

Professional Engineers (Scope of area of engineering) Guideline 2024

Notifiable instrument NI2024–117

made under the

Professional Engineers Act 2023, s 9 (Meaning of *area of engineering*)

1 Name of instrument

This instrument is the *Professional Engineers (Scope of area of engineering) Guideline 2024*.

2 Commencement

This instrument commences on 6 March 2024.

3 Guideline

I make the guideline in schedule 1 describing the scope of an area of engineering within the meaning of *area of engineering* in the *Professional Engineers Act 2023*, section 9 (1) (a).

Rebecca Vassarotti MLA
Minister for Sustainable Building and Construction
1 March 2024

SCHEDULE 1

GUIDELINES - SCOPE OF AN AREA OF ENGINEERING

Purpose

These Guidelines describe the scope of an area of engineering defined as an **area of engineering** in section 9 of the *Professional Engineers Act 2023* (the Act).

These Guidelines are designed as a guide to professional engineers on which area/s of engineering they need to be registered in to provide professional engineering services in or for a project in the Australian Capital Territory (ACT). They are not a determination of what is a **professional engineering service**.

These Guidelines are not intended to be comprehensive and exhaustive. They are designed to act as a guide to professional engineers about what is covered in an area of engineering for the purposes of the Act. It is the responsibility of a professional engineer to apply the Guidelines to the professional engineering services they intend to undertake to determine in which area/s of engineering they need to be registered to perform those services.

What the Act requires?

Section 9 of the Act defines what is an **area of engineering** for which a person must be registered to provide professional engineering services in or for a project in the ACT.

In addition to being registered in an area/s of engineering, a professional engineer who wishes to provide professional engineering services in the building and construction industry must meet the additional requirements prescribed in the *Professional Engineers (Qualifications, Experience and Competencies) Determination* as amended from time to time. Professional engineers working in the building and construction industry play a key role in maintaining and improving the standards of buildings, advising on the design of buildings, and ensuring compliance with the regulatory requirements and standards.

Dictionary

TERM	MEANING
Area of engineering	as defined in section 9 (1) of the <i>Professional Engineers Act 2023</i>
Building and Construction industry	encompasses work for or in connection to the construction, alteration or demolition of a building (excluding disposal of waste materials generated by this activity) and work in relation to repairs of a structural nature to a building (section 7, <i>Building Act 2004</i>). Buildings include all classes of buildings under the National Construction Code (NCC), structures, temporary buildings, temporary structures and any part of a building or structure.

TERM	MEANING
<i>Prescriptive standard</i>	as defined in subsection 8 (2) of the <i>Professional Engineers Act 2023</i>
<i>Professional Engineer</i>	as defined in section 7 of the <i>Professional Engineers Act 2023</i>
<i>Professional Engineering Service</i>	as defined in section 8 of the <i>Professional Engineers Act 2023</i>

Area of Engineering	Scope of the Area of Engineering	Guide
Civil	<p>Civil engineering involves the research, design, construction, production, operation and maintenance of the natural and built environment.</p> <p>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).</p> <p>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.</p>	<p>As a guide an engineering service in this area may include services related to:</p> <ul style="list-style-type: none"> • 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.

Area of Engineering	Scope of the Area of Engineering	Guide
Structural	<p>Structural engineering involves the research, design, construction, monitoring, maintenance, rehabilitation, and demolition of permanent and temporary structures.</p> <p>Structural engineering can be a specialisation within civil engineering.</p> <p>Structural engineers working in the building and construction industry can work with foundations and footings systems, construction materials and structural systems.</p>	<p>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.</p>
Mechanical	<p>Mechanical engineering primarily deals with the research, design, construction, analysis, manufacture, and maintenance of devices, machines and mechanical structures and mechanical systems.</p> <p>Mechanical engineering also involves the production and usage of heat and mechanical power for the design, production, and operation of systems, machines and tools.</p> <p>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.</p>	<p>As a guide engineering services in this area may include services related to:</p> <ul style="list-style-type: none"> • acoustic engineering • aerospace and aeronautical engineering • equipment engineering (including automotive and manufacturing) • piping engineering • structural analysis engineering. <p>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.</p>

Area of Engineering	Scope of the Area of Engineering	Guide
Electrical	<p>Electrical engineering is concerned with the design, application, manufacture and maintenance of equipment, devices, plant, machinery and systems which use electricity, electronics, and electromagnetism.</p> <p>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.</p>	<p>As a guide engineering services in this area may include services related to:</p> <ul style="list-style-type: none"> • power engineering • control engineering • electronics engineering • telecommunications engineering (such as signal processing, signalling and communications and radio frequency engineering). <p>These activities can apply to:</p> <ul style="list-style-type: none"> • 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.

Area of Engineering	Scope of the Area of Engineering	Guide
Fire safety	<p>Fire safety engineers apply scientific and engineering principles, rules and expert judgement based on an appreciation of the fire phenomenon, the effects of fire and the reaction and behaviour of people and materials.</p> <p>Fire safety engineering is multidisciplinary in nature, having substantial relationships with building services, mechanical, electrical, electronics, chemical, structural and civil engineering and embraces an understanding of human behaviour. However, a fire safety engineer who provides professional engineering services that span multidisciplinary areas is only required to be registered in fire safety engineering.</p> <p>Fire safety engineers working in the building and construction industry develop holistic fire safety strategies and an integrated fire safety design which identify all the fire safety measures required to meet the fire safety related performance requirements of the NCC to save life, protect property and preserve the built environment from destructive fire, through proper design, construction arrangements and use of building materials.</p>	<p>As a guide engineering services in this area can include activities to:</p> <ul style="list-style-type: none"> • protect life, property and preserve the environment and heritage from destructive fire • assess the hazards and risk of fire and its effects • mitigate fire damage by proper design, construction, arrangement and use of buildings, materials, structures, industrial processes and transportation systems • evaluate analytically the optimum protective and preventive measures, including high-level fire safety design and strategies, necessary to limit, within prescribed levels, the consequences of fire.

Crossover of Areas

A professional engineering service may crossover into multiple disciplines of engineering and thus be included in an area of engineering listed in section 9 of the Act and thus the persons providing those services may be required to be registered.

Engineering Discipline	Prescribed area of engineering
Environmental	<p>Environmental engineering services may fall into the area of civil engineering where activities may relate to the design of physical infrastructure such as, roads, bridges, sewerage, water and wastewater treatment infrastructure, to support sustainable buildings and precincts. An environmental engineer must be registered in the area of civil engineering to provide professional engineering services in that area.</p> <p>Environmental engineering services may fall into the category of chemical engineering. An area of engineering that is not a prescribed area of engineering in section 9 of the Act and thus an environmental engineering providing professional engineering services in chemical engineering is not required to be registered.</p>
Biomedical	<p>Biomedical engineering services may fall into the area of electrical engineering where activities may relate to the design, construction and development of health and monitoring devices or computers and diagnostic systems. A biomedical engineer must be registered in the area of electrical engineering if the professional engineering services they provide are exclusive to that area of engineering.</p> <p>Biomedical engineering services may fall into the area of mechanical engineering where activities may relate to the development of medical devices such as exoskeletons, prosthetics, and orthotics. A biomedical engineer must be registered in the area of mechanical engineering if the professional engineering services they provide are exclusive to that area of engineering.</p> <p>A biomedical engineer must be registered in the areas of both electrical and mechanical engineering if the professional engineering services they provide span both areas of engineering.</p> <p>There are several areas of biomedical engineering that are often conducted by scientists. Registration is not required for these areas.</p>

Engineering Discipline	Prescribed area of engineering
<p>Materials</p>	<p>Materials engineering services may fall into the areas of civil engineering, electrical engineering, mechanical engineering, and chemical engineering.</p> <p>A materials engineer is providing engineering services in the area of civil engineering where activities may relate to advice on the performance of materials in structures and their ability to resist various stresses. A materials engineer must be registered in the area of civil engineering if the professional engineering services they provide are exclusive to that area of engineering,</p> <p>A materials engineer is providing engineering services in the area of electrical engineering where activities may relate to the specification of conductors, semiconductors, insulators, and magnetic materials. A materials engineer must be registered in the area of electrical engineering if the professional engineering services they provide are exclusive to that area of engineering,</p> <p>A materials engineer is providing engineering services in the area of mechanical engineering where activities may relate to the selection, processing, and development of materials to design and make machines and structures. A materials engineer must be registered in the area of mechanical engineering if the professional engineering services they provide are exclusive to that area of engineering.</p> <p>A materials engineer must be registered in the areas of civil, electrical and mechanical engineering depending on the areas of engineering in which they provide professional engineering services.</p> <p>A materials engineer is providing engineering services in the area of chemical engineering where activities may relate to the chemical properties of engineering materials, including chemical composition, chemical bonding, corrosion resistance and acidity or alkalinity. A materials engineer is not required to be registered to provide professional engineering services in the area of chemical engineering as that is not a prescribed area of engineering under section 9 of the Act.</p>