

Editorial | Raising the Bar

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Long before structural engineering became a profession, even looking back to the master builder, structural engineers were covered under an umbrella over all trades. Uniqueness was not demonstrated. Somewhere in the planning of the great pyramids of Giza, there were individuals that more than likely did not understand they were structural engineers. Quite possibly, it was the masons of that period who were the structural engineers. Such individuals did not need sophisticated computer programs or an in-depth knowledge of engineering principles. Structures were massive and there was little opportunity for things to go wrong. The pyramids, for example, will deteriorate to a point where they are a pile of sand, while still resembling the original pyramid. They will not “fail” as we use the term today. Their massiveness will simply allow them to deteriorate. However, if we take the concept of the pyramid and move forward in time to structures that have the same image, such as the LUXOR in Las Vegas, we know that project could not have been realized without the application of sophisticated engineering techniques and an in-depth knowledge of engineering principles.

Today we recognize the uniqueness of the structural engineer, and honor the profession by rigorously educating our engineers and conferring a diploma as acknowledgement. As long a track as the academic process might seem, it is just the start for the developing engineer. We then subject graduate engineers to a period of hands-on training under one or more mentors, following which we commit them to a demanding examination process. Then, and only then, do we, the stewards of public safety, feel as though we can turn them loose on society as bona fide structural engineers.

Schools have been educating engineers as civil engineers for over 100 years. The American Society of Civil Engineers (ASCE), with a membership of over 140,000, has represented civil engineers for 160 years now. Along the way, civil engineers concentrating on structural engineering began to stand up as specialists.

Now, schools are beginning to acknowledge structural engineering as a specialty study; and ASCE has done the same, with its Structural Engineering Institute (SEI). Even before SEI, the Council of American Structural Engineers (CASE) started, twenty years ago, to speak loudly for structural engineers; and, about that time, the National Council of Structural Engineers Associations (NCSEA) literally developed overnight from a gathering of less than a hundred like-minded structural engineers. Further acknowledgment that structural engineers are unique has been demonstrated in the long process of code development and even specific code sections. Who but a structural engineer understands what IBC Chapter 16 is all about and how to apply the contents?

For over ten years, the process of education, the level and amount of education, and the mentoring of structural engineer “wannabes” has been near and dear to me. Ten years ago, structural engineering practitioners felt strongly that schools and universities, students as well as the profession, would benefit by more direct involvement of practicing structural engineers in the academic process; and NCSEA provided me, and a large number of like-minded professionals, the opportunity to raise the bar of structural engineering education. A wide range of professional organizations are now adding their voice to the chorus, chiming in on education. Similarly, practitioners have realized the need for more involvement in the code process and in materials testing and standards development. At the recent meeting of the 2012 Participating Organizations Liaison Council (POLC), the following engineering-related organizations summarized their positive thoughts on the education process: The Architectural Engineering Institute, The American Institute of Chemical Engineers, The American Nuclear Society, The American Society of Agricultural and Biological Engineers, The American Society of Civil Engineers, The American Society for Photogrammetry and Remote Sensing, The Council of Engineering and Scientific Specialty Boards, The Institute of Electrical & Electronic Engineers, The Society of Naval Architects and Marine Engineers, The Structural Engineers Institute of ASCE, The Minerals, Metals and Materials Society, and the National Council of Examiners for Engineering and Surveying. Each one, in their own way, has taken on the mission of improving the education and raising the bar, if you will, of their membership.

The process is moving quickly, and professional associations, educational institutions, and practitioners need to be up for the challenge. I, for one, am confident we are and that the challenge will be met. ■



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The NCSEA Basic Education Committee seeks to determine and promote the core curriculum that should be offered to, and required of, structural engineering students. Integral parts of this mission include working with the Structural Engineering Certification Board to achieve a common objective, working with educational institutions for curriculum content, and working with practitioner employers to ease students from the academic environment into the workplace. Recently, the Basic Education Committee announced the formation of a group called SE Connect. This group is intended to be a personal connection between structural engineers represented by NCSEA and schools and universities. Two members of the Basic Education Committee, Brian Quinn, P.E. and Lisa Willard, P.E., are heading up this activity and sent out a letter to instructors at schools and universities throughout the United States, to verify contact information and inquire as to how NCSEA could benefit their school. If you would like to be part of this effort, contact Craig Barnes at cbarnes@cbiconsultinginc.com.