Civil engineers are involved with the design, development and construction of a huge range of projects in the built and natural environment. Their role is central to ensuring the safe, timely and well-resourced completion of projects in many areas.

Liaising with clients, you'll plan, manage, design and supervise the construction of projects. You'll work in a number of different settings and, with experience, could run projects as a project manager.

## Types of civil engineering

You may choose to specialise in a certain area of civil engineering, such as:

* buildings
* coastal and marine
* construction of dams and canals
* environment
* geotechnical engineering
* highways and transportation
* power
* rail
* structural work
* tunnelling
* waste management
* water and public health.

## Responsibilities

As a consulting civil engineer, you'll need to:

* undertake technical and feasibility studies and site investigations
* develop detailed designs
* assess the potential risks of specific projects, as well as undertake risk management in specialist roles
* supervise tendering procedures and put together proposals
* manage, supervise and visit contractors on site and advise on civil engineering issues
* oversee the work of junior staff, or mentor civil engineers throughout the chartership process
* communicate and liaise effectively with colleagues and architects, subcontractors, contracting civil engineers, consultants, co-workers and clients
* think both creatively and logically to resolve design and development problems
* manage budgets and other project resources
* be adaptable, as the client may change their mind about the design, and ensure relevant parties are notified of changes in the project
* lead teams of other engineers, perhaps from other organisations or firms
* compile, check and approve reports
* review and approve project drawings
* use computer-aided design (CAD) packages for designing projects
* undertake complex and repetitive calculations
* schedule material and equipment purchases and delivery
* attend public meetings to discuss projects, especially in a senior role
* adopt all relevant requirements around issues such as building permits, environmental regulations, sanitary design, good manufacturing practices and safety on all work assignments
* ensure that a project runs smoothly and that the structure is completed on time and within budget
* correct any project deficiencies that affect production, quality and safety requirements before final evaluation and project reviews.