



Civil Engineer

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Job Description:

Civil engineers plan and design roads, buildings, airports, tunnels, dams, bridges, and water systems. They may also supervise the construction.

Wages:

Average median yearly pay is about \$80,000 a year in Utah.

Schedule: Generally work a regular work week, office hours. May work longer hours to complete deadlines.



Gross Monthly Income:

\$6,600

Advancement: Recent civil engineering graduates usually work under the supervision of experienced engineers. As they gain knowledge and experience, they are assigned more difficult projects with greater independence to make decisions.

Civil engineers may advance to become technical specialists. They may also advance to supervise a staff or team of engineers. Some eventually become civil engineering managers, or enter other managerial or sales jobs. Some experienced civil engineers may start their own businesses.

Civil engineers can also advance to teaching and research positions by getting advanced degrees.

Education & Experience:

- ◆ Completed High School
- ◆ Bachelor's degree in Civil engineering
- ◆ Have a license

High

School Courses:

- ◆ Computer Applications
- ◆ Computer-Assisted Design
- ◆ Computer Science
- ◆ Construction
- ◆ Drafting

Work Conditions:

- ◆ Work with a team that may include other engineers and scientists, field staff, and clerical staff.
- ◆ Work indoors and outdoors.
- ◆ Sit for long periods of time at a computer
- ◆ Made decisions and solve problems.
- ◆ Need to be good at reasoning and problem solving.

Travel: Extensive travel to work sites.

Job Outlook:



Large

Hours a Week:

50

Leisure Time:

Low

Knowledge:

- ◆ Engineering & Technology
- ◆ Design
- ◆ Building & Construction
- ◆ Mathematics
- ◆ Transportation
- ◆ Physics
- ◆ Administration & Management
- ◆ Computers & Electronics

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Overview

The profession of civil engineering dates back to ancient times. For example, the Great Wall of China is considered a civil engineering gem. The 2,300-year-old wall stretches over 6,000 miles! It guarded against invaders from the north. More recently, workers completed the "Chunnel" in 1993. Also called the Channel Tunnel, the Chunnel connects England and France. Most of the Chunnel is underwater, making it the longest undersea tunnel ever built. It lets people travel quickly between England and France.

Civil engineers plan and design roads, water systems, or structures. First, they collect information and analyze a large amount of data. For example, they test the soil from project sites. The soil must hold the weight of the structure. They test proposed materials for strength. They make plans to reduce pollution. They also survey project sites. In addition, civil engineers study traffic patterns or environmental conditions to identify possible problems. They analyze reports, maps, and blueprints. They compute energy use, water flow rates, or load and grade requirements. They also estimate costs, materials, equipment, environmental risk, and labor to determine if the project is possible.

Millions of people depend on projects created by civil engineers. In today's green economy, project goals always include using less water, less electricity, and creating less pollution. These projects reduce the impact of all these people on the environment. They also manage projects to clean up polluted areas. All projects must follow safety and environmental regulations.

Civil engineers use computers for most of their work. For example, they produce and analyze designs on computers. They also use computers to test how completed projects work. Engineers use computers to write many kinds of reports. For example, they write bid proposals and environmental impact statements.

Throughout the building process, civil engineers work with other engineers. They often work on teams, especially for large or complex projects. Some civil engineers direct construction at the project site. During construction, they inspect the site to monitor work progress. They also make sure that the project follows the design and meets environmental and safety standards.

Some civil engineers specialize in one area. Specialties include environmental engineering, structural engineering, water resources, and transportation. They may also supervise other engineers or manage whole departments.

Pathway:
***Technology &
Engineering***