



Working for the Great Outdoors

Engineer



There are engineers in the Forest Service? You bet! We have hundreds. Most are civil engineers, but there are also general, materials, sanitary, structural, environmental, mechanical, and mining engineers. If you are interested in working in the great outdoors, read on...

The Work Environment

Engineers in the Forest Service work in all types of environments--from offices to mountains, from lakes to laboratories, from forests to grasslands--we have it all and the adventure is yours for the taking. Forest Service engineers answer the challenges posed by a huge variety of conditions, climates, and terrain. As an engineer with the Forest Service, you will work with the most modern equipment and techniques: satellite geodetic control systems, integrated computer systems with automated design analysis programs, and precision scientific equipment for research. You will also work in the most scenic places in the Nation, places set aside and protected not just for their natural resources, but for their natural beauty as well.

Operation on the Job

Our main engineering job is supporting the management of our natural resources. As an engineer you provide expertise for the construction and maintenance of facilities such as: campgrounds, picnic areas, trails, trailheads, and historic sites. You will provide resource managers with solutions to fish and wildlife challenges such as aquatic organism passage, habitat protection, and connectivity. Solutions to range, minerals, and timber management challenges also require the input of professional engineers.

Engineers plan, design, and maintain many diverse facilities, examples range from small structures made of local materials to major modern offices or laboratories; water systems and waste-water facilities for developed sites within the Forest Service; water impoundments; cable systems for ski lifts and logging; boat docks and launching ramps; camping and picnicking areas; heliports and landing strips; foot-bridges on hiking trails, and bridges on low-volume roads. Engineers design,

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construct, and maintain thousands of miles of roads and trails and encounter nearly every type of geographical, geological, and environmental engineering challenge.

In addition to the 155 Forest Service field offices across the United States, the Forest Service manages four National Service Centers. Two are Technology and Development Centers located in San Dimas, California and Missoula, Montana. The Geospatial Service and Technology Center and the Remote Sensing Applications Center are both located in Salt Lake City, Utah. Here new and innovative technologies are developed, upgraded, and tested prior to introduction to field users. These National Service Centers provide solutions to field generated problems using state-of-the-art technology. The National Service Centers provide an outstanding opportunity for engineers to stretch their abilities and creativity to the maximum in a dynamic intellectual atmosphere of high-tech and results driven project development. Examples of National Service Center developments include: the F-14 parachute used by USFS Smoke Jumpers and the U.S. military, the New Generation Fire Shelter for wildland firefighters, new wildland fire engine design, road management technology to enhance riparian areas, wilderness monitoring through remote sensing applications, GIS (Geographic Information System) data integration, cartographic publishing, web-enabled applications, and many others.

This is engineering in a forest environment--challenging, varied, stimulating, important, and satisfying. This is engineering in its fullest sense, significantly different from any other kind of engineering, because nothing we do is engineering alone. Your job is to support the management of almost 200 million acres of public land. This means retaining the natural beauty of that land, serving the recreational needs of our people, preserving the wildlife; and protecting the watersheds, soil, and streams as part of each project. It means working in concert with others in everything we do - with resource managers, geologists, soil scientist, foresters, wildlife and recreation specialists, landscape architects, and others. We are professionals working with other professionals in an interdisciplinary team effort on each project.

Career Paths

Forest Service salaries for Engineers are competitive and are adjusted for locality. Where applicable, special salary rates are on the opm.gov website (select Subject Index tab near the top, Pay Tables, then view Special Rate and General/Locality).

College graduates are brought in as trainees at the GS-5 or GS-7 grade levels, with the first 2 years devoted to the training and development of the engineer for future journeyman-level positions. Promotions to the GS-9 level generally occur within the first 2 years of employment. After GS-9 is reached, competition is required for higher grades. The most common grade for engineers in the field in Forest Service is GS-11, and there are ample opportunities for further advancement. Those most competitive for higher paying jobs (GS-12 through GS-15) in the Forest Service are

individuals willing to move to other duty stations around the country (including headquarters in Washington, D.C.) for the quality and variety of experience. As a permanent employee, the generous moving support provided by Forest Service substantially eases the task of transferring between FS duty stations.

Your individual career path is up to you. Some individuals may choose to remain in one location for an entire career, while others choose to experience the many opportunities available. Where will your path lead you?

Entry Level Requirements

Qualification requirements for entry level positions require completion of a 4-year engineering degree. To be acceptable, the curriculum must:

Be in a school of engineering with at least one curriculum accredited by the Accreditation Board for Engineering and Technology (ABET) as a professional engineering curriculum. Or the experience must include differential and integral calculus and courses (more advanced than first-year physics and chemistry) in five of the following seven areas of engineering science or physics:

- Static, dynamics
- Strength of materials (stress-strain relationships)
- Fluid mechanics, hydraulics
- Thermodynamics
- Electrical fields and circuits.
- Nature and properties of materials (relating particle and aggregate structure to properties)
- Any other comparable area of fundamental engineering science or physics, such as optics, heat transfer, soil mechanics, or electronics

In lieu of the above requirements, a combination of education and experience may be qualifying.



These qualification requirements have been summarized for convenience. Full details are available at www.USAJobs.gov or the www.opm.gov subject index under "Qualifications."

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