



All the Things I Did Not Learn in School

By Jeff Morrison

Many of us may not remember much of what we learned during our college years in an engineering program. Some of the coursework likely directly impacts our day-to-day engineering career while much of it does not. However, after a few short days and weeks on the job and continuing for years, we all realize that there is much about a successful career as a consulting structural engineer that is not taught in school at all. Passing this critical on-the-job training (OJT) to younger staff, so our firms can continue to prosper and grow into the future, is no small task. This training typically happens in the day-to-day trenches of project management, but lessons learned should be shared with all staff on a regular basis so all can benefit. Discussing and sharing hard and soft skills, failures, and successes are extremely valuable in developing younger engineers.

Relationships

Our business is one of relationships, internal and external. How we relate to and communicate with others directly impacts our professional careers. Being able to properly and appropriately communicate with owners, clients, other design professionals, and contractors is critical. Knowing what to say, and often more importantly, what not to say, has to be taught through real-world situations. Understanding different client personalities and matching clients with staff based on their personalities and communication styles can help set up a relationship for success. It is also valuable to learn to actively listen and understand the communication style of others. For example, some clients require frequent touch points while others are very direct and have no desire for this. Some clients prefer email correspondence, while others prefer phone calls. Relationships are built on trust, and trust takes time to build. Ensuring younger engineers are participating in the full life of a project and are an active part of the project team will more quickly develop their confidence and ability to develop these relationships and trust.

Business Development

Again, relationships rule here. Younger engineers likely have no idea how work comes into the office and how much effort has been expended to win a project or develop a relationship with a client over many years. Sharing client and project history and background at the beginning of a project gives context and an appreciation for the relationships that go beyond the project in front of them. Design professionals prefer to work with team members that genuinely make the project an enjoyable experience. Being an active participant throughout the design and construction process, offering suggestions, and bringing as much value as possible will help bring in future work. The firm's baseline is meeting project deadlines and producing a quality work product. It often requires going above and beyond to maintain client relationships long term. Younger engineers gradually stepping up in developing and maintaining client relationships are required to ensure the firm's long-term success. Firm leaders should bring younger staff to meetings so they can take ownership of these client relationships.



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Technical Development

Engineers typically come out of school with a solid background in engineering fundamentals and design but likely have little to no experience with putting together a set of construction documents or understanding the construction process itself. Efficiently developing details with consideration of the 5-Cs (clear, concise, correct, complete, and coordinated) takes much practice. Our profession requires a lot in terms of a broad knowledge of building construction and architecture and, at the same time, specific detailed expertise in many structural systems. A thorough understanding of load path and all required connections along the way is not typically understood well. For example: designing a beam, a column, and a footing as part of a moment frame is one thing; designing and tracking the load path for how the load gets from the diaphragm into the frame and through the beam-to-column and column-to-footing is the next step. Regularly scheduled project design charrettes, review of drawings, and talking through details and options with experienced engineers aids in this development.

Risk Management

When a project turns south, it can usually be pointed back to a failure in relationships and communication. However, many issues on a project can be overcome and worked through with a spirit of partnership and shared mutual respect, and best interest for the success of the entire project team and project. When issues arise, it is best to be proactive and address them directly and honestly. Some of the most trusted long-term relationships are built upon the foundation of how an individual or firm responds when mistakes are made. Again, sharing stories of successful outcomes when projects had issues provides a valuable blueprint for dealing with similar issues in the future.

In the structural engineering profession, one of the most rewarding aspects is the unique challenges and opportunities we have to learn daily. It takes a purposeful and committed plan to ensure we are providing the best opportunities for others to learn and grow from our experiences and have the freedom to develop their own fulfilling personal career and path. In this way, they experience the same rewards we have, and the profession will continue to grow. ■



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