

7.2.1 Job Dashboards

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

Megatrends impacting the Job Role in Short to Medium-Term

COVID-19	Multi-Skilling	Sustainable Construction/ Buildings	Value Chain Aggregation & Integration	Workforce Challenges
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Technology Trends impacting the Job Role in Short to Medium-Term

BIM Technology	Data Analytics & AI	Digital Twin	Remote Monitoring
VR/AR	5G, IoT & Smart Buildings	Modular Construction	

Impact Assessment

M

MEDIUM

degree of change in tasks

Today

This job role is responsible for supporting the planning and development of projects and assisting in the development of conceptual to schematic and detailed designs. Job holders also assist in the designing and coordination of design models and execute risk assessments to identify risks associated with the projects.

In the Future

This job role may leverage technology in supporting and assisting project planning and engineering designs development, with an understanding of digital tools and platforms to **perform tasks in a data driven manner and support coordination of projects**. Job holders may see **continued focus and emphasis on risk assessment and identification**, and growing emphasis on **adoption of environmental sustainability and green building methods**.

Job Tasks Today	Impact at Task-level / Future view of Job Tasks		Time Horizon
Support project scoping and requirements definition	M	<ul style="list-style-type: none">Job holders will continue supporting feasibility studies and may leverage technology to automate tasks such as data gathering and report generation of feasibility studies. Job holders will thus need an understanding of the application of such digital tools and platforms.Job holders may see a shift in focus to supporting solutions development and risk identification.	Medium-term
Assist in design development	H	<ul style="list-style-type: none">Data Analytics & AI may automate the calculation of structural loads and stresses.Job holders will therefore be able to shift focus to other related tasks in supporting design development and developing engineering analysis models.	Short-term
	M	<ul style="list-style-type: none">Job holders will continue to assist in the development of engineering designs, and may need to understand and leverage technology to augment the design process to be more efficient and effective (e.g., programming tools as per technical and project requirements).Job holders will need to keep up to date with latest regulations (e.g., Green Buildings, DfM, DfMA) to support legislative submission preparation across all stages. Job holders may utilise new engineering methods to address future structural needs (e.g., Coastal Engineering, Sustainable Engineering) in design development.	Short-term

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Job Tasks Today	Impact at Task-level / Future view of Job Tasks		Time Horizon
Assist in tendering processes	H	<ul style="list-style-type: none"> RPA may automate the gathering of information to estimate project costs and resources. Job holders will shift their focus towards assisting to prepare project estimates. 	Medium-term
Assist in project execution	M	<ul style="list-style-type: none"> Job holders may leverage digital communication tools to liaise with contractors and subcontractors on project design execution, and be adept in using such tools (including remote monitoring tools) to support site work coordination. Job holders may also need familiarity with digital tools and platforms (e.g., BIM Technology, Digital Twin models) to assist in the execution and documentation of testing and commissioning processes for project handovers. 	Short-term

The following TSCs/CCSs have been identified as in-demand/emerging for the job role going forward:

In-demand Technical Skills and Competencies		
Building Information Modelling Application	Computational Design	Construction Technology
Data Collection and Analysis	Design for Maintainability	Design for Manufacturing and Assembly
Green Building Strategy Implementation	Integrated Digital Delivery Application	Regulatory Submission and Clearance
Technology Application		
Emerging Technical Skills and Competencies		
Analytics and Computational Modelling	Biophilic Design in Built Environment	Coastal Engineering
Critical Thinking	Environmental Sustainability Management	Hydrodynamic and Flood Mitigation
Programming and Coding	Sustainable Engineering	Tunnel Engineering Management
Emerging Critical Core Skills		
Transdisciplinary Thinking		