

Senior Mechanical Engineer

Job Description

Lead a diverse team of mechanical, electrical and plumbing engineers to create innovative, energy and water efficient buildings.

Salary

Entry — \$93,000

Middle — \$110,000

Top — \$127,000

Core Tasks

- Management of multi-discipline engineering projects from concept through completion. Project team leadership and discipline project management to complete the project on time within budget.
- Responsible for the preparation of deliverable documents including narratives, engineering calculations, drawings and specifications.
- Assemble effective project teams; provide training, guidance and development for staff.

Workplace / Environment

- **Work hours**
Approx. 40 hours/week
(Typically overtime is required during projects.)
- **Environment**
Meetings and typical office
environment for most of the day. Site visits are also required.
- **Travel**
Some travel to meet with clients and visit job **sites** both local and out of state required.

Education / Prerequisites

Education Level

Bachelor's degree in engineering or a related field

Licensing

PE (Professional Engineer)

Pre-Job Preparation

6-10 of experience as an engineer in AEC industry, and project leadership experience working with groups

Experience

Soft Skills

- Communication
- Team Leadership
- Strong Organization

Technical Skills

- Mechanical Engineering Design Experience
- Interdisciplinary engineering knowledge
- Project Management



Career Path: Katie Zabrocki

About Me

Senior Associate at PAE-
Mechanical Engineer

Bachelor of Science in Civil Engineering,
Masters in Business Administration

High School Life

"Back in high school, I really didn't know what I wanted to do. I had really **strong skills in math and science**. I took the hardest classes I could. **I just had this desire to be pushing and learning more.**



How I ended up going into engineering was that there were actually some really great scholarships. So I figured that there was enough flexibility and options as I figured some things out, farther down the line. When I first picked my major going into college, **I studied civil engineering**. I thought that was a good generalist engineering path and that's what I got my Bachelor's in. But now, **I'm working as a mechanical engineer.**"

College Changes



"What **changed my mind** to focus more on buildings was when I started learning about LEED. I grew up in Omaha, Nebraska so we weren't at the forefront of green buildings. But, I started to hear more about **sustainability** and how it **interacted with the built environment** later in college. I realized the Civil Engineering path is very infrastructure focused and it wasn't where I really wanted to dedicate my career. The **built environment just caught my interest.**"

Into the Real World

"So after a few years as a civil engineer in the industry, **I pivoted**. I wanted to focus more on green buildings. Having an **engineering foundation** allowed me to pivot and pull forward skills that I had learned from college, but apply them in a different way. I think my interest in wanting to leave our space better than we found it is what drove me to be more involved with green buildings. And it especially drove me to work for a company like PAE that's very mission focused on **addressing the planet's energy and water challenges.**"

About My Job

"Knowing that our designs help reduce carbon emissions to create cleaner, healthier environments for people to work, live, and learn in is really rewarding."

Pros

- "One of the things I like most about my job is my ability to **contribute to the communities** that I am around. One of the projects I've worked on recently is in the school district that my kids go to. So **being able to have that connection to the work** and having that **meaningful interaction** with the community really helps create a connection with the work."
- "I work on a **lot of different** types of projects. It's given me an opportunity to work for a lot of different owners and work with a lot of different architects."

Cons

- "One thing about consulting that can be challenging is that it's **always deadline driven**. When we work on projects, there's a design timeline, there's a budget, and there's a construction schedule."
- "Sometimes we have to be able to **compress our design work** to help meet a certain schedule. That can be **really challenging** if you're working on multiple projects and have that happening across them at the same time."

Work Environment

- "I actually come to work a **Living Building**. It produces more energy than it uses in a year, captures all the water on the roof that the building requires, has operable windows and fresh air to keep the building healthy and comfortable. I was also on the mechanical engineering team that worked on this project. So I get to work in a building that I also have a **professional connection to**."

Office Work

- "I am usually **meeting and talking** with people most of the day. In my role as a project manager, I still do technical engineering work often."
- "A lot of times I'm helping **facilitate**, organizing people, coordinating, and helping folks understand project requirements. So a lot of that relies on **really good communication**."
- "I'll be meeting often with **external teams**, so architects and owners, or internal teams to make sure that our firm **is in alignment**."

Skills

- "It's important to lean into those **math and science fields**; to be a good problem solver."
- "Really working on your **communication** skills and your presentation skills, all of that is super important."
- "It's **marrying** soft skills with the technical knowledge and competence that helps make a great engineer and consultant."

Education/Experience

- "It's really important to be a **well rounded person**. And while the math and science was important, I always took almost as many art, writing, and philosophy classes. I think for me that that was really important to help **create some balance**."
- "Look at majors like **mechanical or electrical** engineering."
- "**Research what inspires you**. Look up the design teams who worked on projects you admire. It's ok to send them some information requests, people are usually open to it."

The Future of **Green Building Engineering**

"We're always leaning into that growth mindset, learning lessons, and applying them to the next project."

"In terms of the mechanical systems, there's **been an evolution**. We're designing things that we weren't necessarily designing 5 or 10 years ago. There is a lot more focus on eliminating fossil fuels, electrification and large scale heat pump projects."

"I think there's going to be more algorithms and technology developed that will **streamline certain components** of our work. So the engineering value is really going to be on coming up with **the right concepts** and helping **steer the ship in the right direction**. Some of the production type work or more algorithmic design work might be automated more as technology evolves. That will create opportunities for the design process to change and be more responsive to iterations or compressed timelines. I think that will **change the typical design process** we use today."