Editorial

Policy Statement 465

A Golden Opportunity for Structural Engineering

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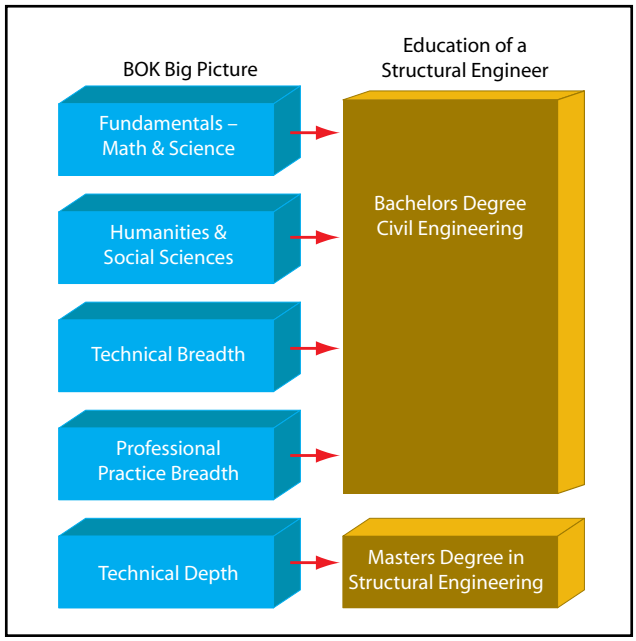
"The American Society of Civil Engineers supports the attainment of a Body of Knowledge for entry into the practice of civil engineering at a professional level." This is the lead sentence in ASCE Policy Statement 465 (*Academic Prerequisites for Licensure and Professional Practice*). The Policy encourages the broad civil engineering community to "endorse, support, promote, and implement the attainment of the Body of Knowledge." These simple statements provide the structural engineering community a golden opportunity to positively affect future structural engineers.

The civil engineering Body of Knowledge (BOK) can be divided into the following five "big picture" areas: (1) fundamentals in mathematics and science, (2) humanities and social sciences, (3) technical breadth, (4) professional practice breadth, and (5) technical depth. The first four areas provide a well-rounded technical and professional foundation for those preparing to practice in any of the specialized areas of civil engineering including structural, geotechnical, transportation, etc. This foundation for specialized technical education will be accomplished primarily at the undergraduate level. It is in the fifth "big picture" area, technical depth, where the structural engineering community can especially contribute.



The current draft of the Second Edition of the Body of Knowledge (BOK2) states, "Advanced technical knowledge and skills beyond that included in the traditional four-year bachelor's degree is essential to attaining the BOK necessary for entry into the professional practice of civil engineering." Furthermore, the draft BOK2 (to be published in February 2008) states, upon completing their formal education, "an individual must be able to design a complex system or process or create new knowledge or technologies in a traditional or emerging advanced specialized technical area appropriate to civil engineering."

The golden opportunity for structural engineering lays in the expectation that advanced technical education should be fulfilled through graduate-level education — building on a broad undergraduate civil engineering education. Specifically, by endorsing and supporting Policy 465 and the associated BOK, the structural engineering community will be able to define the technical depth requirements for structural engineers. What are the advanced knowledge and skills, beyond that included in a civil engineering bachelor's degree, essential for entry into the professional practice of structural engineering? What does it mean to be able to design a complex structural system or create new knowledge or technologies in the field of structural engineering? These are questions that need to be addressed by the structural engineering community working within the context of ASCE Policy 465 and the Body of Knowledge.

This is hardly a new effort for the structural engineering community. In 2002, the NCSEA Basic Education Committee developed a recommendation of courses and topics considered fundamental to structural engineering. Although this was an important first step to better define structural engineering education, these recommendations were course based. To be consistent with the educational philosophy of the ABET accreditation criteria and the civil engineering Body of Knowledge, these recommendations should be restated using an outcomes-based approach, which better defines the specifics of technical specialization required for entry into the practice of structural engineering. By doing this and building upon the four foundation areas provided within the civil engineering BOK, individuals will be better prepared to enter into the practice of structural engineering at the professional level.

In addition to having better prepared graduates, I am convinced that implementing Policy 465 will increase the number of students interested in structural engineering. This claim is supported by my experience at The University of Alabama. With the unanimous support of our external advisory board, we have fully embraced the direction and vision of Policy Statement 465 and the civil engineering BOK. In 2003, we restructured our undergraduate civil engineering curriculum to support student achievement of the knowledge, skills, and attitudes defined by the BOK. In so doing, we created a highly flexible curriculum that exceeds all accreditation criteria. The flexibility in our program includes six senior-level technical/professional electives, which allows our students to begin concentrated study in the area of their intended specialization. In addition, students can choose from several minors, including a minor in structural engineering. Our minor in structural engineering requires a minimum of seven dedicated classes and was designed to be supportive of the NCSEA guidelines for the basic education of a structural engineer. We also inform students, as early as during pre-college recruitment, of the need to pursue a master's degree to be fully prepared for professional practice. In the four years since implementing this new curriculum and approach, our undergraduate enrollment has more than doubled and our student quality, based on high school GPA and ACT/SAT scores, has increased.

By embracing Policy 465 and the BOK approach, future BSCE graduates will be well prepared for advanced study in structural engineering. Policy 465 provides the structural community with a golden opportunity to positively affect the future of the profession.▪