



ENGINEERS
AUSTRALIA

Construction Engineering Area of Practice

Construction Engineering deals with all areas of construction of public, commercial and industrial infrastructure, structures and plants including brownfield and greenfield sites.

This Area of Practice is for those engineers involved directly in construction. It is not for design or consultant engineers that are based offsite. More information can be found in the [Construction engineer learning and development guide](#).

Construction Engineering is a professional service that utilises specialised, construction engineering techniques and technology to oversee the planning and construction activities from beginning to its end.

The purpose is to coordinate and control construction processes and activities to meet the construction aims and objectives of time, cost, quality and safety to the required specifications and industry standards in a sustainable way. The main engineering disciplines of Civil, Structural, Mechanical and Electrical typically form the Construction Engineering professionals.

Some of the indicative activities that may be undertaken when engaged in Construction Engineering are:

- Commissioning new equipment
- Community engagement
- Contract management
- Contractor selection
- Commercial and financial management
- Cost control
- Digital modelling
- Electrical and controls systems installation
- Handover
- High risk work
- Industrial relations management
- Inspection
- Interpreting engineering drawings
- Landscaping
- Laydown and storage yard management
- Methods and staging
- Modification
- Modularisation
- Offsite fabrication and preassembly
- Performance and testing
- Permits and approvals
- Procurement
- Programming
- Project feasibility studies
- Precast and modular solutions
- Quality control and assurance
- Regulatory approvals
- Risk assessment and mitigation strategies
- Site clearing and preparation
- Traffic management and transport studies

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- Lift planning
- Logistics
- Management
- Module fabrication and pre-assembly
- Material and equipment selection
- Scope definition and specification for subcontracts
- Shutdown planning
- Value engineering

These activities could take place in any of the following Construction Engineering domains:

- Airports
- Buildings
- Bridges
- Civil infrastructure
- Communications infrastructure
- Dams
- Drainage
- Earthworks
- Electrical infrastructure (e.g. transmission lines)
- Foundations
- Hospitals
- Integration (transport interchanges)
- Manufacturing facilities
- Mining and minerals processing
- Pipelines
- Petrochemical plants
- Power plants
- Ports and marine (wharves and jetties)
- Retaining walls
- Road construction
- Rail construction
- Solar and wind farms
- Smelters
- Stadiums
- Tunnelling
- Under bores
- Water and wastewater facilities

Relevant legislation, codes and standards

- Relevant work health and safety regulations
- Relevant environmental protection regulations
- State and federal industrial relations legislation
- Security of payments acts
- AS2124, AS4000, AS4902 and AS 4905
- Relevant state government standards where required by regulation (e.g. VicRoads, Transport for NSW)
- Water acts



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- Any other relevant legislation, codes and standards that relate to construction engineering

Information for candidates

To be eligible for this Area of Practice, you will be required to demonstrate competency in all 16 Chartered elements with specific Construction Engineering knowledge and experience in:

- **Cost and finance; cost forecasting, benefit and cost analysis, value engineering:** Element 4 – economic impact
- **Safety in design:** Element 4 – apply and implement current WHS requirements
- **Approval pathways and documentation:** Element 7 – meet legal and regulatory requirements
- **Legislation:** Element 7 – meet legal and regulatory requirements
- **Option assessment and project appraisal:** Element 4 – consider economic, social and environmental impacts and short and long-term effects
- **Lift planning:** Element 4 – develop safe and sustainable solutions

Registration eligibility

Construction engineers may need to hold [statutory registration](#) in an Area of Engineering in accordance with relevant legislation.

How to apply

This Area of Practice is available to those wishing to [become Chartered](#) and is available to all occupational categories.

To add Construction Engineering as an additional Area of Practice, email charteredadmin@engineersaustralia.org.au