I started work at Arup nearly four months ago as a structural co-op, hardly knowing what to expect. I knew Arup had engineered some of the world’s most iconic structures including the Sydney Opera House and nearly all the Beijing Olympic venues, but what exactly could an intern hope to work on? I was far from disappointed.

My first day of work included attending a building technology seminar on tensegrity structures down the street at the Massachusetts Institute of Technology. Upon returning to the office, I was introduced to the in-house structural analysis program and set loose to model a tensegrity tower, trying out beam sizes and observing modeled deflections and stresses. I was surprised at the amount of time the people at Arup were willing to take explaining the building process, steel design, or welding symbols for that matter! I was always given some explanation of what I was doing and how it was useful. Even as I printed out and filed field test reports, I was directed to check for 28-day concrete compressive strength and consistency throughout the building.

I was given assignments that spanned the spectrum of the building process (from schematic sketches to construction administration) as well as the globe (from a high profile project in Dubai to a small airport in the Caribbean). Apart from drafting and engineering work, I also had a chance to dabble in marketing, helping set up the Arup booth at the 2008 Greenbuild Convention and talking to clients and students about sustainable projects Arup has worked on. I may have walked by Kevin O’Connor from Ask This Old House a few times too.

I found month-to-month housing right around the corner from the Harvard Graduate School of Design through Craigslist. Work was an easy 15 minute walk (Cambridge is flat!), and all of Boston was accessible from the Harvard Square T-station. Besides the summer outings and monthly activities planned by the office, there is always something to do in and around Boston, be it the Head of the Charles, the Blue Man Group, or a day trip to Salem come Halloween.

Working at Arup just about guarantees exposure to amazing projects and the remarkable people who work on them. In my time here, I have attended a design meeting with Moshe Safdie and lectures on form-finding and tall building design given by renowned practitioners and Arup Fellows. I very much enjoyed my first co-op work term and look forward to returning in the summer with more engineering design knowledge.

Student Signature: 

Jing Zhuang

Supervisor Signature: 

Patrick McCafferty
Professor Hover hinted last semester at the juggling engineers had to do—answering urgent requests for information and dealing with problems on the construction site, while trying to finish several deliverables on time. It wasn’t easy when Professor Hover simulated this environment for the class final, but I saw that everyone in the office was indeed under the same sort of pressure every day at work. As a co-op, I wasn’t expected to balance all of the above, but assignments had to be prioritized nonetheless.

Arup nearly always takes engineering to the extreme: projects often fall where conventional codes and analysis methods do not apply. During my second work term, the engineers in the office had to solve such puzzles as the failure mode of a concrete intake pipe at the bottom of Lake Meade, the effective buckling length of an irregular, three-dimensional compression ring, and ways to control deformation of an enormous (26 m long) freeform chandelier with strict boundary constraints. I was very excited to work on the chandelier, to be built for a colossal casino in Singapore. The work on the chandelier allowed me to apply some design knowledge I picked up in my steel design course spring semester as well as practice using the in-house structural analysis software. I also had a chance to meet with the architects (Moshe Safdie and Associates) to discuss their concerns and our findings.

Besides work on the chandelier, I also had a chance to sit in on an informative design review of pedestrian bridges, normally outside the sphere of building engineering. I got further exposure beyond “normal” structural engineering when I was allowed to tag along to a site visit for the renovation of a historic building in downtown Boston—a subway line ran through a corner of the lower levels! As the only co-op in the office, I also got to work with some of the other disciplines, at one point checking mechanical shop drawings and learning to convert rectangular ducts to equivalent circular sizes. In my down time, I picked up some useful software (Revit and RAM Structural System) through training videos, tutorials, and online forums. As with my last term, I didn’t have an assigned mentor, but any of the engineers and staff was open to questions and willing to help.

For housing this summer, I simply emailed the landlord I had found through Craigslist last fall and checked if
she had any rooms available. Luckily, my old room—within walking distance of work, the grocery store, and the Harvard T station—was free for the summer months. It was also easier for friends to visit during the summer, and the other co-ops I knew who were working outside Boston had worked out the kinks of getting to the city last fall. Over the weekends, we went to visit the tall ships at the harbor, watched spectacular fireworks on the Fourth, wandered around Boston's North End for gelato and tiramisu, ran into a saint's day festival, and enjoyed free Shakespeare in the Common (The Comedy of Errors last Saturday).

Co-op has definitely been a wonderful experience both at work and around town.

Student Signature:  
Jing Zhuang

Supervisor Signature:  
Patrick McCafferty