Civil engineering

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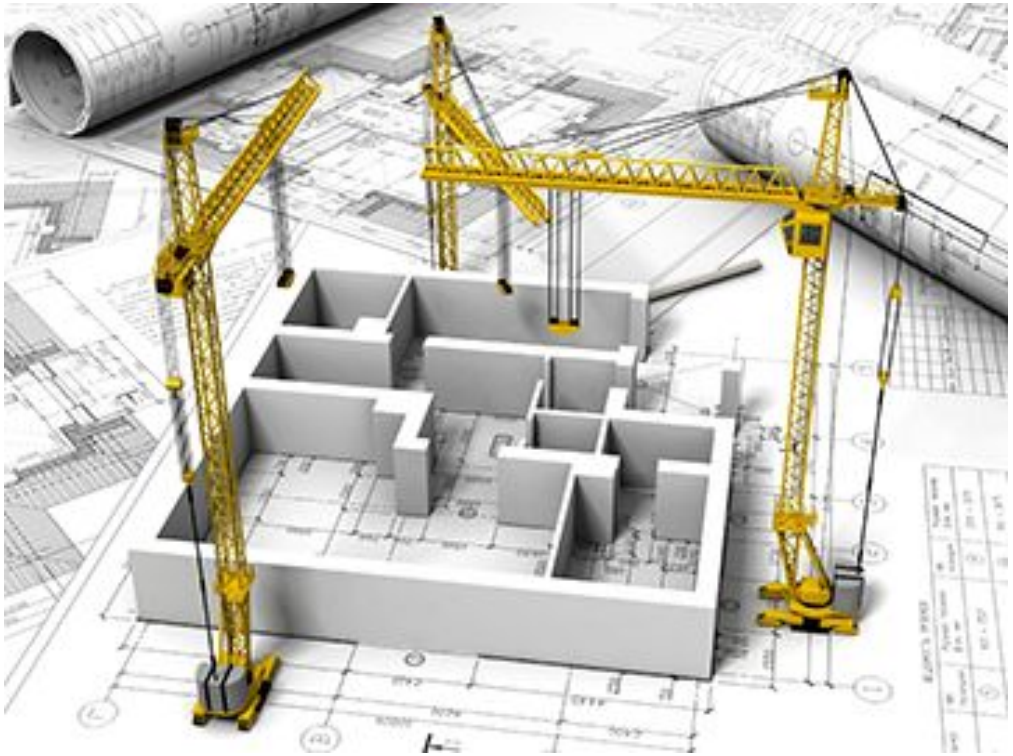
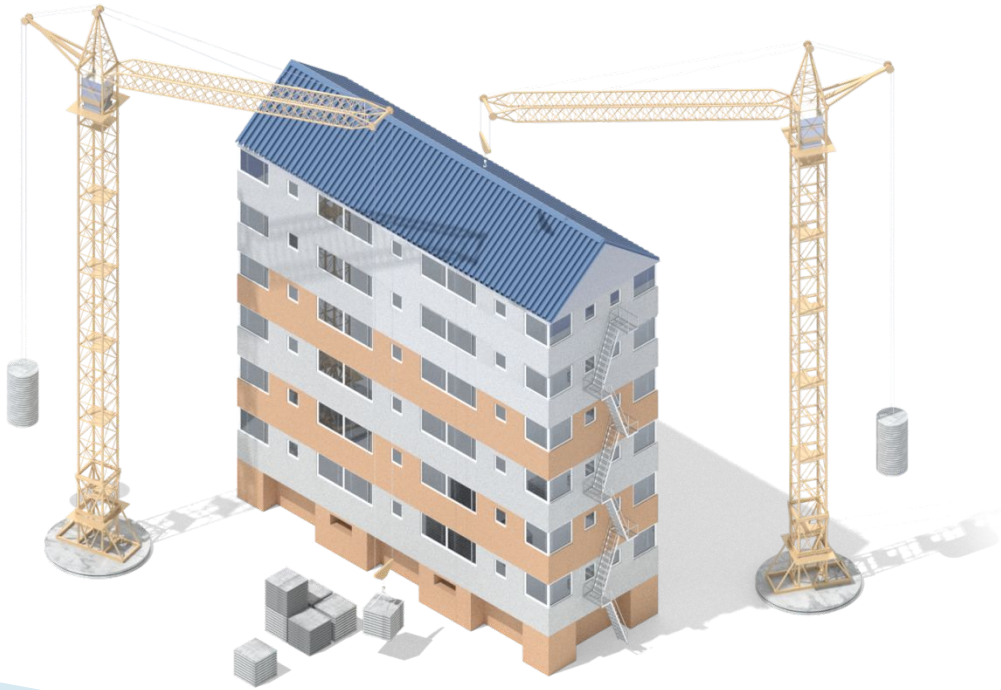
Civil Engineering Functions

- The functions of a civil engineer can be divided into three categories: performed before the start of construction (feasibility studies, object studies and design), performed during construction (work with clients, consulting engineers and contractors) and performed after completion of construction (maintenance and research).



Economic justification

- No major project starts today without an in-depth study of the goal and without a preliminary study of possible plans leading to the recommended scheme, possibly with alternatives. The feasibility study may cover alternative methods — for example, a bridge instead of a tunnel in the case of a water crossing- or, after deciding on the choice of method, the choice of route. It is necessary to take into account both economic and engineering problems



Professionally important qualities:

- good coordination of movements;
- excellent eyesight and hearing;
- strong nerves;
- accuracy,
- responsibility;
- a good eye;
- physical endurance; t
- technical thinking;
- communication and organizational skills.

Design

- The design of engineering structures may require the application of design theory from many fields - for example, hydraulics, thermodynamics or nuclear physics. Research in structural analysis and materials technology has opened the way for more rational designs, new design concepts and greater material savings. The theory of structures and the study of materials have advanced together as more and more refined stress analysis of structures and systematic testing has been done. Modern designers not only have advanced theories and easily accessible design data, but structural designs can now be thoroughly analyzed by computers

Civil Engineering Industries

- The current description will include the production and distribution of energy, the development of aviation and airports, the construction of chemical processing plants and nuclear power plants, as well as desalination of water. These aspects of civil engineering can be considered in the following headings: construction, transport, marine and hydraulic engineering, energy and healthcare.

- The builder is a massive and in-demand profession, its representatives are in stable demand in the labor market. The profession of a builder is being improved from year to year, the latest technologies are being introduced into it, which simplify the construction process and improve the quality of work performed

The technician should know:

- classification of building materials, their properties, scope of application, acceptance and storage rules;
- constructions of civil, industrial and agricultural buildings and the basics of their design;
- fundamentals of the calculation of the foundations of structures;
- classification and physical and mechanical properties of soils;
- types and purpose of the main construction machinery, equipment and mechanized tools.

The technician must be able to:

- perform calculations and design of building structures;
- to carry out preparatory work on the construction site, construction and installation, repair and reconstruction of construction facilities;
- to carry out measures to assess the technical condition of structures and elements of buildings, to control the quality of work performed;
- plan and provide control over the activities of subordinate employees during the construction and operation of buildings and structures.