



**PROFESSIONALS
AUSTRALIA**

PROFESSIONALS AUSTRALIA'S ASSESSMENT SCHEME FOR ENGINEER REGISTRATION (ACT)

February 2025



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1. Introduction

The ACT's Professional Engineers Registration Scheme opened for applications on 6 March 2024 in a phased manner:

- Phase 1 opened on 6 March 2024 for those providing professional engineering services in the civil and structural areas of engineering.
- Phase 2 is planned to open in July 2024 for those providing professional engineering services in the mechanical area of engineering.
- Phase 3 is planned to open in late 2024 for those providing professional engineering services in the electrical and fire safety areas of engineering.

From 6 March 2025, all professional engineers will be required to be registered and will be subject to compliance and enforcement activity.

The *Professional Engineers Act 2023 (ACT)* is co-regulatory, led by the Professional Engineers Registrar (the Registrar), who sits within Access Canberra, and is supported by participation from the engineering sector in the form of approved assessment entities.

PA's approved assessment scheme is accessible to any eligible professional engineer and is not limited to members of Professionals Australia.

Professionals Australia provides assessments only in the following disciplines:

- Civil
- Mechanical
- Structural
- Electrical

These By-Laws and Guidelines outline the governance, assessment processes and eligibility criteria and requirements for PA's assessment scheme for professional engineers seeking registration under the *Professional Engineers Act 2023 (ACT)*. The By-Laws and Guidelines provide the descriptions of the various engineering disciplines for which Professionals Australia is an approved assessment entity for the ACT.

2. By-laws

2.1 Terms and Definitions

ACT's Professional Engineers Registrar: responsible for regulating and administering ACT's Professional Engineers Registration Scheme (the Scheme) under the Professional Engineers Act 2023 (ACT)

Applicant: engineer seeking assessment for recommendation for Registered Professional Engineer of ACT status.

Approved List: the internal list maintained by Professionals Australia, detailing all applicants successfully assessed as meeting the qualifications and experience requirements for a state or federally legislated engineering registration scheme.

Assessment Committee: Through delegated authority from the Professional Engineers Division Committee, at least three assessors to assure the quality of the assessment scheme.

Assessor: person appointed by the Professional Engineers Division Committee, based on their experience and qualifications and the satisfaction of procedures outlined herein, for the purpose of determining whether or not an applicant meets the requirements for successful assessment. Section 2.15 lists the training and qualification requirements of an Assessor.

By-Laws: outline the eligibility criteria used to assess applicants for registration in the disciplines for which Professionals Australia accredits.

Conferral Date: day, month, and year the applicant is successfully recommended for registration.

CP: Chartered Professional, as granted by The Australasian Institute of Mining and Metallurgy.

CPEng: Chartered Professional Engineer, as granted by Engineers Australia.

ESPDD: The Environment, Planning and Sustainable Development Directorate and the regulatory body for engineer registration in the ACT.

Professionals Australia Registrar: the duties of PA staff members responsible for managing the overall administration and operation of Professionals Australia's assessment scheme for engineering registration.

Professional Engineers Division Committee: the governing body elected under the Association of Professional Engineers, Scientists and Managers, Australia (APESMA) rules from an electorate of the professional engineer members. APESMA is a registered organisation under the Fair Work (Registered Organisations) Act 2009, operating as Professionals Australia.

Professional Referee: person nominated by the applicant to support and verify their work experience claims. The Professional Referee shall be called upon by the Assessor in order to provide a verbal or written statement that supports the applicant's work experience. Section 2.8 lists the qualification requirements of a Professional Referee.

RPEng: Registered Professional Engineer of Professionals Australia. This is the accreditation postnominal granted to Professionals Australia members on successful assessment.

RPEQ: Registered Professional Engineer of Queensland, as granted by the Board of Professional Engineers of Queensland.

The Washington Accord: is a multi-lateral agreement between bodies responsible for accreditation or recognition of tertiary-level engineering qualifications within their jurisdictions. The Accord outlines the mutual recognition, between the participating bodies, of accredited engineering degree programmes. It also establishes and benchmarks the standard for professional engineering education across those bodies.

2.2 Governance of the Assessment Process

The Professional Engineers Division Committee oversees the assessment program with the purpose to:

1. Uphold the wellbeing of our society, economy, and environment.
2. Ensure the assessment process effectively assesses whether or not an engineer is qualified to practice independently (unsupervised) within their specific engineering discipline.
3. Ensure that the assessment and accreditation program continue to fulfil the objectives outlined herein.
4. Facilitate a high standard of professional education, work experience, professional development, and ethical conduct among Professional Engineers through the enforcement of these By-Laws.
5. Promote a high standard of national and global recognition and respect for Professional Engineers.
6. Protect the reputation of the profession of engineering by safeguarding the use of the terms “RPEng and/or Registered Professional Engineer of Professionals Australia” for only those persons holding Registered Professional Engineer of Professionals Australia accreditation.
7. Implement and maintain an approved list of engineers who have been assessed by Professionals Australia as meeting the requirements for registration under State registration schemes and maintain a Roll of Registered Professional Engineers of Professionals Australia.
8. Communicate the importance of the engineering profession and the registration of Engineers to industry, private business, government agencies and the community generally.
9. Encourage governments to institute and maintain a register of professional engineers and recognise engineers on the Roll of Registered Professional Engineers as competent to practice unsupervised.

2.3 Role of Professional Engineers Division Committee in the Assessment Scheme

The Professional Engineers Division Committee shall:

1. Appoint an Assessment Committee, comprised of at least three Assessors deemed of the highest standing to assure the quality of the assessment program.
2. Appoint Assessors, to conduct assessments of eligibility for recommendation for registration under the scheme, subject to their meeting stringent requirements for competence outlined herein.
3. Propose fees for undertaking assessment for obtaining and retaining assessment to the National Board of Professionals Australia for approval each year. The scheme shall be run on a cost-recovery basis.
4. Conduct periodic surveys of the membership, employers, and other stakeholder groups on the adequacy of Guidelines published within the By-Laws.
5. Consider, accept, or reject recommended changes to the By-Laws by the PA Registrar.
6. Recommend changes to these By-Laws to the National Board of Professionals Australia.

All and any changes to these Professionals Australia by-laws for assessment of professional engineers seeking state registration in ACT are subject to approval by ACT's Professional Engineers Registrar.

2.4 Disciplines

The engineering disciplines to be assessed under this assessment scheme are outlined in clause 5 of these by-laws.

2.5 Fees

Fees are set annually and listed on the Professionals Australia website. [Click here](#) to view the full list of fees.

2.6 Eligibility

In order for a person to be recommended for approval of registration they must satisfy the following requirements:

1. Have completed a qualification in one of the disciplines of engineering, the Guidelines for which are published herein. You must provide a copy of the qualification held, includes both an academic transcript and a testamur. All qualifications must be uploaded in English and must be certified by an Authorised Witness. You can view the list of acceptable Authorised witnesses [here](#).

The qualification must meet one of the following requirements:

- a) Have an undergraduate Bachelor of Engineering degree, or a Master of Engineering degree in the designated discipline or related area of engineering that is relevant to the area[s] of engineering in which registration is sought, and is accredited or recognised by a body

responsible for accreditation or recognition of tertiary level qualifications that is a signatory to the Washington Accord 1989 or

- b) Have an Australian or overseas non-Washington Accord qualification in a relevant area of engineering where the qualification has been assessed as substantially equivalent to an accredited Washington Accord Bachelor of Engineering or Master of Engineering by the Australian Signatory to the Washington Accord, currently Engineers Australia.
 - c) Or a previously recognised historical equivalent qualification, previously recognised by the accrediting authority for Australia under the Washington Accord 1989 to assess qualifications as equivalent.
2. Have at least five years (including four years post-graduation) full-time relevant engineering work experience or part time experience equivalent to at least five years full time, in an area applicable to the discipline for which accreditation is sought to the extent that the applicant has the competency to work without direct supervision. For practising professional engineers this work experience must have been gained within the last ten years. Examples of work experience per discipline are highlighted in Sections 5.1 to 5.4 of these By-Laws and Guidelines.
 3. Have provided at least one written reference and the details of a minimum of three Professional Referees who can verify the applicant's work experience and competencies.
 4. Demonstrate competency by showing evidence of the knowledge and skill base, engineering application abilities, and professional skills, values, and attitudes to be able to practise independently or unsupervised particularly regarding:
 - Deal with ethical issues.
 - Practice competently.
 - Develop safe and sustainable solutions.
 - Identify, assess, and manage risks.
 - Local engineering knowledge, according to their area of standards and practices.

Where assessment is sought in an engineering discipline other than in the discipline of the original engineering qualification, applicants must provide details of training undertaken and experience gained in their desired area of practice, with a minimum of five-years' experience within that area.

Applicants who have been successfully assessed for RPEng, and not for ACT specifically, and have been conferred in the last 12 months, will not need to be re-assessed and can be provided with a letter confirming their successful assessment status.

Applicants who are registered under a mandatory registration scheme in another Australian State or Territory or New Zealand will be referred ESPDD for advice on mutual recognition. For more information:

Visit: <https://www.planning.act.gov.au/professionals/regulation-and-responsibilities/professional-engineers-registration-scheme>

Contact: 02 6207 1923

Email: EPSDDBuildingReform@act.gov.au

2.7 How to Apply

A valid application for assessment shall include the provision of the following documents:

1. Copies of documents, certified by an [authorised witness](#), that meet the 100-point identification check utilised by State and Federal Government agencies that verify the identity of the applicant.
2. A certified copy of your eligible engineering qualification as detailed in Section 2.6. The Guidelines may contain additional requirements for specific disciplines.
3. A detailed curriculum vitae (CV) highlighting at least five years' work experience relevant to the discipline for which accreditation is sought. Examples of work experience per discipline are provided in the Guidelines. The curriculum vitae must highlight the organisation name, brief summary of the service or product provided by the organisation, the job title, length of employment, brief description of the role, and examples of work experience activities for each organisation for which the applicant has been employed. The work experience activities shall outline examples of the applicant's use of theories, concepts, and practices to solve real-world problems related to the discipline for which accreditation is sought.
4. At least one written reference and the names, telephone numbers and email addresses of at least three Professional Referees who can testify as to the valid nature of the applicant's five years of work experience. The Professional Referees are qualified to testify as to the applicant's work experience claims only if they satisfy the requirements of Section 2.8. Furthermore, applicants must ensure the Professional Referees are aware of the applicant's nomination of the referee to testify in relation to the application for assessment.
5. Completed application form together with payment of the specified fee.

Certified documents provided are to be certified by authorised persons in accordance with the relevant State legislation where the documents originate.

Applicants who have documents in a language other than English must provide those documents translated in English by a translator accredited by the National Accreditation Authority for Translators and Interpreters or by a translator approved by the authority where the translation is made and recognised by the International Federation of Translators.

Applications and supporting information are to be submitted through the online application tool on the Professionals Australia website. If an application does not contain all of the required documentation and information outlined in section 2.6 and 2.7, the applicant shall be given up to two weeks, or longer at the discretion of PA, to rectify any deficiency and if not completed in that time period shall be given notification that the application has been unsuccessful in accordance with Section 2.10.

2.8 Professional Referee Qualifications

PA requires three referees, two of whom will be interviewed. Professional Referees may be either the applicant's supervisors or colleagues who are familiar with the work experience activities highlighted in the applicant's curriculum vitae and must have known the applicant for a period of at least 12 months. At least two of the Professional Referees must be able to attest to having observed the applicant's professional work in Australia or on Australian projects using Australian codes and standards. Professional Referees must satisfy one of the following requirements in the discipline or similar discipline to which the applicant is seeking accreditation:

1. Registered Professional Engineer of Professionals Australia.
2. CPEng, CP, RPEQ, RPEV or equivalent statutory registration status
3. Engineer with a Bachelor of Engineering degree (or other historically or internationally recognised equivalent or higher qualification under the Washington Accord) in the discipline or similar discipline to which the applicant is seeking accreditation and has seven or more years of work experience.

All referees must complete and sign PA's Referee Declaration form for the applicant to include in their application.

2.9 Successful Applicants

Applicants shall be notified as to whether their application is successful. Successful applicants shall be provided with a letter for submission to ESPDD stating that they meet the requirements for registration and will be included on the Approved List as complying with assessment requirements in these By-Laws.

2.10 Unsuccessful Applicants

Applicants shall be notified as to the reason(s) why their application was unsuccessful and be given the opportunity to rectify any deficiency that may be able to be rectified within such a period as advised in the notification, being no greater than 12 months, or to appeal against the decision or alternatively re-apply for accreditation after 12 months.

Appeals must be made within one calendar month of the date of notification of the applicant being unsuccessful.

Appeals should detail:

1. The reason the applicant believes the Assessor's decision warrants appeal.
2. In specificity, how the applicant believes the Assessor has failed to properly apply the Bylaws and Guidelines to the consideration of their application.
3. Any additional information which could provide further information to support application.

Applicants are permitted to make one appeal per application. If unsuccessful, the applicant is encouraged to re-apply after 12 months using the procedure highlighted in Section 2.7.

2.11 Appeals Process

The Appeal review process is to enable an applicant, who has had their application rejected, further consideration by the Assessment Committee who will take account of the grounds of appeal submitted by the applicant and the report of a separate assessor. The Appeal assessor shall give fair consideration to the applicant by:

- reviewing the material originally provided.
- consider the original assessment report and grounds of rejection.
- consider any new/additional material provided by the applicant.
- interview the applicant giving them the opportunity to make representations in support of their appeal.
- if considered necessary, interview any existing or new referees nominated by the applicant.

The PA Registrar in consultation with the Assessment Committee will consider whether the appeal has merit and if so, appoint an appeal assessor.

The appeal assessor shall be qualified in the same discipline to which the applicant is seeking registration and not have considered the initial application.

If the PA Registrar considers the appeal does not have merit, the appeal details will be submitted to the next out of sessions meeting of the Assessment Committee for determination.

A report from a different assessor will be prepared in regard to each appeal that is considered to have merit. The appeal assessor will make a declaration that, regarding the assessment and the applicant for the appeal, they have no bias and no actual, perceived or potential conflict of interest.

In preparing a report, the appeal assessor is to speak with the appellant giving them the opportunity to elaborate on the reasons for their appeal.

The appeal assessor may interview the applicant's referees if considered necessary.

The Assessment Committee is to consider the report and determine appeals.

The Appellant is to be then notified of the appeal decision within 14 days.

2.12 Approved List of Engineers assessed as meeting qualifications and experience requirements.

Engineers who have been assessed as meeting the qualification and experience requirements for registration will be included on Professionals Australia's internal approved list and shall include:

1. Title, first name and last name,
2. Contact details including, email address and residential/ mailing address,
3. Discipline(s) for which they were assessed,
4. Conferral Date highlighting day, month, and year in which the assessment was approved.

2.13 Use of Post-Nominals

Professionals Australia is not responsible for granting State Registration post-nominals. Applicants who have been assessed as meeting the qualification and experience requirements recommended for registration with the relevant Statutory Authority must adhere to that Statutory Authority policy for use of post-nominals.

2.14 Breaches and Disciplinary Action

Any complaints of unprofessional conduct of a person currently listed on the approved list as meeting the eligibility requirements for registration in ACT brought to the attention of Professionals Australia shall be referred to the relevant Statutory Authority. Unprofessional conduct includes any behaviour that is in breach of:

1. State/Territory Code of Ethics or conduct
2. These By-Laws and Guidelines
3. Any other requirements of the relevant State Authority.

All allegations of unprofessional conduct will be referred to the assessment committee. If a reasonable belief is formed that the engineer may have behaved as outlined in the complaint it will manage an investigation into the allegations. Such an investigation will be conducted in accordance with the rules of natural justice. During the course of investigating, the Assessment Committee may seek input from independent individuals who can validate the nature of the misconduct.

The identity of individuals reporting or involved in the investigation shall be confidential.

If the outcome of the investigation finds the engineer in breach of any requirement of this section, the PA will advise the relevant Statutory Authority.

2.15 Assessors

The Assessment Committee shall recommend a panel of accredited assessors to the Professional Engineers Division Committee for appointment.

Assessors shall satisfy all of the following requirements:

1. They hold RPEQ, RPEng, CPEng, RPEV or equivalent statutory registration,
2. They have demonstrated extensive experience and professional knowledge in the particular discipline, preferably through more than 15 years' post-graduation work experience, but at least 10 years' experience in the engineering discipline in which they will conduct assessments.
3. They possess a full understanding of the interpretation and application of ACT'S Code of Practice; and
4. Have demonstrated through interview and provision of referees that they have the experience and expertise to undertake assessments.

To become accredited as an assessor they must successfully complete the training program developed by Professionals Australia and comply with the annual Continuing Professional Development requirements of the Assessment Committee.

The training program shall include an online training module, performing mock assessment(s) and conducting their first assessment(s) under supervision.

2.16 Assessment Process

The assessor must be competent in the area(s) of engineering in which the applicant is being assessed and have no bias and no actual or potential conflict of interest. Assessors shall, prior to undertaking any assessment:

- a) Disclose to the PA if the applicant is known to them,
- b) Declare to the PA any actual or potential conflict of interest in considering applications, and if so exclude themselves from any consideration of the application.

Assessors shall, on completion of any assessment complete a declaration, stating that the assessment has been carried out in accordance with these By-Laws and

- a) they have no actual, perceived, or potential conflict of interest,
- b) they have no bias, and
- c) there are no facts or circumstances that might give rise to a reasonable apprehension that they have a bias.

The assessment is to be undertaken in an independent and professional a manner and shall include:

1. Review of documentation including qualifications, CV and CPD log and one written reference to ensure compliance with these By-laws and Guidelines.
2. Interview of the applicant, verifying the person being interviewed is the applicant, testing the applicant's knowledge and authorship of the work examples provided and testing whether the applicant has the competencies required under this scheme.
3. Interview of two of the applicant's referees seeking corroboration of the work experience submitted by the applicant and the referee's assessments as to whether the applicant has the competencies, values, and attitudes to practice independently and unsupervised.

The assessor shall make notes of the interviews with the applicant and with the referees and provide a written summary stating whether they believe the applicant meets the standards of an experienced professional engineer with the ability to practise independently and unsupervised.

If the assessor does not recommend the applicant, they shall provide detail of area/s of deficiency.

2.17 Assessment Committee

Through delegated authority from the PE Division Committee, the Assessment Committee assure the quality of the assessment program. The Assessment Committee shall:

1. Identify and recommend potential Assessment Committee members to the Professional Engineers Division
2. Provide input into the assessment program strategic direction to the Professional Engineers Division
3. Provide feedback to management on issues identified, inform the Professional Engineers Division of issues impacting the quality or reputation of the assessment program that are not appropriately resolved by management.
4. Recommend assessors to add or remove from the assessment pool, monitor assessor quality and training.
5. Appoint auditors from the assessor pool.
6. Agree the form and content of the induction program and other requirements for new assessors/auditors.
7. Agree annual CPD requirements for assessors and recommend removal of assessors who don't complete required CPD.
8. Review recommendations where the AC does not agree or has concerns with the assessor's recommendation, determine the application, and provide feedback to the assessor and PA Staff.
9. Review all applications submitted by the assessor.
10. Communicate the decision and rationale to unsuccessful applicants, consider and determine appeals of unsuccessful determinations.
11. Review audit report and understand findings.
12. Recommend changes to Professional Engineers Division based on the audit report (as appropriate)
13. Provide feedback on the assessment program's risk management plan to the PE Division, monitor and implement controls for risks allocated to the Assessment Committee.
14. Receive a copy of the quarterly report from the Professional Engineers Division

2.18 Professionals Australia (PA) Registrar

Duties of PA staff members responsible for the operations of the assessment program whose role is to:

1. Consult with stakeholders, recommend a strategic direction to PE, and implement the strategy.
2. Stay across regulatory requirements and best practices in professional engineering assessment.
3. Develop and implement procedures to ensure the effective and efficient delivery of a quality program.
4. Periodically review the assessment process, systems and materials and provide a report to the Professional Engineers Division (PE Division)
5. Inform the PE Division of issues impacting the quality or reputation of the assessment program.
6. Recommend criteria for assessors.
7. Review assessor availability, identify gaps, recruit potential assessors for consideration by the Assessment Committee.
8. Manage the auditing process, allocate engineers to auditors, report to regulators.
9. Develop induction materials, support new assessors to complete induction, report to the Assessment Committee those successfully completing induction.
10. Prepare CPD activities, record CPD status by assessor/auditor, report to the Assessment Committee those who have failed to complete CPD.
11. Review assessment findings and assessor recommendations.
12. Identify applications recommended by assessors that require further Assessment Committee review and develop a summary of issues and concerns.
13. Approve under delegated authority from the PE Division applications recommended by assessors that clearly meet the eligibility criteria.
14. Provide administrative support relating to audits as requested by the PE Division
15. Develop regulator reports.
16. Annually review the assessment program's risk management plan and recommend updates to the PE Division
17. Maintain internal approved list based on the by-laws.
18. Provide operational and financial reporting, and annually review performance against strategic objectives.
19. Liaise with marketing, membership, and organiser teams to coordinate delivery and promotion of the program.

2.19 Monitoring and Improvement

Professionals Australia will undertake the following processes for monitoring and improving the assessment processes carried out under this scheme.

- **Audit of assessments:** At least 20% of assessments will be audited each year. The audits will be undertaken by an independent auditor who is accredited for assessment purposes to determine whether assessments have been undertaken in accordance with these By-laws and guidelines and who will report their findings to the PA Registrar and Professional Engineer Division. Where an audit or other reviews identify that an assessment has not been undertaken in accordance with these by-laws and guidelines, the relevant State Authority will be notified in line with their stipulated timelines and requirements.

2.20 Reporting to State Authorities

Where Professionals Australia conducts an approved assessment scheme, it will notify the relevant State Authority in writing:

- Within three months after 30 June each year of the results of its audit program for the previous financial year including the –
 - number of audits that were conducted.
 - audit selection criteria and process, and
 - results of the audits conducted.
- Within seven days if a person selected for an audit refuses to participate in the audit for a period of more than 30 days after being requested to do so, and
- Within seven days if a review of an audit identifies an error in an audit.

Professionals Australia will ensure it complies with the audit and reporting requirements of any State Authority.

2.21 Conflict between By-Laws

Where there exists a conflict between these By-Laws and Professional Engineer Registration legislation, the requirements of the *Professional Engineers Act 2023 (ACT)* and any Policies, Guidelines or Codes made pursuant to it will prevail.

2.22 Complaints

Complaints about this assessment scheme, processes, assessments, assessors, or auditors should be initially referred to the PA Registrar responsible for overseeing the operations of Professionals Australia's assessment for registration service for investigation and response. However, complaints will be escalated to the Director of Professional Development. A report on the complaints received and the outcome of the investigations for each complaint is to be provided to the PE Division on a quarterly basis. Broader complaints against the Assessment Committee will be referred to the Professional Engineers Division for investigation and response.

3. Continuing Professional Development [CPD]

After 3 years, to renew your registration, you must have completed the required hours of continuing professional development (CPD), in accordance with the [Professional Engineers Act 2023 \(ACT\)](#).

4 Definition of an Engineering Service and further information

Engineers seeking further information regarding registration from the [Professional Engineers Act 2023 \(ACT\)](#). The requirements for engineers to obtain registration,

- The definition of a professional engineering service; and
- The definition of a prescriptive standard, should refer to:
 - the [ESPDD website](#).
 - the [Professional Engineers \(Scope of Area of Engineering\) Guideline 2024](#).

5. Guidelines - Engineering Disciplines

Descriptions of the various engineering disciplines for which Professionals Australia is an accredited assessment entity are described in clauses 5.1 to 5.4.

To determine the discipline(s) in which an engineer should seek registration, it is the responsibility of the engineer to interpret the [Professional Engineers Act 2023 \(ACT\)](#) and the applicable Guidelines. Engineers unclear for which discipline(s) they should seek assessment for registration, should contact ESPDD or seek independent legal advice.

Additional details are available in the [Professional Engineers \(Scope of Area of Engineering\) Guideline 2024](#).

5.1 Civil Engineering

Civil engineering involves the research, design, construction, production, operation and maintenance of the natural and built environment. Civil engineering has many different areas of focus or speciality areas. As a guide, some of the main areas of focus are structural engineering, geotechnical engineering, and water/wastewater engineering as it relates to hydraulics and hydrology (but not process or chemical engineering). Civil engineers working in the building and construction industry can work with foundations and footings systems, construction materials and structural systems, and hydraulic supply and waste systems.

As a guide an engineering service in this area may include services related to:

- structures (including those made from steel, concrete or timber), for example, roads, railways, bridges, airports, pipelines, dams, canals, harbours, dockyards, towers, and buildings
- analysing the likely behaviour of soil and rock when placed under pressure and designing above and below ground natural or build structures or foundations
- assessing environmental impacts for example, transport systems, urban development and municipal services, resource protection of building and construction or other infrastructure and service
- hydraulic supply and waste systems
- gas and water supplies

5.2 Mechanical Engineering

Mechanical engineering primarily deals with the research, design, construction, analysis, manufacture, and maintenance of devices, machines and mechanical structures and mechanical systems. Mechanical engineering also involves the production and usage of heat and mechanical power for the design, production, and operation of systems, machines and tools. Mechanical engineers working in the building and construction industry can work with mechanical systems for vertical transport, heating ventilation, air conditioning and refrigeration (HVAC-R) and smoke control, thermal and environmental systems and systems to aid the disabled.

As a guide engineering services in this area may include services related to:

- acoustic engineering
- aerospace and aeronautical engineering
- equipment engineering (including automotive and manufacturing)
- piping engineering
- structural analysis engineering. Mechanical devices, machines, structures and systems may include mechanical equipment, cranes, weigh bridges, lifts, conveyors, air conditioning plants, production plants, ventilation systems, hoppers, pipelines, wind turbines and manufacturing systems.

5.3 Structural Engineering

Structural engineering involves the research, design, construction, monitoring, maintenance, rehabilitation, and demolition of permanent and temporary structures. Structural engineering can be a specialisation within civil engineering. Structural engineers working in the building and construction industry can work with foundations and footings systems, construction materials and structural systems.

As a guide engineering services in this area may include services related to structures such as buildings, bridges, in-ground structures, footings, large tanks, silos, mining structures and various machinery, and frameworks and space frames.

5.4 Electrical Engineering

Electrical engineering is concerned with the design, application, manufacture and maintenance of equipment, devices, plant, machinery and systems which use electricity, electronics, and electromagnetism. Electrical engineers working in the building and construction industry can work with electronic data transmission, security and communications systems, lighting systems and control systems for vertical transport, HVAC-R and fire detection

As a guide engineering services in this area may include services related to:

- power engineering
- control engineering
- electronics engineering

- telecommunications engineering (such as signal processing, signalling and communications and radio frequency engineering).

These activities can apply to:

- electricity generation, transmission, distribution, electrical installations in buildings and on industrial sites, electrical equipment manufacture, instrumentation and control system applications in industry, communications networks, electronic plans and equipment, and also the integration and control of computer systems.