Engineering Company Spawns Integrated Intern Development Program
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By JT Long

A successful shift to truly integrated project delivery requires starting at the beginning.

That is why a pilot internship program launched last year by San Francisco-based structural engineering company Forell/Elsesser Engineers required student-employees to spend time with the owner, architects, engineers and contractors, moving from company to company to get a well-rounded view of the goals and challenges of each project participant.

“At industry events, we have been talking about this for a long time, but the academic curriculum is still silo-based,” says Simin Naaseh, Forell/Elsesser president and CEO. “If anything, studies are getting more specialized and that doesn’t help with the shared model we are trying to create.”

In spring of 2009, Naaseh recruited three students, two from UC Berkeley and one from Stanford, for the debut of the Integrated Skill Development internship program.

The location for this experiment? The site of a $119 million, 80,000-sq-ft University of California, San Francisco Institute for Regeneration Medicine project, designed by New York architect Rafael Vinoly. The Stem Cell Research facility utilizes a design/build contract, building information modeling and lean construction processes. That made it a perfect training ground. “Experiencing a construction project from the point of view of all the parties will make them more responsive and motivated to find solutions,” Naaseh says.

In addition to working with Forell/Elsesser engineers, students spent time on site with Nova Partners, the owner’s representative, and DPR Construction, Inc., the construction management company.

DPR intern coordinator Jorinne Jackson called the program a win-win. “The teamwork and understanding of how the engineering and construction industries work hand in hand is a tremendous benefit to the individuals participating and the project teams,” she says.

Students also found the experience helpful.

“This internship experience allowed me to gain a more rounded perspective of the whole development process, from conception through bidding, design, construction and move-in,” says Stanford intern Nathan Canney. “This is useful in seeing myself as a structural engineer as part of a team.”

UC Berkeley intern Xiaoyu He took the long view. “With my professional and educational background in both Architecture and Structural Engineering, the Integrated Skill Development program provided the perfect opportunity for me to learn about construction management and complete my overall journey of the entire building industry.”

Naaseh plans to expand the program next year to include six students from architecture backgrounds in addition to engineering programs to rotate through a number of different companies.

“The most difficult part of the program is the coordination,” Naaseh says. “I had to make sure everyone was happy with the interns included in the program. At some point a training organization might take over management of the program,” she adds hopefully.
While the big push toward integrating project delivery centers on shared modeling using BIM, the art of collaboration is not taught at a terminal. Nor is it covered in the architectural curriculum. Relationships may be aligned in contractual cooperation, but the professional paths, traditionally independent and easily adversarial, still remain familiar.

In training for the next generation, insights into the goals and challenges of other AEC team members will grow in importance, complementing insights into software. How are such skills taught and honed?

A structural engineering firm, San Francisco based Forell/Elsesser, has been conducting an intern experiment that shows promise. President and CEO Simin Naaseh had the goal of developing an internship program that would be in tandem with the firm’s increasing IPD projects. Her idea was to rotate interns within the offices of owners, architects, engineers, and contractors, one month in each—a program that Forell/Elsesser terms Integrated Skill Development (ISD).

The pilot program was started in the summer of 2009. At that time, the engineering firm was part of a project team, with SmithGroup Architects and DPR Construction, working on the $119 million, 80,000-sq.ft. University of California, San Francisco (UCSF) Institute for Regeneration Medicine, designed by New York architect Rafael Viñoly. This project seemed ideal for launching this new internship program, as it would be an extension of the project’s delivery process.

Forell/Elsesser contacted the other team members about sharing interns. The firm began interviewing civil and structural engineering students from top schools in the Bay Area, asking if they would be interested in splitting their time between two or three offices during the summer. “All showed great interest and excitement, and this encouraged us,” recalls Naaseh.

Participating team members approved each chosen student. Each office designated a contact person who helped in the coordination of four-week stints, and each paid for “their” month of intern time.
“Our aim was not to send an engineering student to the contractor’s or architect’s office to sit in front of the computer there,” explains Naaseh. “This is not just about BIM, but about learning skills, aptitudes, and an understanding of developing and delivering a project as a whole.” Interns did indeed develop an appreciation of all team members’ issues and concerns. Nathan Cannery, engineering intern from Stanford University, wrote the following:

This internship experience allowed me to gain a more rounded perspective of the whole development process, from conception, through bidding, design, construction, and move-in. This larger vision will help me in my interactions with the other project disciplines in my future work. Also, working at Nova (UCSF’s project representative) provided me with the owner’s perspective, which surely doesn’t center on the structural system! Who would have guessed?

“To have engineering students ‘walk’ in the shoes of an architect or owner or contractor allows them to understand concerns and perspectives that are essential for truly collaborative and seamless working relationships,” believes Naaseh. “I’m excited about the opportunity to contribute to the broader education of the next generation of AEC leaders. Of course, this means that we will be expanding the program and taking on architectural and construction management students here next summer. Through this process, even we veterans will learn more about what it takes to go from a silo-based to a more integrated practice.”

Of course, there were a few differences along the way that needed to be “integrated.” It was decided that all the interns should be paid the same, no matter whose office they worked in, for fairness. The architects, it turns out, normally pay their interns less than the engineers. “We all have to be flexible in order to accomplish the bigger goal,” explains Simin about their finding a wage compromise.