



ENGINEERS  
AUSTRALIA

# Construction Engineering Area of Practice

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

This area of practice is for engineers involved directly in construction. It's not for design or consultant engineers that are based off-site.

Further 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.

Its 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 control systems installation
- handover
- high risk work
- industrial relations management
- inspection
- interpret engineering drawings
- landscaping
- laydown and storage yard management
- lift planning
- logistics
- management
- module fabrication and pre-assembly

Engineering House  
11 National Circuit, Barton ACT 2600  
Phone: +61 2 6270 6555 | Facsimile: +61 2 6273 1488  
[engineersaustralia.org.au](http://engineersaustralia.org.au)



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- material and equipment selection
- methods and staging
- modification
- modularisation
- off-site fabrication and preassembly
- performance testing
- permits and approvals
- procurement
- programming
- project feasibility studies
- precast and modular solutions
- quality control & assurance
- regulatory approvals
- risk assessment and mitigation strategies
- site clearing and preparation
- traffic management and transport studies
- 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 & minerals processing
- pipelines
- petrochemical plants
- power plants
- ports and marine (wharves and jetties)
- retaining walls
- road construction
- rail construction
- solar and wind farms



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- smelters
- stadiums
- tunnelling
- under bores
- water and wastewater facilities.

## Relevant legislation, codes and standards

- Relevant Work Health and Safety Regulations.
- Relevant Environment 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.
- Any other relevant legislation, codes and standards that relate to construction engineering.

## Information for candidates

To be eligible for this area of practice, you'll 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).

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- Processing of as-built drawings (element 3 – responsibility for engineering activities).

## How to apply

This area of practice is available to those who want to become Chartered and is available to all occupational categories. Learn more about becoming [Chartered](#).

If you want to add construction engineering as an additional area of practice, [email](#) us to enquire about the process.