

Civil Engineering in Alaska

Education, wages, and employment outlook

Simply put, a civil engineer is a professional problem solver — and one who plays a bigger part in everyday life than we often realize. They are responsible for planning, design, construction, and maintenance of much of Alaska's infrastructure.

A civil engineer's solutions to technical problems encompass a variety of environments, both natural and man-made. Skyscrapers, stadiums, hospitals, roads, bridges, dams, tunnels, and water resources are just a few examples of the everyday conveniences that civil engineers make possible while ensuring they are economical, safe, and able to withstand the forces of nature.

Civil engineers work in a variety of environments, from offices to project work sites. The versatility of the duties and environment creates a fast-paced and fluid profession for creative, inquisitive, and detail-oriented minds.

Education and training

Obtaining an undergraduate degree is the first



Civil engineers helped design and construct the 800-mile Alyeska Pipeline, shown near Livengood in this 1959 Alyeska photo. The pipeline crosses three mountain ranges and more than 800 rivers and streams. Soil that shifted due to permafrost was just one problem engineers had to solve during construction.

step to becoming a civil engineer. It's possible to major in mathematics or one of the hard sciences, but the quickest way to get a foot in the door is a bachelor's degree in engineering.

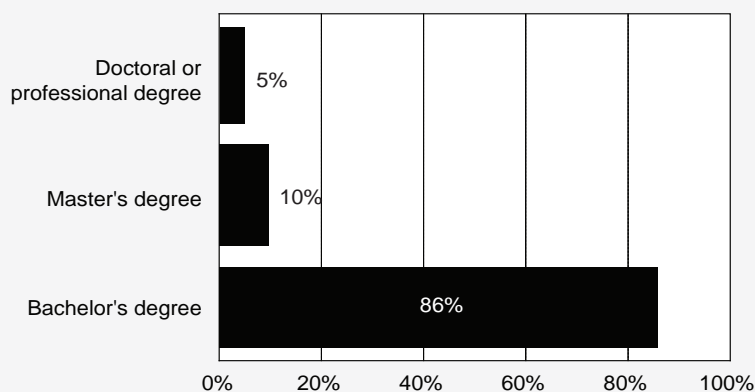
While that's a start, continuous learning is essential for staying on top of the latest technological advancements. Many entry-level engineers also get a crash course in real-world execution by working directly under an established civil engineer.

Civil engineers advance in two main ways. The first and most common is to obtain additional certifications or licensing. A license is not necessary to be a working civil engineer, but it is required for those who deal with the public.

Civil Engineers at Work in Alaska

- Alyeska Pipeline
- Anton Anderson Memorial Tunnel
- Norton Sound Regional Hospital
- Miles Glacier Bridge
- Salmon Creek Dam and Powerhouses
- Ted Stevens International Airport
- Seward Docks and Intermodal Facility
- Chester Valley Elementary School

1 Education Distribution Alaska Civil Engineers, 2008



Source: O*NET database

Civil Engineering Employment Statistics **2**

Alaska and United States, 2008 to 2018

Occupation	2008 Employment	2018 Employment	Growth	Rate of Growth	Total Openings ¹	Workers 45 and Older ²	Workers 50 and Older	Nonresident Workers ³
Alaska civil engineers	700	800	100	14.3%	214	41.4%	31.3%	10.2%
All Alaska occupations	321,770	355,440	33,670	10.5%	122,639			
U.S. civil engineers	278,400	345,900	68,000	24.27%	114,600			
All U.S. occupations	150,932,000	166,206,000	12,274,000	10.12%	50,929,000			

¹Includes openings from growth and replacements

²2009 worker demographics

³2009 nonresident workers

Sources: Alaska Department of Labor and Workforce Development, Research and Analysis Section; and U.S. Bureau of Labor Statistics

The second route to career advancement is a graduate degree in engineering, which opens doors to research and management positions. (See Exhibit 1.)

High average wages

Civil engineers' wages are among the highest for entry-level workers. The average wage in Alaska, \$41.05 per hour, is higher than the national average of \$39.03. (See Exhibit 3.)

Higher earnings are possible through experience, higher levels of education or training, and further specialization.

Promising outlook for employment

As Alaska's infrastructure continues to mature, civil engineers will be crucial to projects' success. The architecture and engineering group as a whole is projected to grow 10.5 percent between 2008 and 2018, which is on par with the expected increase in all of Alaska's occupations. Civil engineering employment is expected to increase by 14.3 percent during that period. (See Exhibit 2.)

Job openings will come from growth as well as from workers who retire, change careers, or move out of state. These are expected to add 214 jobs by the year 2018.

Engineers' Hourly Wages **3**

Alaska and U.S. averages, 2009

Occupation	Alaska Wage ¹	National Wage ¹
Aerospace engineers	n/a	\$46.29
Agricultural engineers	n/a	\$35.89
Biomedical engineers	n/a	\$39.69
Chemical engineers	\$60.49	\$44.07
Civil engineers	\$41.05	\$39.03
Computer hardware engineers	n/a	\$48.75
Electrical engineers	\$48.20	\$41.47
Electronics engineers, except computer	\$39.95	\$44.01
Engineers, all other	\$45.97	\$43.56
Environmental engineers	\$36.73	\$38.82
Health and safety engineers, except mining safety engineers and inspectors	\$42.96	\$36.45
Industrial engineers	\$47.50	\$37.06
Marine engineers and naval architects	n/a	\$38.10
Materials engineers	\$52.01	\$41.18
Mechanical engineers	\$47.49	\$38.74
Mining and geological engineers, including mining safety	\$45.77	\$39.46
Nuclear engineers	n/a	\$48.25
Petroleum engineers	\$74.28	\$57.67

¹Occupational Employment Statistics (OES) May 2009 Wages

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section