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My technical functions were for two of the major divisions within the company, structural engineering and building technology. Structural engineering includes new design of buildings and failure investigations. Building technology deals more with the outside of a building, such as masonry, windows and roofs. One of my major projects was taking measurements of ranks (big shelves) at a large manufacturing center in South Boston. Later, I performed calculations on some of the less conventional moment frame connections and drafted much of the reports. During the last few weeks of the term, I am drafting the risk assessments for various concrete structures in the state's transportation system, as a part of their ongoing look into deteriorating concrete due to alkali silicate reactions. Throughout the term I've done a variety of shorter tasks too, such as looking at structural problems at a high school that was built on a landfill. Most of my training was on the spot. The orientation was more helpful in terms of telling us about the general organization of the company, rather than teaching us technical information. I was assigned a mentor, but I often approached the staff member who was coordinating the co-op program, and also spoke with a variety of Cornell alumni. For work questions, I asked the person who I was helping at the time. This varied, sometimes daily.

The work was close to my career interests. I learned an enormous amount about civil engineering work and vocabulary. The work culture at SGH seems to be challenging and intense, and also trusting. They generally respect everyone and want them to learn as much as possible. The position influenced me professionally and personally by allowing me to meet so many intelligent, hard-working people who also have a passion for civil engineering. I'm also learning to see my future self in the work place, but also understand that there are even more opportunities after graduation than I can imagine. Part of me really wanted to figure out my future over this term, but it is okay that I haven't. I've been exposed to so much different work in the process. I definitely don't regret this experience and probably wouldn't do it differently.

For housing, I recommend asking your friends in the area for advice or using Craig's List. I got lucky because I subletted my Ithaca apartment in the fall to a Cornell student from Weston (near Waltham), so while she lived in my Ithaca apartment, I rented a room and a car from her family. For activities, you can do a lot of eating and shopping with friends, touring Boston, and other typical activities. There are so many college students in the area too, so you can definitely meet people if you want to plug into a campus. I made some friends from church, and spent some time with them on some weekdays. SGH offers activities but I feel the sportier ones are likely during the summer.

The best part of this job was the environment. SGH is really an interesting place to work. Not only can you learn about so many different fields, people respect each other by default and communicate, think and work effectively. The worst part was some of the days in the first part of the term when I had no work, and thus did tutorials. This definitely wasn't bad but I felt underutilized. However, I think the company is addressing this problem successfully. And as more people meet you, more people will ask you for help. If you're interested in the fields at SGH, I couldn't think of a better place to be. Keep in mind that almost everyone is very approachable, and learn as much as you can when you're there. After graduation, if you want to work for SGH in the future as a full-time employee and do not want to work in building technology, then you do need a Master's degree. If you have any other questions, feel free to contact me. Good luck!
My working group was within the structural engineering part of the company. My main project was a large-scale highway mediation case, which will likely become a litigation case. In this design-building project, the contractor is demanding the engineers a large sum of money because of escalating construction costs in constructing the highway. I performed a large number of calculations by looking at foreign construction drawings. Sometimes, I reviewed the contractor's claim. All of these tasks helped the team discern whether or not different claim amounts were correct. Little training was necessary this term because the project was unique, and required problem solving from a given set of documents. I had an assigned mentor but I generally approached a team member for questions, because my mentor was not working on this project.

My work activity did not reflect my future interests, and generally did not reflect my educational background. The project was heavily related to geotechnical engineering and highway design, neither of which I had encountered before. My career interests included structural failures at the time, but this was also unrelated. I learned more about the honesty in engineering consulting because we were expected to lay out facts, rather than opinions.

This experience improved my abilities to communicate and comfortably discuss engineering problems with all levels of management. I learned more about how people interact in the workplace by seeing the same group of employees consistently, rather than jumping amongst projects, which was common throughout the first term.

If I went through this experience again, I would have requested feedback more frequently, and been more vocal about my interest in structural failures. However, since I no longer see the topic as my future career path, it worked out that I did not pursue that specific interest more heavily.

I recommend living in the Cambridge or Brookline areas if possible, or any other surrounding town that is closer to the city and accessible via the subway and buses. This is because driving is sometimes a hassle in Boston. The roads are never straight and always disorganized. Social activities are plentiful. Remember that most things close by 1am, though, which is probably better in keeping you on the workplace sleep schedule.

The best feature about the job was that I could be myself. No matter my interests and preferences, there was always someone to discuss them, give their advice, and tell me when I could improve. I can't think of any really bad features of this job. Don't stay with it if you aren't truly interested in the work. The company is so fantastic (organization, intelligent people, work ethic, chances to learn, etc.) that I will be frustrated working anywhere else.

I'm always available to talk more, so please feel free to contact me at any time.
A. Co-op Work Assignment

This past semester, I partook in a coop at Simpson Gumpertz & Heger, a structural engineering and building enclosure firm. For the first week of my coop term, I had an intensive company orientation. This included a corporate overview of SGH, an explanation of how to deal with finances, a tour of the lab facilities, an explanation of the library and library checkout system, and safety videos. At the end of our orientation, we had to turn in a signed guidebook saying that we watched all of the relevant videos and participated in all of the essential events.

During our orientation, I was introduced to my buddy and my supervisor. My supervisor, Michael Tecci, is a Senior Staff II in the structural engineering department. It was my supervisor’s responsibility to make sure I had work when I could not find it on my own. Although Michael Tecci was my supervisor, I typically did work for other employees during my time at SGH, who were my project supervisors. My buddy, Casey Stevenson, is also a Senior Staff II in the structural engineering department. SGH offers buddies to coops and new hires in case they need anyone to talk to about getting adjusted or to ask any questions they might have.

After my training was complete, I had many software tutorials to finish. These included AutoCAD, Revit Structure, RAM, and RiSA. Once my tutorials were complete, I had various responsibilities at the firm. One of these responsibilities was drafting. I worked very closely with a senior drafter at SGH to create new 2-dimensional detail drawings and section drawings in AutoCAD, in addition to editing existing drawings. Editing existing drawings is sometimes referred to as doing “markup.” Outside of 2-D drafting, I also did some 3-dimensional modeling in the programs Revit Structure and RAM. I was often given the task to do markup on Revit models and make updates to RAM models, which is used for structural design and analysis.

Another technical function I had at the company was assisting in leakage investigations. Many old buildings that have leakage problems call upon SGH to investigate the leak and come up with potential solutions for mitigating the leakage. For me, this meant completing water testing. Water testing entailed going on site, assembling spray racks that emit water at a constant flow, propping them against exterior walls, and examining the walls pre and post leakage. In the midst of water testing, I took field notes to record the progress of the water testing and draw any exploratory openings made for testing. In addition, I took pictures of all testing and exploratory openings made. After returning to the office, I had to compile all my notes and photographs and was sometimes give the task of assisting in the field reports for testing.

Outside of drafting, modeling, and leakage investigation, I had a few other miscellaneous assignments throughout the semester. One assignment I was given was to complete cost estimations for construction being done on a bridge in Cambridge, MA. This assignment required me to determine the measurements of all repairs being made and calculate the amount and type of temporary shielding
needed for the project. Another task I had to complete was calculations for an energy model using data from different types of lighting.

For the last portion of my coop, I worked primarily on one project, the reroofing of a building called the Ray and Maria Stata Center. The Stata Center is a building at MIT designed by Frank Gehry that houses a computer science and artificial intelligence laboratory. Since it was constructed in 2004, it has been experiencing severe leakage. Because it is such a high profile building for MIT, SGH was given the task to completely redesign the roof. This includes all weather protection and structural design of rooftop stairways, ladders, and guard rails. I had numerous responsibilities for this project, one of which was developing design criteria for the reroofing based on building standards. To complete this task, I examined the International Building Code and OSHA Guidebook for information on reroofing, guard rails, stairways, and safety ladders. In addition, I did much drafting and 3-dimensions modeling of window, guardrail, parapet, and roofing assembly details. At the end of the coop, I had the opportunity to do some structural connection calculations and design a few of the structural connections for mechanical equipment supports.

B. Assessment of Learning and Development

At school, I am studying civil engineering with a focus on structural engineering. Some of the classes that would be relevant to my work at SGH are Statics, Structural Modeling and Behavior, Steel Design, and Concrete Design. Unfortunately, I had only take Statics before doing my coop. When I return to SGH this summer, I will have taken Structural Modeling and Behavior and Steel Design. Although I had not taken most of the relevant courses, I still learned a lot from my coop experience and came in with enough general engineering knowledge to succeed in my work.

First and foremost, this coop gave me an insight into the typical practices of the engineering consulting industry. I developed skills in multiple computer programs like AutoCAD, Autodesk Inventor, Autodesk Revit Structure, and RAM. While developing functional skills in these programs, I also learned how they are typically used in the building industry. It became apparent that each engineering consulting firm has their own drafting and modeling standards that are specialized to their own needs. In addition to computer software comprehension, I was educated on how to analyze building code and how it is used in the industry. Along with building code, I came to realize how significant and influential OSHA is in the building industry,

I also learned how the engineering consulting industry interacts with the private and public sectors in the building industry. SGH has a wide variety of clients from local governments to colleges to museums. Prior to this coop, I had previous internships in construction management and the public sector, which exposed me to the construction side and client side of the industry. This coop brought my experience in the building industry full circle and introduced me to the design and engineering phase.

Holding this position at SGH has truly influenced my professional development. Prior to my coop, I knew I wanted to do something in civil engineering after college, but I wasn’t sure exactly what sector I wanted to go into. After finishing this coop term, I now know that I definitely want to work in engineering consulting after I graduate. This coop also taught me how to interact with colleagues in the office atmosphere. I was really forced me to take initiative and approach colleagues to find work. I reached out to employees who were doing work in fields I was interested in such as energy modeling and green design. The coop also drove me to ask questions about topics I was unfamiliar or
uncomfortable with. If I were to do this coop term over again, I would probably take initiative even sooner in the semester and jump outside my comfort zone.

C. Life Out-side of Co-op

During my coop term, I lived in an apartment in Cambridge, MA. The apartment was in a great location right between Harvard Square and Central Square. This made it very easy to go out for meals and I was a short 10 minute walk from the grocery store. Unfortunately, the apartment was a little pricey and I did not have the greatest experience with roommates. Even still, I was happy with my choice of apartment.

I found my apartment on Craigslist over the summer. I searched for an apartment for the entire summer, but was unable to find a good match until very late in the summer, about one week prior to my coop term. For students planning to partake in a coop at SGH in the future, I would suggest figuring out your living situation very early and using all the connections you have in the area.

To get to work every day, I used public transportation. I walked from my apartment to Central Square (15 minute walk), took the 70/70A bus to Waltham (35 minute ride), and walked from the bus stop to the office (10 minute walk). In total, it was about an hour commute. I chose to get a pass for unlimited use on the bus and subway, which cost $70 each month. This was the best deal for me because I used the subways a lot after work and on weekends. SGH actually offers a commuter benefit to its employees and will take the cost of the transportation pass directly out of your paycheck to lower your taxable income. Although public transportation was definitely the cheapest mode of transportation, getting around by car would have been much easier.

Outside of work, there was plenty to do in the area to keep busy. Right down the street from the office is a gym that I attended 2-3 times a week. In addition, there are numerous museums all over the Boston area such as the Museum of Contemporary Art and the Museum of Fine Arts. In Cambridge, there are some really great restaurants. I lived a few blocks away from one of the top Indian restaurants in the entire Boston area. Furthermore, there are a few different art house movie theaters around the city and an improve club right in Central Square. I became very close with my fellow coops at the SGH and spent a lot of time with them outside of work. I have made some lasting relationships at the office that I know will continue long after my coop has ended. SGH also provides some opportunities to its employees for recreation. They held a BBQ, holiday party, and there is an annual softball game every summer.

D. Evaluation

Simpson Gumpertz & Heger was really a great place to work. The office was beautiful and had a very open atmosphere. It has a very easygoing and comfortable work environment which made me feel right at home as soon as the coop began. Every week, employees at SGH have the opportunity to sit in on lectures and presentations during their lunch hour done by fellow colleagues. Many of these presentations are very technical by nature while are others are just personal accounts or stories. I think having the opportunity to sit in on informal presentations made by your coworkers is a great opportunity for continued learning and really encourages an office atmosphere of sharing knowledge and experience with fellow colleagues. At the end of my coop term, I even gave my own lunch talk
presentation about a trip I took across the country with my organization Cornell University Sustainable Design.

My favorite feature about SGH is the company’s diverse assortment of projects. I worked on very different types of projects throughout the semester. This gave me insight into various aspects of the building industry. In addition, because SGH has some high profile clients, I had the opportunity to work on some well-known buildings which was very exciting. Outside of my work experience, I loved that I had such easy access to the city of Boston. There was always something to keep me occupied.

There is very little bad that I can say about my coop experience. Aside from my average housing experience (as per mentioned earlier), I only have a few criticisms of the coop experience. Most of my term was occupied by short term projects. This definitely allowed me to take on a wide variety of assignments, but a long term project throughout the semester might have given me more insight into the progression of a project over time. I also would have loved to do more design work during my coop term, but unfortunately because I did not have experience in steel or concrete design prior to my coop, doing design work was very difficult. I would suggest that any future coops at SGH try to take steel or concrete design before doing their coop.
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A. Co-op Work Assignment

This past summer, I partook in a coop at Simpson Gumpertz & Heger, a structural engineering and building enclosure firm. During my fall term, I worked in the Boston office. For my summer term, I worked in the New York City office. During the first week, I was introduced to my buddy and my supervisor. My supervisor, Sean Obrien, is an Associate Principle in the Building Technology department. My assigned buddy, Cheryl Saldanha, is a Staff I in Building Technology. In the NYC office, the Building Technology division is made up of only 9 people. Although Sean was my supervisor, I was easily able to approach anyone in my division for work. I became very close to two people in particular in my division and went to them with most of my questions. Because I was already familiar with the company and the way things worked, I had to go through minimal training for my second term. Unlike my first term, I was the only coop in my division in this office so I received much more responsibility.

One of my most common technical functions at SGH this summer was thermal modeling. I became proficient in two thermal modeling softwares called THERM and HEAT3. Thermal modeling consists of creating the geometry for wall sections and roof section, assigning different material properties and boundary conditions, and finding the overall U-Factor. I conducted this modeling for multiple projects, including the Chicago Navy Pier Lake Pavilion, the Cornell Johnson Museum, and the Pankow Foundation. The Pankow Foundation is an organization that does research in areas that can be immediately implemented into the industry. The models I was helping to create would eventually aid in the development of architecture standards of typical roof shims and shelf angles. In addition to thermal modeling, I began to learn the basics of energy modeling using software called DesignBuilder. With this software, I created the geometric model for a school, which would later be plugged into Energy + to determine the energy usage of the building.

Another one of my common tasks this summer was performing design reviews for litigations and construction. This would typically consist of analyzing design drawings, design specifications, building code, product submittals, and as-built photographs. For example, I was given the task of comparing the drawings and manufacturer’s instructions in a litigation involving moisture damage. For another project, I examined design drawings and building code to determine natural ventilation requirements for a NYC apartment complex.

Finally, I did a fair amount of field testing and report writing for leakage investigations and new construction. Many buildings that have leakage problems call upon SGH to investigate the leak and come up with potential solutions for mitigating the leakage. For me, this meant completing water testing. Water testing entailed going on site, assembling spray racks that emit water at a constant flow, propping them against exterior walls, and examining the walls pre and post leakage. In addition to water testing, I also performed air barrier testing for a new school being built in Queens.
B. Assessment of Learning and Development

At school, I am studying civil engineering with a focus on structural engineering. Although I did some structural work during my first term, this semester I only did work in the Building Technology division. Although many of the people in this department come from a civil engineering background, I would say the work I was doing was not really relevant to my courses at school. Much of the work I did was more related to mechanical engineering.

After working for a second term at an engineering consulting and design firm, it confirmed to me that I do like this engineering consulting work setting. However, I’m glad I had the chance to work in two very different work settings. The NYC had a very different atmosphere than the Boston office. The NYC office has about 30 employees while the Boston office has about 250 people. I really like the small office atmosphere and it provided me the opportunity to get to know all of the employees in my office. This in turn, allowed me to create a working relationship with more people and gain more responsibilities than in the Boston office.

This term of my coop gave me a very new outlook on my future and career prospects. After doing so much thermal modeling and learning the basics of energy modeling, I realized this is an area of engineering I’m very interested in pursuing. If you were to ask me one year ago, I would probably say I wanted to go into structural engineering. Now, I have changed gears and would prefer to go this emerging field of energy modeling. This change in direction of my career path came completely from my exposure to modeling at SGH.

In addition to this change of career path, I am also now interested in pursuing a graduate degree from architecture programs. I had the opportunity this summer to work with an architect at my company who gave me lots of insight into studying architecture and how it is related to engineering.

C. Life Out-side of Co-op

During my coop term, I lived at home in Wyckoff, NJ. Living at home was an ideal option for me, because I was able to save a lot of money and spend the summer with my family and friends. In terms of my commute to work, I took the bus to the Port Authority every morning and night. My commute time really depended on traffic, but was typically between 45 minute and 1 hour and 15 minutes. The commute definitely was not ideal. In an ideal world, I probably would have lived in the city, but decided saving money was more important.

Outside of work, there was plenty to do in the area to keep busy. NYC is full of opportunities like Broadway shows, museums, and incredible restaurants. I’ve lived near NYC my entire life so I was already pretty used to the city. Being 21 for the summer was a big plus because it allowed me to go out for drinks with coworkers and go to different networking events. One night, I went to a great event hosted by Architizer where I was able to network with other people in the building industry and learn about a project called the + Pool. In addition to networking events, I went to the gym that 2-3 times a week and cooked frequently. SGH also provides some opportunities to its employees for recreation, most notably a volleyball team.
D. Evaluation

I was very pleased with my experience at Simpson Gumpertz & Heger. My favorite feature about SGH is the company’s diverse assortment of projects. I worked on very different types of projects throughout the semester. This gave me insight into various aspects of the building industry. While I learned more about structural engineering and drafting my first term, I learned a lot more about building technology and thermal modeling this term. SGH really helped shape my career path and gave me exposure to fields that I had never seen before.

My biggest criticism of the coop experience was the difficulty of making connections in the Boston office. Because this office was so big, I was often assigned to work with someone one day and then never see them again. It was a challenge to get close to any coworker, simply because the coops were “floaters” and not assigned to one team. In the NYC office, I had a much easier time with this because the office was so much smaller and I worked with the same people every day. If I were to suggest one thing, it would be to provide more opportunity in the Boston office for coops to work with the same team for an extended period of time.