ENGINEERS

The Engineering disciplines in our Association covers various types of professional services, namely:

- Civil Engineers.
- Mechanical Engineers.
- Electrical Engineers.

The outline below lists services offered by each of these types of Engineers.

CIVIL ENGINEERS

Civil Engineers are responsible for planning, designing, construction supervision of infrastructure. Their skill sets apply to construction of new infrastructure, and maintenance & improvement of existing infrastructure.

Infrastructure is composed of public and private physical structures such as Roads, Railways, Bridges, Buildings, Airports, Water Supply Systems, Sewage Treatment Plant, etc.

There are several specialties in Civil Engineering. These include the following:

- Structural Engineers:
    - Designs Buildings, Bridges, Dams, Towers, Rigs, Tunnels, etc.
    - Typically, work in collaboration with Project Managers, Architects, Quantity Surveyors, Mechanical Engineers, and Electrical Engineers.

- Geotechnical Engineer:
    - Applies soil & rock mechanics to investigate suitability of material for proposed Civil Engineering structures.
    - The fundamental basis of this speciality is Geology, Hydrology, Geophysics, and other related sciences.

- Transportation Engineer:
    - Plans, & designs the construction, maintenance, and operation of transportation facilities, e.g., highways, railroads, pipeline, airports, and even space transportation.
    - Focuses on infrastructure that transports people and goods whilst taking into account safety, costs, and environmental impact.

- Water & Wastewater Engineer:
    - Designs the system for supply of potable water and safe sewer disposal.
    - Caters for plumbing, and water & wastewater treatment systems by applying microbiology, pathology and the other environmental science principles.

MECHANICAL ENGINEERS

Mechanical Engineering have an understanding of mechanics, dynamics, thermodynamics, materials science, structural analysis, and electricity. The primary focus is to design and analyze heating and cooling systems (e.g., air-conditioning), fire detection & suppression system, plumbing, etc.

Mechanical Engineers work closely with Project Managers, Architects, Civil Engineers, Electrical Engineers, Contractors and specialist Contractors (e.g., HVAC Suppliers, Fire Equipment Suppliers, etc.).

Typical public and private infrastructure that is designed by Mechanical Engineers is used in Office Buildings, Hotels, Hospitals, Water & Wastewater Treatment Plants, University Accommodation, Malls/Shopping Centres, Shopping Centres, etc.

ELECTRICAL ENGINEERS

Electrical Engineers are needed in building, testing, installing, and maintaining electrical equipment and systems. These Engineers work in designs, maintenance, and upgrading of electrical systems and equipment.

There are various components within this discipline, which includes:

- Electricity Supply System.
- Telecommunications.
- Electronics.
- Photovoltaic Cells.
- Computer Engineering.

Similar to Civil & Structural Engineers and Mechanical Engineers, Electrical Engineers work closely with Project Managers, Architects, Civil Engineers, Electrical Engineers, Contractors and specialist Contractors (e.g., Electrical Contractors, Electronics Contractors, Lighting Suppliers, Electricity Companies, etc.).

The type of electrical engineering infrastructure that is designed by Electrical Engineers is typically utilized in Office Buildings, Hotels, Hospitals, Water & Wastewater Treatment Plants, University Accommodation, Malls/Shopping Centres, Shopping Centres, Substations, etc.

BENEFITS OF HIRING PROFESSIONALS IN THESE FIELDS

AESAP Registered Professional Engineers offer design solutions in the built environment. Using their skills, experience and knowledge, the list of benefits is:

- Cost effective delivery of public infrastructure.
- Technical advice from project inception to completion.
- Obtaining building permit approvals and selection of qualified contractors.
- Professional indemnity insurance and quality management systems.