		<p>Note: Performance Expectations are non-exhaustive and subject to prevailing regulations</p>
Conduct tendering and estimation	<ul style="list-style-type: none"> • Build up prices for resources • Seek correction of errors on tenders received from contractors, specialists or subcontractors • Participate in cost adjustment exercises 	
Manage construction cost and resource procurement	<ul style="list-style-type: none"> • Conduct cash flow forecasting and monitoring • Support placing orders with subcontractors and suppliers • Support information gathering for cost studies on site activities • Draft management reports on profitability • Coordinate communications with employer, consultants, statutory and services authorities 	

TECHNICAL SKILLS AND COMPETENCIES

Building Information Modelling Application	Level 3	Measurement of Building and Construction Works	Level 3
Business Negotiation	Level 3	Procurement Coordination and Policy Development	Level 4
Construction Technology	Level 3	Project Cost	Level 4
Continuous Improvement Management	Level 2	Project Feasibility Assessment	Level 4
Contract Administration and Management	Level 4	Project Risk Management	Level 4
Critical Thinking	Level 3	Research and Information Synthesis	Level 2
Data Collection and Analysis	Level 4	Stakeholder Management	Level 4
Design for Manufacturing and Assembly	Level 3	Technical Presentation	Level 4
Dispute Resolution	Level 4	Technical Writing	Level 3
Ethical Climate	Level 4	Technology Application	Level 3
Integrated Digital Delivery Application	Level 3	Value Engineering	Level 2
Life Cycle Costing and Analysis	Level 3		

GENERIC SKILLS AND COMPETENCIES (TOP 5)

Teamwork	Intermediate	Problem Solving	Intermediate
Communication	Intermediate	Creative Thinking	Intermediate
Interpersonal Skills	Intermediate		

Senior Quantity Surveyor/ Senior Contracts Manager/Senior Cost Manager

JOB ROLE DESCRIPTION

The Senior Quantity Surveyor/Senior Contracts Manager/Senior Cost Manager is responsible for taking and analysing measurements and reviewing tender documentation. He/She will implement procurement strategies and review returned tender documents. He reviews cost estimates and cash flow forecasts to be able to communicate updates with relevant stakeholders. He manages the complete post contract administration processes. He leads project meetings with customers and supports with dispute resolution matters when required. He builds relationships with customers and liaises with contractors, specialists and subcontractors to help develop resource plans and monitor costs and profitability of construction works to deliver the customers' and/or project objectives.

He is analytical and detail oriented. He is a team player with excellent leadership skills. He is able to guide his team on solving problems. He is organised and able to communicate effectively with various stakeholders. He will usually be stationed in the office, but he may also be required to visit work sites depending on the project.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Prepare measurements and tender documentation	<ul style="list-style-type: none"> Analyse Building Information Modelling (BIM) models to validate cost plans Edit contract bills Analyse schedule of rates Draft preliminaries and trade preambles Review technical specifications prepared by technical consultants Analyse measurements, admeasurements, and re-measurements 	In accordance with: <ul style="list-style-type: none"> Building Control Act Workplace Safety and Health (WSH) Act
Drive cost planning and control	<ul style="list-style-type: none"> Review cost analyses Review outline and detailed approximate cost estimates Analyse cost plans and detailed budgeting Review cost-in-use studies and life-cycle costing of building and installation and/or components Review cash flow projections Review cost checking processes during design development Interface with relevant stakeholders to advise alternative designs or methods of construction Review periodic cost reports 	
Define tender and procurement strategies	<ul style="list-style-type: none"> Carry out pre-qualifications Implement procurement strategies Review documentation to invite tenders from contractors, specialists or subcontractors on a competitive or negotiated basis Evaluate tender returns Undertake benchmarking activities 	

Senior Quantity Surveyor/ Senior Contracts Manager/Senior Cost Manager

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage post-contract administration	<ul style="list-style-type: none">• Advise on payment regimes• Analyse claims on behalf of relevant parties• Review valuations and recommendations for interim payments to contractors, specialists and subcontractors• Review and price assessment of variation cost claims• Review final accounts• Conduct contractual risk evaluations• Lead project meetings• Support development of dispute resolution strategies	<p>Note: Performance Expectations are non-exhaustive and subject to prevailing regulations</p>
FOR CONTRACTING QUANTITY SURVEYOR		
Conduct tendering and estimation	<ul style="list-style-type: none">• Review build up prices for unit rates and preliminary items• Compile tender sums in accordance with defined margins for overheads and profits• Report tenders received from contractors, specialists or subcontractors• Manage cost adjustment exercises and negotiations with shortlisted tenderers	
Manage construction cost and resource procurement	<ul style="list-style-type: none">• Formulate resource plans and programmes based on requirements• Liaise with relevant stakeholders to advise on matters of cost, contractual implications, procurement of resources, or progress during the period of works• Review cash flow forecasts and monitoring• Place orders with subcontractors and suppliers• Issue variation instructions affecting subcontractors and suppliers• Conduct cost studies on site activities• Monitor profitability of construction works• Liaise with employer, consultants, statutory and services authorities	

Senior Quantity Surveyor/ Senior Contracts Manager/Senior Cost Manager

TECHNICAL SKILLS AND COMPETENCIES			
Building Information Modelling Application	Level 4	Measurement of Building and Construction Works	Level 4
Business Development	Level 3	People Management	Level 3
Business Negotiation	Level 4	Procurement Coordination and Policy Development	Level 4
Construction Technology	Level 4	Project Cost	Level 4
Continuous Improvement Management	Level 3	Project Feasibility Assessment	Level 4
Contract Administration and Management	Level 4	Project Risk Management	Level 4
Critical Thinking	Level 4	Research and Information Synthesis	Level 3
Data Collection and Analysis	Level 5	Stakeholder Management	Level 4
Design for Manufacturing and Assembly	Level 4	Technical Presentation	Level 5
Design Thinking Practice	Level 3	Technical Writing	Level 4
Dispute Resolution	Level 4	Technology Application	Level 3
Ethical Climate	Level 4	Technology Scanning	Level 3
Integrated Digital Delivery Application	Level 4	Value Engineering	Level 3
Life Cycle Costing and Analysis	Level 4		
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Leadership	Intermediate	Resource Management	Intermediate
Communication	Intermediate	Decision Making	Intermediate
Problem Solving	Intermediate		

Associate Director (Quantity Surveying)/ Contracts Director

JOB ROLE DESCRIPTION

The Associate Director (Quantity Surveying)/Contracts Director is responsible for overseeing the measurement and tender documentation processes. He/She drives adoption of industry best practices and the use of technology to support the measurement processes. He establishes tender and procurement strategies and advises on relevant contracts for contractors, specialists and subcontractors. He endorses cost estimations and monitors cash flow forecasts. He endorses final accounts and establishes policies for payments and post contract administration matters. He works to mitigate risks and advises on dispute resolution techniques when necessary.

He leverages his deep industry experience to motivate his team to excel within their roles. He continually looks for opportunities to improve processes. He possesses relationship building skills and looks for opportunities to increase collaboration both internally and externally. He is a strategic thinker and analytical in his approach to problems. He strives to deliver the best to his customers. He will usually be stationed in the office, but may have to visit sites depending on the project.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Prepare measurements and tender documentation	<ul style="list-style-type: none"> • Drive best practices to support usage of Building Information Modelling (BIM) models • Validate contract bills • Endorse schedule of rates • Implement edits to preliminaries and trade preambles • Validate technical specifications prepared by technical consultants • Oversee measurement, admeasurements, and re-measurements 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Workplace Safety and Health (WSH) Act
Drive cost planning and control	<ul style="list-style-type: none"> • Drive strategic use of data for enhanced cost analyses • Validate outlined and detailed approximate cost estimates • Endorse cost plans and detailed budgets • Drive use of life-cycle costing for a more holistic approach to costing • Oversee cashflow projections • Keep abreast of cost checking during design development • Keep abreast of latest alternative designs and methods of construction • Endorse periodic cost reports 	
Define tender and procurement strategies	<ul style="list-style-type: none"> • Establish procurement strategies • Advise on various forms of contract for contractors, specialists or subcontractors • Establish pre-qualifications processes • Recommend awards based on tender returns • Lead benchmarking initiatives 	

Associate Director (Quantity Surveying)/ Contracts Director

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage post-contract administration	<ul style="list-style-type: none">• Implement policies and procedures to review valuations for interim payments to contractors, specialists and sub-contractors• Define policies to reduce contractual risks• Establish payment regime policies and procedures• Authorise variation cost claims• Oversee claims administration on behalf of relevant parties• Endorse final accounts• Advise on various techniques in dispute resolution	<p>Note: Performance Expectations are non-exhaustive and subject to prevailing regulations</p>
FOR CONTRACTING QUANTITY SURVEYOR		
Conduct tendering and estimation	<ul style="list-style-type: none">• Anticipate price fluctuations based on external factors• Establish margins for overheads and profits in tender sums• Evaluate tenders received from contractors, specialists or sub-contractors• Lead cost adjustment exercises and negotiations with shortlisted tenderers	
Manage construction cost and resource procurement	<ul style="list-style-type: none">• Forecast resource and programming needs based on project pipeline• Provide strategic subject matter expertise on matters of cost, contractual implications, procurement of resources, or progress during the period of works• Establish guidelines for placing orders with subcontractors and suppliers• Define thresholds for variation instructions affecting subcontractors and suppliers• Validate cost studies on site activities• Oversee cashflow forecasting and monitoring• Forecast profitability of construction works based on monitoring activities• Drive collaboration with employer, consultants, statutory and service authorities	

Associate Director (Quantity Surveying)/ Contracts Director

TECHNICAL SKILLS AND COMPETENCIES			
Building Information Modelling Application	Level 4	Life Cycle Costing and Analysis	Level 5
Business Development	Level 4	Measurement of Building and Construction Works	Level 5
Business Negotiation	Level 5	People Management	Level 4
Business Performance Management	Level 3	Procurement Coordination and Policy Development	Level 5
Competitive Business Strategy	Level 3	Project Cost	Level 5
Construction Technology	Level 4	Project Feasibility Assessment	Level 5
Continuous Improvement Management	Level 4	Project Risk Management	Level 5
Contract Administration and Management	Level 5	Research and Information Synthesis	Level 4
Critical Thinking	Level 4	Stakeholder Management	Level 5
Data Collection and Analysis	Level 6	Technical Presentation	Level 5
Design for Manufacturing and Assembly	Level 5	Technical Writing	Level 4
Design Thinking Practice	Level 4	Technology Application	Level 4
Dispute Resolution	Level 5	Technology Scanning	Level 4
Ethical Climate	Level 5	Value Engineering	Level 4
Integrated Digital Delivery Application	Level 5		
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Leadership	Intermediate	Teamwork	Intermediate
Decision Making	Intermediate	Problem Solving	Intermediate
Developing People	Intermediate		

Construction Management (Production)

JOB ROLES	PAGE
Production Supervisor	72
Production Manager/Assistant Production Manager	74
Senior Production Manager	76
Quality Assurance Supervisor/Quality Control Supervisor	79
Quality Assurance Manager/Quality Control Manager/Quality Assurance Engineer/ Quality Control Engineer/Planner	81
Senior Quality Assurance Manager/Senior Quality Control Manager/Senior Planner	83
Factory Manager	86
Director/Managing Director/Chief Executive/General Manager	143



Production Planning Engineer

Daryl Chew
SoilBuild Construction Group

SHAPING THE FUTURE OF ENGINEERING

“The Skills Framework provides attractive career pathways for aspiring engineers who believe in the future of the Built Environment sector.”

What does it mean to be an engineer? For Daryl Chew, it means having the gumption to take on the road less travelled and injecting a sense of greater purpose to the Built Environment sector.

As a visionary young leader with an intuitive ability to balance soft and hard skills, he has been a strong advocate in promoting the vision of a transformed sector in line with the Construction Industry Transformation Map (Construction ITM).

As a recipient of the BCA-SoilBuild iBuildSG Undergraduate Scholarship, Daryl joined Soilbuild Construction Group after completing his Bachelor's Degree in Civil Engineering in 2018. His current role as a Production Planning Engineer at SoilBuild Integrated Construction and Prefabrication Hub (ICPH) is a multifaceted role – including managing the plant's integrated systems, providing technical advice on project feasibility studies and addressing potential engineering issues. On the research front, he is spearheading the division's Research and Development (R&D) initiatives to develop innovative advanced Design for Manufacturing and Assembly (DfMA) solutions and sustainable green materials.

As an individual with strong personal ethos, Daryl always emphasises the importance of teamwork and encourage his juniors to project themselves as a selfless leader.

A true mentor at heart, Daryl believes in building up a nurturing culture where no one gets left behind. Despite his busy schedule, Daryl is passionate in mentoring a new generation of Built Environment practitioners. As an Anchor Facilitator with Building and Construction Authority (BCA), he helps run its Built Environment Formation Programme (BEFP) for graduating interns across the various Institutes of Higher Learning (IHLs) — conducting interactive workshops and generously sharing industry insights to help students better understand the Built Environment sector and its ongoing transformation process. He believes that the role of an engineer has largely evolved and there is a need for young talents to embrace new technologies and methodologies in their line of work.

As he continues to grow his career, Daryl sees the Skills Framework as a strategic resource – one that allows him to identify the skills and qualifications he needs to continue progressing. “The Skills Framework provides attractive career pathways for aspiring engineers who believe in the future of the Built Environment sector.” he shares.

Production Supervisor

JOB ROLE DESCRIPTION

The Production Supervisor assists in production planning and performs the day-to-day operations of the factory site. He/She complies with production schedules and performs construction operations. He adheres to cost, time and quality guidelines established in predefined contract while complying with relevant regulatory and legislative requirements, processes and procedures.

He is responsible and able to work independently. He is a team player and possesses excellent interpersonal skills to coordinate among the various disciplines and construction teams. He works on-site on a rotating or day-shift schedule.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Oversee production planning and logistics	<ul style="list-style-type: none"> • Confirm that production work follows the latest shop drawings accordingly • Support planning of sequence of events for production schedule • Consolidate relevant information for labour and equipment calculations • Take meeting notes during coordination meetings • Consolidate data on quantity of materials and outputs and when they are required for different projects • Collate production and output data • Conduct maintenance of machines and equipment in accordance with asset integrity standards and practices 	<p>In accordance with:</p> <ul style="list-style-type: none"> • Building Control Act • Fire Safety Act • Environmental Protection and Management Act • Workplace Safety and Health (WSH) Act
Manage factory production	<ul style="list-style-type: none"> • Supervise the operations and risks of factory sites • Support the production progress reports preparation process • Facilitate regular inspections within the regime of Project Quality Plan (PQP), to align with relevant compliance, regulatory and legislative requirements • Support logistic arrangement and transportation of deliverables to construction sites • Supervise the measurement of production components • Take corrective actions to rectify production faults • Support planning of manpower and supervise team's efficiency 	
Drive safety and sustainability	<ul style="list-style-type: none"> • Comply with Workplace Safety and Health (WSH) policies and practices • Report accidents and incidents in accordance with WSH policies and practices • Follow organisational environmental sustainability and green building standards and guidelines • Conduct inspections to ensure compliance with organisational health and safety policies, processes and procedures 	

Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

Production Supervisor

TECHNICAL SKILLS AND COMPETENCIES			
Additive Manufacturing	Level 2	Integrated Digital Delivery Application	Level 2
Automation Process Control	Level 3	Lean Manufacturing	Level 3
Building Information Modelling Application	Level 3	Manufacturing Process Management	Level 2
Commissioning and Start-up Management	Level 2	Process Improvement and Optimisation	Level 2
Common Data Environment Management	Level 2	Process Operations Troubleshooting	Level 2
Condition-based Assets Monitoring Management	Level 2	Process Unit and Utilities Operations Management	Level 2
Construction Technology	Level 2	Production Resource Management	Level 3
Design for Manufacturing and Assembly	Level 2	Quality System Management	Level 2
Engineering Management of Change	Level 3	Robotic and Automation Technology Application	Level 2
Equipment and Systems Installation and Commissioning Management	Level 2	Systems Thinking	Level 3
Equipment and Systems Testing	Level 2	Technical Writing	Level 2
Facilities Shut-down and Re-start	Level 2	Technology Application	Level 2
Good Manufacturing Practices Implementation	Level 2	Transportation Route and Schedule Planning	Level 1
Installation and Assembly	Level 2	Workplace Safety and Health Framework Development and Implementation	Level 1
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Communication	Intermediate	Creative Thinking	Basic
Problem Solving	Basic	Interpersonal Skills	Intermediate
Decision Making	Basic		

Production Manager/Assistant Production Manager

JOB ROLE DESCRIPTION

The Production Manager/Assistant Production Manager manages all technical aspects of the factory site, and keeps track of resources requirements. He/She plans the sequence of events from production to bringing the module from the factory to the construction site.

He is responsible and able to work independently. He possess factory-based production knowledge and know-how and is able to coordinate the crew, supplies and equipment. He works on-site on a rotating or day-shift schedule.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Oversee production planning and logistics	<ul style="list-style-type: none"> • Review specifications, shop drawings and job orders documents • Plan sequence of events for production schedule • Calculate labour and equipment requirements • Conduct review of outcomes of coordination meetings among relevant stakeholders • Draft logistics schedules ensuring materials are purchased in alignment with output production and delivery timeline • Conduct current production estimates and output calculations • Communicate with relevant stakeholders to meet time, cost, and quality objectives • Supervise maintenance activities for machines and equipment in accordance with asset integrity standards and practices 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Fire Safety Act • Environmental Protection and Management Act • Workplace Safety and Health (WSH) Act
Manage factory production	<ul style="list-style-type: none"> • Check tender specifications to submit Request for Information (RFI) in the event of disagreement • Apply established policies and procedures to raise awareness and manage factory sites risks • Assess production progress reports • Assess regular inspections outcomes to align with relevant compliance, regulatory and legislative requirements • Plan for storage space, logistic arrangement and transportation of deliverables to construction sites in alignment with logistics schedule • Assess that procedures taken to measure production components are correct • Investigate causes of production faults • Plan manpower allocation for improved efficiency 	
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Conduct research on latest developments in the built environment trends and technologies • Assess the viability of proposed continuous improvement initiatives to improve time, cost and quality management • Gather data for time and cost management improvement plans 	
Drive safety and sustainability	<ul style="list-style-type: none"> • Ensure compliance with Workplace Safety and Health (WSH) policies and practices • Assess records of accidents and incidents against WSH policies and practices • Apply organisational environmental sustainability and green building standards and guidelines • Facilitate inspections to ensure compliance with organisational health and safety policies, processes and procedures 	

Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

Production Manager/Assistant Production Manager

TECHNICAL SKILLS AND COMPETENCIES			
Additive Manufacturing	Level 3	Maintenance Strategy Development	Level 4
Asset Management	Level 4	Manpower Planning	Level 3
Automated Equipment and Control Systems Configuration	Level 3	Manufacturing Process Management	Level 3
Automated Operation Monitoring	Level 2	Manufacturing Systems Operation and Control	Level 3
Automated Process Design	Level 4	Process Improvement and Optimisation	Level 3
Automation Process Control	Level 4	Process Operations Troubleshooting	Level 3
Building Information Modelling Application	Level 4	Process Optimisation	Level 4
Commissioning and Start-up Management	Level 3	Process Unit and Utilities Operations Management	Level 3
Common Data Environment Management	Level 3	Procurement Coordination and Policy Development	Level 3
Condition-based Assets Monitoring Management	Level 3	Production Planning and Scheduling	Level 3
Construction Technology	Level 3	Production Resource Management	Level 4
Continuous Improvement Management	Level 4	Project Management	Level 3
Design for Manufacturing and Assembly	Level 3	Quality System Management	Level 2
Engineering Management of Change	Level 3	Robotic and Automation Technology Application	Level 3
Engineering Safety Standards Interpretation	Level 3	Systems Thinking	Level 3
Engineering Support Management	Level 4	Technical Writing	Level 3
Equipment and Systems Installation and Commissioning Management	Level 2	Technology Application	Level 3
Equipment and Systems Testing	Level 2	Technology Scanning	Level 3
Equipment Qualification	Level 3	Transportation Route and Schedule Planning	Level 2
Facilities Shut-down and Re-start	Level 3	Value Analysis	Level 3
Good Manufacturing Practices Implementation	Level 3	Value Engineering	Level 3
Installation and Assembly	Level 3	Warehouse Space Utilisation	Level 3
Integrated Digital Delivery Application	Level 3	Workplace Safety and Health Framework Development and Implementation	Level 2
Lean Manufacturing	Level 4	Yield Analysis	Level 3
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Leadership	Intermediate	Interpersonal Skills	Intermediate
Decision Making	Intermediate	Problem Solving	Intermediate
Communication	Advanced		

Senior Production Manager

JOB ROLE DESCRIPTION

The Senior Production Manager leads and monitors the planning for production. He/She organises logistics and production schedule and ensures that the organisation has sufficient resources for production to take place in a timely manner.

He is a team player who possesses strong analytical, problem solving and decision making skills. He is also able to interact and communicate with internal and external stakeholders effectively and has strong project management and planning skills. He works within the production site and is required to visit external work sites occasionally.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Oversee production planning and logistics	<ul style="list-style-type: none"> • Determine if additional specifications, shop drawings and job orders documents are necessary • Develop construction masterplan for production schedule and inspection • Analyse project and resource requirements to create labour and machining schedules • Attend project milestone meetings • Plan procurement based on logistics schedule in alignment with delivery of outputs to construction site • Analyse current production estimates and outputs and cascade production output goals • Foster collaboration with relevant stakeholders to meet time, cost, and quality objectives • Implement asset integrity standards and practices 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Fire Safety Act • Environmental Protection and Management Act • Workplace Safety and Health (WSH) Act
Manage factory production	<ul style="list-style-type: none"> • Review construction contractual and tender documents for submission • Implement established policies and procedures to raise awareness and manage factory sites risks • Monitor building progress in alignment with time, cost, and quality guidelines • Manage cases of non-compliance to align with relevant compliance, regulatory and legislative requirements • Monitor logistic arrangement on of deliverables in alignment with logistics schedules • Implement policies and procedures for accurate measurements • Supervise investigations of the causes of production faults • Review manpower allocation plan for efficiency considerations 	
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Evaluate the feasibility of latest built environment trends and technologies • Conduct cost-benefit analyses on the implementation of new technologies • Implement latest built environment trends and technologies according to organisation's strategic direction • Propose continuous improvement initiatives to improve time and cost management • Implement data and documentation management processes 	

Senior Production Manager

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Drive safety and sustainability	<ul style="list-style-type: none"> • Monitor compliance with Workplace Safety and Health (WSH) policies and practices • Ensure proper closure of WSH accident and incident investigations and notifications to relevant authorities • Implement organisational environmental sustainability and green building standards and guidelines • Ensure inspections comply with organisational health and safety policies, processes and procedures 	Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

TECHNICAL SKILLS AND COMPETENCIES

Additive Manufacturing	Level 4	Integrated Digital Delivery Application	Level 4
Asset Management	Level 5	Lean Manufacturing	Level 5
Automated Equipment and Control Systems Configuration	Level 4	Maintenance Strategy Development	Level 5
Automated Operation Monitoring	Level 3	Manpower Planning	Level 4
Automated Process Design	Level 5	Manufacturing Process Management	Level 4
Automation Process Control	Level 5	Manufacturing Systems Operation and Control	Level 4
Building Information Modelling Application	Level 4	Plant Economic Modelling	Level 4
Commissioning and Start-up Management	Level 4	Process Improvement and Optimisation	Level 4
Common Data Environment Management	Level 4	Process Operations Troubleshooting	Level 4
Condition-based Assets Monitoring Management	Level 4	Process Optimisation	Level 5
Construction Technology	Level 4	Process Unit and Utilities Operations Management	Level 5
Continuous Improvement Management	Level 5	Procurement Coordination and Policy Development	Level 4
Design for Manufacturing and Assembly	Level 4	Production Planning and Scheduling	Level 4
Engineering Management of Change	Level 4	Production Resource Management	Level 5
Engineering Safety Standards Interpretation	Level 4	Project Management	Level 4
Engineering Support Management	Level 5	Project Risk Management	Level 4
Equipment and Systems Installation and Commissioning Management	Level 3	Quality System Management	Level 4
Equipment and Systems Testing	Level 3	Robotic and Automation Technology Application	Level 4
Equipment Qualification	Level 4	Systems Thinking	Level 4
Facilities Shut-down and Re-start	Level 4	Technical Writing	Level 4
Good Manufacturing Practices Implementation	Level 4	Technology Application	Level 4
Installation and Assembly	Level 4	Technology Scanning	Level 4

Senior Production Manager

TECHNICAL SKILLS AND COMPETENCIES			
Test Planning	Level 4	Warehouse Space Utilisation	Level 4
Transportation Route and Schedule Planning	Level 3	Workplace Safety and Health Framework Development and Implementation	Level 3
Value Analysis	Level 4	Yield Analysis	Level 4
Value Engineering	Level 3		
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Leadership	Advanced	Resource Management	Advanced
Decision Making	Advanced	Interpersonal Skills	Advanced
Communication	Advanced		

Quality Assurance Supervisor/ Quality Control Supervisor

JOB ROLE DESCRIPTION

The Quality Assurance Supervisor/Quality Control Supervisor assists in conducting quality inspections and is familiar with the organisation's production processes and the relevant quality assurance requirements and regulatory guidelines. He/She gathers data to identify non-conformances with relevant standards and requirements.

He is responsible and able to work independently. He possesses strong communication skills to relay the quality assurance and control standards across various departments. He works on-site to oversee quality assurance and control across production lines.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Develop quality assurance and quality control plan	<ul style="list-style-type: none"> • Assist to prepare quality assurance and quality control plan • Document systems and controls that organisation has put in place • Identify conditions that may affect production quality • Consolidate project timeline data and carry out inspections for quality checks at different phases of project 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Fire Safety Act • Environmental Protection and Management Act • Workplace Safety and Health (WSH) Act
Drive quality assurance processes	<ul style="list-style-type: none"> • Implement inspection checklists • Assist to conduct internal quality audit inspections to verify that production processes align with relevant quality assurance requirements organisation's quality guidelines • Collate qualification and employment data on staff involved in the projects • Collate data of the suppliers and subcontractors engaged for the projects • Assist to conduct inspections to ensure that materials used comply with relevant quality assurance requirements and regulatory guidelines 	
Establish quality control procedures	<ul style="list-style-type: none"> • Collate and compile data from quality inspections • Assist to conduct site surveillance to adhere to quality control procedures • Assist to conduct inspections on deliverables to identify defects • Prepare quality control records and documentation • Follow up with production team on the corrective actions implemented for defects 	
Drive safety and sustainability	<ul style="list-style-type: none"> • Comply with Workplace Safety and Health (WSH) policies and practices • Conduct inspections to ensure compliance with organisational health and safety policies, processes and procedures • Follow organisational environmental sustainability and green building standards and guidelines during inspections 	

Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

Quality Assurance Supervisor/ Quality Control Supervisor

TECHNICAL SKILLS AND COMPETENCIES			
Analytical Method Validation	Level 2	Process Control	Level 3
Automation Process Control	Level 3	Process Improvement and Optimisation	Level 2
Audit Management	Level 2	Process Monitoring	Level 3
Common Data Environment Management	Level 2	Process Validation	Level 2
Computerised Systems Validation	Level 3	Product Testing	Level 3
Condition-based Assets Monitoring Management	Level 2	Product Testing Management	Level 2
Design for Manufacturing and Assembly	Level 2	Quality Assurance Management	Level 2
Engineering Management of Change	Level 3	Quality Control Management	Level 2
Good Manufacturing Practices Implementation	Level 3	Quality System Management	Level 3
Integrated Digital Delivery Application	Level 2	Technical Writing	Level 2
Materials Qualification	Level 2	Workplace Safety and Health Framework Development and Implementation	Level 1
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Communication	Intermediate	Creative Thinking	Basic
Problem Solving	Basic	Interpersonal Skills	Intermediate
Decision Making	Basic		

Quality Assurance Manager/Quality Control Manager/Quality Assurance Engineer/Quality Control Engineer/Planner

JOB ROLE DESCRIPTION

The Quality Assurance Manager/Quality Control Manager/Quality Assurance Engineer/Quality Control Engineer/Planner conducts quality inspections and is familiar with the organisation's production processes and the relevant quality assurance requirements and regulatory guidelines. He/She analyses data to identify non-conformances with relevant standards and requirements.

He is meticulous, has a keen eye for details and possesses good planning and coordination skills. He works on-site and has to coordinate production/supply lines and/or implement quality assurance and quality control plans.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Oversee production planning and logistics	<ul style="list-style-type: none"> • Consolidate specifications and job orders and plan for production lines • Collaborate with relevant stakeholders to meet the expected production schedules • Plan allocation of manpower and equipment for production lines • Plan for storage of materials and deliverables held in the factory • Draft maintenance schedules 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Fire Safety Act • Environmental Protection and Management Act • Workplace Safety and Health (WSH) Act
Manage factory production	<ul style="list-style-type: none"> • Prepare production progress reports for relevant stakeholders • Prepare Project Quality Plan (PQP) for inspection purposes • Update relevant stakeholders about transportation of deliverables to the sites 	
Develop quality assurance and quality control plan	<ul style="list-style-type: none"> • Prepare Quality Assurance and Quality Control plans • Assess the systems and controls that organisation has put in place • Provide solutions to pre-empt conditions affecting production quality and recommendations for improvement • Provide methods to carry out quality assurance and quality control procedures • Plan for inspections at different phases of the project 	
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Implement risk management plans and risk controls in alignment with organisation's risk management framework • Conduct research on latest techniques available to integrate into the organisation's quality management system • Propose continuous improvement initiatives to improve quality management system 	
Drive quality assurance processes	<ul style="list-style-type: none"> • Draft inspection checklists • Conduct internal quality audit inspections to • Verify that production processes align with relevant quality assurance requirements organisation's quality guidelines • Analyse personnel data to ensure that they possess the relevant capabilities and experience for the job level • Analyse suppliers and subcontractors information to ensure compliance with the necessary certifications from relevant build and construction authorities • Communicate across disciplines and production teams to maintain high quality assurance standards • Conduct inspections to ensure that materials used comply with relevant quality assurance requirements and regulatory guidelines • Communicate suspension of production to production team 	

Quality Assurance Manager/Quality Control Manager/Quality Assurance Engineer/Quality Control Engineer/Planner

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Establish quality control procedures	<ul style="list-style-type: none"> Analyse quality performance data Conduct site surveillance to adhere to quality control procedures Conduct inspections on deliverables to identify defects Identify quality control issues or risks Evaluate if corrective actions taken are accurate and implemented effectively 	<p>Note: Performance Expectations are non-exhaustive and subject to prevailing regulations</p>
Drive safety and sustainability	<ul style="list-style-type: none"> Assess compliance with Workplace Safety and Health (WSH) policies and practices Assess inspections to ensure compliance with organisational health and safety policies, processes and procedures Apply organisational environmental sustainability and green building standards and guidelines during inspections 	

TECHNICAL SKILLS AND COMPETENCIES

Analytical Method Validation	Level 3	Process Control	Level 4
Asset Management	Level 4	Process Improvement and Optimisation	Level 3
Audit Management	Level 3	Process Monitoring	Level 4
Automation Process Control	Level 4	Process Optimisation	Level 4
Common Data Environment Management	Level 3	Process Validation	Level 3
Computerised Systems Validation	Level 3	Product Testing	Level 4
Condition-based Assets Monitoring Management	Level 3	Product Testing Management	Level 3
Continuous Improvement Management	Level 4	Production Planning and Scheduling	Level 3
Design for Manufacturing and Assembly	Level 3	Production Resource Management	Level 4
Engineering Management of Change	Level 4	Quality Assurance Management	Level 3
Engineering Safety Standards Interpretation	Level 3	Quality Control Management	Level 3
Equipment and Systems Installation and Commissioning Management	Level 3	Quality System Management	Level 4
Good Manufacturing Practices Implementation	Level 3	Technical Writing	Level 3
Integrated Digital Delivery Application	Level 3	Technology Scanning	Level 3
Maintenance Strategy Development	Level 4	Warehouse Space Utilisation	Level 3
Manpower Planning	Level 3	Workplace Safety and Health Framework Development and Implementation	Level 2
Materials Qualification	Level 3		

GENERIC SKILLS AND COMPETENCIES (TOP 5)

Leadership	Intermediate	Interpersonal Skills	Intermediate
Decision Making	Intermediate	Problem Solving	Intermediate
Communication	Advanced		

Senior Quality Assurance Manager/ Senior Quality Control Manager/Senior Planner

JOB ROLE DESCRIPTION

The Senior Quality Assurance Manager/Senior Quality Control Manager/Senior Planner implements all quality inspections on site and off site and policies to ensure adherence to the relevant quality assurance requirements and regulatory guidelines.

He is a team player who possesses strong analytical and problem-solving skills. He is also meticulous, thorough and methodical. He works on site and manages coordination across the production and quality assurance and quality control teams.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Oversee production planning and logistics	<ul style="list-style-type: none"> • Review allocation plans for production lines • Review allocation plans of manpower and equipment for production lines • Review storage plans to ensure sufficient storage capacity for materials and deliverables held in factory • Review maintenance schedules 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Fire Safety Act • Environmental Protection and Management Act • Workplace Safety and Health (WSH) Act
Manage factory production	<ul style="list-style-type: none"> • Review production process reports for accuracy • Review Project Quality Plan (PQP) for accuracy • Resolve issues related to transportation of deliverables to the sites 	
Develop quality assurance and quality control plan	<ul style="list-style-type: none"> • Evaluate quality assurance and quality control plans • Evaluate effectiveness of organisation's systems and controls for upcoming projects • Evaluate effectiveness of solutions provided to pre-empt conditions that may affect production quality • Oversee that all quality personnel are adequately trained for their responsibilities • Oversee the planning of inspections at different phases of the project 	
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Develop risk management plans and risk controls in alignment with organisation's risk management framework • Evaluate if the latest techniques can enhance the organisation's quality management system • Review continuous improvement initiatives to improve quality management system 	
Drive quality assurance processes	<ul style="list-style-type: none"> • Analyse inspection checklists • Report internal quality audit inspections outcomes • Develop reports for internal non-conformance incidents and ensure that timely remedial actions are taken • Develop reports for external non-conformance incidents and ensure that timely remedial actions are taken • Assess quality assurance standards against stakeholders' expectations • Implement checks to ensure that materials comply with relevant quality assurance requirements and regulatory guidelines • Determine production continuity and/or suspension with reference to materials qualifications, quality assurance requirements and regulatory guidelines 	

Senior Quality Assurance Manager/ Senior Quality Control Manager/Senior Planner

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Establish quality control procedures	<ul style="list-style-type: none"> • Determine and eliminate sources of quality problems for process improvement • Promote adherence to established quality control procedures • Establish inspection protocols to identify defects • Determine strategies for addressing quality control issues or risks • Oversee that corrective actions are implemented timely to prevent recurrences of quality related issues 	<p>Note: Performance Expectations are non-exhaustive and subject to prevailing regulations</p>
Drive safety and sustainability	<ul style="list-style-type: none"> • Monitor compliance with Workplace Safety and Health (WSH) policies and practices • Monitor inspections on health and safety policies, processes and procedures based on established organisational policies and procedures • Implement organisational environmental sustainability and green building standards and guidelines during inspections 	

TECHNICAL SKILLS AND COMPETENCIES

Analytical Method Validation	Level 4	Plant Economic Modelling	Level 4
Asset Management	Level 5	Process Control	Level 5
Audit Management	Level 4	Process Improvement and Optimisation	Level 4
Automation Process Control	Level 4	Process Monitoring	Level 5
Common Data Environment Management	Level 4	Process Optimisation	Level 5
Computerised Systems Validation	Level 4	Process Validation	Level 4
Condition-based Assets Monitoring Management	Level 4	Product Testing	Level 5
Continuous Improvement Management	Level 5	Product Testing Management	Level 4
Design for Manufacturing and Assembly	Level 4	Production Planning and Scheduling	Level 4
Engineering Management of Change	Level 4	Production Resource Management	Level 5
Engineering Safety Standards Interpretation	Level 4	Quality Assurance Management	Level 4
Equipment and Systems Installation and Commissioning Management	Level 4	Quality Control Management	Level 4
Good Manufacturing Practices Implementation	Level 4	Quality System Management	Level 5
Integrated Digital Delivery Application	Level 4	Technical Writing	Level 4
Maintenance Strategy Development	Level 5	Test Planning	Level 4
Manpower Planning	Level 4	Warehouse Space Utilisation	Level 4
Materials Qualification	Level 4	Workplace Safety and Health Framework Development and Implementation	Level 3

Senior Quality Assurance Manager/ Senior Quality Control Manager/Senior Planner

GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Leadership	Advanced	Resource Management	Advanced
Decision Making	Advanced	Interpersonal Skills	Advanced
Communication	Advanced		

Factory Manager

JOB ROLE DESCRIPTION

The Factory Manager oversees the overall planning, development and execution of production and quality control or quality assurance processes. He/She establishes the output goals for each project and develops procedures and policies to achieve these goals. He defines the criteria for inspections and implements processes to enhance quality control.

He is a team leader who possesses high technical and engineering competence. He drives strategies to ensure quality assurance in production and oversees that the project is successful.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Oversee production planning and logistics	<ul style="list-style-type: none"> • Define strategies for evaluation of specifications, shop drawings and job orders • Oversee production schedules and sequence of events and inspections • Endorse labour and machining schedules • Evaluate progress updates to ensure alignment with work schedules • Endorse logistics schedules • Establish production output goals • Define production and project time, cost, and quality objectives • Develop asset integrity standards and practices and oversee that maintenance takes place in accordance with maintenance schedules 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Fire Safety Act • Environmental Protection and Management Act • Workplace Safety and Health (WSH) Act
Manage factory production	<ul style="list-style-type: none"> • Endorse construction contractual and tender documents for submission • Develop policies and procedures to raise awareness and manage factory site risks • Oversee that building progress is in alignment with time, cost, and quality guidelines • Define standards of compliance and set guidelines to address non-compliance issues • Oversee that deliverables are transported to construction sites in alignment with logistic schedules • Develop standards for accurate measurements • Recommend corrective actions to rectify production faults • Approve manpower allocation plan 	
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Keep abreast of latest developments in the built environment trends and technologies • Evaluate benefits, trade-offs and impact of new technologies • Lead the adoption of latest built environment trends and technologies • Drive a culture of continuous improvement to obtain time and cost improvements • Validate risk management plans and risk controls to ensure compliance with organisation's risk management framework • Keep organisation updated of latest techniques available to achieve product quality • Drive a culture of continuous improvement for quality management • Establish processes to improve data and documentation management 	

Factory Manager

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Drive quality assurance processes	<ul style="list-style-type: none"> • Define criteria for inspection checklists • Determine thresholds for quality audit inspections • Endorse reports for internal and/or external non-conformance incidents and oversee that incidents are resolved • Keep organisation updated of latest relevant assurance requirements and regulatory guidelines • Establish guidelines and protocols for non-compliance with relevant quality assurance requirements and regulatory guidelines 	<p>Note: Performance Expectations are non-exhaustive and subject to prevailing regulations</p>
Drive safety and sustainability	<ul style="list-style-type: none"> • Drive compliance with Workplace Safety and Health (WSH) policies and practices • Establish organisational health and safety policies, processes and procedures in alignment with WSH policies and practices • Recommend improvements based on WSH accident and incident findings and trends • Drive organisational adoption of environmental sustainability and green building strategies • Monitor inspections on health and safety policies, processes and procedures based on established organisational policies and procedures 	

TECHNICAL SKILLS AND COMPETENCIES

Additive Manufacturing	Level 5	Equipment and Systems Installation and Commissioning Management	Level 4
Asset Management	Level 6	Equipment and Systems Testing	Level 3
Audit Management	Level 5	Equipment Qualification	Level 4
Automated Equipment and Control Systems Configuration	Level 5	Good Manufacturing Practices Implementation	Level 5
Automated Process Design	Level 6	Installation and Assembly	Level 5
Automation Process Control	Level 6	Integrated Digital Delivery Application	Level 5
Building Information Modelling Application	Level 5	Lean Manufacturing	Level 6
Commissioning and Start-up Management	Level 5	Maintenance Strategy Development	Level 6
Common Data Environment Management	Level 5	Manpower Planning	Level 5
Computerised Systems Validation	Level 5	Manufacturing Process Management	Level 5
Condition-based Assets Monitoring Management	Level 5	Manufacturing Systems Operation and Control	Level 5
Construction Technology	Level 5	Materials Qualification	Level 5
Continuous Improvement Management	Level 6	Plant Economic Modelling	Level 5
Design for Manufacturing and Assembly	Level 5	Process Improvement and Optimisation	Level 5
Engineering Management of Change	Level 5	Process Operations Troubleshooting	Level 5
Engineering Safety Standards Interpretation	Level 5	Process Optimisation	Level 6
Engineering Support Management	Level 5	Process Unit and Utilities Operations Management	Level 6

Factory Manager

TECHNICAL SKILLS AND COMPETENCIES			
Process Validation	Level 5	Systems Thinking	Level 5
Procurement Coordination and Policy Development	Level 5	Technology Scanning	Level 5
Production Planning and Scheduling	Level 5	Test Planning	Level 5
Production Resource Management	Level 6	Transportation Route and Schedule Planning	Level 4
Project Management	Level 5	Value Analysis	Level 5
Project Risk Management	Level 5	Value Engineering	Level 4
Quality Assurance Management	Level 5	Warehouse Space Utilisation	Level 5
Quality Control Management	Level 5	Workplace Safety and Health Framework Development and Implementation	Level 4
Quality System Management	Level 6	Yield Analysis	Level 5
Robotic and Automation Technology Application	Level 5		
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Leadership	Advanced	Resource Management	Advanced
Decision Making	Advanced	Interpersonal Skills	Advanced
Communication	Advanced		

Notes

Construction Management

JOB ROLES	PAGE
Site Supervisor/Trade Supervisor/Project Coordinator	92
Engineer/Assistant Engineer	94
Assistant Project Manager (Construction)/Construction Manager	96
Senior Project Manager (Construction)/Project Manager (Construction)	98
Project Director (Construction)	100
Director/Managing Director/Chief Executive/General Manager	143



Deputy Project Manager

Alford Yu
KTC Group

PROGRESSING ON THE RIGHT TRACK

For Alford Yu, Singapore's MRT stations and railway lines are more than a daily commute. It is a feat of engineering, architecture and collaboration. "Constructing Singapore's railway is an enormous endeavour."

This insight came from Alford's experience at the forefront of Singapore's rail construction. Currently, he is leading a team from KTC Group to construct Orchard Boulevard MRT station for the upcoming Thomson-East Coast Line. Over his six-year tenure at the company, he advanced steadily, gained valuable experiences and was eventually promoted to Deputy Project Manager.

What does it take to excel in his role? "I consider myself a generalist, where my knowledge to perform my role is very diverse." As Alford explains it, this entails construction methodologies for individual trades involving Architecture, Civil Engineering, and Mechanical and Electrical Engineering, as well as planning skills, negotiation skills, and safety and design considerations. Alford never stops learning as he continues to upgrade himself through courses in project management, construction productivity, BIM Management, and Virtual Design and Construction. He believes in honing his skills to value-add to his work.

Having the right expertise is only half the battle, being a great communicator is essential. When leading

"There are many specialist trades with specific knowledge and related work experience to acquire. Having the Skills Framework would definitely assist me in identifying the capabilities I should build, especially for qualities which employers would look out for in managing their projects."

competitive tender bids, Alford makes it a priority to coordinate with his team members and consultants.

Ultimately, Alford believes anyone entering the industry must be adaptable, open to other viewpoints and able to explain theirs with clarity. "The construction industry is very dynamic, different clients have different requirements. How certain things were previously done may not be applicable to future jobs."

So what is his next goal? Alford sets his sights on two areas: safety and design. "I noticed that I'm lacking in safety knowledge. I want to deepen my understanding of the safety regulations and risk assessment. The design aspect is also something I am enthusiastic about."

Alford recommends the Skills Framework for the Built Environment for practitioners who want to grow their career. "It will be a structured way of understanding what skillsets are required for different types of career paths in this industry," he says. "There are many specialist trades with specific knowledge and related work experience to acquire. Having the Skills Framework would definitely assist me in identifying the capabilities I should build, especially for qualities which employers would look out for in managing their projects."

Site Supervisor/Trade Supervisor/ Project Coordinator

JOB ROLE DESCRIPTION

The Site Supervisor/Trade Supervisor/Project Coordinator supports the day-to-day operations of the construction site, from site preparations to build-out.

He/She is able to work independently, is a team player and possesses excellent problem-solving and interpersonal skills to coordinate between the various disciplines and construction teams. He works on-site on a rotating or day-shift schedule.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage construction phase	<ul style="list-style-type: none"> • Support coordination across the various disciplines and construction teams to align drawings • Support the management of the operations and associated risks based on established policies and procedures • Execute construction plans based on contractual terms on time, cost and quality • Communicate across disciplines and construction teams to maintain high quality assurance and control standards • Carry out regular inspections to ensure compliance with relevant regulatory and legislative requirements, processes and procedures • Supervise subcontractors' work activities 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Electricity Act • Fire Safety Act • Workplace Safety and Health (WSH) Act
Manage project completion and closure	<ul style="list-style-type: none"> • Collate list of errors, defects and variations based on construction plans and drawing designs • Track the list of errors, defects and variations • Support the management of commissioning and testing of components, equipment and systems • Support the preparation of technical documents for project handover and closure • Collate project handover and closure documents for approval and submission in compliance with the relevant regulatory and legislative requirements and maintenance • Track the list of defects identified during the defects liability period 	
Drive safety and sustainability	<ul style="list-style-type: none"> • Comply with Workplace Safety and Health (WSH) policies and practices • Conduct inspections to ensure compliance with organisational health and safety policies, processes and procedures • Report accidents and incidents in accordance with WSH policies and practices • Follow organisational environmental sustainability and green building standards and guidelines 	
		Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

Site Supervisor/Trade Supervisor/ Project Coordinator

TECHNICAL SKILLS AND COMPETENCIES			
Building Information Modelling Application	Level 3	Project Management	Level 2
Construction Technology	Level 2	Project Risk Management	Level 3
Continuous Improvement Management	Level 2	Quality System Management	Level 2
Critical Thinking	Level 3	Regulatory Submission and Clearance	Level 3
Design for Maintainability	Level 1	Site Assessment and Analysis	Level 3
Design for Manufacturing and Assembly	Level 2	Stakeholder Management	Level 3
Design for Safety	Level 2	Technical Inspection	Level 2
Emergency Response Management	Level 2	Technical Writing	Level 2
Equipment and Systems Installation and Commissioning Management	Level 2	Technology Application	Level 2
Equipment and Systems Testing	Level 2	Transportation Route and Schedule Planning	Level 1
Green Building Strategy Implementation	Level 2	Value Engineering	Level 2
Incident and Accident Investigation	Level 2	Workplace Safety and Health Culture Development	Level 2
Integrated Digital Delivery Application	Level 2	Workplace Safety and Health Framework Development and Implementation	Level 1
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Communication	Basic	Interpersonal Skills	Basic
Problem Solving	Basic	Lifelong Learning	Basic
Decision Making	Basic		

Engineer/Assistant Engineer

JOB ROLE DESCRIPTION

The Engineer/Assistant Engineer manages all aspects of the construction site, from site preparations to build-out. He/She ensures that the construction, installation and assembly of components, equipment and systems of the construction is aligned with the construction plans and drawing designs. He adheres to time, cost and quality as specified while complying with relevant regulatory and legislative requirements.

He is responsible and able to work independently. He is technically inclined and possesses excellent problem-solving and interpersonal skills to coordinate between the various disciplines and construction teams. He works on-site on a rotating or day-shift schedule.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage construction phase	<ul style="list-style-type: none">• Coordinate across the various disciplines and construction teams to align drawings• Manage the operations and associated risks based on established policies and procedures• Prepare construction progress reports based on contractual terms on time, cost and quality• Document action items and follow-ups from project meetings• Communicate across disciplines and construction teams to maintain high quality assurance and control standards• Facilitate regular inspections to ensure compliance with relevant regulatory and legislative requirements, processes and procedures• Provide subcontractor guidance on technical aspects	<p>In accordance with:</p> <ul style="list-style-type: none">• Building Control Act• Electricity Act• Fire Safety Act• Workplace Safety and Health (WSH) Act <p>Note: Performance Expectations are non-exhaustive and subject to prevailing regulations</p>
Manage project completion and closure	<ul style="list-style-type: none">• Identify errors, defects and variations based on construction plans and drawing designs• Manage the list of errors, defects and variations• Manage the testing and commissioning of components, equipment and systems• Prepare technical documents for project handover and closure• Support the preparation of project handover and closure documents for approval and submission in compliance with the relevant regulatory, legislative and maintenance requirements• Report defects identified during the defects liability period	
Drive safety and sustainability	<ul style="list-style-type: none">• Comply with Workplace Safety and Health (WSH) policies and practices• Facilitate inspections to ensure compliance with organisational health and safety policies, processes and procedures• Report accidents and incidents in accordance with WSH policies and practices• Follow organisational environmental sustainability and green building standards and guidelines	

Engineer/Assistant Engineer

TECHNICAL SKILLS AND COMPETENCIES			
Building Information Modelling Application	Level 3	Project Management	Level 3
Construction Technology	Level 2	Project Risk Management	Level 3
Continuous Improvement Management	Level 2	Quality System Management	Level 2
Critical Thinking	Level 3	Regulatory Submission and Clearance	Level 3
Design for Maintainability	Level 1	Site Assessment and Analysis	Level 3
Design for Manufacturing and Assembly	Level 3	Stakeholder Management	Level 3
Design for Safety	Level 2	Technical Inspection	Level 2
Emergency Response Management	Level 2	Technical Writing	Level 2
Equipment and Systems Installation and Commissioning Management	Level 2	Technology Application	Level 2
Equipment and Systems Testing	Level 2	Transportation Route and Schedule Planning	Level 2
Green Building Strategy Implementation	Level 2	Value Engineering	Level 2
Incident and Accident Investigation	Level 2	Workplace Safety and Health Culture Development	Level 2
Integrated Digital Delivery Application	Level 2	Workplace Safety and Health Framework Development and Implementation	Level 2
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Communication	Intermediate	Creative Thinking	Basic
Problem Solving	Basic	Interpersonal Skills	Intermediate
Decision Making	Basic		

Assistant Project Manager (Construction)/ Construction Manager

JOB ROLE DESCRIPTION

The Assistant Project Manager (Construction)/Construction Manager manages the execution of construction operations. He/She validates the construction, installation and assembly of components, equipment and systems and completion of activities. He also assess compliance with the relevant regulatory and legislative requirements.

He is meticulous and highly detail-orientated. He possesses strong communication, problem-solving and interpersonal skills to facilitate stakeholder management. He works on-site on a rotating or day-shift schedule.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage construction phase	<ul style="list-style-type: none"> • Support the preparation of construction contractual and tender documents for approvals and submissions • Identify construction requirements based on project size, scope and timeline • Apply established policies and procedures to manage construction sites and associated risks • Assess construction progress reports based on contractual terms to manage time, cost and quality • Verify action items and follow-ups from project meetings • Assess quality assurance and control standards against stakeholders' expectations • Assess regular inspections to ensure compliance with relevant regulatory and legislative requirements, processes and procedures • Assess subcontractors' work activities against performance expectations 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Electricity Act • Fire Safety Act • Workplace Safety and Health (WSH) Act
Manage project completion and closure	<ul style="list-style-type: none"> • Verify the overall list of errors, defects and variations based on construction plans and drawing designs • Verify the completion of the overall list of errors, defects and variations • Assess the effectiveness of established guidelines and procedures for commissioning and testing of components, equipment and systems • Verify technical documents for project handover and closure • Prepare project handover and closure documents for approval and submission in compliance with the relevant regulatory, legislative and maintenance requirements • Assess the defects identified during the defects liability period for appropriate follow-ups 	
Drive safety and sustainability	<ul style="list-style-type: none"> • Ensure compliance with Workplace Safety and Health (WSH) policies and practices • Assess inspections to ensure compliance with organisational health and safety policies, processes and procedures • Assess records of accidents and incidents against WSH policies and practices • Apply organisational environmental sustainability and green building standards and guidelines 	

Assistant Project Manager (Construction)/ Construction Manager

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage people and organisational functions	<ul style="list-style-type: none"> • Perform on-the-job coaching • Track workers' productivity • Conduct research on prospective clients' needs for business development opportunities 	<p>Note: Performance Expectations are non-exhaustive and subject to prevailing regulations</p>
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Conduct research on latest developments in the built environment trends and technologies • Assess the viability of proposed continuous improvement initiatives to improve time, cost and quality management • Implement risk management plans and risk controls in alignment with organisation's risk management framework 	

TECHNICAL SKILLS AND COMPETENCIES

Building Information Modelling Application	Level 3	Integrated Digital Delivery Application	Level 2
Business Development	Level 2	People Management	Level 3
Construction Technology	Level 3	Project Management	Level 4
Continuous Improvement Management	Level 3	Project Risk Management	Level 3
Critical Thinking	Level 3	Quality System Management	Level 3
Data Collection and Analysis	Level 3	Regulatory Submission and Clearance	Level 3
Design for Maintainability	Level 2	Site Assessment and Analysis	Level 3
Design for Manufacturing and Assembly	Level 4	Stakeholder Management	Level 4
Design for Safety	Level 3	Technical Inspection	Level 3
Emergency Response Management	Level 3	Technical Writing	Level 3
Engineering Contract Management	Level 2	Technology Application	Level 3
Equipment and Systems Installation and Commissioning Management	Level 3	Transportation Route and Schedule Planning	Level 3
Equipment and Systems Testing	Level 3	Value Engineering	Level 3
Green Building Strategy Implementation	Level 3	Workplace Safety and Health Culture Development	Level 3
Incident and Accident Investigation	Level 3	Workplace Safety and Health Framework Development and Implementation	Level 3

GENERIC SKILLS AND COMPETENCIES (TOP 5)

Leadership	Intermediate	Interpersonal Skills	Intermediate
Decision Making	Intermediate	Problem Solving	Intermediate
Communication	Advanced		

Senior Project Manager (Construction)/ Project Manager (Construction)

JOB ROLE DESCRIPTION

The Senior Project Manager (Construction)/Project Manager (Construction) leads and monitors the execution of construction operations. He/She optimises project plans, leads constructability reviews for construction, installation and assembly of components, equipment and systems and completion activities. He adheres and monitors compliance to the relevant regulatory and legislative requirements. He oversees the implementation of sustainable engineering strategies, procedures and guidelines to promote a culture of continuous improvement.

He communicates information in a clear and concise manner and interact proactively to obtain buy-ins of stakeholders. He possesses strong analytical, project management, problem-solving and decision-making skills. He works in a fast-paced work environment and has to travel occasionally to project sites.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage construction phase	<ul style="list-style-type: none"> • Review construction contractual and tender documents for approvals and submissions • Prepare construction plans based on project requirements • Implement established policies and procedures to manage construction sites and associated risks • Monitor construction progress based on contractual terms on time, cost and quality • Manage action items and follow-ups from project meetings • Manage stakeholders' expectations on quality assurance and control standards • Manage non-compliance issues with regulatory and legislative requirements, processes and procedures • Manage subcontractors to support progress and completion of construction works 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Electricity Act • Fire Safety Act • Workplace Safety and Health (WSH) Act
Manage project completion and closure	<ul style="list-style-type: none"> • Manage stakeholders' expectations on the overall list of errors, defects and variations to meet quality standards • Manage stakeholders to validate completion of the overall list of errors, defects and variations • Monitor the commissioning and testing of components, equipment and systems based on established guidelines and procedures • Review project handover and closure documents for approval and submission in compliance with the relevant regulatory, legislative, and maintenance requirements • Manage the defects identified during the defects liability period 	
Drive safety and sustainability	<ul style="list-style-type: none"> • Monitor compliance with Workplace Safety and Health (WSH) policies and practices • Monitor inspections on WSH policies, processes and procedures based on established organisational policies and procedures • Ensure proper closure of WSH accident and incident investigations and notifications to relevant authorities • Implement organisational environmental sustainability and green building standards and guidelines 	
Manage people and organisational functions	<ul style="list-style-type: none"> • Identify recruitment needs and areas for technical and business management training and development • Monitor achievement of project performance metrics • Monitor financial health of operations • Develop relationships with prospective customers for business development opportunities 	

Senior Project Manager (Construction)/ Project Manager (Construction)

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Evaluate the feasibility of latest developments in the built environment trends and technologies • Conduct cost-benefit analysis on implementation of new technologies • Implement latest build environment technologies according to organisation's strategic direction • Propose continuous improvement initiatives to improve time, cost and quality management • Develop risk management plans and risk controls in alignment with organisation's risk management framework 	<p>Note: Performance Expectations are non-exhaustive and subject to prevailing regulations</p>

TECHNICAL SKILLS AND COMPETENCIES

Building Information Modelling Application	Level 4	Manpower Planning	Level 4
Business Development	Level 3	People Management	Level 4
Business Performance Management	Level 4	Project Feasibility Assessment	Level 4
Construction Technology	Level 4	Project Management	Level 5
Continuous Improvement Management	Level 4	Project Risk Management	Level 4
Critical Thinking	Level 4	Quality System Management	Level 4
Data Collection and Analysis	Level 4	Regulatory Submission and Clearance	Level 4
Design for Maintainability	Level 2	Site Assessment and Analysis	Level 4
Design for Manufacturing and Assembly	Level 4	Stakeholder Management	Level 5
Design for Safety	Level 3	Technical Inspection	Level 3
Dispute Resolution	Level 4	Technical Writing	Level 3
Emergency Response Management	Level 4	Technology Application	Level 4
Engineering Contract Management	Level 3	Technology Scanning	Level 4
Equipment and Systems Installation and Commissioning Management	Level 4	Transportation Route and Schedule Planning	Level 3
Equipment and Systems Testing	Level 3	Value Engineering	Level 3
Green Building Strategy Implementation	Level 4	Workflow Management	Level 4
Incident and Accident Investigation	Level 3	Workplace Safety and Health Culture Development	Level 4
Integrated Digital Delivery Application	Level 3	Workplace Safety and Health Framework Development and Implementation	Level 4

GENERIC SKILLS AND COMPETENCIES (TOP 5)

Leadership	Advanced	Resource Management	Advanced
Decision Making	Advanced	Interpersonal Skills	Advanced
Communication	Advanced		

Project Director (Construction)

JOB ROLE DESCRIPTION

The Project Director (Construction) oversees the overall construction operations. He/She develops, enhances and influences the overall roadmap and direction for construction projects. He strategises and establishes policies and procedures to manage time, cost, quality, health, safety and environmental issues effectively. He formulates and drive sustainable strategies, procedures and guidelines to promote a culture of continuous improvement. He also leads a team of senior engineers to ensure efficiency in construction operations.

He possesses high level of technical and engineering competence, as well as social and leadership skills to champion project sustainability interventions. He is also able to address ethical and professional issues in accordance with professional and ethical codes of practice. He is highly analytical and possesses strong project management, problem-solving and decision-making skills. He works in a fast-paced work environment and is expected to travel occasionally to project sites.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage construction phase	<ul style="list-style-type: none"> • Endorse construction contractual and tender documents for submissions • Refine construction plans to ensure alignment with the overall project plans and requirements • Establish policies and procedures to manage construction sites risks in alignment with industry standards • Oversee construction progress based on contractual terms on time, cost and quality • Establish connection with the various disciplines to manage action items and follow-ups from project meetings effectively • Influence a culture of maintaining high quality assurance and control standards • Establish policies and procedures to ensure compliance with relevant regulatory and legislative requirements, processes and procedures • Oversee the engagement of subcontractors to support progress and completion of construction works 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Electricity Act • Fire Safety Act • Workplace Safety and Health (WSH) Act
Manage project completion and closure	<ul style="list-style-type: none"> • Oversee the management of stakeholders' expectations on the overall list of errors, defects and variations • Oversee the management of stakeholders to validate completion of the overall list of errors, defects and variations • Establish guidelines and procedures for commissioning and testing of components, equipment and systems • Endorse project handover and closure documents for submissions to relevant authorities • Oversee the management and resolution of defects identified during the defects liability period 	
Drive safety and sustainability	<ul style="list-style-type: none"> • Drive compliance with Workplace Safety and Health (WSH) policies and practices • Establish organisational health and safety policies, processes and procedures in alignment with WSH policies and practices • Recommend improvements based on WSH accident and incident findings and trends • Drive organisational adoption of environmental sustainability and green building strategies 	

Project Director (Construction)

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage people and organisational functions	<ul style="list-style-type: none"> • Drive talent recruitment and development in alignment with organisational strategy • Drive team performance to achieve project performance metrics • Manage the financial inflow and outflow against allocated budgets and forecasts • Establish strategic business development objectives 	<p>Note: Performance Expectations are non-exhaustive and subject to prevailing regulations</p>
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Keep abreast of latest developments in the built environment trends and technologies • Evaluate benefits, trade-offs and impact of new technologies • Lead the adoption of the latest built environment trends and technologies • Drive a culture of continuous improvement to obtain time, cost and quality improvements • Validate risk management plans and risk controls to ensure compliance with organisation's risk management framework 	

TECHNICAL SKILLS AND COMPETENCIES

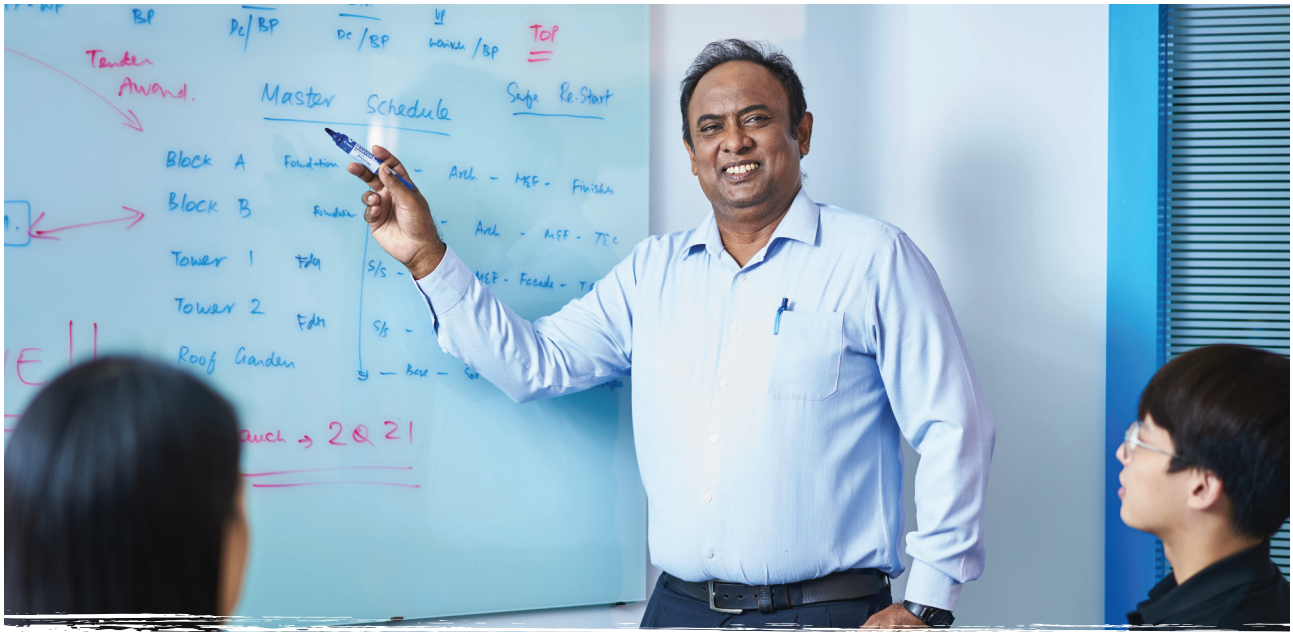
Business Development	Level 4	Manpower Planning	Level 5
Business Performance Management	Level 5	People Management	Level 5
Construction Technology	Level 5	Project Feasibility Assessment	Level 5
Continuous Improvement Management	Level 5	Project Management	Level 6
Critical Thinking	Level 5	Project Risk Management	Level 5
Data Collection and Analysis	Level 5	Quality System Management	Level 5
Design for Maintainability	Level 3	Regulatory Submission and Clearance	Level 5
Design for Manufacturing and Assembly	Level 5	Site Assessment and Analysis	Level 5
Design for Safety	Level 4	Stakeholder Management	Level 6
Dispute Resolution	Level 5	Technical Inspection	Level 4
Emergency Response Management	Level 5	Technical Writing	Level 4
Engineering Contract Management	Level 4	Technology Scanning	Level 5
Equipment and Systems Installation and Commissioning Management	Level 5	Transportation Route and Schedule Planning	Level 4
Equipment and Systems Testing	Level 4	Value Engineering	Level 4
Green Building Strategy Implementation	Level 5	Workflow Management	Level 5
Incident and Accident Investigation	Level 4	Workplace Safety and Health Culture Development	Level 5
Integrated Digital Delivery Application	Level 3	Workplace Safety and Health Framework Development and Implementation	Level 5

GENERIC SKILLS AND COMPETENCIES (TOP 5)

Leadership	Advanced	Resource Management	Advanced
Decision Making	Advanced	Interpersonal Skills	Advanced
Communication	Advanced		

Project Management

JOB ROLES	PAGE
Assistant Project Manager/Project Management Executive	104
Project Manager	106
Senior Project Manager	108
Project Director (Project Management)	110
Director/Managing Director/Chief Executive/General Manager	143



Assistant Vice President, Project Management

Rajapandi Gopal
CapitaLand Limited

PUSHING THE INDUSTRY FORWARD

As Assistant Vice President of Project Management at CapitaLand, Rajapandi Gopal (Raja) brings a lifetime of experience to his role, having spent more than 27 years in the Built Environment sector.

Starting out as a foreman in the early nineties, Raja recalls the difficulties of managing cross-team communication and coordination. "Technology development is helping to resolve these issues." He mentions the introduction of tools such as Building Information Modelling (BIM) and digital collaboration as positive development in the industry today.

Recounting his career, Raja is proud to have worked on high-profile mega-structure projects, such as Changi Terminal 3. He also gained valuable experience during his three-year assignment to oversee development projects in India.

Raja is a lifelong learner. In addition to his Diploma in Civil Engineering, he holds a Master's Degree in Business Administration from Imperial College London, Master's in Project Management and Bachelor in Building (Construction Management and Economics) degrees from National University of Singapore (NUS).

Now a member of CapitaLand's in-house Project Development and Design Management department, Raja is responsible for overseeing the entire development cycle of a project. This includes ensuring that a project is completed within budget, on-time and able to satisfy its objectives. As a Project Team Leader, he also coordinates

"Passion provides the drive, whereas perseverance makes you more determined to meet a project's goals. However, you need adaptability to navigate complexities."

with relevant in-house departments, the consultants team and contractors to ensure effective delivery. Other responsibilities include reviewing on-site progress, interpreting and managing contracts, analysing progress and proactively responding to any issues during a project's development.

For Raja, excelling at one's responsibilities is not adequate. He takes it upon himself to inspire and provide mentorship to his team. What values would he impart to the next generation? In three words, it would be "Passion, Perseverance and Adaptability."

"Passion provides the drive, whereas perseverance makes you more determined to meet a project's goals. However, you need adaptability to navigate complexities."

These qualities have inspired him to grow and develop himself tirelessly with the guidance of his department heads and former bosses.

Looking ahead, Raja hopes to deepen his understanding of digitalisation tools in the market and how they can be applied and customised for sustainable project developments. He believes that Skills Framework will make an excellent starting point to this journey.

"The Skills Framework is a common platform for individuals, employers and training providers, and tailor-made to bridge the existing skill set gaps to improve employers' business competitiveness, in tandem with progressing one's career," he says.

Assistant Project Manager/ Project Management Executive

JOB ROLE DESCRIPTION

The Assistant Project Manager/Project Management Executive performs relevant research, data collection and coordination to support the Project Manager and Senior Project Manager in the planning and execution of projects. He/She understands the basics of the overall project life cycle.

He has good interpersonal skills and is a team player. He is also well organised and is able to perform tasks assigned to him in an efficient and timely manner. He has to work on-site occasionally.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Conduct project planning	<ul style="list-style-type: none"> • Support the preparation of contractual and tender documents for approvals and submissions • Coordinate the various disciplines and project teams to integrate overall project plan • Comply with relevant regulatory and legislative prerequisites in preparation for project execution • Collate project planning and execution documents for approval and submission in compliance with the relevant regulatory and legislative requirements 	<p>In accordance with:</p> <ul style="list-style-type: none"> • Building Control Act • Workplace Safety and Health (WSH) Act
Drive project progress and completion	<ul style="list-style-type: none"> • Collect data for project progress reporting and benchmarking • Collate variation order requests for approvals • Coordinate with the various disciplines and project teams to work within the project timeline and budget • Follow established quality control policies, processes and procedures • Support the coordination of site meetings with the various project stakeholders • Collate project completion documents for approval and submission in compliance with the relevant regulatory and legislative requirements 	
Drive safety and sustainability	<ul style="list-style-type: none"> • Comply with Workplace Safety and Health (WSH) policies and practices • Conduct inspections to ensure compliance with organisational health and safety policies, processes and procedures • Report accidents and incidents in accordance with WSH policies and practices • Follow organisational environmental sustainability and green building standards and guidelines • Follow established sustainable Business Continuity Management (BCM) plans to support the management of project crisis 	

Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

Assistant Project Manager/ Project Management Executive

TECHNICAL SKILLS AND COMPETENCIES			
Building Information Modelling Application	Level 3	Incident and Accident Investigation	Level 2
Condition-based Assets Monitoring Management	Level 2	Integrated Digital Delivery Application	Level 2
Construction Technology	Level 2	Procurement Coordination and Policy Development	Level 3
Continuous Improvement Management	Level 2	Project Management	Level 3
Critical Thinking	Level 3	Project Risk Management	Level 3
Data Collection and Analysis	Level 3	Quality System Management	Level 2
Design for Maintainability	Level 1	Regulatory Submission and Clearance	Level 3
Design for Manufacturing and Assembly	Level 3	Stakeholder Management	Level 3
Design for Safety	Level 2	Technology Application	Level 2
Emergency Response Management	Level 2	Value Engineering	Level 2
Engineering Contract Management	Level 2	Workplace Safety and Health Culture Development	Level 2
Green Building Strategy Implementation	Level 2	Workplace Safety and Health Framework Development and Implementation	Level 2
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Teamwork	Intermediate	Sense Making	Intermediate
Interpersonal Skills	Intermediate	Decision Making	Basic
Problem Solving	Intermediate		

Project Manager

JOB ROLE DESCRIPTION

The Project Manager is responsible for the overall planning, implementation and completion of projects within specified cost, time and quality. He/She maintains compliance with the relevant regulatory and legislative requirements at all times. He also plays an active role in contributing to the organisation's continuous improvement initiatives.

He possesses strong communication and interpersonal skills to engage and manage various stakeholders. He is resourceful and has excellent planning and time management skills. He is proactive and detail-oriented in his works. He is also able to work under pressure and manage multiple projects. He is expected to work on-site occasionally.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Conduct project planning	<ul style="list-style-type: none"> • Support the preparation of contractual and tender documents for approvals and submissions • Identify project requirements based on project size, scope and timeline • Manage the various disciplines and project teams to integrate overall project plans • Assess integrated project plans for project execution, risk management, safety management and quality assurance and control • Identify relevant regulatory and legislative prerequisites in preparation for project execution • Prepare project planning and execution documents for approval and submission in compliance with the relevant regulatory and legislative requirements 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Workplace Safety and Health (WSH) Act
Drive project progress and completion	<ul style="list-style-type: none"> • Prepare project progress reports • Prepare relevant documents to obtain approvals for variation order requests • Manage the various disciplines and project teams to work within the project timeline and budget • Manage quality standards based on established policies, processes and procedures • Conduct site meetings with the various project stakeholders • Manage overall project delivery on time, cost and quality to maintain contractual, regulatory and legal obligations • Prepare project completion documents for approval and submission in compliance with the relevant regulatory and legislative requirements 	
Drive safety and sustainability	<ul style="list-style-type: none"> • Ensure compliance with Workplace Safety and Health (WSH) policies and practices • Ensure inspections comply with organisational health and safety policies, processes and procedures • Evaluate records of accidents and incidents against WSH policies and practices • Adapt organisational environmental sustainability and green building standards and guidelines • Manage project crisis based on established sustainable Business Continuity Management (BCM) plans 	

Project Manager

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Conduct scanning on latest developments in the built environment trends and technologies • Assess the viability of proposed continuous improvement initiatives to improve time, cost and quality • Implement risk management plans and risk controls in alignment with organisation's risk management framework 	Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

TECHNICAL SKILLS AND COMPETENCIES

Building Information Modelling Application	Level 3	Integrated Digital Delivery Application	Level 2
Condition-based Assets Monitoring Management	Level 3	Procurement Coordination and Policy Development	Level 3
Construction Technology	Level 3	Project Cost	Level 3
Continuous Improvement Management	Level 3	Project Management	Level 4
Critical Thinking	Level 4	Project Risk Management	Level 4
Data Collection and Analysis	Level 4	Quality System Management	Level 3
Design for Maintainability	Level 2	Regulatory Submission and Clearance	Level 4
Design for Manufacturing and Assembly	Level 4	Stakeholder Management	Level 4
Design for Safety	Level 3	Technical Writing	Level 3
Dispute Resolution	Level 4	Technology Application	Level 3
Emergency Response Management	Level 3	Value Engineering	Level 3
Engineering Contract Management	Level 3	Workflow Management	Level 4
Green Building Strategy Implementation	Level 3	Workplace Safety and Health Culture Development	Level 3
Incident and Accident Investigation	Level 3	Workplace Safety and Health Framework Development and Implementation	Level 3

GENERIC SKILLS AND COMPETENCIES (TOP 5)

Leadership	Intermediate	Decision Making	Intermediate
Teamwork	Intermediate	Problem Solving	Intermediate
Communication	Advanced		

Senior Project Manager

JOB ROLE DESCRIPTION

The Senior Project Manager manages numerous large scale and complex projects for the organisation. He/She is responsible for defining project scopes, objectives, plans and performance measuring criteria to ensure that the completion of project deliverables is in accordance with the required standards and expectations. He also leads project reviews to identify synergies and areas of improvements across projects.

He possesses strong planning and problem-solving skills. He is a good negotiator and is able to effectively liaise with different stakeholders to optimise project deliverables. He also demonstrates leadership abilities. He has to work on-site occasionally.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Conduct project planning	<ul style="list-style-type: none"> • Review contractual and tender documents for approvals and submissions • Evaluate project requirements factoring in time, cost and quality • Evaluate the effectiveness of processes and procedures to integrate overall project plan to identify areas for improvement • Propose improvements to integrated project plans for project execution, risk management, safety management and quality assurance and control • Review relevant regulatory and legislative prerequisites in preparation for project execution • Review project planning and execution documents for approval and submission in compliance with the relevant regulatory and legislative requirements 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Workplace Safety and Health (WSH) Act
Drive project progress and completion	<ul style="list-style-type: none"> • Review project progress reports to manage risks and discrepancies • Manage stakeholders to obtain approval on variation order requests • Monitor the management of the various disciplines and project teams to work within the project timeline and budget • Monitor quality standards based on established policies, processes and procedures • Lead site meetings to manage the requests and expectations of project stakeholders • Manage people and material resources to support the progress and completion of projects • Monitor overall project delivery on time, cost and quality to maintain contractual, regulatory and legal obligations • Review project completion documents for approval and submission in compliance with the relevant regulatory and legislative requirements 	
Drive safety and sustainability	<ul style="list-style-type: none"> • Monitor compliance with Workplace Safety and Health (WSH) policies and practices • Monitor inspections on health and safety policies, processes and procedures based on established organisational policies and procedures • Review proper closure of WSH accident and incident investigations and notifications to relevant authorities • Implement organisational environmental sustainability and green building standards and guidelines • Evaluate the effectiveness of established sustainable Business Continuity Management (BCM) plans in managing project crises 	

Senior Project Manager

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage people and organisational functions	<ul style="list-style-type: none"> Identify recruitment needs and areas for technical and business management training and development Monitor achievements of project performance metrics Monitor financial health of operations 	<p>Note: Performance Expectations are non-exhaustive and subject to prevailing regulations</p>
Drive continuous improvement initiatives	<ul style="list-style-type: none"> Evaluate the feasibility of implementing the latest built environment trends and technologies Identify the benefits, trade-offs and impact of new technologies Implement latest built environment technologies according to organisation's strategic direction Propose continuous improvement initiatives to improve time, cost and quality Develop risk management plans and risk controls in alignment with organisation's risk management framework 	

TECHNICAL SKILLS AND COMPETENCIES

Building Information Modelling Application	Level 4	People Management	Level 4
Business Negotiation	Level 4	Procurement Coordination and Policy Development	Level 4
Condition-based Assets Monitoring Management	Level 4	Project Cost	Level 4
Construction Technology	Level 4	Project Feasibility Assessment	Level 4
Continuous Improvement Management	Level 4	Project Management	Level 5
Critical Thinking	Level 4	Project Risk Management	Level 4
Data Collection and Analysis	Level 5	Quality System Management	Level 4
Design for Maintainability	Level 2	Regulatory Submission and Clearance	Level 4
Design for Manufacturing and Assembly	Level 4	Stakeholder Management	Level 5
Design for Safety	Level 3	Technical Writing	Level 3
Dispute Resolution	Level 4	Technology Application	Level 4
Emergency Response Management	Level 4	Technology Scanning	Level 4
Engineering Contract Management	Level 4	Value Engineering	Level 3
Green Building Strategy Implementation	Level 4	Workflow Management	Level 4
Incident and Accident Investigation	Level 3	Workplace Safety and Health Culture Development	Level 4
Integrated Digital Delivery Application	Level 3	Workplace Safety and Health Framework Development and Implementation	Level 4
Manpower Planning	Level 4		

GENERIC SKILLS AND COMPETENCIES (TOP 5)

Leadership	Advanced	Resource Management	Intermediate
Communication	Advanced	Decision Making	Intermediate
Problem Solving	Advanced		

Project Director (Project Management)

JOB ROLE DESCRIPTION

The Project Director (Project Management) drives the strategic planning and authorisation of projects. He/She plays a strategic role in the organisation and advises stakeholders on project quality and challenges to ensure project completion. He formulates strategies to optimise project staffing and ensures alignment of project costs with the budget. He also spearheads the adoption of new technologies and processes in the organisation.

He has excellent public relations and organisational skills. He has an aptitude for figures and experience in managing budgets. He also has exceptional people management skills and is able to build relationships with various stakeholders to drive performance.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Conduct project planning	<ul style="list-style-type: none"> • Endorse contractual and tender documents for submission • Drive strategies to optimise time, cost and quality • Strategise processes and procedures to integrate overall project plan based on industry's best practices • Refine integrated project plans based on the industry's best practices for project execution, risk management, safety management and quality assurance and control • Drive compliance with relevant regulatory and legislative prerequisites in preparation for project execution • Endorse project planning and execution documents for submission to relevant authorities 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Workplace Safety and Health (WSH) Act
Drive project progress and completion	<ul style="list-style-type: none"> • Drive project progress and completion • Oversee the management of stakeholders to obtain approval on variation order requests • Establish connections with the various disciplines and project teams • Establish quality control policies, processes and procedures in alignment with industry standards • Oversee the management of requests and expectations of project stakeholders • Oversee the acquisition of people and material resources to support the progress and completion of projects • Oversee overall project delivery on time, cost and quality to maintain contractual, regulatory and legal obligations • Endorse project completion documents for submission to relevant authorities 	
Drive safety and sustainability	<ul style="list-style-type: none"> • Drive compliance with Workplace Safety and Health (WSH) policies and practices • Establish organisational health and safety policies, processes and procedures in alignment with WSH policies and practices • Recommend improvements based on WSH accident and incident findings and trends • Drive organisational adoption of environmental sustainability and green building strategies • Establish sustainable Business Continuity Management (BCM) plans to manage project crisis effectively based on industry's best practices 	

Project Director (Project Management)

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage people and organisational functions	<ul style="list-style-type: none"> • Drive talent recruitment and development in alignment with organisational strategy • Drive team performance to achieve project performance metrics • Manage the financial inflow and outflow against allocated budgets and forecasts • Develop relationships with prospective clients for business development opportunities 	<p>Note: Performance Expectations are non-exhaustive and subject to prevailing regulations</p>
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Keep abreast of latest developments in the built environment trends and technologies • Evaluate the benefits, trade-offs and impact of new technologies • Lead the adoption of latest built environment technologies • Drive a culture of continuous improvement to obtain time, cost and quality improvements • Validate risk management plans and risk controls to ensure compliance with organisation's risk management framework 	

TECHNICAL SKILLS AND COMPETENCIES

Building Information Modelling Application	Level 5	Manpower Planning	Level 5
Business Development	Level 4	People Management	Level 5
Business Negotiation	Level 5	Procurement Coordination and Policy Development	Level 5
Condition-based Assets Monitoring Management	Level 5	Project Cost	Level 5
Construction Technology	Level 5	Project Feasibility Assessment	Level 5
Continuous Improvement Management	Level 5	Project Management	Level 6
Critical Thinking	Level 5	Project Risk Management	Level 5
Data Collection and Analysis	Level 6	Quality System Management	Level 5
Design for Maintainability	Level 3	Regulatory Submission and Clearance	Level 5
Design for Manufacturing and Assembly	Level 5	Stakeholder Management	Level 6
Design for Safety	Level 4	Technical Writing	Level 4
Dispute Resolution	Level 5	Technology Scanning	Level 5
Emergency Response Management	Level 5	Value Engineering	Level 4
Engineering Contract Management	Level 5	Workflow Management	Level 5
Green Building Strategy Implementation	Level 5	Workplace Safety and Health Culture Development	Level 5
Incident and Accident Investigation	Level 4	Workplace Safety and Health Framework Development and Implementation	Level 5
Integrated Digital Delivery Application	Level 3		

GENERIC SKILLS AND COMPETENCIES (TOP 5)

Leadership	Advanced	Developing People	Advanced
Interpersonal Skills	Advanced	Problem Solving	Advanced
Communication	Advanced		

Digital Delivery Management

JOB ROLES	PAGE
Assistant Specialist (Digital Delivery)	114
Specialist (Digital Delivery)	116
Lead (Digital Delivery)	118
Chief Digital Officer	120
Director/Managing Director/Chief Executive/General Manager	143



Virtual Design Construction Manager

Alvin Fong Yew Chung
Kimly Construction Pte. Ltd.

KEEPING PACE WITH CHANGE

As Virtual Design Construction (VDC) Manager, Alvin Fong has always looked for innovative ways of working. This inquisitive hunger has allowed him to adapt to changes in the industry.

“During the 1997 financial crisis, I was tasked to design two main routes of the New Water pipe lines. Nothing in school prepared me for it. I was given a book and met the contractor to find as much information as possible. Despite these challenges, I managed to deliver. In times of need, we need to have a flexible mindset,” he shares.

When he started his career as a draughtsperson, Alvin’s first goal was to learn from the seniors. “When the Internet was in its infancy, lots of practical and trade secrets were ‘locked’ in more experienced minds.”

At Kimly Construction, Alvin impressed his superiors with his dedication. While working on his projects, he seized the opportunity provided by the BCA-Kimly iBuildSG Diploma Sponsorship (Part-Time) to deepen his industry knowledge and took up courses in Building Information Modeling (BIM) and VDC to improve his technical know-how. With these in-demand skills, he could be better equipped to take on new projects and open up more career advancement opportunities.

While he used to focus on acing every task, now he sees the importance of uplifting and empowering his team. “There is only so much one pair of hands can do. Maximising productivity has to be a team effort.”

“The Skills Framework provides information on the jobs and skills to take up to propel our career progression.”

In fact, being a team player is a must. “Being courteous and open-minded is essential as VDC encompasses all stakeholders from design to facility management.”

Refining his people skills has proven useful in his current role, which involves dealing with a large number of people. It entails developing, implementing and enforcing VDC protocols across the company, managing and planning daily operations, ensuring clients’ requirements are met, incorporating innovative technologies into the company’s workflow, and coaching and mentoring his staff.

Alvin is always on the lookout for game-changing technologies. “Automation and constant workflow review is key to staying relevant,” he says. “I hope to build more automated workflows using cloud-enabled technology, robotics and computer vision.”

To achieve this, he is eyeing a degree in construction management and hopes to improve his skills in Design Thinking and Systems Thinking, using the Skills Framework to plan his path forward. “The Skills Framework provides information on the jobs and skills to propel our career progression.”

Alvin encourages young industry hopefuls to be open to possibilities. “We need to think out of the box. Never stop learning,” he says.

Assistant Specialist (Digital Delivery)

JOB ROLE DESCRIPTION

The Assistant Specialist (Digital Delivery) assists in project delivery, development and adoption of digital solutions and competency building. He/She participates in product and model development, planning, research and/or testing of digital solutions and training. He gathers data and information to understand business needs and user requirements to support adoption and implementation of digital and/or automated building solutions and resolves issues.

He is a team player and possesses strong communication skills to interact with relevant stakeholders and subject matter experts. He is also resourceful and able to collate information required to develop digital solutions. He works in a fast-paced environment and may be required to work both on- and off-site.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Facilitate digital project delivery and collaboration	<ul style="list-style-type: none"> • Develop Building Information Modelling (BIM) models • Conduct building simulations to detect clashes • Adhere to project information requirements, modelling and exchange protocols for information sharing among project stakeholders • Conduct inspections to ensure compliance with modelling and exchange protocols 	<p>In accordance with:</p> <ul style="list-style-type: none"> • Building Control Act
Manage technological adoption	<ul style="list-style-type: none"> • Gather information on pain points in work processes from relevant business functions • Gather information for business cases on solving pain points using implementation of digital solutions • Support the acquisition and development of automation solutions • Gather data from newly implemented digital solutions and processes • Assist in monitoring the status of adoption for digital solutions against defined timelines • Support testing and troubleshooting of digital solutions • Collate information on potential digital solutions and vendors 	
Build digital competency	<ul style="list-style-type: none"> • Assist with coaching of project stakeholders on use of digital solutions • Source for relevant external training programmes and courses on digital solutions • Gather information on organisational learning needs related to digital solutions 	

Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

Assistant Specialist (Digital Delivery)

TECHNICAL SKILLS AND COMPETENCIES			
3D Modelling	Level 2	Emerging Technology Synthesis	Level 3
Applications Integration	Level 3	Integrated Digital Delivery Application	Level 3
Application Support and Enhancement	Level 1	Learning and Development	Level 2
Augmented Reality Application	Level 1	Partnership Management	Level 3
Building Information Modelling Application	Level 3	Performance Management	Level 4
Business Needs Analysis	Level 2	Programming and Coding	Level 3
Change Management	Level 3	Research and Information Synthesis	Level 2
Common Data Environment Management	Level 2	Stakeholder Management	Level 3
Construction Technology	Level 2	Systems Integration	Level 3
Critical Thinking	Level 3	Systems Thinking	Level 3
Data Collection and Analysis	Level 3	Technical Drawing	Level 3
Design for Manufacturing and Assembly	Level 1	Technology Application	Level 2
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Digital Literacy	Basic	Teamwork	Basic
Computational Thinking	Basic	Problem Solving	Basic
Interpersonal Skills	Basic		

Specialist (Digital Delivery)

JOB ROLE DESCRIPTION

The Specialist (Digital Delivery) is involved in project delivery, digital solutions development and adoption and competency building. He/She interprets business requirements and helps to translate them into digital solutions. He is familiar with digital solutions and business requirements to add value to the business. He provides timely and value-added services to end-user digital solutions. He ensures that the quality of information and models prepared by the specialists adhere to the prescribed standards and protocol for sharing and coordination purposes. He is also involved in training.

He is independent and possesses strong problem-solving skills. He keeps abreast with new digital technologies and is keen to experiment and adopt new digital solutions to enhance project outcomes. He works in a fast-paced environment that is highly collaborative with multiple stakeholders.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Drive project delivery and collaboration	<ul style="list-style-type: none"> • Perform Building Information Modelling (BIM) model checks and audits to detect discrepancies, reduce potential construction issues and minimise resolution latency • Monitor compliance with project information requirements • Implement modelling and exchange protocols for information sharing among project stakeholders • Prepare reports for cases of non-compliance with information requirements, modelling and exchange protocols 	<p>In accordance with:</p> <ul style="list-style-type: none"> • Building Control Act <p>Note: Performance Expectations are non-exhaustive and subject to prevailing regulations</p>
Manage technological adoption	<ul style="list-style-type: none"> • Identify digital solutions based on pain points and business requirements • Assess viability, risks and business implications of incorporating digital solutions • Analyse technical specifications of applications to determine if they should be acquired or developed • Develop automation solutions • Draft standard procedures for digital transformation processes • Analyse data to determine productivity gains with reference to time, cost and quality • Liaise with vendors on the implementation of digital solutions within defined timelines • Perform testing and troubleshooting of digital solutions 	
Build digital competency	<ul style="list-style-type: none"> • Provide coaching to project stakeholders on use of digital solutions • Verify content and relevance of external training programmes on digital solutions • Provide input on organisational learning needs related to digital solutions 	

Specialist (Digital Delivery)

TECHNICAL SKILLS AND COMPETENCIES			
3D Modelling	Level 3	Emerging Technology Synthesis	Level 4
Applications Integration	Level 3	Innovation Management	Level 4
Application Support and Enhancement	Level 2	Integrated Digital Delivery Application	Level 4
Augmented Reality Application	Level 2	Learning and Development	Level 3
Building Information Modelling Application	Level 3	Partnership Management	Level 3
Business Needs Analysis	Level 3	People Management	Level 3
Business Process Re-engineering	Level 3	Performance Management	Level 4
Business Risk Management	Level 3	Programming and Coding	Level 3
Change Management	Level 4	Research and Information Synthesis	Level 3
Common Data Environment Management	Level 3	Stakeholder Management	Level 4
Construction Technology	Level 2	Systems Integration	Level 3
Critical Thinking	Level 3	Systems Thinking	Level 3
Data Collection and Analysis	Level 4	Technical Drawing	Level 3
Design for Manufacturing and Assembly	Level 2	Technology Application	Level 3
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Digital Literacy	Intermediate	Decision Making	Basic
Creative Thinking	Intermediate	Interpersonal Skills	Intermediate
Computational Thinking	Advanced		

Lead (Digital Delivery)

JOB ROLE DESCRIPTION

The Lead (Digital Delivery) plays a leading roles in project delivery, digital solutions development and adoption, competency building and innovation. He/She oversees the development and acquisition of digital solutions. He implements policies and processes to support the organisation's strategies. He is responsible for analysing how digital solutions can be used to optimise processes. He is involved in technology adoption, innovation and associated change management activities. He establishes guidelines for the implementation of new solutions and continuous process improvement to drive capability building.

He possesses expertise in digital technologies, is adept in adopting digital solutions to enhance project outcomes and resolve technical challenges. He provides technical guidance and support to his team and is keen to ensure they keep abreast with the latest in digital delivery approaches. He works in a fast-paced environment and manages multiple projects and stakeholders.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Drive project delivery and collaboration	<ul style="list-style-type: none"> • Establish strategies to adopt best practices, processes and tools of Integrated Digital Delivery (IDD) across organisation • Develop approaches to satisfy information requirements with project stakeholders and resolve issues • Establish modelling and exchange protocols for information sharing among project stakeholders to satisfy project information requirements • Review non-compliance cases and communicate with relevant personnel on corrective actions to be taken 	In accordance with: • Building Control Act
Manage technological adoption	<ul style="list-style-type: none"> • Establish business cases by analysing productivity gains and suitability of digital solutions • Develop prototypes and Proof of Concepts (PoCs) for evaluation and refinement with the relevant business functions • Establish standard procedures for digital transformation processes, timelines and expectations for project implementation • Establish guidelines to evaluate the viability of new digital solutions and processes in optimising operations in terms of time, cost, and quality • Spearhead initiatives to develop and incorporate the use of automation solutions • Define priorities for testing and troubleshooting processes • Update relevant stakeholders on the status of digital implementation and gather feedback to achieve buy-ins • Establish guidelines on collaboration with vendors regarding partnerships 	
Build digital competency	<ul style="list-style-type: none"> • Develop training framework • Engage relevant external training providers for programmes and courses on digital solutions • Strategise on the organisation's learning needs related to digital solutions 	
Drive innovation initiatives	<ul style="list-style-type: none"> • Develop policies that promote an innovative mindset and culture within the organisation • Promote research and new solution conceptualisation • Cascade organisational innovation agenda • Manage organisation-wide resources and systems for employees to submit innovative ideas 	
		Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

Lead (Digital Delivery)

TECHNICAL SKILLS AND COMPETENCIES			
3D Modelling	Level 4	Emerging Technology Synthesis	Level 5
Applications Integration	Level 4	Innovation Management	Level 5
Application Support and Enhancement	Level 3	Integrated Digital Delivery Application	Level 5
Artificial Intelligence Application	Level 5	Internet of Things Management	Level 4
Augmented Reality Application	Level 3	Learning and Development	Level 4
Building Information Modelling Application	Level 4	Partnership Management	Level 4
Business Development	Level 4	People Management	Level 4
Business Innovation	Level 5	Performance Management	Level 5
Business Needs Analysis	Level 4	Programming and Coding	Level 4
Business Process Re-engineering	Level 4	Research and Information Synthesis	Level 4
Business Risk Management	Level 4	Robotic and Automation Technology Application	Level 4
Change Management	Level 5	Stakeholder Management	Level 5
Common Data Environment Management	Level 4	Strategy Development	Level 4
Construction Technology	Level 3	Systems Integration	Level 4
Continuous Improvement Management	Level 4	Systems Thinking	Level 4
Critical Thinking	Level 4	Technical Drawing	Level 4
Data Collection and Analysis	Level 5	Technology Application	Level 4
Design for Manufacturing and Assembly	Level 2	Technology Road Mapping	Level 5
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Leadership	Intermediate	Creative Thinking	Intermediate
Digital Literacy	Advanced	Resource Management	Advanced
Communication	Advanced		

Chief Digital Officer

JOB ROLE DESCRIPTION

The Chief Digital Officer oversees the overall implementation and innovation of digital solutions in the organisation to achieve digital transformation of the business. He/She drives the team to experiment and apply new digital solutions. He leads the strategic direction for his team to ensure efficiency in projects and operations. He drives collaboration within organisation and endorses the work done by the digital team.

He is a leader who defines strategies to champion innovative digital solutions. He is able to anticipate trends and disruptions in the industry to help the organisation prepare. He is able to drive changes within the organisation. He possesses strong persuasive skills to help influence others.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Drive project delivery and collaboration	<ul style="list-style-type: none"> • Endorse policies to drive adoption of industry best practices for production and management of project information • Lead organisation's multi-disciplinary adoption of digital design coordination tools and processes • Endorse standards and set policies for implementation of modelling and exchange protocols for sharing among project stakeholders • Drive compliance policies in project information requirements, modelling and exchange protocols 	In accordance with: <ul style="list-style-type: none"> • Building Control Act
Manage technological adoption	<ul style="list-style-type: none"> • Set policies among relevant stakeholders for the implementation of digital solutions • Advise on digital solutions best practices and interoperability with existing tools, systems and workflows • Endorse digital solution prototypes and Proof of Concepts (PoCs) for deployment across the organisation • Establish organisational policies for the implementation of digital solutions • Endorse guidelines for evaluating productivity gains with reference to time, cost, and quality • Endorse the budget, guidelines, timelines and expectations for organisation wide digital project implementation • Provide subject matter expertise in resolving digital issues • Establish digital implementation status reporting procedures 	
Build digital competency	<ul style="list-style-type: none"> • Endorse training framework • Endorse the engagement of relevant external training providers for programmes and courses on digital solutions • Set policies and training budget for the organisation to meet training targets related to digital solutions 	
Drive innovation initiatives	<ul style="list-style-type: none"> • Endorse policies that promote an innovative mindset and culture within the organisation • Endorse best practices for implementing innovative ideas, solutions and ways of working within the organisation • Endorse the innovation agenda for the organisation • Endorse initiatives and budget to support organisation-wide resources and systems for employees to submit innovative ideas 	
		Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

Chief Digital Officer

TECHNICAL SKILLS AND COMPETENCIES			
3D Modelling	Level 5	Innovation Management	Level 6
Applications Integration	Level 5	Integrated Digital Delivery Application	Level 6
Application Support and Enhancement	Level 4	Internet of Things Management	Level 5
Artificial Intelligence Application	Level 6	Learning and Development	Level 5
Building Information Modelling Application	Level 5	Partnership Management	Level 5
Business Development	Level 5	People Management	Level 5
Business Innovation	Level 6	Performance Management	Level 6
Business Needs Analysis	Level 5	Programming and Coding	Level 4
Business Process Re-engineering	Level 5	Research and Information Synthesis	Level 5
Business Risk Management	Level 5	Robotic and Automation Technology Application	Level 5
Change Management	Level 5	Stakeholder Management	Level 6
Common Data Environment Management	Level 5	Strategy Development	Level 5
Construction Technology	Level 3	Systems Integration	Level 5
Continuous Improvement Management	Level 5	Systems Thinking	Level 5
Critical Thinking	Level 5	Technical Drawing	Level 5
Data Collection and Analysis	Level 6	Technology Application	Level 5
Design for Manufacturing and Assembly	Level 3	Technology Road Mapping	Level 6
Emerging Technology Synthesis	Level 6		
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Leadership	Advanced	Computational Thinking	Advanced
Decision Making	Intermediate	Developing People	Advanced
Digital Literacy	Advanced		

Facilities Management

JOB ROLES	PAGE
Facilities Technician	124
Technical Officer	126
Technical Executive	126
Building Supervisor	130
Building Officer/Facilities Officer/Property Officer	132
Building Executive/Facilities Executive/Property Executive	134
Facilities Manager/Facilities Engineer	136
Senior Facilities Manager	138
Associate Director (Facilities Management)	141
Director/Managing Director/Chief Executive/General Manager	143



Chief Executive Officer

Tony Khoo
EM Services Pte. Ltd.

GOING OUT OF HIS COMFORT ZONE

Be bold, fearless and hardworking. This ethos has always been a driving force for Tony Khoo. Today, he is the CEO of EM Services, a township management company managing over 700,000 HDB households.

To excel in his role, he draws upon a wellspring of experiences. After graduating with first-class honours in Civil Engineering from Canterbury University, Tony started working as a consulting engineer, but found the role insufficiently challenging. Soon, he pursued an MBA at the University of Victoria in Wellington, where he discovered an appetite for complex challenges.

“There isn’t a right or wrong answer to a business problem. That, to me, is exciting and intriguing.”

This mindset allowed him to grapple with the complexities of his role. “Real-world problems do not come in a neat package. Having training in different disciplines gives me the ability to look at things from different perspectives.”

He is grateful for the engineering skills acquired during his studies. “It provides me with the basic knowledge of how building works. I am able to find the right solutions that solve the root cause.”

To those who wish to follow his path, Tony shares his advice. “The competition is fierce. But for those who work hard and dare to try, there are plenty of opportunities. Be hungry and don’t be afraid to fail,” he says.

“The Skills Framework identifies the comprehensive range of skills and competencies required to perform facilities management tasks.”

Throughout his career, Tony has taken this strategy to heart.

“In one of my previous jobs, I volunteered for different roles in different business units. Those 10 years were probably the best management training I could have. It set a strong foundation for me as a CEO today.”

As the current President of the Singapore International Facility Management Association, Singapore Chapter (SIFMA), Tony is passionate about raising the standards within the Facilities Management sector.

As the CEO of EM Services, he hopes to look into how the Skills Framework can improve the recruitment, training and staff performance management processes, equipping employees with in-demand skills to keep up with industry transformation.

“The Skills Framework identifies the comprehensive range of skills and competencies required to perform facilities management tasks,” he says.

“If you want to be a strategic planner for Facilities Management, you need strategic planning skills. If you want to be a leader, you need leadership skills, people management skills, and financial skills. It guides me on what training I need so that I can save a lot of time and reach my goal faster.”

Facilities Technician

JOB ROLE DESCRIPTION

The Facilities Technician ensures that facilities are safe and functional by performing preventive and corrective maintenance activities. He/She conducts technical troubleshooting for mechanical and electrical issues in compliance with the quality and safety standards, regulations and organisational Workplace Safety and Health (WSH) practices.

He is a problem solver equipped with the required technical knowledge for managing facilities operations and maintenance. He works at designated sites and is deployed to other properties or locations.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage facility operations	<ul style="list-style-type: none"> • Perform preventive and corrective maintenance works according to quality and safety standards, procedures and regulations • Conduct technical investigation in response to fault calls • Complete documentation on procedures and schedules of maintenance works • Draw consumable and non-consumable items when required • Liaise with third party service providers on maintenance or repair works • Provide summary reports on preventive and corrective maintenance works 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Building Maintenance and Strata Management Act • Electricity Act • Environmental Public Health Act and Regulations • Fire Safety Act • Public Utilities Act • Public Utilities (Water Supply) Regulations • Sewerage and Drainage Act • Sewerage and Drainage (Surface Water Drainage) Regulations • Workplace Safety and Health Act
Drive safety and sustainability	<ul style="list-style-type: none"> • Comply with regulatory and organisational Workplace Safety and Health (WSH) policies and practices • Report accidents, near misses and incidents in accordance with WSH reporting practices • Ensure compliance with Environmental Management System (EMS) standards and practices • Ensure compliance with environmental sustainability regulatory and organisational requirements 	
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Engage in continuous improvement initiatives to improve time, cost and quality management • Provide inputs on the use of latest smart facilities management trends or technologies 	Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

Facilities Technician

TECHNICAL SKILLS AND COMPETENCIES			
Air Conditioning and Mechanical Ventilation Systems Maintenance	Level 1	Fire Protection System Maintenance	Level 2
Building Management System Implementation and Control	Level 2	Green Facilities Management	Level 2
Civil Structure Maintenance	Level 1	Incident and Accident Investigation	Level 2
Condition-based Assets Monitoring Management	Level 1	Integrated Digital Delivery Application	Level 2
Continuous Improvement Management	Level 2	Inventory Management	Level 3
Drainage, Plumbing and Sanitary Systems Maintenance	Level 1	Lift Systems Maintenance and Management	Level 1
Electrical and Electronic Systems Maintenance	Level 1	Quality System Management	Level 2
Emergency Response Management	Level 2	Robotic and Automation Technology Application	Level 2
Engineering Drawing Interpretation and Management	Level 1	Smart Facilities Management	Level 1
Escalator and Travellator Systems Maintenance and Management	Level 1	Workplace Safety and Health Culture Development	Level 2
Facilities Shut-down and Re-start	Level 2	Workplace Safety and Health Framework Development and Implementation	Level 1
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Teamwork	Basic	Communication	Basic
Service Orientation	Basic	Decision Making	Basic
Problem Solving	Basic		

Technical Officer

JOB ROLE DESCRIPTION

The Technical Officer ensures that facilities are safe and functional by reviewing their preventive and corrective maintenance activities in compliance with quality and safety standards and regulations. He/She leads technical investigations in the cases of fault calls and conducts risks assessments to ensure compliance with Workplace Health and Safety (WSH) practices. He also liaises with third party service deliverers to ensure maintenance or repair works provided are carried out in a timely manner.

He has sound technical knowledge required for facility maintenance and is a competent problem solver. He works at designated sites and may be deployed to other properties or locations.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage facility operations	<ul style="list-style-type: none"> • Review preventive and corrective maintenance works to ensure adherence to quality and safety standards, procedures and regulations • Lead technical investigations in response to fault calls • Review documentation on procedures and schedules of maintenance works • Track consumable and non-consumable items • Supervise maintenance or repair works of third party service providers • Prepare technical reports on service quality and user-raised feedback 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Building Maintenance and Strata Management Act • Electricity Act • Environmental Public Health Act and Regulations • Fire Safety Act • Public Utilities Act • Public Utilities (Water Supply) Regulations • Sewerage and Drainage Act • Sewerage and Drainage (Surface Water Drainage) Regulations • Workplace Safety and Health Act Note: Performance Expectations are non-exhaustive and subject to prevailing regulations
Drive safety and sustainability	<ul style="list-style-type: none"> • Conduct risk assessments in accordance to regulatory and organisational Workplace Safety and Health (WSH) policies and practices • Support WSH accident, near misses and incident investigations • Conduct risk assessments in accordance to Environmental Management System (EMS) standards and practices • Analyse environmental sustainability performance data from the Facility Management System (FMS) to identify opportunities for improving sustainability 	
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Engage in continuous improvement initiatives to improve time, cost and quality management • Provide inputs on the use of latest smart facilities management trends or technologies 	

Technical Officer

TECHNICAL SKILLS AND COMPETENCIES			
Air Conditioning and Mechanical Ventilation Systems Maintenance	Level 2	Integrated Digital Delivery Application	Level 2
Building Management System Implementation and Control	Level 2	Inventory Management	Level 3
Civil Structure Maintenance	Level 2	Lift Systems Maintenance and Management	Level 2
Condition-based Assets Monitoring Management	Level 2	People Management	Level 3
Continuous Improvement Management	Level 2	Quality System Management	Level 2
Drainage, Plumbing and Sanitary Systems Maintenance	Level 2	Robotic and Automation Technology Application	Level 2
Electrical and Electronic Systems Maintenance	Level 2	Smart Facilities Management	Level 2
Emergency Response Management	Level 2	Stakeholder Management	Level 3
Engineering Drawing Interpretation and Management	Level 2	Technical Inspection	Level 2
Escalator and Travellator Systems Maintenance and Management	Level 2	Technical Writing	Level 2
Facilities Shut-down and Re-start	Level 2	Technology Application	Level 2
Fire Protection System Maintenance	Level 3	Value Engineering	Level 2
Green Facilities Management	Level 2	Workplace Safety and Health Culture Development	Level 2
Incident and Accident Investigation	Level 2	Workplace Safety and Health Framework Development and Implementation	Level 2
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Problem Solving	Intermediate	Interpersonal Skills	Basic
Decision Making	Intermediate	Computational Thinking	Basic
Resource Management	Basic		

Technical Executive

JOB ROLE DESCRIPTION

The Technical Executive ensures that facilities are safe and functional by performing inspections on preventive and corrective maintenance activities. He/She is responsible for closing fault calls or escalating the matters up in the cases of incidents. He manages third party service deliverers to ensure maintenance and repair works are carried out timely and in compliance with the quality and safety standards and regulations. Also, he develops safety reports on the compliance and non-compliance of employees and third-party service providers in accordance with organisational Workplace Safety and Health (WSH) practices.

He has good interpersonal skills and is able to work well under pressure. He works at designated sites and is deployed to other properties or locations.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage facility operations	<ul style="list-style-type: none"> • Inspect preventive and corrective maintenance works to ensure adherence to quality and safety standards, procedures and regulations • Close fault-call or escalate matters when there are incidents • Check documentation on procedures and schedules of maintenance works • Trigger timely procurement of consumable and non-consumable items • Manage third party service providers to ensure maintenance or repair works are carried out timely • Review technical reports and recommend actions to be taken 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Building Maintenance and Strata Management Act • Electricity Act • Environmental Public Health Act and Regulations • Fire Safety Act • Public Utilities Act • Public Utilities (Water Supply) Regulations • Sewerage and Drainage Act • Sewerage and Drainage (Surface Water Drainage) Regulations • Workplace Safety and Health Act
Manage budgets and contracts	<ul style="list-style-type: none"> • Source for quotations from third party service providers • Assist in the drafting of maintenance contracts and Service Level Agreements (SLA) • Identify servicing needs and schedules in preparation of budget plans 	
Drive safety and sustainability	<ul style="list-style-type: none"> • Develop safety reports on compliance and non-compliance with regulatory and organisational Workplace Safety and Health (WSH) policies and practices • Support WSH accident, near misses and incident investigations • Develop environmental reports on compliance and non-compliance with Environmental Management System (EMS) standards and practices • Recommend ways to improve environmental sustainability using insights gathered from data analyses 	
Manage people and organisation	<ul style="list-style-type: none"> • Perform on-the-job coaching • Manage a team of technicians 	
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Implement continuous improvement initiatives to improve time, cost and quality management • Provide input on the use of latest smart facilities management trends or technologies 	
		Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

Technical Executive

TECHNICAL SKILLS AND COMPETENCIES			
Air Conditioning and Mechanical Ventilation Systems Maintenance	Level 3	Integrated Digital Delivery Application	Level 2
Building Management System Implementation and Control	Level 3	Inventory Management	Level 4
Civil Structure Maintenance	Level 3	Life Cycle Costing and Analysis	Level 2
Condition-based Assets Monitoring Management	Level 2	Lift Systems Maintenance and Management	Level 3
Continuous Improvement Management	Level 3	People Management	Level 3
Contract Administration and Management	Level 2	Procurement Coordination and Policy Development	Level 3
Data Collection and Analysis	Level 3	Project Management	Level 2
Design for Safety	Level 3	Project Risk Management	Level 3
Drainage, Plumbing and Sanitary Systems Maintenance	Level 3	Quality System Management	Level 2
Electrical and Electronic Systems Maintenance	Level 3	Robotic and Automation Technology Application	Level 2
Emergency Response Management	Level 3	Smart Facilities Management	Level 2
Engineering Drawing Interpretation and Management	Level 2	Stakeholder Management	Level 3
Escalator and Travellator Systems Maintenance and Management	Level 3	Technical Inspection	Level 2
Facilities Shut-down and Re-start	Level 3	Technical Writing	Level 3
Fire Protection System Maintenance	Level 3	Technology Application	Level 2
Green Facilities Management	Level 2	Value Engineering	Level 2
Incident and Accident Investigation	Level 3	Workplace Safety and Health Culture Development	Level 2
Indoor Environmental Quality Improvement	Level 2	Workplace Safety and Health Framework Development and Implementation	Level 2
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Teamwork	Intermediate	Problem Solving	Intermediate
Decision Making	Intermediate	Interpersonal Skills	Intermediate
Communication	Intermediate		

Building Supervisor

JOB ROLE DESCRIPTION

The Building Supervisor coordinates the facility operations and maintenance activities, including retrofitting works. He/She is familiar with the facilities management requirements and attends to users' requests and feedback. He also ensures that execution of the facilities operations, repairs and retrofitted works complies with the quality and safety standards, regulations and organisational Workplace Safety and Health (WSH) practices. He also ensures the works are carried out within the budgets.

He is organised, resourceful and people and service-oriented. He works at designated properties during business hours but is required to be on call after office hours in cases of emergency situations.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage facility operations	<ul style="list-style-type: none"> • Track movements of building assets • Coordinate facility operations and retrofitting activities • Inspect the conditions of building assets • Complete documentation on procedures and schedules of custodial services • Draw consumable and non-consumable items when required • Coordinate routine maintenance services of third-party service providers • Attend to users' requests and feedback 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Building Maintenance and Strata Management Act • Electricity Act • Environmental Public Health Act and Regulations • Fire Safety Act • Public Utilities Act • Public Utilities (Water Supply) Regulations • Sewerage and Drainage Act • Sewerage and Drainage (Surface Water Drainage) Regulations • Workplace Safety and Health Act Note: Performance Expectations are non-exhaustive and subject to prevailing regulations
Drive safety and sustainability	<ul style="list-style-type: none"> • Ensure compliance with regulatory and organisational Workplace Safety and Health (WSH) policies and practices • Report accidents, near misses and incidents in accordance with WSH reporting practices • Ensure compliance with Environmental Management Systems (EMS) standards and practices • Ensure compliance with Environmental Sustainability regulatory and organisational requirements 	
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Engage in continuous improvement initiatives to improve time, cost and quality management • Provide input on the use of latest smart facilities management trends or technologies 	

Building Supervisor

TECHNICAL SKILLS AND COMPETENCIES			
Building Management System Implementation and Control	Level 2	Integrated Digital Delivery Application	Level 2
Condition-based Assets Monitoring Management	Level 1	Inventory Management	Level 3
Continuous Improvement Management	Level 2	Manpower Planning	Level 4
Emergency Response Management	Level 2	Quality System Management	Level 2
Engineering Drawing Interpretation and Management	Level 1	Robotic and Automation Technology Application	Level 2
Facilities Shut-down and Re-start	Level 2	Security Surveillance Management	Level 1
Fire Protection System Maintenance	Level 1	Smart Facilities Management	Level 1
Green Facilities Management	Level 2	Workplace Safety and Health Culture Development	Level 2
Incident and Accident Investigation	Level 2	Workplace Safety and Health Framework Development and Implementation	Level 3
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Teamwork	Basic	Decision Making	Basic
Service Orientation	Basic	Interpersonal Skills	Basic
Resource Management	Basic		

Building Officer/Facilities Officer/Property Officer

JOB ROLE DESCRIPTION

The Building Officer/Facilities Officer/Property Officer coordinates the operations and maintenance activities, including retrofitting works in the facilities to ensure clean, safe and functional environments. He/She conducts risks assessments to ensure compliance with Workplace Health and Safety (WSH) practices. He communicates with relevant personnel in response to requests and feedback from facility users. He also liaises with third-party service deliverers to ensure repair or maintenance works provided are carried out timely and complies with quality and safety standards and regulations

He is a good communicator and people- and service-oriented. He works at designated properties during business hours but is required to be on call after office hours in cases of emergency situations.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage facility operations	<ul style="list-style-type: none"> • Coordinate movements of building assets • Coordinate facility operations and retrofitting activities • Trigger fault calls • Review documentation on procedures and schedules of custodial services • Track consumable and non-consumable items • Supervise routine maintenance services of third-party service providers • Communicate with relevant personnel for timely actions in response to user requests and feedback • Prepare progress reports on service quality and user-raised feedback 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Building Maintenance and Strata Management Act • Electricity Act • Environmental Public Health Act and Regulations • Fire Safety Act • Public Utilities Act
Drive safety and sustainability	<ul style="list-style-type: none"> • Conduct risk assessments in accordance to regulatory and organisational Workplace Safety and Health (WSH) policies and practices • Support WSH accident, near misses and incident investigations • Conduct risk assessments in accordance to Environmental Management System (EMS) standards and practices • Analyse environmental sustainability performance data from the Facility Management System (FMS) to identify opportunities for improving sustainability 	<ul style="list-style-type: none"> • Public Utilities (Water Supply) Regulations • Sewerage and Drainage Act • Sewerage and Drainage (Surface Water Drainage) Regulations
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Engage in continuous improvement initiatives to improve time, cost and quality management • Provide input on the use of latest smart facilities management trends or technologies 	<ul style="list-style-type: none"> • Workplace Safety and Health Act <p>Note: Performance Expectations are non-exhaustive and subject to prevailing regulations</p>

Building Officer/Facilities Officer/Property Officer

TECHNICAL SKILLS AND COMPETENCIES			
Building Management System Implementation and Control	Level 2	People Management	Level 3
Condition-based Assets Monitoring Management	Level 2	Quality System Management	Level 2
Continuous Improvement Management	Level 2	Robotic and Automation Technology Application	Level 2
Emergency Response Management	Level 2	Security Surveillance Management	Level 2
Engineering Drawing Interpretation and Management	Level 2	Smart Facilities Management	Level 2
Facilities Shut-down and Re-start	Level 2	Stakeholder Management	Level 3
Fire Protection System Maintenance	Level 2	Technical Inspection	Level 2
Green Facilities Management	Level 2	Technology Application	Level 2
Incident and Accident Investigation	Level 2	Value Engineering	Level 2
Integrated Digital Delivery Application	Level 2	Workplace Safety and Health Culture Development	Level 2
Inventory Management	Level 3	Workplace Safety and Health Framework Development and Implementation	Level 3
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Teamwork	Basic	Communication	Intermediate
Service Orientation	Basic	Interpersonal Skills	Basic
Problem Solving	Basic		

Building Executive/Facilities Executive/Property Executive

JOB ROLE DESCRIPTION

The Building Executive/Facilities Executive/Property Executive manages personnel involved in different operations in the facilities to ensure clean, safe and functional environments. He/She deploys relevant personnel for timely response to tenants' requests and feedback. He monitors the service delivery of third-party service deliverers and tracks fault calls to ensure closure within a stipulated period of time. He also develops safety reports on the compliance and non-compliance of employees and third-party service deliverers in accordance with organisational Workplace Safety and Health (WSH) practices.

He is an excellent communicator and has good organisational as well as interpersonal skills. He works at designated properties during business hours but is required to be on call after office hours in cases of emergency situations

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage facility operations	<ul style="list-style-type: none"> • Manage the movements of building assets • Manage facility operations and retrofitting activities • Track cases for closure of fault calls within stipulated times • Check documentation on procedures and schedules of custodial services • Trigger timely procurement of consumable and non-consumable items • Manage third-parties service providers to ensure quality of services • Deploy relevant personnel for timely actions in response to user requests and feedback • Review progress reports and recommend actions to be taken 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Building Maintenance and Strata Management Act • Electricity Act • Environmental Public Health Act and Regulations • Fire Safety Act • Public Utilities Act • Public Utilities (Water Supply) Regulations • Sewerage and Drainage Act • Sewerage and Drainage (Surface Water Drainage) Regulations • Workplace Safety and Health Act
Manage budgets and contracts	<ul style="list-style-type: none"> • Source for quotations from third-party service providers • Assist in the drafting of maintenance contracts and Service Level Agreements (SLA) • Identify custodial servicing needs and schedules in preparation of budget plans 	
Drive safety and sustainability	<ul style="list-style-type: none"> • Develop safety reports on compliance and non-compliance with regulatory and organisational Workplace Safety and Health (WSH) policies • Support WSH accident, near misses and incident investigations • Develop environmental reports on compliance and non-compliance with EMS standards and practices • Recommend ways to improve environmental sustainability using insights gathered from data analyses 	
Manage people and organisation	<ul style="list-style-type: none"> • Perform on-the-job coaching • Manage personnel involved in facility operations 	
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Implement continuous improvement initiatives to improve time, cost and quality management • Provide input on the use of latest smart facilities management trends or technologies 	
		Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

Building Executive/Facilities Executive/ Property Executive

TECHNICAL SKILLS AND COMPETENCIES			
Building Management System Implementation and Control	Level 3	Life Cycle Costing and Analysis	Level 2
Condition-based Assets Monitoring Management	Level 2	People Management	Level 3
Continuous Improvement Management	Level 3	Procurement Coordination and Policy Development	Level 3
Contract Administration and Management	Level 2	Project Management	Level 2
Data Collection and Analysis	Level 3	Project Risk Management	Level 3
Design for Safety	Level 3	Quality System Management	Level 2
Emergency Response Management	Level 3	Robotic and Automation Technology Application	Level 2
Engineering Drawing Interpretation and Management	Level 2	Security Surveillance Management	Level 3
Facilities Shut-down and Re-start	Level 3	Smart Facilities Management	Level 2
Fire Protection System Maintenance	Level 3	Stakeholder Management	Level 3
Green Facilities Management	Level 2	Technical Inspection	Level 2
Incident and Accident Investigation	Level 3	Technology Application	Level 2
Indoor Environmental Quality Improvement	Level 2	Value Engineering	Level 2
Integrated Digital Delivery Application	Level 2	Workplace Safety and Health Culture Development	Level 2
Inventory Management	Level 4	Workplace Safety and Health Framework Development and Implementation	Level 3
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Service Orientation	Intermediate	Creative Thinking	Basic
Decision Making	Intermediate	Digital Literacy	Intermediate
Problem Solving	Intermediate		

Facilities Manager/Facilities Engineer

JOB ROLE DESCRIPTION

The Facilities Manager/Facilities Engineer evaluates the operations of facilities to ensure that they are safe and functional. He/She builds trust and rapport with users and assesses the performance of third-party service deliverers. He reviews safety reports on Workplace Safety and Health (WSH) practices and implements sustainability guidelines according to the organisation's green building strategies.

He is involved in developing tender specifications, sourcing for quotations and developing maintenance contracts. He will also propose budget plans to the management for review. He possesses technical knowledge for building maintenance and is able to lead the facilities teams in excellent service delivery.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage facility operations	<ul style="list-style-type: none"> • Implement quality standards and procedures for preventive and corrective maintenance works • Evaluate facility operations and retrofitting activities • Implement solutions based on incident response procedures • Analyse maintenance data • Project quantity of consumable and non-consumable items for procurement based on past purchases • Assess the performance of third-party service providers in their service delivery • Establish trust and rapport with users through service standards • Submit technical reports and progress reports to the management 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Building Maintenance and Strata Management Act • Electricity Act • Environmental Public Health Act and Regulations • Fire Safety Act • Public Utilities Act • Public Utilities (Water Supply) Regulations • Sewerage and Drainage Act • Sewerage and Drainage (Surface Water Drainage) Regulations • Workplace Safety and Health Act
Manage budgets and contracts	<ul style="list-style-type: none"> • Develop tender specifications • Consolidate quotations from third party service providers • Develop maintenance contracts and Service Level Agreements (SLA) • Propose budget plan 	
Drive safety and sustainability	<ul style="list-style-type: none"> • Review safety reports on compliance and non-compliance with regulatory and organisational Workplace Safety and Health (WSH) policies and practices • Conduct WSH accident, near misses and incident investigations • Review reports on compliance and non-compliance with Environmental Management System (EMS) standards and practices • Implement environmental sustainability guidelines according to the organisation's green building strategy 	
Manage people and organisation	<ul style="list-style-type: none"> • Monitor resource availability to support operations • Perform on-the-job coaching • Track employee productivity 	
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Propose continuous improvement initiatives to improve time, cost and quality management • Propose opportunities to use the latest smart facilities management trends or technologies 	
		Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

Facilities Manager/Facilities Engineer

TECHNICAL SKILLS AND COMPETENCIES			
Air Conditioning and Mechanical Ventilation Systems Maintenance	Level 4	Integrated Digital Delivery Application	Level 3
Asset Management	Level 3	Inventory Management	Level 4
Building Information Modelling Application	Level 3	Life Cycle Costing and Analysis	Level 3
Building Management System Implementation and Control	Level 4	Lift Systems Maintenance and Management	Level 4
Business Performance Management	Level 3	Maintenance Scheduling	Level 3
Civil Structure Maintenance	Level 4	Manpower Planning	Level 3
Commissioning and Start-up Management	Level 3	People Management	Level 3
Condition-based Assets Monitoring Management	Level 3	Procurement Coordination and Policy Development	Level 4
Continuous Improvement Management	Level 4	Project Cost	Level 3
Contract Administration and Management	Level 3	Project Feasibility Assessment	Level 4
Data Collection and Analysis	Level 4	Project Management	Level 3
Design for Maintainability	Level 3	Project Risk Management	Level 4
Design for Safety	Level 3	Quality System Management	Level 3
Design Thinking Practice	Level 3	Robotic and Automation Technology Application	Level 3
Drainage, Plumbing and Sanitary Systems Maintenance	Level 4	Security Surveillance Management	Level 4
Electrical and Electronic Systems Maintenance	Level 4	Smart Facilities Management	Level 3
Emergency Response Management	Level 3	Stakeholder Management	Level 4
Engineering Drawing Interpretation and Management	Level 3	Technical Inspection	Level 3
Escalator and Travellator Systems Maintenance and Management	Level 4	Technical Presentation	Level 4
Facilities Shut-down and Re-start	Level 4	Technical Writing	Level 4
Fire Protection System Maintenance	Level 3	Technology Application	Level 3
Green Facilities Management	Level 3	Value Engineering	Level 3
Incident and Accident Investigation	Level 3	Workplace Safety and Health Culture Development	Level 3
Indoor Environmental Quality Improvement	Level 3	Workplace Safety and Health Framework Development and Implementation	Level 3
GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Leadership	Intermediate	Interpersonal Skills	Intermediate
Decision Making	Intermediate	Communication	Intermediate
Teamwork	Intermediate		

Senior Facilities Manager

JOB ROLE DESCRIPTION

The Senior Facilities Manager formulates plans to improve the operations of facilities. He/She ensures consistency of service standards and evaluates the services provided by third-party service deliverers against contractual terms. He cascades organisational Workplace Safety and Health (WSH) practices and outlines sustainability guidelines according to the organisation's green building strategies.

He reviews tender specifications, evaluates the quotations from external agencies and develops maintenance contracts. He will be responsible for reviewing the budget plans for the approval by the senior management.

He is well aware of trends in the sector and able to analyse the viability of proposed improvement initiatives. He possesses business acumen and is innovative and strategic.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage facility operations	<ul style="list-style-type: none"> • Develop quality standards and procedures for preventive and corrective maintenance works • Formulate plans to improve facility operations • Establish incident response procedures • Develop recommendations for service quality improvements from data analytics • Develop procurement plans for consumable and non-consumable items based on past purchases • Evaluate the services provided by third-parties against contractual terms and scope of work • Maintain trust and rapport with users through consistency in service standards • Evaluate technical reports and progress reports to propose recommendations 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Building Maintenance and Strata Management Act • Electricity Act • Environmental Public Health Act and Regulations • Fire Safety Act • Public Utilities Act • Public Utilities (Water Supply) Regulations • Sewerage and Drainage Act • Sewerage and Drainage (Surface Water Drainage) Regulations • Workplace Safety and Health Act
Manage budgets and contracts	<ul style="list-style-type: none"> • Review tender specifications and risks in bidding • Evaluate quotations from third party service providers • Review maintenance contracts and Service Level Agreements (SLA) • Review budget plans • Monitor costs and adherence to budget plans 	
Drive safety and sustainability	<ul style="list-style-type: none"> • Cascade regulatory and organisational Workplace Safety and Health (WSH) policies and practices • Ensure proper closure of WSH accident, near misses and incident investigations and notify relevant authorities • Cascade organisational Environmental Management System (EMS) standards and practices • Cascade environmental sustainability measures to realise the organisation's green building strategies 	
Manage people and organisation	<ul style="list-style-type: none"> • Deploy resources to support operations • Identify recruitment needs and areas for technical and business management training and development • Monitor achievement of performance metrics 	

Senior Facilities Manager

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Drive continuous improvement initiatives	<ul style="list-style-type: none"> Analyse viability of proposed continuous improvement initiatives to improve time, cost and quality Implement the latest smart facilities management trends and technologies according to organisation's strategic direction Conduct cost-benefit analyses on implementation of new technologies Keep abreast of latest developments of built environment trends and technologies 	Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

TECHNICAL SKILLS AND COMPETENCIES

Asset Management	Level 4	Maintenance Strategy Development	Level 4
Building Information Modelling Application	Level 3	Manpower Planning	Level 4
Building Management System Implementation and Control	Level 5	People Management	Level 4
Business Performance Management	Level 4	Procurement Coordination and Policy Development	Level 5
Commissioning and Start-up Management	Level 4	Project Cost	Level 4
Condition-based Assets Monitoring Management	Level 4	Project Feasibility Assessment	Level 4
Construction Technology	Level 2	Project Management	Level 4
Continuous Improvement Management	Level 5	Project Risk Management	Level 4
Contract Administration and Management	Level 4	Quality System Management	Level 4
Data Collection and Analysis	Level 4	Robotic and Automation Technology Application	Level 4
Design for Maintainability	Level 4	Security Surveillance Management	Level 4
Design for Safety	Level 4	Smart Facilities Management	Level 4
Design Thinking Practice	Level 4	Stakeholder Management	Level 5
Emergency Response Management	Level 4	Technical Inspection	Level 4
Facilities Shut-down and Re-start	Level 4	Technical Presentation	Level 5
Green Facilities Management	Level 4	Technical Writing	Level 4
Incident and Accident Investigation	Level 4	Technology Application	Level 3
Indoor Environmental Quality Improvement	Level 4	Technology Scanning	Level 4
Integrated Digital Delivery Application	Level 4	Value Engineering	Level 4
Inventory Management	Level 5	Workplace Safety and Health Culture Development	Level 4
Life Cycle Costing and Analysis	Level 4	Workplace Safety and Health Framework Development and Implementation	Level 4
Maintenance Scheduling	Level 4		

Senior Facilities Manager

GENERIC SKILLS AND COMPETENCIES (TOP 5)			
Leadership	Intermediate	Resource Management	Intermediate
Decision Making	Intermediate	Interpersonal Skills	Intermediate
Communication	Intermediate		

Associate Director (Facilities Management)

JOB ROLE DESCRIPTION

The Associate Director (Facilities Management) is responsible for driving strategies to improve facility operations. He/She builds strategic relationships with stakeholders and drives service excellence. He formulates organisational Workplace Safety and Health (WSH) practices as well as green building strategies to fulfil environmental sustainability regulations.

He is in charge of approving tender specifications, awarding works to selected bidders and endorsing contracts. He oversees the teams' development and recruitment and is responsible for the departments' financial planning and risk management.

He is a subject matter expert and possesses excellent negotiation and people management skills. He is able to influence and communicate effectively with internal and external stakeholders.

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS		
CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Manage facility operations	<ul style="list-style-type: none"> • Drive culture of strong quality standards and procedures for preventive and corrective maintenance works • Introduce plans to improve facility operations • Evaluate incident response procedures to ensure timeliness and quality of services • Drive action plans derived from data insights for service quality improvements • Approve inventory projections and quantity of consumable and non-consumable items for procurement • Build strategic relationships with third-party service providers • Drive service excellence and user satisfaction • Institutionalise effective action plans in terms of organisational policies and procedures 	In accordance with: <ul style="list-style-type: none"> • Building Control Act • Building Maintenance and Strata Management Act • Electricity Act • Environmental Public Health Act and Regulations • Fire Safety Act • Public Utilities Act • Public Utilities (Water Supply) Regulations • Sewerage and Drainage Act • Sewerage and Drainage (Surface Water Drainage) Regulations • Workplace Safety and Health Act
Manage budgets and contracts	<ul style="list-style-type: none"> • Approve tender specifications and tender bid • Award works to selected third-party service providers • Endorse maintenance contracts and Service Level Agreements (SLA) • Approve budget plans • Manage cash flows against allocated budgets and forecasts 	
Drive safety and sustainability	<ul style="list-style-type: none"> • Drive a culture of adherence to regulatory and organisational Workplace Safety and Health (WSH) policies and practices • Review organisational WSH policies and practices in light of accidents, near misses and incidents • Design organisational Environmental Management System (EMS) standards and practices according to the relevant International Organisation for Standardisation (ISO) • Drive organisational green building strategy in fulfilment of the environmental sustainability regulations 	
Manage people and organisation	<ul style="list-style-type: none"> • Approve deployment and re-deployment of resources in line with work progress • Drive talent recruitment and development initiatives for the department in alignment with organisational strategies • Drive achievement of performance metrics 	

Associate Director (Facilities Management)

CRITICAL WORK FUNCTIONS AND KEY TASKS/PERFORMANCE EXPECTATIONS

CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
Drive continuous improvement initiatives	<ul style="list-style-type: none"> • Manage continuous improvement initiatives to obtain time, cost and quality improvements • Lead the adoption of latest smart facilities management trends and technologies • Evaluate benefits, trade-offs and impact of new technologies • Keep abreast of latest developments of built environment trends and technologies 	Note: Performance Expectations are non-exhaustive and subject to prevailing regulations

TECHNICAL SKILLS AND COMPETENCIES

Asset Management	Level 5	Maintenance Scheduling	Level 5
Building Information Modelling Application	Level 4	Maintenance Strategy Development	Level 5
Building Management System Implementation and Control	Level 5	Manpower Planning	Level 5
Business Performance Management	Level 5	People Management	Level 5
Commissioning and Start-up Management	Level 5	Procurement Coordination and Policy Development	Level 6
Competitive Business Strategy	Level 5	Project Cost	Level 5
Construction Technology	Level 3	Project Feasibility Assessment	Level 5
Continuous Improvement Management	Level 5	Project Management	Level 5
Contract Administration and Management	Level 5	Project Risk Management	Level 5
Data Collection and Analysis	Level 5	Quality System Management	Level 5
Design for Maintainability	Level 5	Robotic and Automation Technology Application	Level 5
Design for Safety	Level 5	Security Surveillance Management	Level 4
Design Thinking Practice	Level 5	Smart Facilities Management	Level 5
Emergency Response Management	Level 5	Stakeholder Management	Level 6
Facilities Shut-down and Re-start	Level 4	Technical Inspection	Level 4
Green Facilities Management	Level 5	Technical Presentation	Level 5
Incident and Accident Investigation	Level 5	Technical Writing	Level 4
Indoor Environmental Quality Improvement	Level 5	Technology Scanning	Level 5
Integrated Digital Delivery Application	Level 5	Value Engineering	Level 4
Inventory Management	Level 5	Workplace Safety and Health Culture Development	Level 5
Life Cycle Costing and Analysis	Level 5	Workplace Safety and Health Framework Development and Implementation	Level 5

GENERIC SKILLS AND COMPETENCIES (TOP 5)

Leadership	Advanced	Resource Management	Advanced
Decision Making	Advanced	Communication	Advanced
Problem Solving	Advanced		

Director/Managing Director/Chief Executive/General Manager

JOB ROLE DESCRIPTION

The Director/Managing Director/Chief Executive/General Manager defines the long-term strategic direction to grow the business in line with the organisation's overall vision, mission and values. He/She translates broad goals into achievable steps, anticipates and stays ahead of trends, and takes advantage of business opportunities. He represents the organisation with customers, investors, and business partners, and holds responsibility for fostering a culture of Workplace Safety and Health (WSH) and adherence to industry quality standards.

He inspires the organisation towards achieving business goals and fulfilling the vision, mission and values by striving for continuous improvement, driving innovation and equipping the organisation to embrace change. He possesses excellent analytical, problem-solving and leadership skills and is an effective people leader.

CRITICAL WORK FUNCTIONS AND KEY TASKS

CRITICAL WORK FUNCTIONS	KEY TASKS
Define strategic business direction	<ul style="list-style-type: none"> • Steer the organisation to achieve excellence in a globalised environment • Set organisational business goals for high performance and growth • Develop long-term strategic business plans to maintain a leading position in the marketplace • Drive organisational development with respect to change, innovation, and knowledge to achieve desired strategic business goals
Drive organisational business performance	<ul style="list-style-type: none"> • Establish organisational business performance indicators and measurement standards • Review organisational business performance against plans to recognise achievements • Assess principal risks to the organisation • Ensure organic and inorganic profitable revenue growth
Drive safety and sustainability	<ul style="list-style-type: none"> • Promote Workplace Safety and Health (WSH) across the organisation • Nurture an organisational culture that complies with WSH internal and external standards and regulations • Ensure that the organisation has appropriate WSH measures established to conduct work activities both lawfully and ethically • Stay abreast of international WSH regulations pertaining to the sector • Collaborate with WSH department to establish WSH policies and procedures • Drive a culture of adopting environmental sustainability and green building strategies
Establish quality management policies and processes	<ul style="list-style-type: none"> • Foster an organisational culture of proactive compliance with quality management regulations, internal standards, and policies • Ensure that the board is informed of quality management related matters • Endorse organisational quality management policies
Manage people and organisational function	<ul style="list-style-type: none"> • Set direction for organisational budget planning • Foster a culture of high performance and innovation amongst employees • Formulate organisational systems to develop the talents in line with organisation's mission and emerging industry trends • Champion succession planning initiatives for key management positions • Develop manpower planning and talent retention strategies • Spearhead continuous learning initiatives across the organisation • Approve strategies in attracting new talents based on business objectives and regulatory standards

Director/Managing Director/Chief Executive/ General Manager

CRITICAL WORK FUNCTIONS AND KEY TASKS

CRITICAL WORK FUNCTIONS	KEY TASKS
Grow business and stakeholder relationships	<ul style="list-style-type: none"> • Foster an atmosphere of inclusiveness with diverse external stakeholders and the global business community • Lead negotiations, networking and relationship-building with strategic stakeholders • Establish effective working relationships with contractors and subcontractors to ensure synergy between relevant parties • Endorse business expansion proposals and manpower forecasts • Assess new business growth opportunities
Drive organisation transformation	<ul style="list-style-type: none"> • Challenge new ideas in line with risks and opportunities • Maintain a culture of innovative thinking and practices • Guide market research activities to align research objectives with organisational needs and remain competitive

TECHNICAL SKILLS AND COMPETENCIES

Budgeting	Level 6	Financial Management	Level 6
Building Information Modelling Application	Level 5	Green Building Strategy Implementation	Level 6
Business Negotiation	Level 6	Innovation Management	Level 6
Business Performance Management	Level 6	Integrated Digital Delivery Application	Level 6
Business Proposal Writing	Level 5	Manpower Planning	Level 5
Change Management	Level 6	People Management	Level 6
Competitive Business Strategy	Level 6	Project Management	Level 6
Construction Technology	Level 5	Project Risk Management	Level 5
Continuous Improvement Management	Level 6	Research and Information Synthesis	Level 5
Data Collection and Analysis	Level 6	Stakeholder Management	Level 6
Design Thinking Practice	Level 6	Strategy Development	Level 6
Dispute Resolution	Level 5	Technology Scanning	Level 6
Engineering Contract Management	Level 6	Workplace Safety and Health Culture Development	Level 6
Ethical Climate	Level 6	Workplace Safety and Health Framework Development and Implementation	Level 6

GENERIC SKILLS AND COMPETENCIES (TOP 5)

Leadership	Advanced	Resource Management	Advanced
Decision Making	Advanced	Communication	Advanced
Problem Solving	Advanced		

Overview of Technical Skills and Competencies

Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels					
			1	2	3	4	5	6
Analytical Thinking	Analytical Method Validation	Verify analytical methods used to ensure accuracy, validity and reliability		●	●	●	●	
	Analytics and Computational Modelling	Develop, select and apply algorithms and advanced computational methods to enable systems or software agents to learn, improve, adapt and produce desired outcomes or tasks which also involves the interpretation of data, including the application of data modelling techniques to explore and address a specific issue or requirement		●	●	●	●	
	Critical Thinking	Examine, manage and connect issues and ideas from multiple perspectives to identify reasoning in a variety of fields with differing assumptions, contents and methods			●	●	●	
	Data Collection and Analysis	Collect, extract and interpret data according to defined requirements to obtain project insights			●	●	●	●
	Design Thinking Practice	Manage design thinking methodologies and processes to solve specific challenges, and guide stakeholders through the phases of inspiration, ideation and implementation			●	●	●	●
	Research and Information Synthesis	Identify, source and interpret information from various sources to obtain deep understanding of specific area to identify patterns, uncover insights, integrate findings into recommendations and/or guide decision-making		●	●	●	●	
	Systems Thinking	Identify, analyse and evaluate relationships among systems' parts, with the use of simulation tools and systems thinking techniques and frameworks to understand situations and drive change for improvements		●	●	●	●	
Building Management	Building Management System Implementation and Control	Implement Building Management System (BMS) to integrate overall building systems to improve the efficiency and productivity of management		●	●	●	●	
	Facilities Shut-down and Re-start	Manage shut-down and re-starting of the facility operation process to ensure safety and minimal downtime		●	●	●		
	Security Surveillance Management	Obtain and record surveillance information accurately using appropriate surveillance equipment in accordance with relevant legal and organisational requirements	●	●	●	●		
Business and Project Finance	Life Cycle Costing and Analysis	Analyse, estimate and manage costs for cost efficiency and value maximisation throughout building life cycle		●	●	●	●	
	Measurement of Building and Construction Works	Analyse proposed construction drawing plans and designs to prepare cost estimations		●	●	●	●	
	Project Cost	Set budgets, monitor costs and assess budget implications of projects on operations			●	●	●	
Business Management	Audit Management	Review organisational objectives, policies, procedures, structure, controls and systems to verify that the organisation's activities are efficiently managed		●	●	●	●	
	Budgeting	Prepare organisational budgets to support short-term and long-term business plans through forecasting, allocation and financial policy setting			●	●	●	●
	Business Development	Identify new business opportunities, curate business proposals and facilitate project deals to benefit the organisation		●	●	●	●	

Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels					
			1	2	3	4	5	6
Business Management	Business Innovation	Identify and evaluate digitisation and innovative business opportunities provided by new advancements in information and communication technology to establish new services or businesses to bridge the physical and digital worlds						
	Business Needs Analysis	Identify and scope business requirements and priorities through rigorous information gathering and analysis as well as clarification of the solutions, initiatives and programmes to enable effective delivery. This also involves the development of a compelling and defensible business case and the articulation of the potential impact of the solution to the business						
	Business Negotiation	Conduct negotiations to establish win-win outcomes for the organisation						
	Business Performance Management	Implement organisational performance systems to meet business plans and objectives by establishing performance indicators, tracking progress and addressing gaps						
	Business Process Re-engineering	Analyse business processes and workflows within the organisation and identification of new approaches to completely redesign business activities or optimise performance, quality and speed of services or processes including exploration of automating and streamlining processes, evaluation of associated costs and benefits of redesigning business processes, as well as identification of potential impact, change management activities and resources required						
	Business Proposal Writing	Strategise action plans and prepare business proposals to capitalise on new business opportunities						
	Business Risk Management	Forecast and assess existing and potential IT risks which impact the operation and/or profitability to the business as well as the development and roll out of company-wide strategies and processes to mitigate risk, minimise their impact or effectively manage such business risks						
	Change Management	Manage organisational change management systems to drive organisational success and outcomes by preparing, equipping and supporting adoption of change						
	Competitive Business Strategy	Formulate and implement competitive business development strategies in the organisation						
	Engineering Management of Change	Manage changes made to process plants, equipment and systems to ensure possible hazards and implications to process safety, production and quality are taken into consideration, and such changes are traceable, documented and evaluated						
	Ethical Climate	Evaluate and foster strong ethical climate						
	Financial Management	Ensure healthy finance to aid business growth and operations						
	Partnership Management	Build cooperative partnerships with inter-organisational and external stakeholders and leverage these relations to meet organisational objectives. This includes coordination and strategising with internal and external stakeholders through close cooperation and exchange of information to solve problems.						

Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels					
			1	2	3	4	5	6
Business Management	Stakeholder Management	Manage relevant stakeholders and strategic partners to ensure continuous levels of engagement by identifying needs, setting service standards and resolving issues in accordance with organisational procedures			●	●	●	●
	Strategy Development	Develop organisational strategies and policies by analysing the impact of internal and external influencing factors and seeking consultation from relevant stakeholders				●	●	●
	Technical Presentation	Deliver effective and engaging presentations for a variety of audiences				●	●	●
	Technical Writing	Apply technical writing approaches to communicate complex information and enable actions in pursuit of defined project goals		●	●	●		
Construction Methods	Commissioning and Start-up Management	Manage the commissioning and start-up of new or modified equipment, components and systems into operational modes		●	●	●	●	
	Construction Technology	Identify and apply the most suitable and effective construction processes and technologies to achieve project objectives		●	●	●	●	
	Installation and Assembly	Install equipment and system components by evaluating product specifications and manufacturers' recommendations and aligning them with the needs of the project		●	●	●	●	
Design	Aesthetic and Design Sensibility	Imagine and develop novel, relevant and appropriate aesthetics to engage and evoke accurate and appropriate emotional and sensorial responses from target audiences			●	●	●	
	Architecture Design	Utilise holistic design approaches for the conceptualisation, development and enhancement of design solutions		●	●	●	●	
	Biophilic Design in Built Environment	Design buildings with the objective of connecting nature using natural elements to the built environment				●	●	
	Computational Design	Use programming and computational strategies for design processes to enable design optioneering, automation and optimisation		●	●	●	●	
	Cultural, Heritage and Socio-economic Sensitivity for Design	Develop appreciation and thorough understanding of cultural, heritage and social-economic aspects of landscape sites and their associated communities to reflect considerations of such sensitivities in design			●	●	●	
	Façade Design	Design façades to achieve high performance and sustainable building envelope		●	●	●	●	
	Lighting Design Optimisation	Optimise lighting designs to create better ambiances while achieving energy efficiency, sustainability and maintainability results		●	●	●	●	
	Placemaking and Programming of Spaces	Adopt multi-faceted approaches to the planning and design of spaces				●	●	
Discipline Engineering Specialisation	Civil and Structural Engineering Management	Manage the design, technical specification, selection, modification and troubleshooting of civil structures and systems to provide civil and structural engineering discipline support to construction, maintenance and project teams				●	●	●
	Geotechnical Engineering Management	Manage the design, technical specification, selection, modification and troubleshooting of geotechnical equipment, structures and systems to provide geotechnical engineering discipline support to construction, maintenance and project teams				●	●	●

Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels					
			1	2	3	4	5	6
Discipline Engineering Specialisation	Structural Testing	Execute non-destructive structural tests to ensure integrity and reliability of structural components against standards and product specifications based on determined test methods, criteria, equipment and timeframe		●	●	●		
Engineering Design Management	Air Conditioning and Mechanical Ventilation System Design	Design cost-effective and efficient air conditioning and mechanical ventilation systems		●	●	●	●	
	Design for Maintainability	Apply Design for Maintainability (DfM) principles throughout the project lifecycle to ensure effectiveness, safety and economies of scale for maintenance tasks	●	●	●	●	●	
	Design for Manufacturing and Assembly	Apply Design for Manufacturing and Assembly (DfMA) principles throughout construction project lifecycle to ensure effectiveness, safety and economies of scale for manufacturing and assembly	●	●	●	●	●	
	Design for Safety	Develop designs and solutions to ensure compliance with Design for Safety (DfS) regulations while safeguarding the safety and health of users, stakeholders and the general public		●	●	●	●	●
	Design Standards and Specification	Apply knowledge of relevant standards that govern the design requirements, and deliver design specifications according to the required standards			●	●	●	
	Electrical Systems Design	Design cost effective and energy-efficient electrical systems		●	●	●	●	
	Fire Protection System Design	Design fire protection system incorporating holistic fire protection features in accordance with fire safety requirement		●	●	●	●	
	Lifts and Escalators Systems Design	Design energy-efficient lifts and escalators		●	●	●	●	
	Lightning Protection Systems Design	Design lightning protection systems incorporating safety features and standards		●	●	●	●	
	Natural Ventilation Design	Manage the design processes for effective natural ventilation in tropical and sub-tropical climates		●	●	●	●	
	Plumbing, Sanitary, Drainage and Gas Systems Design	Apply hydraulic and fluid dynamics principles to design efficient plumbing, sanitary, drainage and gas systems by understanding principles of fluid flow, interaction between fluid layers and pipe materials, and losses in transmission		●	●	●	●	
	Solar Photovoltaic Systems Designs	Oversee design of solar Photovoltaic (PV) systems according to project requirements and site constraints		●	●	●	●	
Environment Management	Green Building Strategy Implementation	Develop environmental sustainability plans throughout the building lifecycle through the development, implementation and review of sustainability strategies to enhance environmental performance		●	●	●	●	●
	Green Facilities Management	Manage facility operations and maintenance to minimise environmental impact and operational costs efficiently	●	●	●	●	●	
	Indoor Environmental Quality Improvement	Manage Indoor Environmental Quality (IEQ) through the identification and analysis of conditions inside buildings		●	●	●	●	
	Value Analysis	Establish the organisational value stream, enhance value-add and reduce costs			●	●	●	●

Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels					
			1	2	3	4	5	6
Environment Management	Value Engineering	Apply value principles to minimise overall operational costs and waste without compromising the reliability, quality and performance		●	●	●		
	Automated Equipment and Control Systems Configuration	Configure automated equipment and control systems to support manufacturing processes			●	●	●	
	Equipment and Systems Installation and Commissioning Management	Manage installation and testing to determine readiness for commissioning of systems		●	●	●	●	
	Equipment and Systems Testing	Execute equipment and systems testing procedures to ensure continuity of operations and meet standards of performance		●	●	●		
	Equipment Qualification	Verify that manufacturing equipment are installed, operate and perform as per expectations and requirements			●	●		
Feasibility Assessment	Project Feasibility Assessment	Assess the business environment and organisational capabilities to evaluate and determine the feasibility of a project				●	●	
	Site Assessment and Analysis	Plan and execute assessments of project sites to evaluate suitability for built environment operations			●	●	●	
	Solar Photovoltaic Energy Assessment	Assess feasibility of solar Photovoltaic (PV) installations for buildings based on location and energy assessments			●	●		
Incident Management	Emergency Response Management	Manage emergency response plans for the range of contingencies affecting work operations such as fire, explosion, power failure, chemical spillage, leakages, collapses, flooding, falling from height and other types of emergencies		●	●	●	●	
	Incident and Accident Investigation	Investigate workplace incidents and accidents based on root cause analysis and identification of corrective actions to prevent recurrences		●	●	●	●	
Information Technology Management	Applications Integration	Integrate data or functions from one application program with that of another application program - involves development of an integration plan, programming and the identification and utilisation of appropriate middleware to optimise the connectivity and performance of disparate applications across target environments			●	●	●	
	Common Data Environment Management	Implement Common Data Environment (CDE) to improve the management of data and information to facilitate decision making and increase the efficiency of project delivery		●	●	●	●	
	Programming and Coding	Develop technical capabilities to understand, design and write instructions to be processed by computers as software programmes to achieve desired outcomes			●	●		
Maintenance	Air Conditioning and Mechanical Ventilation Systems Maintenance	Implement preventive and corrective maintenance of air-conditioning and mechanical ventilation systems	●	●	●	●		
	Asset Management	Formulate and implement the organisation's asset management policies to optimise asset life-cycle and performance			●	●	●	●
	Civil Structure Maintenance	Implement preventive and corrective maintenance of civil structures	●	●	●	●		

Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels					
			1	2	3	4	5	6
Maintenance	Condition-based Assets Monitoring Management	Formulate and implement condition-based maintenance procedures to enhance organisation maintenance regimes and operational reliability	●	●	●	●	●	
	Drainage, Plumbing and Sanitary Systems Maintenance	Implement preventive and corrective maintenance of drainage, plumbing and sanitary systems	●	●	●	●		
	Electrical and Electronic Systems Maintenance	Implement corrective and preventive maintenance of electrical and electronic systems	●	●	●	●		
	Escalator and Travellator Systems Maintenance and Management	Implement preventive and corrective maintenance of escalator and travellator systems	●	●	●	●		
	Fire Protection System Maintenance	Implement preventive and corrective maintenance of fire protection system	●	●	●	●		
	Lift Systems Maintenance and Management	Implement preventive and corrective maintenance of lift systems	●	●	●	●		
	Maintenance Scheduling	Plan and manage maintenance schedules in accordance with the organisational standards and Original Equipment Manufacturer's recommendations			●	●	●	
	Maintenance Strategy Development	Develop a corrective and preventive maintenance strategy				●	●	●
	Smart Facilities Management	Integrate digital technologies and smart automation into facility operations and maintenance to optimise efficiency and performance	●	●	●	●	●	
People Development and Management	Learning and Development	Manage employees' learning and development activities to maximise employee' potential and capabilities to contribute to the organisation		●	●	●	●	●
	Manpower Planning	Estimate and fulfil manpower requirements to achieve business goals and targets			●	●	●	
	People Management	Manage the recruitment, performance and development of staff			●	●	●	●
Process Improvement	Automated Process Design	Design processes that utilise automated manufacturing equipment and control systems			●	●	●	●
	Continuous Improvement Management	Apply continuous improvement plans to optimise cost, task efficiency and effectiveness of processes and procedures		●	●	●	●	●
	Innovation Management	Manage organisation's ability to respond to internal and external opportunities by using creativity to introduce new ideas, processes and products			●	●	●	●
	Manufacturing Process Management	Perform process engineering and ensure the stability of the manufacturing process as well as troubleshoot process deviations and propose strategies for process performance improvement		●	●	●	●	●
	Process Improvement and Optimisation	Adopt process mining tools to discover critical processes and maximise these processes to achieve maximum efficiency in accordance with organisation procedures		●	●	●	●	

Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels					
			1	2	3	4	5	6
Process Improvement	Process Operations Troubleshooting	Perform a structured approach in process operations troubleshooting by using appropriate tools, techniques and engineering documents to identify and locate causes of problems and correct them in a safe and reliable manner		●	●	●	●	
	Process Optimisation	Optimise the production and efficiency of process plants through analysing and reviewing process unit, equipment and plant performance				●	●	●
	Process Unit and Utilities Operations Management	Operate, monitor and control process units and utilities in order to manage process operations and planning to meet organisational business targets	●	●	●	●	●	●
Procurement Management	Contract Administration and Management	Develop contracts to determine suitable conditions of contract, and optimise the contract administration and management process taking into consideration the nature of the project		●	●	●	●	
	Engineering Contract Management	Analyse and develop requirements to define contract structures, terms and financials		●	●	●	●	●
	Inventory Management	Formulate and implement inventory management strategies targeted at ensuring availability of equipment, tools and materials for engineering projects for the purpose of construction, operations and maintenance works			●	●	●	
	Procurement Coordination and Policy Development	Design and implement procurement strategy and workflow to govern activities relating to sourcing and purchasing of materials as required to deliver on project expectations			●	●	●	●
Production Management	Additive Manufacturing	Design and apply additive manufacturing workflows to create three-dimensional objects		●	●	●	●	●
	Automated Operation Monitoring	Monitor automated equipment and control systems to ensure quality execution of the manufacturing process flow		●	●			
	Automation Process Control	Apply automation process control to monitor performance metrics and quality of manufacturing outputs to determine the optimal settings as well as productivity improvement strategies			●	●	●	●
	Engineering Support Management	Provide discipline engineering technical support and expertise in technical specifications, modifications, asset integrity and troubleshooting of engineering equipment and systems, to production, maintenance and project teams				●	●	
	Good Manufacturing Practices Implementation	Implement Current Good Manufacturing Practices in the design, monitoring, and control of manufacturing processes		●	●	●	●	
	Lean Manufacturing	Apply concepts, tools and techniques of 'lean' manufacturing to improve efficiency in a manufacturing organisation			●	●	●	●
	Manufacturing Systems Operation and Control	Operate technical systems in construction manufacturing			●	●	●	
	Material Studies and Production Processes	Administer the study of material properties and applications to facilitate production, construction, engineering and processing of materials into specific designs			●	●	●	

Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels					
			1	2	3	4	5	6
Production Management	Plant Economic Modelling	Develop plant economic models for current operations, and growth scenarios according to business plans, to forecast optimal plant and economic configurations for supply and demand				●	●	
	Production Planning and Scheduling	Establish and implement strategic production planning and scheduling to meet production targets and cycle time indices			●	●	●	
	Production Resource Management	Plan and control capacity and quality issues to meet organisational needs as well as schedule resources to synchronise production processes			●	●	●	●
	Transportation Route and Schedule Planning	Optimise transportation resources for route scheduling and dispatching using vehicle fleet management systems	●	●	●	●		
	Warehouse Space Utilisation	Optimise spaces for storage of items in warehouses			●	●	●	
	Workflow Management	Manage operations to ensure timely and quality delivery of construction outcomes				●	●	
	Yield Analysis	Apply yield analysis processes and techniques to monitor and drive process yield improvements			●	●	●	
Project Management	Dispute Resolution	Manage disputes by implementing appropriate resolution approaches to find solutions to disagreements				●	●	●
	Project Management	Manage engineering projects and work areas by setting objectives, project plans, methodologies and timelines to ensure successful outcomes		●	●	●	●	●
	Project Risk Management	Manage risks relating to specific projects as precaution against internal and external vulnerabilities			●	●	●	
	Regulatory Submission and Clearance	Manage the processes for obtaining the required project approvals, permits, and the compliance to regulatory conditions			●	●	●	
Quality Management	Computerised Systems Validation	Commission computerised systems for use in manufacturing facilities			●	●	●	
	Materials Qualification	Manage the quality of materials to ensure material specifications conform to product requirements		●	●	●	●	
	Process Control	Apply process control to monitor and optimise process plant performance and quality of production output			●	●	●	
	Process Monitoring	Verify that routine manufacturing processes are consistently within a state of control			●	●	●	
	Process Validation	Verify that processes are reproducible and consistent in delivering quality products according to specifications and in line with international regulations		●	●	●	●	
	Product Testing	Develop product testing protocols and procedures based on product specifications to test and determine the full characteristics of product profiles			●	●	●	
	Product Testing Management	Test products to verify that they have been produced to the required quality and regulatory standards		●	●	●		

Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels					
			1	2	3	4	5	6
Quality Management	Quality Assurance Management	Establish and implement quality assurance (QA) parameters and procedures to ensure compliance with the organisation's Quality Management System (QMS) requirements		●	●	●	●	
	Quality Control Management	Establish and implement quality control (QC) systems and procedures to ensure the quality of products meet desired levels of standards and compliance at all stages		●	●	●	●	
	Quality System Management	Establish quality assurance policy and management system for services to ensure compliance with internal quality requirements, client expectations, international quality standards and/or regulations		●	●	●	●	●
	Technical Inspection	Execute formal inspection exercises to ensure quality, safety, and reliability adhering with technical specifications and compliance requirements		●	●	●		
	Test Planning	Develop testing plans and procedures by determining scope and risks, identifying the objects of testing, selecting test methods and tools, and controlling test implementation				●	●	
Technical Drawing	3D Modelling	Generate 3D models using a variety of modelling software to represent characteristics of a real-world system		●	●	●	●	
	Design Sketching	Communicate and visualise ideas and designs in accurate form, perspective and proportion through drawing			●	●	●	
	Engineering Drawing and Design Specifications	Create design specifications and technical drawings to guide installation and construction works		●	●	●	●	
	Engineering Drawing Interpretation and Management	Use engineering drawings, equipment datasheets, vendor equipment engineering drawings and layouts and equipment datasheets to support construction, operations, maintenance and engineering activities	●	●	●	●	●	
	Technical Drawing	Manage the composition of precise and detailed drawings and specifications that visually communicate how designs function, or are produced, to guide the construction			●	●	●	
Technology Management	Applications Support and Enhancement	Provide ongoing technical support and improvements to users of applications including technical guidance and assistance related to the installation and maintenance of applications	●	●	●	●		
	Artificial Intelligence Application	Apply algorithmic and statistical knowledge to integrate Artificial Intelligence into project execution and maintenance processes			●	●	●	●
	Augmented Reality Application	Facilitate the design and implementation of augmented reality applications to increase efficiency of work processes	●	●	●			
	Building Information Modelling Application	Use Building Information Modelling to make design, project and operational information accurate, accessible and actionable			●	●	●	
	Emerging Technology Synthesis	Monitor, gather data and identify emerging technology trends, developments, products, services and techniques for integration and perform cost-benefit analysis and evaluation of their relevance, viability, sustainability and potential value add to the business			●	●	●	●

Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels					
			1	2	3	4	5	6
Technology Management	Integrated Digital Delivery Application	Drive the adoption, integration and implementation of Integrated Digital Delivery (IDD) technologies to manage projects and building life-cycle efficiently from digital design, digital fabrication, digital construction to digital asset delivery and management		●	●	●	●	●
	Internet of Things Management	Interrelate computing devices, equipment and machines data in a networked environment to provide specific solutions		●	●	●	●	
	Performance Management	Evaluate and optimise network, system and/or software performance against user and business requirements. This involves the introduction and utilisation of new tools and mechanisms to gather, analyse and fully optimise performance data. This also includes the initiation of controls, modifications and new investments to enhance end-to-end performance of ICT components, systems and services				●	●	●
	Robotic and Automation Technology Application	Integrate robotic and automation technologies in the Built Environment, including construction, operations and maintenance to enhance productivity and precision and to reduce reliance on manual tasks		●	●	●	●	●
	Systems Integration	Realise the system-of-interest by progressively combining system elements in accordance with design requirements and the integration strategy			●	●	●	
	Technology Application	Integrate technologies into business operations of the organisation to optimise efficiency and effectiveness of processes		●	●	●	●	
	Technology Road Mapping	Plan short-term and long-term goals with specific technology solutions to help meet those goals in order to make capital out of future market needs					●	●
	Technology Scanning	Review new developments in emerging technology as well as evaluate and determine relevance of emerging technologies to the organisation		●	●	●	●	●
Workplace Safety and Health (WSH) Management	Engineering Safety Standards Interpretation	Design and implement appropriate safety and safeguarding engineering solutions standards in accordance with legislative requirements and industry best practices			●	●	●	
	Workplace Safety and Health Culture Development	Create and maintain a Workplace Safety and Health culture based on a common set of attitudes, behaviours and competencies		●	●	●	●	●
	Workplace Safety and Health Framework Development and Implementation	Develop Workplace Safety and Health (WSH) frameworks and implement procedures and practices to ensure a safe and reliable workplace environment	●	●	●	●	●	●

General Descriptors for Technical Skills and Competencies (TSCs)

Level	Responsibility (Degree of supervision and accountability)	Autonomy (Degree of decision-making)	Complexity (Degree of difficulty of situations and tasks)	Knowledge and Abilities (Required to support work as described under Responsibility, Autonomy and Complexity)
6	Accountable for significant area of work, strategy or overall direction	Empower to chart direction and practices within and outside of work (including professional field/community), to achieve/ exceed work results	Complex	<ul style="list-style-type: none"> • Synthesise knowledge issues in a field of work and the interface between different fields, and create new forms of knowledge • Employ advanced skills, to solve critical problems and formulate new structures, and/or to redefine existing knowledge or professional practice • Demonstrate exemplary ability to innovate, and formulate ideas and structures
5	Accountable for achieving assigned objectives, decisions made by self and others	Provide leadership to achieve desired work results; Manage resources, set milestones and drive work	Complex	<ul style="list-style-type: none"> • Evaluate factual and advanced conceptual knowledge within a field of work, involving critical understanding of theories and principles • Select and apply an advanced range of cognitive and technical skills, demonstrating mastery and innovation, to devise solutions to solve complex and unpredictable problems in a specialised field of work • Manage and drive complex work activities
4	Work under broad direction Hold accountability for performance of self and others	Exercise judgment; Adapt and influence to achieve work performance	Less routine	<ul style="list-style-type: none"> • Evaluate and develop factual and conceptual knowledge within a field of work • Select and apply a range of cognitive and technical skills to solve non-routine/ abstract problems • Manage work activities which may be unpredictable • Facilitate the implementation of innovation
3	Work under broad direction May hold some accountability for performance of others, in addition to self	Use discretion in identifying and responding to issues, work with others and contribute to work performance	Less routine	<ul style="list-style-type: none"> • Apply relevant procedural and conceptual knowledge, and skills to perform differentiated work activities and manage changes • Able to collaborate with others to identify value-adding opportunities
2	Work with some supervision Accountable for a broader set of tasks assigned	Use limited discretion in resolving issues or enquiries. Work without frequently looking to others for guidance	Routine	<ul style="list-style-type: none"> • Understand and apply factual and procedural knowledge in a field of work • Apply basic cognitive and technical skills to carry out defined tasks and to solve routine problems using simple procedures and tools • Present ideas and improve work
1	Work under direct supervision Accountable for tasks assigned	Minimal discretion required. Expected to seek guidance	Routine	<ul style="list-style-type: none"> • Recall factual and procedural knowledge • Apply basic skills to carry out defined tasks • Identify opportunities for minor adjustments to work tasks

Overview of Generic Skills and Competencies

Generic Skills and Competencies (GSCs)

GSC	GSC Description	Proficiency Levels		
		Basic	Intermediate	Advanced
Communication	Convey and exchange thoughts, ideas and information effectively through various mediums and approaches.	Communicate information with others to respond to general inquiries and to obtain specific information.	Articulate and discuss ideas and persuade others to achieve common outcomes.	Negotiate with others to address issues and achieve mutual consensus.
Computational Thinking	Develop and use computational models, tools and techniques to interpret and understand data, solve problems and guide decision-making.	Use computational models, tools and techniques to identify patterns in a problem and develop a solution.	Modify existing computational models, tools and techniques to develop different solutions.	Develop and create computational models, tools and techniques to implement new solutions and apply to other problems.
Creative Thinking	Adopt a fresh perspective to combine ideas or information in new ways and make connections between seemingly unrelated fields to create new ideas and applications.	Connect ideas or information from related fields or applications to address an immediate issue.	Connect or combine ideas or information from unrelated fields or applications to generate multiple ideas to bring about a specific outcome.	Create original applications or ideas to reveal new possibilities and reshape goals through high level of innovativeness.
Decision Making	Choose a course of action from various alternatives using a reasoned process to achieve intended goals.	Make decisions of simple or routine nature to achieve intended goals using given information and guidelines.	Make decisions in a complex setting to achieve intended goals using a structured process and multiple sources of available information.	Make decisions in a volatile and ambiguous setting using a structured process and limited sources of available information to achieve intended goals.
Developing People	Help others to learn and develop their capabilities to enhance their performance and achieve personal or professional goals.	Use demonstration and explanation to teach a familiar task to inexperienced co-workers.	Provide coaching to others to develop their skills and knowledge on their jobs to enhance performance.	Provide mentorship to help others in their professional and personal development to improve performance and further their careers.
Digital Literacy	Use ICT tools, equipment and software to create, evaluate and share information digitally with others.	Perform basic functions using software programmes pertaining to computer operating systems and file management, and search online information.	Use available software features to create and edit documents, customise templates and reports and evaluate online information.	Use available software features to enhance documents, analyse and manipulate data, and use ICT to organise, share and communicate information clearly and coherently.
Global Mindset	Awareness of diversity across global cultures and markets. Seek opportunities to adopt successful practices and ideas.	Demonstrate understanding of global challenges and opportunities and how to transfer best practices across cultures. Respect cultural differences and needs of a diverse workforce.	Develop global networks and manage virtual relationships while balancing both local and global perspectives. Adopt a local and global perspective when making decisions.	Build the organisation's capabilities to compete in a global environment. Manage tension between corporate requirements, global and cultural differences.

Generic Skills and Competencies (GSCs)

GSC	GSC Description	Proficiency Levels		
		Basic	Intermediate	Advanced
Interpersonal Skills	Manage relationships efficiently and communicate with others effectively to achieve mutual consensus and outcomes.	Recognise own internal feelings and emotional states to manage interpersonal relationships in social situations.	Detect and decipher emotions of others to manage interpersonal relationships in social situations.	Influence, guide and handle others' emotions to build instrumental relationships and manage conflicts and disagreements.
Leadership	Lead others to achieve objectives in the most effective way. Provide an inclusive workplace that cultivates workplace relationships and teamwork, and foster the development of others.	Demonstrate professionalism to set a good example at peer level. Support others through own initiative and enthuse others through own positive and energetic approach.	Lead by example at team level. Encourage and guide others to adopt a point of view, make changes or take action. Provide a team environment that facilitates relationships building, teamwork and the development of others.	Lead by example at organisational level. Inspire, motivate and guide others to adopt a point of view, make changes or take action. Cultivate an open, cooperative and collaborative learning culture for the organisation.
Lifelong Learning	Seek out opportunities to enhance one's knowledge and skills. Access and acquire new knowledge and skills actively for continual learning.	Organise and manage own learning by setting learning targets. Identify learning approaches to achieve work or career goals.	Engage in collaborative learning by discussing one's learning with others and soliciting feedback to continually improve oneself.	Conduct self-reflective practices to review one's learning to facilitate continual growth in one's career or profession.
Managing Diversity	Work well with people from different ethnic, social, cultural and educational backgrounds and understand the concerns and interests of diverse work groups.	Demonstrate sensitivity to the cultural characteristics, values, beliefs, and behaviors of another ethnic or cultural group.	Build relationships with different ethnic or cultural groups by engaging in cross-cultural cooperative projects.	Manage conflicts arising from different ethnic or cultural groups and work effectively in cross-cultural settings.
Problem Solving	Generate feasible and efficient solutions to solve problems and capitalise on new opportunities.	Identify easily perceivable problems and follow given guidelines and procedures to solve the problems.	Identify less perceivable problems and use problem solving tools and techniques to solve the problems.	Anticipate potential problems beyond the current scope and apply higher order problem solving tools and techniques to turn problems into opportunities.
Resource Management	Efficient and effective deployment and allocation of resources when and where they are needed. Include planning, allocating and scheduling of resources to tasks, which typically include manpower, machines, money and materials.	Use resources to ensure optimum and efficient use of resources.	Deepen insights into the planning, allocation and deployment of resources to anticipate needs. Plan the allocation and deployment of resources efficiently and effectively.	Establish strategies for the allocation and deployment of resources efficiently and effectively.

Generic Skills and Competencies (GSCs)

GSC	GSC Description	Proficiency Levels		
		Basic	Intermediate	Advanced
Sense Making	Organise and analyse data and information accurately to identify relationships and detect patterns and trends to gain insights for decision-making.	Identify relationships and linkages within different components of data.	Interpret data to uncover patterns and trends between various sources of data.	Analyse data relationships, patterns and trends to gain important insights and make informed decisions.
Service Orientation	Commit to exceeding both internal and external customers' needs. Proactively identify customer needs and sustain a culture of service excellence within the organisation.	Exceed customer needs and expectations and handle service challenges with a positive mindset. Demonstrate an understanding of the organisation's service vision, mission and values.	Anticipate customer needs and expectations and elicit feedback from customers to improve service. Build relationships with customers to create and sustain customer loyalty.	Model, lead, train and motivate staff with a focus on sustaining a culture that encourages commitment to service excellence and high performance.
Teamwork	Work collaboratively and effectively with others to contribute to group efforts to achieve identified objectives.	Contribute to a positive and cooperative working environment by fulfilling own responsibilities and providing support to co-workers to achieve team goals.	Facilitate work team activities, provide assistance and support needed by team members and promote ownership and commitment among team members to work goals to improve team performance.	Establish teams, design and assess tasks to continually improve team effectiveness and cultivate a sense of organisational ownership and a cooperative working environment.
Transdisciplinary Thinking	Understanding of concepts across multiple disciplines, with the capacity to synthesise the knowledge and insights to guide decisions and foster cooperation.	Research and adapt concepts from outside one's field of expertise to supplement one's core knowledge and proficiency.	Co-relate material from diverse knowledge bases to guide decisions and policy making. Participate in reflective and trans-disciplinary communities within and outside the organisation.	Synthesise knowledge and insights across disciplinary boundaries to aid strategic decisions and foster cooperation within and outside of the organisation.
Virtual Collaboration	Use online collaborative communication tools to work as teams to accomplish tasks or projects.	Participate and contribute in a virtual team. Set up appropriate online collaborative tools and supporting equipment.	Use interactive collaborative tools to foster cohesion and commitment among virtual team members to achieve goals. Keep up-to-date with innovative online collaborative tools and applications to enhance one's proficiency in engaging in virtual collaboration.	Leverage on diverse team talent, latest online collaborative technologies and virtual platforms to produce collaborative behaviour and achieve technological savviness in virtual collaboration.

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CBRE Pte. Ltd.
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DLM Pte. Ltd.
DP Architects Pte. Ltd.
DP Sustainable Design Pte. Ltd.
DSCO Group Pte. Ltd.
Earth-In-Mind Pte. Ltd.
ECAS Consultants Pte. Ltd.
EM Learning Pte. Ltd.
EM Services Pte. Ltd.
ENGIE Services Singapore Pte. Ltd.
Fa Yew Construction Pte. Ltd.
Faithful+Gould Pte. Ltd.
Far East Organization
Farm Architects Pte. Ltd.
Feng Ming Construction Pte. Ltd.
Fonda Global Engineering Pte. Ltd.
Fraser Property Limited
Greyform Pte. Ltd.
GuocoLand Limited
Highway International Pte. Ltd.
Ho Bee Land Limited
Hock Lian Seng Infrastructure Pte. Ltd.
HongKong Land Limited
Hong Leong Holdings Limited
HSL Ground Engineering Pte. Ltd.
ID Architects Pte. Ltd.
IDA Technology Pte. Ltd.
ISS Facility Services Pte. Ltd.
Jacobs International Consultants Pte. Ltd.
Jardine Engineering (Singapore) Pte. Ltd.
Jia Quantity Surveyors & Project Managers Pte. Ltd.
JIB Specialist Consultants Pte. Ltd.
JLL Singapore
Jones Lang Laselle Property Consultants Pte. Ltd.
Kaer Pte. Ltd.
KCL Consultants Pte. Ltd.
Keppel Land Limited
Kim Seng Heng Engineering Construction Pte. Ltd.
Kimly Construction Pte. Ltd.
Knight Frank Property Asset Management Pte. Ltd.
KK Lim & Associates Pte. Ltd.
Koh Brothers Building & Civil Engineering Contractor (Pte.) Ltd.
KTC Group
Lander Loke Architects
LAUD Architects Pte. Ltd.
LC&T Builder (1971) Pte. Ltd.
LE Property Consultancy Pte. Ltd.
Lendlease Singapore Pte. Ltd.
Lian Soon Construction Pte. Ltd.
Low Keng Huat (Singapore) Limited
Lum Chang Building Contractors Pte. Ltd.
Meinhardt Infrastructure Pte. Ltd.
Mott Macdonald Group
ONG&ONG Group
Park + Associates Pte. Ltd.
Penta-Ocean Construction Co. Ltd.
PM Link Pte. Ltd.
PMS Associates
Pontiac Land Group
Progressive Builders Pte. Ltd.
Quek & Quek Civil Engineering Pte. Ltd.
Rider Levett Bucknall LLP
Rodney Chng & Associates Pte. Ltd.
Ronnie & Koh Consultants Pte. Ltd.
RSP Architects Planners & Engineers (Pte.) Ltd.
SAA Architects Pte. Ltd.
Samwoh Corporation Pte. Ltd.
SH Integrated Services Pte. Ltd.
Shanghai Tunnel Engineering Co.(Singapore) Pte. Ltd.
Shimizu Corporation
Sim Lian Construction Co. (Pte.) Ltd.
Singapore Engineering & Construction Pte. Ltd.
Singapore Piling & Civil Engineering Pte. Ltd.
SMM Pte. Ltd.
Soilbuild Construction Group
Squire Mech Pte. Ltd.
Straits Construction Singapore Pte. Ltd.
Surbana Jurong Consultants Pte. Ltd.
Surbana Jurong Pte. Ltd.
Teambuild Engineering & Construction Pte. Ltd.
Teh Joo Heng Architects
Tiong Aik Corporation Ltd.
Tiong Seng Contractors (Pte.) Ltd.
Turner & Townsend Pte. Ltd.
Unipac Consulting Engineers LLP
VivATA Pte. Ltd.
WEC Engineers & Constructors Pte. Ltd.
Woh Hup (Pte.) Ltd.
WOHA Architects Pte. Ltd.
WRX Engineers Pte. Ltd.
WSP Consultancy Pte. Ltd.
YSCA Consultancy Singapore Pte. Ltd.

In addition, we would like to express our gratitude to the following stakeholders and partners for their contribution to the development of the Skills Framework for Built Environment:

- The trade associations and chambers (TACs) and professional bodies for their contribution in driving the future of the professions in the built environment sector
- Various government and government-linked agencies for their support and assistance in sharing their views
- Individuals who have agreed to share their personal career stories
- Organisations and unions that have provided the necessary information and assisted in the validation
- Education and training providers for the inputs on skills and competencies development

Wage Information

Job Roles	Gross Wage, SGD	
	25 th percentile	75 th percentile
ARCHITECTURAL CONSULTANCY AND DESIGN		
Associate Director (Architecture)/Principal Architectural Executive	10,400	12,500
Senior Architect	6,400	9,000
Architect	4,400	5,700
Architectural Associate	3,900	4,800
Senior Architectural Executive	5,700	7,800
Architectural Executive	3,900	5,100
Architectural Assistant	3,000	4,400
ENGINEERING CONSULTANCY AND DESIGN		
Associate Director (Civil and Structural Engineering)/Principal Civil and Structural Engineer	8,400	13,100
Senior Civil and Structural Engineer	5,500	7,600
Civil and Structural Engineer	3,700	4,900
Assistant Civil and Structural Engineer/Technical Executive (Civil and Structural Engineering)	3,600	4,500
Associate Director (Mechanical Engineering/Electrical Engineering)/Principal Mechanical Engineer/Principal Electrical Engineer	9,600	14,000
Senior Mechanical Engineer/Senior Electrical Engineer	5,500	7,800
Mechanical Engineer/Electrical Engineer	3,700	4,800
Assistant Mechanical Engineer/Assistant Electrical Engineer/Technical Executive (Mechanical Engineering)/Technical Executive (Electrical Engineering)	3,300	3,800
QUANTITY SURVEYING		
Associate Director (Quantity Surveying)/Contracts Director	7,300	11,600
Senior Quantity Surveyor/Senior Contracts Manager/Senior Cost Manager	5,200	7,600
Quantity Surveyor/Contracts Manager/Cost Manager	3,400	5,400
Assistant Quantity Surveyor/Assistant Cost Manager	3,000	5,600
CONSTRUCTION MANAGEMENT (PRODUCTION)*		
Factory Manager	8,000	11,000
Senior Production Manager	6,000	9,800
Production Manager/Assistant Production Manager	4,400	7,000
Production Supervisor	3,400	5,600
Senior Quality Assurance Engineer/Senior Quality Control Engineer/Senior Planner	6,400	9,000
Quality Assurance Manager/Quality Control Manager/Quality Assurance Engineer/Quality Control Engineer/Planner	4,800	7,000
Quality Assurance Supervisor/Quality Control Supervisor	3,200	5,600

Job Roles	Gross Wage, SGD	
	25 th percentile	75 th percentile
CONSTRUCTION MANAGEMENT		
Project Director (Construction)	12,000	16,400
Senior Project Manager (Construction)/Project Manager (Construction)	8,300	11,100
Assistant Project Manager (Construction)/Construction Manager	6,200	8,000
Engineer/Assistant Engineer	3,800	5,500
Site Supervisor/Trade Supervisor/Project Coordinator	3,700	5,500
PROJECT MANAGEMENT		
Project Director (Project Management)	10,500	16,400
Senior Project Manager	7,200	12,800
Project Manager	5,300	9,000
Assistant Project Manager/Project Management Executive	4,100	5,900
DIGITAL DELIVERY MANAGEMENT*		
Chief Digital Officer	9,000	13,500
Lead (Digital Delivery)	5,600	8,000
Specialist (Digital Delivery)	3,700	5,600
Assistant Specialist (Digital Delivery)	2,700	4,500
FACILITIES MANAGEMENT		
Associate Director (Facilities Management)	9,300	13,900
Senior Facilities Manager	7,100	10,000
Facilities Manager/Facilities Engineer	4,700	6,800
Technical Executive	3,800	4,800
Technical Officer	3,000	3,600
Facilities Technician	2,500	3,400
Building Executive/Facilities Executive/Property Executive	3,600	4,900
Building Officer/Facilities Officer/Property Officer/Building Supervisor	2,500	3,500
Director/Managing Director/Chief Executive/General Manager	17,100	24,500

Source: Wage compiled from wage study conducted by Ernst & Young Advisory Pte. Ltd. for the Built Environment sector as commissioned by SkillsFuture Singapore

- 1) Data pertain to full-time resident employees in the private sector establishments each with at least 25 employees
- 2) Monthly Gross Wage refers to the sum of the basic wage, overtime payments, commissions, allowances, and other regular cash payments. It is before deduction of employee CPF contributions and personal income tax and excludes employer CPF contributions, bonuses, stock options, other lump sum payments and payments-in-kind.
- 3) 25th Percentile Wage refers to the wage level which divides the bottom 25% of wage earners from the rest.
- 4) 75th Percentile Wage refers to the wage level which divides the top 25% of wage earners from the rest.

*Source: Industry sourced indicative salary range by BCA

The Built Environment Cluster

The Skills Framework for Built Environment is aligned with and supports the Construction Industry Transformation Map (CITM) and Real Estate Industry Transformation Map (REITM) (focusing on Facilities Management sub-sector) under the Built Environment cluster which also comprises the Environmental Services, Landscape, Security¹ and Property Transaction Services sector.

The Built Environment Cluster plays an integral role to provide high quality living and working environments to drive Singapore's socio-economic objectives. It comprises a long, diverse, and complex value chain that span across the entire building lifecycle - development and design; marketing and conveyancing; manufacturing; construction and assembly; and operations and maintenance (O&M). The various Built Environment Industry Transformation Maps (ITMs) represent the cluster's collective statement of intent for transformation and were progressively launched between 2017 to 2018. The cluster's efforts work towards a built environment which is sustainable, buildable and maintainable.

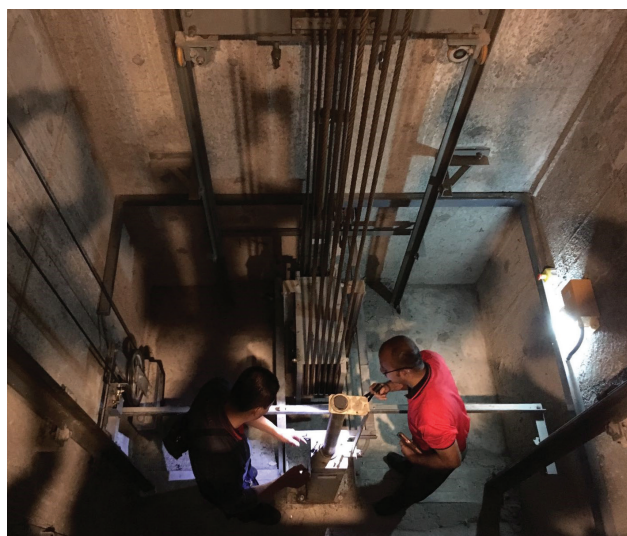
COUNCIL FOR ESTATE AGENCIES' (CEA) CONTINUING PROFESSIONAL DEVELOPMENT (CPD) FRAMEWORK

As one of the initiatives under the Real Estate Industry Transformation Map, CEA reviewed its CPD framework in conjunction with the real estate agency industry and launched the new CPD framework on 1 October 2019. The framework ensures that property agents keep abreast of the latest changes in policies and procedures relating to the property transaction process, and are equipped with the necessary knowledge and skillsets to thrive in the new digital environment and to meet consumers' rising expectations. Property agents are required to attend CPD training annually and fulfil the CPD requirements in order to renew their registration. To promote the breadth and depth of learning of property agents, the courses under CPD framework aims to build up their Professional and Generic competencies needed to facilitate property transactions.

Please refer to CEA's website (<https://www.cea.gov.sg>) for more information on CEA's CPD Framework.

PROGRESSIVE WAGE MODEL (PWM) FOR LIFT TECHNICIANS

Lift and escalators are essential conveniences of modern life. Recognising the importance of this sub-sector, the Lift and Escalator Sectoral Tripartite Committee² (L&E STC) was formed in January 2017 to look into initiatives to attract, develop and retain Singapore residents in the lift industry. Amongst its recommendations released on 19 September 2018, was to introduce clearly defined career progression pathways for lift maintenance personnel under a Progressive Wage Model (PWM). The PWM provides two alternative pathways for maintenance personnel to progress. The supervisory track offers opportunities to build up management capabilities, while the specialist track caters to those who prefer to deepen their technical skillsets. Each pathway follows a five-level progression, where each level would have a set of clearly defined job responsibilities and a higher basic wage range for each level was introduced to keep their wages competitive with other sectors requiring comparable technical skills. The government has since accepted the Lift and Escalator Sectoral Tripartite Committee (L&E STC)'s recommendations, including mandating the adoption of PWM.

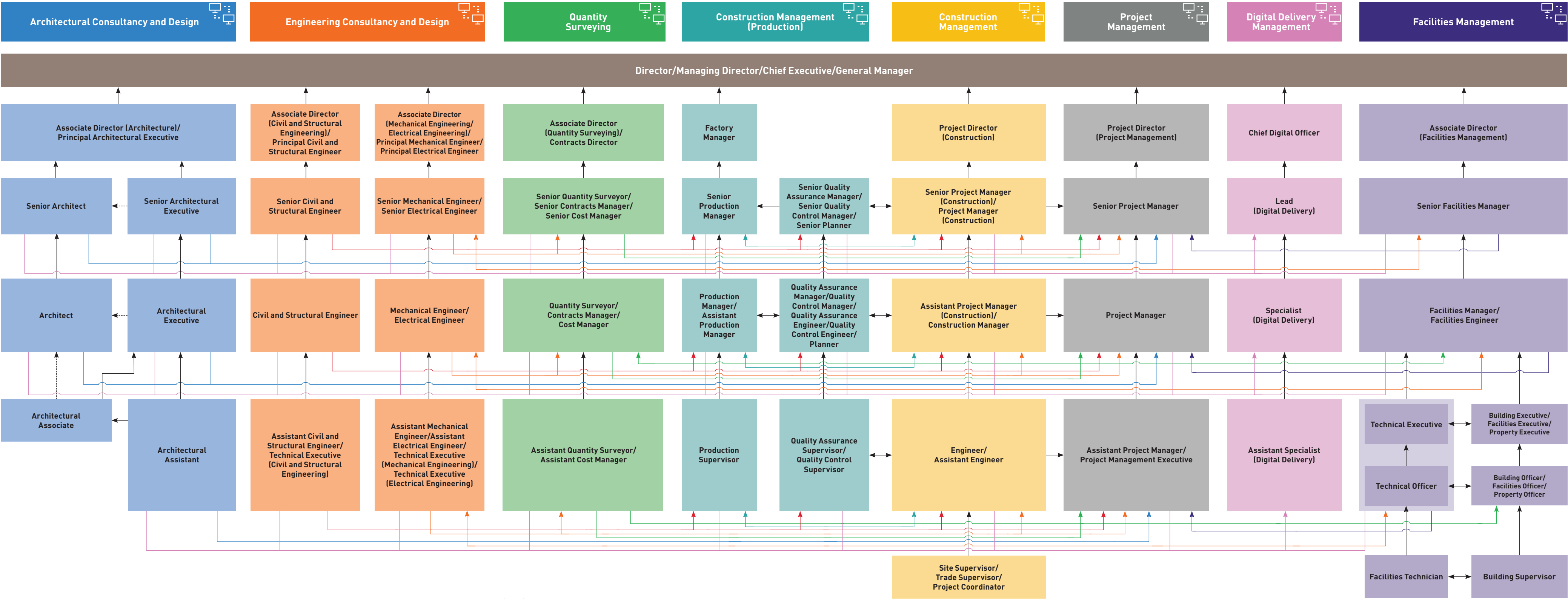


Please refer to (<https://go.gov.sg/bca-lift-pwm>) for more information on PWM for Lift Technicians.

¹ Skills Framework had been developed for Environmental Services, Landscape, Security sector

² The L&E STC comprises of representatives from industry association and unions, key government agencies, lift service buyers and providers

SKILLS FRAMEWORK FOR BUILT ENVIRONMENT
Career Pathways



The Built Environment cluster also includes the Environmental Services, Landscape and, Security sectors, and Property Transaction Services sub-sector (please refer to the Council for Estate Agencies' (CEA) website at cea.gov.sg for information on CEA's Continuing Professional Development (CPD) Framework which equips property agents with the skillsets and key competencies to facilitate property transactions).

Built Environment practitioners who hold concurrent Workplace Safety and Health (WSH) roles may refer to the Skills Framework for WSH for more information.

The Career Map serves as a reference to reflect the available job roles and possible career pathways in the Built Environment sector, which may vary depending on each organisation's structure and business context. The career progression pathways would depend on individual performance, capability, experience, aspiration, as well as organisation needs.

SKILLS FRAMEWORK FOR BUILT ENVIRONMENT



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Built Environment

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