

## ASCE's "Raise the Bar" Initiative

October 2008 will mark the Tenth Anniversary of the Board of Direction's approval of Policy Statement 465 ("Academic Prerequisites for Licensure and Professional Practice"). Since then, ASCE has gradually amplified its efforts to raise the educational requirements for entry into the future practice of civil engineering at the professional level. For more than a decade, ASCE has been presenting, talking, and listening to many stakeholders. As a result, ASCE has been progressively improving our proposed program to "raise the bar" in engineering education. This has resulted in refinements to Policy 465 in 2001, 2004, and 2007.



The Committee on the Academic Prerequisites for Professional Practice (CAP<sup>3</sup>) is the lead committee planning, organizing, and executing the "raise the bar" initiative. The National Council of Examiners for Engineering & Surveying (NCEES), the National Society of Professional Engineers (NSPE), and the National Academy of Engineering (NAE) have joined in this advocacy. A summary of some of their major thrusts during FY08 includes the following:

### *Second Edition of the Body of Knowledge (BOK)*

The 2nd Edition of the Body of Knowledge (BOK2) was completed, published, and formally released during a ceremony at the National Academy of Engineers (NAE) on February 19, 2008. A free electronic copy of this BOK2 (and other information about ASCE's Vision 2025 and "raise the bar" initiative) is available at [www.asce.org/raisethebar](http://www.asce.org/raisethebar). BOK2 is also being sold through the ASCE Bookstore. As of October 9, 2008, over 6,500 copies of the BOK2 have been downloaded and over 1,500 bound copies have been distributed to key stakeholders including engineering deans and civil engineering department heads. And approximately 300 bound copies have been sold through the ASCE Bookstore. The BOK2 has been and will continue to be discussed at most major gatherings of ASCE members in 2008.

### *Licensure*

Given the challenge of defining the Model Rules to support the new Model Law, National Council of Examiners for Engineering & Surveying (NCEES) formed the Bachelor's +30 Task Force in late 2007. This Task Force was recently renamed the NCEES Engineering Education Task Force. The formal liaison to this committee from CAP<sup>3</sup> is Ken Fridley. Other ASCE members working on this committee, but not representing ASCE, include Jon Nelson (NCEES), Monte Phillips (NCEES), Mike Conzett (NCEES), and Craig Musselman (NSPE). Given the complexity of the assignment, it is anticipated that the Task Force will work on this issue for at

least two years. Up-to-date information about this Task Force (and other NCEES committees) can be found at [www.ncees.org](http://www.ncees.org).

Some of the key “raise the bar” leaders participated in the 2008 Annual Conference of the National Society of Professional Engineers (NSPE) in Portland, Oregon in July 2008. The contingent included Past President Bill Marcuson, CAP<sup>3</sup> Chair Jeff Russell, CAP<sup>3</sup> Licensure Chair Craig Musselman, CAP<sup>3</sup> member Jon Nelson, and Tom Lenox (ASCE staff). This was a key event for the “raise the bar” effort. With the passing of NSPE PP 168 (“Engineering Education Requirements”) in early 2002, NSPE has been publicly supportive of “education beyond the baccalaureate.” However, this policy was subject to renewal by the new governing body of NSPE – called the House of Delegates. The conference included multiple discussions related to the renewal of PP 168 – and NSPE’s overall support of “education beyond the baccalaureate.” Led by ASCE’s Craig Musselman, key presentations were given to the general session of the conference – followed by a special presentation to the NSPE House of Delegates. Efforts to let PP 168 lapse were successfully counteracted – with more debate and discussion planned for the 2009 Annual Conference of NSPE (July 16-19, 2009 in St. Louis, Missouri).

In August 2008, President-elect Wayne Klotz represented ASCE at the Annual Meeting of NCEES in Minneapolis. President-elect Klotz led an ASCE team that also included Russell, Musselman, Fridley, Phillips, and Lenox. NCEES considered a motion by its Western Zone to suspend implementation of the new NCEES Model Law (passed in 2006 and reconfirmed in 2007). This motion, with a potential to halt the momentum of the “raise the bar” effort, was defused by a separate motion from the NCEES Southern Zone that did not suspend implementation (Vote: 52-10-3). It was also extremely encouraging that NCEES also passed motions –

- (1) exploring a national clearinghouse for the +30 component of the Model Law (Vote: 55-7-3),
- (2) defining “acceptable coursework” and “approved course providers” for the +30 provisions of the Model Law (Vote: 34-26-5),
- (3) incorporating the accredited master’s degree into the Model Law (Vote: 54-6-5),
- (4) changing the not-earlier-than date of the Model Law from 2015 to 2020 (Vote: 59-2-4), and
- (5) explaining how to handle credits earned in excess of a university’s requirements for a baccalaureate degree (Vote: 59-1-5).

Another key activity related to licensure was a combined effort of ASCE’s State Government Affairs staff and CAP<sup>3</sup>’s members/staff to influence state legislation related to “raise the bar.” Of particular note has been the coordinated work with ASCE leadership in Nebraska and Louisiana.

- In Nebraska, the effort has been led by Dale Jacobsen (President of EWRI and long-time champion of “raise the bar”) and Marie Maly (President, ASCE Nebraska Section). These two Nebraska leaders teamed with national leaders Russell, Lenox, and Pallash to conduct workshops and meetings in Nebraska with local stakeholders/champions from July 8-10; follow-up visits in Nebraska from August 21-22; and Town Hall meetings in Lincoln and Omaha on October 15<sup>th</sup>.

- In Louisiana, the effort has been led by E. Ray DesOrmeaux (ASCE Region 5 Governor) and Ken McManis (Department Head, University of Louisiana-Lafayette). These two Louisiana teamed with national leaders Russell, Marcuson, and Fridley to conduct a Champions' Workshop and major presentation to the Louisiana Section on April 17-18; and multiple presentations and workshops to Louisiana stakeholders (including the faculty of every major university in the state) from September 23-26. Plans are being made to make a major presentation to the Joint Engineering Society Conference on January 22 and 23, 2009 in Lafayette, Louisiana.

### **Accreditation**

In a significant positive development for ASCE's "raise the bar" initiative, the ABET Board of Directors voted to remove the prohibition on dual level accreditation of engineering programs in their meeting on March 29th by a vote of 28-12 (with two abstentions). The ban kept engineering programs in a given discipline at the same university from being accredited at both the baccalaureate and the master's level. A small group of ASCE's accreditation leaders (Phil Borrowman, Rich Anderson, Ernie Smerdon, Wayne Bergstrom, Pete Carrato, Jim O'Brien, Russell, and Lenox) have been working over the last five years – strategizing and planning on how to get ABET to remove its prohibition. A front-page article in the May 2008 edition of the ASCE News was devoted to this issue – providing an excellent summary of the importance of this development.

What does the lifting of this prohibition mean to our long-term effort to implement the Body of Knowledge and ASCE Policy 465? It opens up multiple practical paths to the fulfillment and validation of the civil engineering higher educational standard. And, five to 15 years from now, ASCE hopes that more universities (by their own choice) will offer ABET-accredited practice-oriented master's degrees that better prepare the engineering practitioners and leaders of tomorrow.

### **BOK Educational Fulfillment**

A new committee of CAP<sup>3</sup>, the BOK Educational Fulfillment Committee (BOKE<sup>d</sup>FC), was formed in FY08 to focus on the curricula to satisfy the new BOK. The membership was finalized in early December 2007 following a public call for nominations that was announced in the ASCE News, on the ASCE website, and on the Department Heads' Listserv. Ken Fridley (Chair) and Jeff Evans (Vice Chair) are leading this new committee. Under their leadership, the committee is:

1. Fostering the creation of a community of scholars, including academicians, practitioners, and others, interested in engineering educational reform.

2. Investigating and documenting how programs are incorporating the formal educational components of the first edition of the Body of Knowledge into their curriculum. Compiling best practices on how programs fulfill the formal education requirements of the BOK1.

3. Investigating and documenting how programs are incorporating and/or can incorporate the formal educational components of the second edition of the Body of Knowledge into their curriculum.

4. Disseminating their findings through appropriate forums including the preparation of written reports suitable for publication.ed to the BOK (regardless of version).



It is anticipated that they will complete their current work by the end of FY09. The following universities are participating in the committee:

Members	Corresponding Members	Corresponding Members
University of Alabama	California State U -- Sacramento	Michigan Technological University
University of Arkansas	The Citadel	Mississippi State University
Bucknell University	University of Central Florida	North Dakota State University
Iowa State University	Drexel University	University of Oklahoma
University of Louisiana	University of Florida	Purdue University
Montana State University	George Mason University	Seattle University
North Carolina State University	University of Houston	The University of Texas - Tyler
Northern Arizona University	University of Kentucky	United States Air Force Academy
Rose-Hulman Institute of Technology	Lawrence Technological University	United States Military Academy
Texas A&M University	Manhattan College	University of Virginia
University of Southern California	The University of Melbourne	Virginia Military Institute
University of Wisconsin - Madison	Merrimack College	University of Wisconsin-Platteville
	Michigan State University	

**Pre-licensure Experience**

CAP^3 is currently organizing another new constituent committee, the Body of Knowledge Experiential Fulfillment Committee (BOKExFC). Based upon the final report of the CAP^3 Experience Committee from July 2007 (see [www.asce.org/raisethebar](http://www.asce.org/raisethebar)), this committee will work to create pre-licensure experience guidelines that are supportive of the expectations of Second Edition of the Body of Knowledge (BOK2), and that could evolve into regulatory mechanisms in engineering licensure.

These experiential guidelines should complement and supplement the outcomes fulfilled through the formal educational process through “B + M/30” (baccalaureate plus the master’s or approximately 30 credits of coordinated graduate or upper level undergraduate engineering credits). The new BOKExFC will be charged to establish these experience guidelines. Key inputs will be the Vision for Civil Engineering in 2025 and the Civil Engineering Body of Knowledge for the 21st Century (2nd Edition).

CAP^3 is currently working to attract civil engineering practitioners to apply for membership on this committee from a diverse cross-section of the engineering profession. Of special value to CAP^3 are practitioners involved with the development of engineer interns (EI) towards professional licensure. Solicitations have been published in the ASCE News (September 2008 Edition), the ASCE E-Newsletter, and the Section Informant. Up to ten individuals will be selected as full members of this new committee -- and up to twenty other individuals will be selected as active correspondents. This effort will commence in December 2008 and will finish no later than October 2010.

### **Paraprofessionals in the Engineering Design Team**

ASCE’s “raise the bar” initiative has led to the opportunity to think more broadly about the nature of the engineering team -- and that it includes more than just licensed professionals. They also include paraprofessionals – individuals who have significant engineering educational qualifications and who perform important technical and non-technical roles.

Some key leaders of the Board of Direction, CAP^3, and the Committee on Professional Practice (CPP) are concerned that individuals serving in these roles are not well understood, defined or credentialed – and need to be incorporated into the profession in a more organized, recognized and productive manner. To address this situation, ASCE formed a Board-level task committee to explore paraprofessionals in civil engineering and set the stage for follow up activities related to this issue. The Paraprofessional Exploratory Task Committee (PETC) was formed in April 2008 and completed its report by September 2008 -- for presentation to the ASCE Board of Directors at its November 2008 meeting. The report includes a review of paraprofessionals in several other learned professions; summarized the types, roles and credentials of paraprofessionals in civil engineering; and identified issues for further study which would improve their incorporation into the civil engineering profession. The report also presents a model for distinguishing engineers, engineering technologists and engineering technicians – a model that is suitable for adaptation by other engineering disciplines.

While the PETC is not a constituent committee of CAP^3, the successful completion of its charge is extremely important to the Society’s “raise the bar” initiative.

### **Frequently Asked Questions**

To communicate with a broad stakeholder group, CAP^3 has prepared a set of Frequently Asked Questions along with draft responses. They are in a very user-friendly format and can be found

at [www.asce.org/raisethebar](http://www.asce.org/raisethebar). This can serve as an excellent primer for those interested in more information and different perspectives on the “raise the bar” initiative.

**Sampling of “RAISE THE BAR” Presentations in 2008:**

- ASCE Multi-Region Leadership Conferences @3 (January/February 2008: Russell, Fridley, and Galloway).
- BOK2 Press Conference at National Academy of Engineering (February 2008: Mongan, Welsh, Anderson, Fridley, Russell, Natale, Lenox).
- ACEC Design Professionals Coalition (February 2008: Mongan & Musselman).
- International Mechanical Engineering Education Conference (April 2008: Russell).
- ASEE Midwestern Section Conference (April 2008: Welsh).
- Founder Society Executive Directors (April 2008: Natale).
- Louisiana “Raise the Bar” Champions (April 2008: DesOrmeaux, Marcuson, and Russell – multiple presentations).
- NSPE Western Zone Meeting (April 2008: Musselman).
- United States Army Corps of Engineers National Technical Competency Workshop (May 2008: Russell, Evans, Roth, Lenox, and O’Brien).
- NCEES Central & Western Zones Joint Meeting (May 2008: Phillips, Musselman, and Lenox).
- National Civil Engineering Department Heads' Meeting (May 2008: Welsh, Fridley, Evans, Russell, Lenox, and O’Brien – multiple presentations).
- Oregon Joint Engineering Conference co-sponsored by NSPE/ACEC/ASCE/Others (May 2008: Musselman).
- ASEE Annual Conference and Exposition (June 2008: Anderson, Fridley, Evans, Russell, Ressler, Lenox, and O’Brien – eight separate presentations).
- United States Army Corps of Engineers Leadership (June 2008: Galloway and Hatch).
- NSPE Annual Conference (July 2008: Musselman, Nelson, Marcuson, Russell, and Lenox).
- Nebraska “Raise the Bar” Champions (July 2008: Jacobson, Conzett, Russell, and Lenox – multiple presentations).
- Southeast Conference Colleges of Engineering (July 2008: Fridley and Hall).
- NCEES Annual Meeting (August 2008: Klotz, Conzett, Nelson, Musselman, Phillips, Russell, and Lenox).
- ASME Body of Knowledge Committee (September 2008: Russell).
- International Federation of Consulting Engineers (September 2008: Russell).

- Louisiana Academic Workshops (September 2008: DesOrmeaux, McManis, Marcuson, Fridley, and Russell – multiple presentations).
- Naval Facilities Engineering Command Leaders (September 2008: Mongan, Natale, and Lenox).
- Nebraska Town Hall Meetings @2 (October 2008: Maly, Jacobson, Conzett, Lenox, and Pallasch).
- ASCE Officers’ Orientation (October 2008: Galloway and Lenox).
- ASCE Headquarters Orientation (October 2008: Lenox).
- ABET Annual Meeting (October 2008: Russell and Lenox).
- NSPE Northeastern Zone Meeting (October 2008: Phillips and Musselman).
- International Engineering & Construction Conference (October 2008: Walesh).
- ACEC National Fall Conference (October 2008: Musselman).
- ASCE Presidents’ and Governors’ Forum (November 2008: Russell and Lenox).

**Summary of ASCE’s “Raise the Bar” Initiative**

This initiative is about the future of engineering, not the past. As one ASCE member has said, “Shall we walk backwards into the future admiring the past, or shall we turn around and face the challenges the future brings?” Progress has been made in the decade since ASCE Policy 465 was first approved by the BOD, but ASCE members must understand that this effort will span multiple decades.