WHAT TYPE OF ENGINEER DO YOU WANT TO BE?

Civil and Environmental Engineering (CEE) houses a wide variety of concentrations:
- geotechnical engineers designing foundations and dams
- hydrological engineers analyzing floodplains
- environmental engineers studying the interface between human and natural environments
- structural engineers and construction managers designing and building the world’s landmark buildings
- transportation engineers building the systems that get us there

With so many options, it can be hard to choose the best fit for your career and interests. Come explore what it’s like in these fields with CEE’s Externship Program!

Spend some time with one of our partner companies exploring, learning, and networking with alumni and other professionals.

APPLY TO THE 2021 EXTERNSHIP PROGRAM

Apply by 11/30/20

cee.engin.umich.edu/externship
PARTICIPATING COMPANIES

Barton Malow

BLACK & VEATCH

Coughlin Porter Lundeen

Structural Civil Seismic Engineering

Geosyntec Consultants

HED

Hensel Phelps


Spence Brothers

Tetra Tech
The companies below have expressed an interest in participating for the 2021 externship. We hope that you will find one or more experiences here that appeal to you and help us to grow this exciting program!

On-site visits will be limited this year. Please note that transportation costs are not included in the positions below unless otherwise noted. However, most companies will provide transportation between jobsites during the day. Students should expect to dress appropriately for the job setting, but specialty personal protective equipment (hardhats, vests, safety glasses, etc.) should be provided by the host company. Students should also expect to be asked to sign their matched company’s release of liability form and/or confidentiality agreement.

LIST OF PARTICIPATING COMPANIES FOR 2021

<table>
<thead>
<tr>
<th>Opportunities in Southeast Michigan (Primary office location for externship)</th>
<th>Focus Areas</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barton Malow Company (Southfield)</td>
<td>Construction Management</td>
<td><a href="http://www.bartonmalow.com">www.bartonmalow.com</a></td>
</tr>
<tr>
<td>Black &amp; Veatch (Ann Arbor)</td>
<td>Structural Site/Civil</td>
<td><a href="http://www.bv.com">www.bv.com</a></td>
</tr>
<tr>
<td>Ramboll</td>
<td>Environmental</td>
<td><a href="http://www.ramboll.com">www.ramboll.com</a></td>
</tr>
<tr>
<td>Sachse Construction (Detroit)</td>
<td>Construction Management</td>
<td><a href="http://www.sachseconstruction.com">www.sachseconstruction.com</a></td>
</tr>
<tr>
<td>Spence Brothers (Ann Arbor)</td>
<td>Construction Management</td>
<td><a href="http://www.spencebrothers.com">www.spencebrothers.com</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities outside Southeast Michigan (Primary office location for externship)</th>
<th>Focus Areas</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Contra Costa Sanitary District (Central California/SF Metro Area)</td>
<td>Environmental</td>
<td><a href="http://www.centralsan.org">www.centralsan.org</a></td>
</tr>
<tr>
<td>Coughlin Porter Lundeen (Seattle)</td>
<td>Structural Site/Civil</td>
<td><a href="http://www.cplinc.com">www.cplinc.com</a></td>
</tr>
<tr>
<td>Hensel Phelps (Southern California)</td>
<td>Construction Management</td>
<td><a href="http://www.henselphelps.com">www.henselphelps.com</a></td>
</tr>
</tbody>
</table>
OPPORTUNITIES IN SOUTHEAST MICHIGAN
Program Summary:
The purpose of this shadowing program is to give students a better understanding of what they can expect if they were to work for a large commercial general contractor, such as Barton Malow Company. While Barton Malow’s headquarters are in Michigan, there are ten regional offices throughout the United States. Barton Malow works in several diverse markets including Energy, Federal & Government, K12 Education, Health, Higher Education, Industrial, Special Projects and Sports & Special Events. Within these markets, Barton Malow provides clients with a range of services including BIM and VDC, Preconstruction Services, Construction Management, General Contracting and Self-Perform Trades.

Through this shadowing program, students will get to see projects that span several markets within the construction industry and learn about the many services general contractors provide to clients within the industry.

What’s Unique about Barton Malow:
Barton Malow is an American-owned company that prides itself on building with the American Spirit – people, projects and communities. At Barton Malow, we operate according to our core values of integrity, partnership and empowerment to deliver our clients superior projects. We have an extensive portfolio that includes several projects on the University of Michigan Campus such as the UM Biological Sciences Building and Mott Children’s Hospital. Other notable projects include the new Little Caesar’s Arena and the ‘Mega Slab’ – a world-record setting 257,000 square foot continuous concrete placement at General Motor’s Arlington Assembly Plant which recently won a Golden Trowel Award – a prestigious award that recognizes superior concrete self-perform work.
Example Itinerary (subject to change based on current projects and alumni availability):

1. Day #1: Preconstruction/Virtual Design and Construction (Southfield, MI)
   a. Tour of Barton Malow Headquarters
   b. Shadow preconstruction (AM)
      i. Estimating
      ii. Scheduling
      iii. Planning/Logistics
   c. Shadow Virtual Design and Construction (PM)
      i. Overview of tools/technology
      ii. 3D Model Demo
      iii. VR Demo

2. Day #2: Project Visit #1 (Construction Management Project)
   a. Safety Orientation/Project Overview
   b. Shadow Project Engineer
      i. RFIs
      ii. Problem Solving
      iii. Submittals
      iv. Quality Control Processes

3. Day #3: Project Visit #2 (Self-Perform Project)
   a. Safety Orientation/Project Overview
   b. Shadow Project Manager
      i. Contracting
      ii. Bonds/Insurance
      iii. Cost Management
      iv. Production Tracking

4. Day #4: Wrap-Up Day (?)
**BLACK & VEATCH**

**Summary:**
The purpose of this shadowing program is to give the student exposure to the various civil engineering design aspects of the Power industry. The student will be given the opportunity to rotate between different groups within the Ann Arbor office to see how the teams interact to develop comprehensive solutions for our clients in Power Delivery, Power Generation, and Renewables.

**What’s Unique about Black & Veatch?**
Committed to our Mission of Building a World of Difference®, Black & Veatch is an employee-owned company with more than 100 offices worldwide focused on solving our clients’ most complex challenges with innovative and sustainable solutions. Black & Veatch gives its employees opportunities to grow by providing them with the training, mentorship, and resources they need to succeed.

**Shadowing Position Key Points:**
- **Concentration:** Structural / Geotechnical / Hydrological Engineering
- **Location:** Ann Arbor
- **Duration:** 1 week
- **Hours/Week:** 40 hours/week
- **Paid/Unpaid:** Unpaid
- **Transportation:** Provided during workday activities (student is responsible for transportation to/from office)
- **Contact:** Marc Ranke (Civil/Structural Engineer)
**Black & Veatch Example Itinerary:**

Students will be exposed to multiple projects within the Power industry by working with different civil engineering teams throughout the week. They will become familiar with various design codes and will support the development of calculations and drawings. The following areas will be covered (subject to change based on student interest and project availability):

1. **Power Generation/Power Delivery – Geotechnical**
   a. Read, analyze, and interpret the results of a soil boring report
   b. Determine optimal foundation type for project based on boring results
   c. Develop foundation design parameters

2. **Transmission Line – Structural**
   a. Begin introduction of 3D transmission line design software
   b. Become familiar with clearance requirements and design codes
   c. Develop drilled pier foundation design calculations and details

3. **Substation – Structural**
   a. Determine environmental loading for substation equipment
   b. Develop structural model of equipment-supporting structure
   c. Create structure fabrication details based on design results

4. **Substation/Power Plant Site Design – Hydrological**
   a. Become familiar with stormwater objectives and regulations
   b. Establish site topography for achieving desired site drainage and earthwork characteristics
   c. Perform runoff calculations to size on-site stormwater features

5. **Power Generation – Structural**
   a. Support miscellaneous structural steel design tasks
   b. Support miscellaneous foundation design tasks
   c. Observe the 3D modeling process

6. **Site Visit**
   a. Safety Overview
   b. Tour project site (substation and/or power plant)
Shadowing Program with Geosyntec Consultants

SUMMARY

The purpose of this shadowing program is to give the student a better understanding of what they can expect working for an environmental consulting firm like Geosyntec. The majority of the Ann Arbor office’s work involves investigating sites and addressing groundwater and soil contamination. Students will get experience in the field and in the office observing different career positions and project tasks.

WHAT’S UNIQUE ABOUT GEOSYNTEC?

Geosyntec is a specialized consulting and engineering firm that works with private- and public-sector clients to solve complex problems involving our environment, natural resources, and civil infrastructure. We are an employee-owned firm with over 1,200 engineers, scientists, and related technical and project support staff with 80 offices in the United States, Canada, the United Kingdom, Ireland, and Australia. Our culture is collegial, collaborative, and intellectual; most of our professional staff has an advanced degree. We are recognized as leaders in vapor intrusion, bioremediation, and other fields. Our approach to consulting is the sell-manage-do model, which means practitioners at every level are involved with all aspects of consulting work.

SHADOWING POSITION KEY POINTS

- Concentration: Environmental
- Location: Ann Arbor
- Duration: 1 week
- Hours/Week: 20-40 hours/week
- Paid/Unpaid: Unpaid
- Transportation: Not provided (Local)
- Contact: Bryan VanDuinen (Environmental Engineer, MSE ’12, BSE ’11)
EXAMPLE ACTIVITIES

The actual itinerary will vary based on current projects, staff availability, and student interest but may include:

- Introduction to Geosyntec and consulting
- Description of current projects
- Participation in weekly project planning session
- Visit to a project site with an active remediation/mitigation system
- Evaluation of site data
- Lunches with entry-level, mid-level, and senior professionals
- Attending a brownbag or professional development seminar
- Conference calls or in-person meetings with professionals from Geosyntec’s water resources and process engineering design groups
- Discussions of key topics in the site assessment/remediation field, such as:
  - Remediation technologies
  - Vapor intrusion
  - Emerging contaminants
  - GIS and data management & evaluation
- After-hours office social event (e.g., trivia night)
Each person, project, and success makes every day at Geosyntec exciting and rewarding. I enjoy coming to work to see what each day brings.

Rachel, M.S. Civil Engineering, University of Virginia, 2009

Geosyntec Consultants is a great choice for growing a career. Our team of engineers, scientists, and innovators values your commitment to becoming a technology leader and developing your project management, communication, and consulting skills. We offer a collaborative environment that allows our professionals to build reputations as trusted solution providers.

Geosyntec engineers and project managers focus their energy and creativity on addressing our clients’ most exciting ventures and complex challenges – such as our award-winning effort to revitalize an urban park with updated infrastructure that improves water quality and enhances recreational opportunities.

about us
Since 1983, Geosyntec’s scientists and engineers have provided our public and private clients with consulting and design services in the areas of environmental, geotechnical, and water resources engineering. An employee-owned firm, we are recognized nationally for our practice leadership, client service, and innovation. Our professionals continue to develop new technology applications and capabilities, and our applied research partnerships help define the cutting edge for all of our practice areas. We strive to provide a stimulating, progressive, and friendly work environment that will enable you to develop your career as you provide the best possible service and value to our clients.

Do you:
Hold an advanced degree in engineering or science?
Have a superior academic track record reflecting technology leadership?
Aspire to advance the state of the art in your field?

Learn more!
www.geosyntec.com/employment

Our employees work with stakeholders to provide solutions of exceptional value to our clients.

our practice areas
• Site Assessment and Remediation
• Environmental Risk Assessment
• Environmental Management
• Industrial Wastewater Treatment
• Water Resources Supply
• Landfill Design
• Geotechnical Infrastructure/Foundations
• Stormwater Management
• Erosion and Sediment Control
• NEPA Studies and Compliance
• Water Quality Studies and Permitting
• Data Management/GIS

We are an Equal Opportunity/Affirmative Action/Equal Access employer. Qualified applicants are considered for employment without regard to age, race, color, religion, sex, national origin, sexual orientation, disability, veteran status or citizenship.
Summary of the shadowing program at Ramboll (Ann Arbor)

The purpose of this shadowing program is to give students an appreciation of the type of interesting and complex projects that they can expect to be involved in when working for a large engineering, design, and consultancy company such as Ramboll. Our shadowing program offers challenging hands-on assignments and interaction with full-time consultants in the office and in the field for a dynamic, worthwhile experience.

Students will be based in our Ann Arbor, Michigan office, where we work across multiple disciplines within the environmental consulting field, including: site investigation and remediation, due diligence, and health and safety compliance.

Position key points:

<table>
<thead>
<tr>
<th>Concentration:</th>
<th>Environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location:</td>
<td>Ann Arbor</td>
</tr>
<tr>
<td>Duration:</td>
<td>1 week</td>
</tr>
<tr>
<td>Hours:</td>
<td>20-40</td>
</tr>
<tr>
<td>Paid/Unpaid:</td>
<td>Unpaid</td>
</tr>
<tr>
<td>Transportation:</td>
<td>Student is responsible for transport to/from office</td>
</tr>
<tr>
<td>Contact:</td>
<td>Danielle Amber, P.E. (Senior Managing Consultant)</td>
</tr>
</tbody>
</table>

Itinerary

Students will be exposed to multiple projects in the environmental field through working with different teams during the week. The itinerary for the shadowing program is subject to change based on student interest and staff/project availability. Below are examples of the activities that could be expected during the shadowing week:

- Introductions to staff in the Ramboll Ann Arbor office
- Participation in staff meetings
- Overview of projects we are currently working on
- Shadowing of staff during day-to-day work activities
- Lunchtime brown bag presentations with Ann Arbor staff
- Review and evaluation of site datasets
- Introductions to visualization software (GIS, CAD, etc.)
What’s unique about Ramboll?

Ramboll is a leading engineering, design and consultancy company. Working at one of our 300 offices in 35 countries you will join 15,000 fellow bright minds in creating innovative and sustainable solutions within Buildings, Transport, Energy, Environment & Health, Water and Management Consulting. Combining local experience with global knowledge, we help shape the society of tomorrow.

Our mission is to create sustainable societies where people and nature flourish. Our vision is to be a globally-leading consultancy delivering integrated and sustainable solutions, shaping today and tomorrow.

Ramboll develops innovative, scientifically sound solutions that help increase liveability by reducing pollution and restoring natural environments. As one of the world’s leading environmental and health consultancies, our experts are trusted by clients to manage their most challenging environmental, health and social issues.

At Ramboll you feel invited and guided to unfold your ingenuity and develop your excellence. You contribute to a sustainable future in an open, collaborative and empowering culture, where we bring engineering, design and consultancy into play. Together, we lead and leave an impact as Sustainable Society Consultants.
SUMMARY

Sachse Construction is a premier national commercial construction firm recognized as one of the most trusted and respected construction partners in North America. Founded in 1991 and headquartered in Detroit, our team has built millions of square feet of commercial, retail, multifamily, and institutional space throughout the United States, Canada, and Puerto Rico.

We combine our experience in multiple sectors to create custom spaces that help developers, landlords, business owners, and institutional clients reach their unique goals. We are committed to optimizing communities with renovations to buildings throughout Detroit including WeWork, Federal Reserve, Detroit Foundation Hotel, and Bedrock. Our team has managed the tenant coordination and landlord work of malls such as Beverly Center in Los Angeles, California, International Market Place in Honolulu, Hawaii, Downtown Commons, in Sacramento, California, and the Mall at Green Hills in Nashville, Tennessee. Our program management division has coordinated over five million square feet of concurrent reconstruction work at shopping centers affected by Hurricane Maria. Our team is also the general contractor for several retail clients including Warby Parker, Amazon Books, Williams-Sonoma, Inc., Lacoste, Tory Burch, and Jimmy Choo.

Our signature asset is our unmatched reputation of integrity, quality, and reliability. We’ve earned our reputation through building projects, building relationships, and building trust with clients, architects, and trade partners.

Students will shadow Sachse Construction team members in downtown Detroit and receive hands-on, immersive training in construction management! Summer Associates will experience what it’s like to be a project engineer while working on some of the largest construction projects in the city. Come experience our unique, award winning culture and see what it’s like to be part of one of the most trusted and respected construction partners in North America!

SHADOWING POSITION KEY POINTS:

+ Concentration: Construction Management
+ Location: Detroit, MI
+ Duration: 1 week
+ Hours/Week: 40 hours/week
+ Transportation: Provided for workday activities (student responsible for transportation to the office)
+ Contact: Abel “AJ” Jacob (Talent Manager)
Summary:
Spence Brothers is a 4th generation family-led company that has been in the commercial construction business for 126 years. Spence Brothers is a leading construction manager in Michigan with offices in three locations; Saginaw, Ann Arbor, and Traverse City. Our commitment towards excellence drives us to create important facilities with great people and organizations while building trust and meaningful relationships.

Experience construction management by shadowing Project Managers, Project Engineers, and Superintendents both in the office and in the field. Our hope is that the extern would gain a better understanding of what it takes to manage a project from beginning to end; from estimating, to preconstruction, scheduling, submittals, RFIs, change management, punch list, and closeout. Also, we could offer an introduction to our project management software, Procore. This extern would have the unique experience of being able to visit jobsites from Southeast to Mid-Michigan, and further north if desired!

Shadowing Position Key Points:
- Concentration: Construction Management
- Location: Ann Arbor, MI (with additional site trips)
- Duration: 1 week
- Hours/Week: 40 hours/week
- Transportation: Provided for workday activities (student responsible for transportation to the office)
- Contact: Kelli Jenness
OPPORTUNITIES OUTSIDE SOUTHEAST MICHIGAN
Established in 1946, Central San is located about 30 miles northeast of San Francisco and provides wastewater services for nearly 500,000 residents and more than 3,000 businesses in central Contra Costa County. This service territory covers 145 square miles and includes Alamo, Clyde, Danville, Lafayette, Martinez, Moraga, Orinda, Pacheco, Pleasant Hill, San Ramon, Walnut Creek, and unincorporated areas within central Contra Costa County. Central San also treats wastewater from an additional 37 square miles for residents of Concord and Clayton under a 1974 contract with the City of Concord.

Central San by the Numbers

- Maintains over **1,500 miles** of sewer pipelines
- Operates **18** pumping stations to send non-gravity-fed flow to the plant
- Treats an average annual flow of **34.7 million gallons per day** of wastewater
- Treats **2.4 million gallons per day** further to produce recycled water for non-potable use such as irrigation and industrial applications
- Reuses, recycles, recovers, or safely disposes of **2.2 million pounds** of HHW per year
- Collects **17,000 pounds** of unwanted medications per year through the Pharmaceutical Disposal Program
- Achieves a high customer satisfaction rating for sewer emergency response (**3.9 out of 4.0** as of Q3 in FY 2019-20)
- Educates approximately **3,000 students** in pollution prevention per year
- Leads approximately **250 participants** in treatment plant tours per year

| Sewage collection and wastewater treatment; household hazardous waste (HHW) disposal |
| Wastewater treatment and HHW disposal for residents in Concord and Clayton by contract |
| HHW disposal only |
| Central San headquarters, treatment plant, HHW Facility, and Residential Recycled Water Fill Station |
| Collection System Operations headquarters |
Community Profile

For over 70 years, Central San has been proud to serve its customers in the San Francisco Bay Area, specifically, in the central Contra Costa County region. The service area is located at the foot of Mount Diablo (3,848 feet), whose state park and foothills offer hiking trails and open space preserves that are frequently used by the neighboring residents.

The cities served by Central San are also some of the most historic in California. Martinez, where the headquarters is located, was a key crossing point over the Carquinez Strait for the Pony Express, and its downtown is notable for its preserved historic buildings, including the John Muir National Historic Site. A short distance away, Concord, Walnut Creek, and San Ramon boast revitalized shopping districts, drawing retailers and restaurants from other parts of the state to open locations there. One of Central San’s largest customers, the City of Concord, is working on converting a former Naval Weapons Station into a Community Reuse Project, which will include parks, housing, office, retail, and the restoration of Mt. Diablo Creek. Central San is proud to be part of the effort to make the project as sustainable as possible by supplying recycled water for irrigation in this development.

In recent years, the population of the service area has boomed, partially due to its accessibility to San Francisco and Silicon Valley via public transit. Most of the population of Contra Costa County lies along the busy I-680 corridor that connects the North Bay to Silicon Valley. As shown in the following tables, the area in which Central San operates is a growing community to whom this agency is honored to provide its core services, including educational messaging to instill the environmental values foundational to Central San as an organization.
## EXTERNSHIP SCHEDULE

<table>
<thead>
<tr>
<th>Day</th>
<th>Topic</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td><strong>Recycled Water</strong></td>
<td>Central San provides landscape irrigation water that meets all the requirements of the State for unrestricted landscape irrigation. Recycling water means less water is diverted from the Delta environment. Recycled water is a valuable resource, especially during drought years when water for landscape irrigation is less available because of water rationing. We continue to collaborate with local water purveyors to identify cost-effective and innovative recycled water projects.</td>
</tr>
<tr>
<td></td>
<td>Environmental Laboratory</td>
<td>Central San is required to meet dozens of stringent water quality regulations. We operate a laboratory that constantly monitors the wastewater as it undergoes treatment and after it is thoroughly cleaned and disinfected. The lab uses high tech equipment capable of detecting some pollutants to the parts per quadrillion. Thousands of tests are conducted each month to identify a variety of wastewater constituents, including metals, toxic organic compounds, and pathogens.</td>
</tr>
<tr>
<td>Tuesday</td>
<td><strong>Environmental Compliance</strong></td>
<td>Our treatment plant is not designed to remove most toxic materials, and when these pollutants enter the plant — in significant amounts — they are capable of disrupting the treatment process and eventually end up in Suisun Bay. Our Environmental Compliance Program aims to prevent toxics from entering the collection system in the first place.</td>
</tr>
<tr>
<td></td>
<td><strong>Plant Operations</strong></td>
<td>The treatment plant has a treatment capacity of 54 million gallons per day (mgd) and 240 mgd of wet weather flow. The Plant Operations Building houses the Control Center, a state-of-the-art computerized system that monitors and controls every phase of the treatment process. Most of the wastewater is treated to a secondary level, disinfected by ultraviolet light, and then discharged into Suisun Bay. Approximately 600 million gallons per year are treated to a tertiary level through additional filtration and disinfection before being distributed as Recycled Water for landscape irrigation, industrial processes, and plant operations.</td>
</tr>
<tr>
<td>Wednesday</td>
<td><strong>Collection System Operations (CSO)</strong></td>
<td>CSO is responsible for the cleaning, maintenance, and repair of the over 1,540 miles of underground pipeline that makes up the Central San’s sewer system. These pipes range in size from 6 inches to 102 inches in diameter. We also operate 18 pumping stations throughout our service area 24 hours a day, 365 days a year.</td>
</tr>
<tr>
<td></td>
<td><strong>Capital Projects</strong></td>
<td>The Capital Projects division is responsible for the planning, design, construction, and/or rehabilitation of treatment plant, collection system, and recycled water infrastructure</td>
</tr>
<tr>
<td>Thursday</td>
<td><strong>Household Hazardous Waste</strong></td>
<td>Hazardous waste generated by residents and businesses in our service area can reach our waterways through runoff, sanitary sewers, storm drains, landfills, and can pollute our local water environment. The Household Hazardous Waste Collection Facility helps prevent this pollution through reuse, recycling, and proper disposal of hazardous waste.</td>
</tr>
<tr>
<td></td>
<td><strong>Planning and Development Services</strong></td>
<td>The Planning and Development Services division handles development services, including right-of-way, property management, inspection, mainline plan review; financial planning for rate-setting; planning, piloting, and applied research; asset management and Geographic Information Systems data.</td>
</tr>
<tr>
<td>Friday</td>
<td><strong>Debrief Activities</strong></td>
<td></td>
</tr>
</tbody>
</table>
Program Summary

The shadowing program at Coughlin Porter Lundeen is designed to give students a better understanding of what to expect if they were to work for a civil/structural engineering consultancy. Coughlin Porter Lundeen is a Seattle-based firm that works in a diverse set of market sectors, including urban office, seismic rehabilitation, K-12, higher education, healthcare, and multifamily residential.

Through the shadowing program, students will have the opportunity to learn about multiple projects at various stages of design, from concept design through construction-administration.

What's Unique about Coughlin Porter Lundeen

Coughlin Porter Lundeen partners with clients across markets to bring unique project visions to life. We were founded with the goal of exceeding the standards and services provided by engineering firms, and today, more than twenty years later, that vision continues to guide all that we do.

We provide exceptional production in our drawings and designs, but to us, “exceeding standards” means much more. It means understanding a project’s big picture and employing a comprehensive vision to lead and manage coordination among design partners and contractors.

Shadowing Program Key Points

- Concentration: Civil or Structural Engineering
- Location: Seattle, WA
- Duration: 3 days
- Paid/Unpaid: Unpaid
- Transportation: Provided for workday activities
- Contact: Marie Ternes (Project Engineer)
Sample Itinerary

Students will have an opportunity to see both civil and structural engineering projects. They will engage with various project teams through multiple stages of design. The topics listed below will be covered, although specific itinerary will be established based on interest and project availability:

/ Day 1
   o Tour of Coughlin Porter Lundeen
   o Introduction to structural and civil engineering consulting
     ▪ Coughlin Porter Lundeen’s role on a project
     ▪ Internal and external project teams
     ▪ Description of current projects
   o Lunch with entry-level engineer
   o Shadow project meeting with architect/design partner
   o Site Visit #1

/ Day 2
   o Civil Engineering Shadow
     ▪ Stormwater management (detention systems, stormwater filtration, conveyance analysis)
     ▪ Grading (AutoCAD 3D, ADA ramps, setting building elevations)
     ▪ Utility connections to building (water, sewer, storm, gas, etc.)
     ▪ Deliverables typically include Plans, Stormwater Calculations, CAD file
   o Lunch with mid-level engineer
   o Site Visit #2

/ Day 3
   o Structural Engineering Shadow
     ▪ Structural engineering programs (ETABS, RAM, RISA)
     ▪ Seismic Design (steel, concrete, wood)
     ▪ Project document development (Plans, Revit, Permit Calculations)
     ▪ Construction administration (RFI’s, submittals, site visit responsibilities)
   o Lunch with upper-level engineer
   o Site Visit #3
**Summary:**
The purpose of this shadowing program is to give the student a better understanding of what they can expect if they were to work for a large commercial general contractor like Hensel Phelps. Hensel Phelps builds nationwide for a wide variety of public and private clients and in a wide variety of sectors. Students will get experience both in the field and in the office observing several different career positions and projects.

What's Unique about Hensel Phelps?
Hensel Phelps is an employee owned S-Corporation. Salaried employees receive their first S-units when they are promoted from field/office engineers to project engineers (generally around year 4-6). Hensel Phelps also strongly believes in cross training, and all salaried employees spend time both in the field (as field engineers and area superintendents) and in the office (as office engineers and project engineers) before choosing their path as a project manager or project superintendent.

**Shadowing Position Key Points:**
- Concentration: Construction Management
- Location: Southern California
- Duration: 1 week
- Hours/Week: 40 hours/week
- Paid/Unpaid: Unpaid
- Transportation: Provided for workday activities
- Contact: Evan Avery (Project Engineer)
Example Itinerary (Changes each year based on current projects and alumni availability):

1. **Tour Kaiser San Diego**
   a. Jobsite tour and exposure to Field Engineer experience – Elizabeth Wong
      i. Layout/surveying
      ii. Trade management
      iii. Safety responsibilities
      iv. Dinner with project field engineers

2. **Tour San Diego/OC Project** (Office, hotel, military, something other than medical or aviation)
   a. Intro to Office Engineer experience – Sean Tarmidi
      i. RFIs
      ii. Problem solving – working with designers and other team members
      iii. Submittals
      iv. Material tracking
      v. QC process

3. **Tour District Office** – Evan Avery
   a. Shadow estimating team
   b. Lunch with upper level executive – Vitas Rugienius
   c. Current BIM and Virtual Design projects
   d. Michigan Team dinner and hand off from SD/OC to LA Team

4. **Tour LAX Southwest**
   a. Intro to Project Engineer/Project Manager experience – Lisandra Pagan
      i. Contracting
      ii. Bonds and Insurance
      iii. Management
      iv. Cost management and change orders
      v. Interface with the client
      vi. Design management

5. **Tour LA Project**
   a. Tour of Metro project
   b. Shadowing Area Superintendent – Greg White
      i. Scheduling
      ii. Sub Management
      iii. Planning/Logistics
      iv. Interface with the client