

Civil Engineers

SOC: 17-2051 • Career Profile Report

■ Key Facts

\$99,590

Median Salary

368,900

Employment

+5.0%

Growth Rate

■ Requirements & Salary Range

Education: Bachelor's degree

■ Automation Risk Assessment

Low Risk - 16.0% probability of being automated in the next 10-20 years.

This job is relatively safe from automation due to its creative, social, or complex problem-solving requirements.

■ Work-Life Balance

7.2/10 - Good work-life balance

■ Personality Fit (RIASEC)

Higher scores indicate better personality fit for this career type.

| | | | |
|--------------|--------|---------------|--------|
| Realistic | 8.2/10 | Investigative | 8.8/10 |
| Artistic | 6.4/10 | Social | 5.2/10 |
| Enterprising | 5.8/10 | Conventional | 6.6/10 |

■ Top Skills Required

Communication skills, Decision-making skills, Interpersonal skills, Math skills, Organizational skills, Problem-solving skills

✓ Strengths

- High Demand
- Flexible Work
- Continuous Learning

■ Challenges

- Burnout Risk
- Rapid Technological Change

■ What They Do

Civil Engineers design, plan, and supervise **construction and infrastructure projects, including roads, bridges, buildings, and water systems**. They analyze structural, environmental, and geotechnical data to ensure safe, efficient, and sustainable designs. Their work is critical in transportation, urban development, and environmental management.

This career is well suited for individuals who enjoy problem-solving, technical design, and overseeing large-scale projects.

What Do Civil Engineers Do?

These professionals plan, design, and manage construction projects while ensuring compliance with safety and environmental standards.

Common responsibilities include:

- Conducting site assessments and feasibility studies
- Designing infrastructure projects using engineering principles
- Preparing detailed drawings, specifications, and cost estimates
- Coordinating with architects, contractors, and government agencies
- Monitoring project progress, budgets, and quality standards
- Ensuring compliance with safety, environmental, and building regulations
- Solving technical problems and adapting designs as needed

Key Areas of Civil Engineering

Civil engineers may specialize in various fields or project types:

- Structural Engineering: Designing buildings, bridges, and other load-bearing structures
- Transportation Engineering: Planning and improving roads, highways, and transit systems
- Environmental Engineering: Managing water, waste, and environmental impact
- Geotechnical Engineering: Analyzing soil, rock, and foundation stability
- Construction Management: Overseeing project execution, budgets, and teams

Skills and Abilities Needed

Civil engineers combine technical expertise, analytical skills, and project management abilities.

Core Professional Skills

Personal Qualities That Matter

Education and Career Pathway

This role typically requires formal education and professional training:

- Bachelor's Degree (minimum): Civil engineering or related field
- Internships or Co-op Experience: Hands-on experience in construction or design projects
- Professional Engineer (PE) License: Certification for independent practice and advancement
- Continuing Education: Staying updated on new technologies, materials, and regulations
- Advanced Degrees (optional): Master's or PhD for research, management, or specialized roles

Where Do Civil Engineers Work?

They are employed in organizations that design, build, or manage infrastructure projects:

- Construction and Engineering Firms
- Government Agencies
- Environmental and Consulting Firms
- Transportation and Infrastructure Companies

- Research and Academic Institutions

Work environments include offices, construction sites, laboratories, and field locations.

Is This Career Difficult?

This career requires strong technical knowledge, project management skills, and problem-solving abilities. Civil engineers must manage complex projects, ensure safety, and balance cost, quality, and timelines.

Who Should Consider This Career?

This career may be a strong fit if you:

- Enjoy designing and building infrastructure
- Are analytical, detail-oriented, and creative in problem-solving
- Can manage projects and coordinate teams
- Are committed to safety, sustainability, and ethics
- Want a career impacting communities and public systems

How to Prepare Early

- Take courses in mathematics, physics, and engineering fundamentals
- Participate in engineering clubs, competitions, or projects
- Gain experience through internships or co-op programs
- Develop skills in CAD, design software, and project management
- Explore professional certifications or advanced degrees for specialization

Civil engineers design, build, and maintain infrastructure, ensuring safe, efficient, and sustainable systems that support communities and economic development.