

Change Language: 

## Here's Your Blueprint for Engineering

*Len Vermillion*

There are plenty of jobs. Starting salaries are rising. And there's lots of work that needs to be done. There are many reasons for you to get into engineering. You just need a good plan.

"We are about 25,000 engineers short," says Dan Wittliff, president of the National Society of Professional Engineers (NSPE). "Between what we're graduating domestically and who's coming from overseas, we still need more engineers in the United States to sustain growth in the economy."

And, that's just today's shortcoming.

Check out these numbers for the near future. By 2020, the nation will see a buildup of 270,900 software engineers, 51,100 civil engineers and 21,300 mechanical engineers, according to the Bureau of Labor Statistics. And that's only three types of the many kinds of engineers out there.

"We are in short supply and starting salaries for engineers are getting higher," says Wittliff, a longtime engineer and a former colonel in the Air Force Reserve. "The engineering profession is such a key part of our nation's economic engine. It's a part of our day-to-day lives."

You'll find engineers planning our nation's infrastructure (roads, buildings, utilities, transportation), our customer experiences (manufacturing, commercial/retail buildings, online enterprise systems), our well-being (healthcare procedures, insurance processes, emergency response systems), and our entertainment (computers, TVs, movie and music production). Hell, that's just the tip of the iceberg. Engineers are needed everywhere.

### THE DOOR IS OPENING WIDER.

Admittedly, engineers took their fair share of hits during the recession of 2007-2009, but in 2012, jobs in engineering began to bounce back, and hard. Steve Tupper, a retired Army engineer officer who now works for Missouri University of Science and Technology (Rolla) as a liaison to Fort Leonard Wood, the training base for the Army Corps of Engineers, says the engineer profession is "fairly healthy right now."

He especially sees a healthy job outlook for companies "who are connected to the military [defense contractors, aerospace companies] or the development of infrastructure [civil engineering firms.]"

He admits that engineers working with defense contractors may feel the pinch of sequestration in the short term, but long term he believes working with defense contractors is a good avenue for engineers with military experience. "It's a particularly good field for people who have been engineers inside of the military, no matter what branch," he says. "They already understand what the military needs are and can translate requirement documents. They have a sense of scale of what it is all about in terms of monies, numbers and delivery rates. Therefore, they have a unique understanding of what the needs are beyond what is written in the requirements document."

It's also a particularly good field for veterans who weren't working as engineers in the military. David Falk, 49, a 20-year Marine Corps officer who already had a mechanical engineering undergrad degree, re-found his love of engineering following his time in the service. "I just didn't have the opportunity to use [my degree] in the military," he says.

He sure does now.

Today, as a systems engineer, he plans and conducts large structures testing for tractor-maker Caterpillar Inc. "I acquire and analyze data, produce results with conclusions and recommendations, and write formal presentations and reports," he says of his daily routine.

## SO YOU WANT TO BE AN ENGINEER?

Falk says transitioning from the military to engineering doesn't have to be a direct jump. There are several ways to grow into an engineering position with a company. "Be prepared to pursue a job other than engineering within a company that has great potential to grow in," he says.

Others have followed winding roads as well. Nick Breeschoten, 24, was an 88A Trans Officer during his seven years with the Army National Guard. But that didn't stop him from pursuing his dream to become an electrical engineer.

"Since a very young age I was fascinated with technology, and how it could change the way we live and work," he says. "I met with an advisor in the Electrical Engineering and Computer Science department at South Dakota State University, who explained to me the significant role engineers play in society, and what I could look forward to. He told me it would take a lot of hard work, time, and commitment to become an engineer. But once he described some of the real-world applications of electrical engineering, such as nano technology, fiber-optics, satellite communications, power systems and signal processors I was sold and ready for the challenge."

Earlier this year, he was hired as an Electrical Engineer II at Honeywell Federal Manufacturing & Technologies.

## YES, YOU ARE QUALIFIED.

The transition from the military into engineering is different for different veterans. Some are obviously qualified. "The Army officer, who was in the Corps of Engineers, took the cooperative degree program, got a Master of Science degree in engineering management here at Rolla; sure, he's in the catbird seat," Tupper says. "He can move over to that industry pretty quickly and it's not a big deal."

Although others may have to take a different path, they can still end up at the same job level. "The warrant officer who has been a 210 Alpha engineering construction foreman, those kinds of guys have pretty good connectivity to the profession," Tupper continues. "They may have to work it a little harder because they may need a series of certification. However, there are a lot of training programs for that."

No matter what, you can always take advantage of your GI Bill to get your degree post-transition. From there, you'll be armed with a new profession – one that is growing in demand.

## HE GOT HIS DREAM JOB

Raul Polance, 37, has been fascinated by machinery, going all the way back to when he was a kid. That said, engineering was a natural choice for a career.

"I first started going to college for industrial engineering," he says. "Then, I spent my military career serving in the Engineering Department as a gas turbine electrician, master training specialist, maintenance and manager, instrument calibration laboratory supervisor and as fire marshal/readiness control officer/safety manager."

Now working at Military Friendly Employer(R), CSX, a leading railroad company, Polance says he's in his dream job. He supervises maintenance and repair of railroad crossing gates, their related electronics components, and the main line of road signaling and control track circuit.

"By applying the skills and qualification I earned while serving, I've become a proud manager and custodian of multimillion-dollar assets," the U.S. Navy veteran says. "I now lead the great men and women who keep the public, our customers, other employees and our trains safe."

Polance got into the railroad business with the help of a good friend he served with in Hawaii, who is now a conductor. "He told me about CSX ... I applied immediately. CSX's HR department is very good at channeling questions regarding open positions and how our education and experience can be applied in the railroad field," he says. "I prepared for the interview and was honored to receive the call about being hired. One of the days in my life I have felt very proud of myself."

**LIVING BY CODE** Following three tours in Iraq, former Army Staff Sgt. Matt Hootman, 32, came back to the states ready to get to work. After all, he was 26-yearsold when got out and he had a wife and family to support. So he turned to what he always loved, and knew he was good at — computers.

After getting his degree from the University of Iowa, he had his career up and running quickly. Now, he's writing code to create websites for Cerner ([www.gijobs.com/cerner](http://www.gijobs.com/cerner)), a medical IT company. He's been there for the last four years and says he loves it.

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#### MILITARY TRAITS AT WORK:

**Self-Discipline:** "You have to study on your own to learn new technology and discover different ways to use old technology."

**Attention to Detail:** "In basic training, pretty much anytime anyone forgot something or didn't lock their locker, or whatever, we all had to do push-ups and chant, 'Attention to detail! Teamwork is the key!' That is a huge part of engineering. The smallest detail can cause an entire solution to fail."

**Teamwork:** "In my job I have to work with other teams so that whatever they're doing we can take advantage of it and they can take advantage of what we are doing. Communication skills are huge."

#### HIS ADVICE TO YOU FOR GETTING INTO ENGINEERING:

"First thing is, use your GI Bill and get your degree. Coming out of college with no student loan debt is huge. But the main thing is work ethic. I worked hard in college, got recognized by my professors for it and that led to me getting an internship with Cerner."

#### HE WENT FOR THE CHALLENGE

Alex Leanos, 36, says he's always been up for a good challenge. And at the end of the day he likes having something to show for all of his efforts.

For a guy whose rating was to get rid of explosives in the field, a civilian job without some excitement wasn't going to do it. He found out as much when he got out of the Navy and went on a few interviews for sales and finance jobs. "I didn't find them very interesting," he recalls.

But engineering? Now that had his interest. "As an engineer, you are presented with challenges that require intellect, resourcefulness and teamwork to solve problems. Furthermore, I wanted to create components that would actually be built and used by somebody," he says.

His path to engineering wasn't direct. When he first met with Caterpillar Inc. ([www.gijobs.com/Caterpillar](http://www.gijobs.com/Caterpillar)) at a hiring conference in Seattle, he didn't even have an engineering degree. But Caterpillar was looking for a second shift manufacturing supervisor and he fit the bill.

"I decided to take the position so that I could get a good, working knowledge of front-line leadership within the organization," he says. "Once I began at Caterpillar, I took advantage of its tuition assistance program and enrolled in the Mechanical Engineering Master of Science program at Bradley University. I spent four years in manufacturing (supervising four different lines) before securing a job as a design engineer in my current work-group. I have been in that

group for three years now, and it has been an excellent fit.”

Working in the engine installation and cooling division for track-type tractors, Leanos is responsible for the intake, exhaust and cooling arrangements on the D9-Series of tractors that will meet the EPA's Tier 4 Final emissions standards and is scheduled to go into production in early 2014.

When it does, Leanos will be able to take pride in the work he's done to be part of the project. It'll be another challenge met and another mission fulfilled. •

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