

White Paper

Implementation of Additional Engineering Education Requirements as a Prerequisite for Licensure

Issued by the Management Practices Committee and
the Institute for Business Management Committee

Background

In 2006, the National Council of Examiners for Engineers and Surveyors (NCEES) adopted a change to the Model Law for professional engineers to require, after the year 2015, a bachelor's degree plus either 30 additional credits or a master's degree in engineering as a prerequisite for licensure as a professional engineer (B+30). The Model Law provides guidance to individual licensure jurisdictions as changes to engineering statutes are deliberated. These Model Law provisions will become effective only after adoption in each of the 56 engineering licensure jurisdictions.

This initiative has been advocated by engineering societies including the American Society of Civil Engineers and the National Society of Professional Engineers. ACEC has monitored the progress of these changes, but has not previously produced a white paper for discussion (as a possible prelude to a draft position statement or policy) as an organization.

Impacts on Member Firms

Impacts of additional engineering education requirements on ACEC Member Firms have been discussed in a number of ACEC forums. Positive impacts mentioned have included a long term improvement in the image and role of engineers; a potential decrease in the "commoditization" of the services in the engineering profession; improvement in the skill set of newly registered engineers in the breadth and depth of technical knowledge and in written and verbal communication skills; and a potential increase in Member Firm profitability as engineering compensation increases in general.

Negative impacts discussed have included concern over a shortage of engineering graduates in some disciplines and some markets, and the cost of providing additional engineering education for engineers who enter the job market with bachelor's degrees and obtain additional engineering education while working, perhaps partially at company expense. With respect to the shortage concern, this can potentially be mitigated by establishing valued and attractive roles on the engineering project team going forward for non-licensed, bachelor's level engineers. With respect to the cost impact of additional engineering education, it is critical that provisions are in place to allow fully productive, full time practicing engineers to obtain additional engineering education on-line and in other non-traditional means to assure the ability to obtain appropriate and acceptable post-baccalaureate engineering education at a reasonable cost while fully productive. The potential benefits of Bachelors Plus 30 have to be compared with the likely costs to firms, which will be competing in the marketplace for a smaller pool of licensed engineers and the likelihood of having to pay for part or all of the Plus 30 credits to prepare unlicensed engineers for the new licensure exam.

Requiring additional engineering education as a prerequisite for licensure will assure that professional engineers attain a broad Body of Knowledge incorporating technical breadth and depth as well as management and communication skills necessary for successful professional practice. Member Firms will benefit in the future from having more professional engineers who can communicate, lead and think on their feet. Change is necessary or we will continue down the “commodity” road and firms with more broadly educated people, such as management consultants, may end up between our firms and our clients.

ACEC Opportunities for Assisting ACEC Member Organizations

From the recent NCEES vote, it is apparent that this long term trend to require additional engineering education is established, and that the issue will be deliberated among state boards of licensure, state legislatures and professional engineering organizations on a state by state basis. As state legislative initiatives are opened, ACEC will be presented with an opportunity to address licensure mobility constraints as they exist on a state by state basis at the same time. ACEC and its Member Firms have long been frustrated by interstate mobility constraints, both for individual licenses and for firm certifications, where required, and in recent years by professional development requirements which are unique to certain specific states and which limit mobility. ACEC and its Member Organizations have an opportunity to accomplish multiple objectives by ensuring that additional engineering education provisions considered and adopted on a state by state basis allow flexibility for working and productive engineers to obtain the required additional education at a reasonable cost, while also:

- a. ensuring that state statutes and rules provide for expedited comity for Model Law engineers, allowing such engineers with up to date NCEES Council Records to obtain licensure within a week or two;
- b. modifying state statutes and rules to simplify firm certification provisions where existing provisions provide a constraint to interstate mobility; and
- c. ensuring that Continuing Professional Development requirements in each jurisdiction are consistent with the NCEES Model Law with respect to national comity.

On a state by state basis, positions regarding changes to engineering statutes will be formulated individually by ACEC Member Organizations. ACEC as a national organization supports the adoption of appropriate additional engineering education requirements as a prerequisite for licensure and should stand ready to provide support to the Member Organizations by means outlined in this position paper, and handouts (to be prepared) to provide information on additional engineering education requirements as well as on expedited comity (one to two week expedited licensure for Model Law engineers licensed in another state), firm certifications and continuing professional development. Legislative support to the Member Organizations would be provided on an “as requested” basis.

From the above, the Management Practices Committee and the Institute for Business Management Committee have drafted the following statement on additional engineering education as a prerequisite for engineering licensure is summarized as follows:

“ACEC’s Management Practices Committee and Institute for Business Management Committee support the adoption of appropriate additional engineering education requirements as a prerequisite for licensure. These Committees will help ACEC to develop and provide information to ACEC Member Organizations to assist in their formulation of Member Organization positions in state legislative deliberations of additional engineering education provisions which work in the interest of Member Firms. As those deliberations proceed, these Committees also strongly advocate that its Member Organizations ensure that: appropriate provisions are incorporated in state statutes and rules to provide expedited comity for Model Law engineers; firm certification procedures are simplified where applicable; and comity constraints regarding continuing professional development requirements are removed where interstate comity barriers exist.”

Impacts on ACEC Institute for Business Management Programs

The adoption of additional engineering education requirements presents both an opportunity and a challenge to ACEC through the Institute for Business Management (IBM) in the coming decade. For the engineering community *post-licensure*, ACEC plays a central role in the engineering profession in the US by providing continuing professional development record keeping services through a cooperative agreement with NCEES, and by providing business education course offerings which are well focused on the needs of Member Firms and which are accepted for continuing professional development purposes by all US jurisdictions. It is anticipated that these ACEC continuing professional development programs will continue to grow and flourish in the future.

The Bachelors Plus 30 additional engineering education requirements *pre-licensure* are intended to provide coursework which is “equivalent in both intellectual rigor and learning assessment to upper level undergraduate and graduate level engineering education”. This is a different level of coursework from that currently offered by the ACEC IBM continuing professional development program, particularly with respect to the “learning assessment” component. This envisions homework, papers, projects, and/or examinations which are consistent with those of graduate level engineering education. The ACEC IBM can and should establish a second track of course offerings applicable to part of the “30” provision of B+30, to be approved for acceptability in all licensure jurisdictions. Providing applicable course content will be in the interest of Member Firms, and will broaden the base of services provided by ACEC. Curriculum and course development activities should be initiated to allow coursework offerings on this second track of ACEC IBM courses to be available in a 2015 time frame.

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