Alternate Licensure Pathway Task Force

Henry Liles, P.E., Chair

ABSTRACT

The Alternate Licensure Pathway Task Force was constituted by President Timms to study the concept of a possible alternate pathway to meeting the 2020 master's or equivalent requirement for engineering licensure. The task force first met in December 2010 to discuss its charge. During that meeting, the main features of the two components of the alternate pathway—education and mentoring—were defined and discussed. Subcommittees were appointed to explore each before the second face-to-face meeting. At its February 2011 meeting, the task force concluded its discussion on the charge and developed recommendations and language for its motion.

The task force will present one motion for Council action. **The motion is shown on page 161.**

TEXT

Charge 1

Further study the following concept as a possible alternate pathway to meeting the 2020 master's or equivalent requirement for engineering licensure. The concept includes six years of progressive engineering experience, additional coursework, and a structured mentoring program.

At the 2010 annual meeting, the Council passed a motion from the 2009–10 Engineering Education Task Force to charge the appropriate committee with further studying the following concept as a possible alternate pathway to the educational requirement for engineering licensure.

> Engineering Education Task Force motion passed in August 2010
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> *Recognizing the need to develop knowledge, skills, and attitudes beyond the baccalaureate and before licensure and recognizing that significant learning can occur outside the classroom, the following is proposed as an alternate pathway to licensure.*
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> *Upon graduating with a B.S. degree in engineering from an EAC/ABET-accredited program, the applicant, during a six-year period of progressive engineering experience before licensure, would be required to*
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> - *Take courses totaling X (task force discussed 30) assessed learning days (ALD) of continuing education in areas germane to professional practice and that support and enhance capability in the applicant's technical area of practice.*
> - *Participate in a structured mentoring program amounting to at least 36 hours/year of interaction with a licensed P.E. mentor in the 3 years prior to application to sit for the principles and practice exam. The mentoring interaction is to be documented in a mentoring logbook that becomes part of the applicant's dossier.*
>
> *The mentoring program shall be structured to provide assurance that the individual has attained the appropriate body of knowledge for professional practice necessary for the individual's engineering discipline or practice area.*
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> *For the additional coursework, either credit or noncredit courses will be accepted, but the applicant would be required to demonstrate successful completion and that the content of the coursework was of sufficient content and rigor to meet the above requirements. Acceptable demonstration of content and rigor would include: (1) university courses; (2) continuing education courses offering ALDs (or equivalent credit units but not amounting to less than 1 ALD); (3) industrial in-house specialty courses designated as acceptable by the candidate's mentor; and (4) other courses meeting accreditation standards of nationally recognized authorities (including NCEES).*

For the mentoring program, the applicant would be required to meet with and document structured mentoring hours with one or more senior P.E.s in his/her firm or P.E.s practicing in the applicant's desired area of practice. Alternately, the candidate could participate in a mentoring program offered by his/her technical or professional society.

After this motion passed at the annual meeting, the Alternate Licensure Pathway Task Force was created to flesh out details of this concept.

Coursework discussion

Language from the Engineering Education Task Force motion related to coursework is as follows:

Take courses totaling X (task force discussed 30) assessed learning days (ALD) of continuing education in areas germane to professional practice and that support and enhance capability in the applicant's technical area of practice.

For the additional coursework, either credit or noncredit courses will be accepted, but the applicant would be required to demonstrate successful completion and that the content of the coursework was of sufficient content and rigor to meet the above requirements. Acceptable demonstration of content and rigor would include: (1) university courses; (2) continuing education courses offering ALDs (or equivalent credit units but not amounting to less than 1 ALD); (3) industrial in-house specialty courses designated as acceptable by the candidate's mentor; and (4) other courses meeting accreditation standards of nationally recognized authorities (including NCEES).

In discussing coursework, the Alternate Licensure Pathway Task Force acknowledged that coursework obtained from sources other than universities might not have the same rigor. However, industry courses may be more intense and applicable to the applicant's practice. The courses would have less breadth but more depth. The intent is that the courses will still have more rigor than continuing education PDH coursework. However, because this alternative may not have the same rigor as university coursework, the applicant must get additional experience—six years of progressive experience under a structured mentor program rather than the typical four years of experience.

With regard to the breakdown of technical/nontechnical courses, the task force agreed that the alternate pathway should conform to the same breakdown already defined in the *Model Law* and *Model Rules*. This means that at least half of the coursework would be technical engineering coursework.

In order to ensure the quality of non-university-provided coursework, these courses must be more rigorous than continuing education courses, must have a syllabus, and must have some type of outcomes assessment. An outcomes assessment would be the metric that would provide assurance that the applicant obtained the required level of proficiency in the subject(s) covered in the course. Furthermore, the task force discussed having the NCEES clearinghouse set standards for ALDs and assessment methods, approve ALD providers, approve coursework, and provide a list of approved "public" ALD providers to applicants.

The Alternate Licensure Pathway Task Force agreed that the units for non-university-provided coursework should be in days and not hours. The ALD should be the unit of measure, with a full day (8 hours) of contact time defining 1 ALD. The task force debated the number of ALDs an applicant must obtain during the six years of this alternate licensure pathway and arrived at 60 ALDs (basically, an average of two weeks of non-university-provided coursework per year).

The task force also considered the possibility that an applicant may choose to obtain some or all of the education using university courses. The task force estimated that there are about 45 classroom contact hours per 3 semester credit hour university course, plus an additional 0 to 1.5 hours (average of roughly 0.8 hour) of self-study and homework for every classroom contact hour. This totals to about 80 hours or 10 ALDs for each 3 semester credit hour university course. The task force compared the above to the existing bachelor's plus 30 pathway; based on the above, the existing pathway is equivalent to a total of about 800 hours or 100 days. The task force acknowledged that the difference between 60 days and 100 days is being counterbalanced by the fact that this alternate pathway requires an additional two years of experience and structured mentoring.

Mentoring

The Engineering Education Task Force motion that passed included the following language related to mentoring:

> *Participate in a structured mentoring program amounting to at least 36 hours/year of interaction with a licensed P.E. mentor in the 3 years prior to application to sit for the principles and practice exam. The mentoring interaction is to be documented in a mentoring logbook that becomes part of the applicant's dossier.*
>
> *The mentoring program shall be structured to provide assurance that the individual has attained the appropriate body of knowledge for professional practice necessary for the individual's engineering discipline or practice area.*
>
> *For the mentoring program, the applicant would be required to meet with and document structured mentoring hours with one or more senior P.E.s in his/her firm or P.E.s practicing in the applicant's desired area of practice. Alternately, the candidate could participate in a mentoring program offered by his/her technical or professional society.*

The Alternate Licensure Pathway Task Force subcommittee on mentoring was asked to further characterize the mentoring program and report its findings at the February 2011 meeting. The subcommittee researched existing mentoring programs, including those of the National Council of Architectural Registration Boards (NCARB) and the Association of Professional Engineers, Geologists, and Geophysicists of Alberta (APEGGA). It prepared an outline of the elements of a structured mentor-mentee relationship for the February meeting. During the February meeting, the roles of the mentor, mentee, mentee's supervisor, and other stakeholders (NCEES, technical and professional societies, and member boards) were further refined.

The subcommittee's recommendations and rationale on purpose, qualifications, duties, and participant responsibilities are given below.

Purpose of the mentor

To advise and guide the mentee as the mentee seeks the body of knowledge and the engineering experience required to successfully demonstrate his/her ability to practice engineering. The mentor-mentee relationship is a personal but preferably nonsupervisory relationship that is tailored by the mentee and mentor to best serve the development of the mentee as he/she maneuvers a structured pathway to licensure.

Qualifications of the mentor

- Shall be an experienced professional engineer in the mentee's practice area
- Has completed training in mentoring of engineering interns in the mentor's engineering discipline
- Be certified by NCEES, a technical society, or a professional society and also be approved by the member board as having the required personal and professional characteristics and qualifications to perform as mentor for the mentored licensure pathway
- Upon being certified, must demonstrate knowledge of the current licensure regulations and the body of knowledge required for licensure in the mentee's discipline
- Mentors shall preferably have no work-related supervisory link to the mentee

Duties of the mentor

- Advise the mentee as he/she develops career goals
- Advise and guide the mentee as he/she develops and implements a structured course of action that meets the work experience and post bachelor degree educational requirements for licensure
- Meet, either physically or a combination of physically and electronically, with the mentee as needed to monitor and advise the mentee on
  - Progress on career goals and structured course of action
  - Needed changes to career goals and the structured work plan
- Review and approve mentee's logbook to assure accuracy and adherence to structured course of action as developed by the mentee
- Advise the mentee on coursework and its conformity with the guidelines published by governing entities (NCEES and/or member boards)

- Coordinate regularly with mentee's supervisor at mentee's place of employment to work out the implementation of the experience path and coursework requirements
- Assert that completed courses meet the requirements of the alternate licensure pathway

Duties of the mentee (protégé)
- Select a mentor
- Meet regularly with the mentor
- Define career and professional development goals and objectives
- Develop a structured plan of action that includes milestones
- Implement the structured course of action
- Select coursework
- Complete the educational coursework
- Keep a detailed logbook of work experience and completed education

Duties of the supervisor (employer)
- Provide reasonable opportunities for the intern to gain experience in the areas identified in the structured course of action
- Confer and coordinate with the mentor, as needed
- Encourage completion of coursework and participation in other appropriate supplemental education, site visits, and seminars
- Encourage involvement in professional and technical societies and networking with other professionals in the intern's engineering discipline

NCEES role concerning mentored experience pathway
- In cooperation with other stakeholders (technical and professional societies, industry, academia, member boards, etc.), define the structure, intensity, and duration of mentorships acceptable to the licensure community in each engineering discipline
- Publish a mentoring handbook and other literature to give all stakeholders an understanding of mentorships and the mentored experience pathway (reference: APEGGA—"Strategies for Success in Mentoring a Handbook for Mentors and Protégés")
- Develop and maintain a clearinghouse that provides the mentees and mentors listings of approved courses by discipline or area of practice
- Provide a secure electronic logbook available to mentees and mentors as part of the Records program
- In cooperation with the technical and professional societies, develop a mentor certification program
- Train and certify mentors in each engineering discipline
- Maintain a record of certified mentors
- Use the clearinghouse to review applications for licensure, including the applicant's detailed experience record (roughly 10 single-spaced pages), completed coursework, supervisor's logs, and mentor's logs for compliance with minimum requirements for licensure in the specific engineering discipline using the mentored experience pathway

Recommendations

With regard to coursework, the Alternate Licensure Pathway Task Force recommends that the units of measure for non-university-obtained coursework be ALDs and that an applicant pursuing this pathway to licensure obtain 60 ALDs during six years. For an applicant with hybrid coursework, a 3 semester credit hour college course equals 10 ALDs.

The Alternate Licensure Pathway Task Force recommends that the NCEES clearinghouse set standards for ALD providers, assessment methods, and mentor training and certification. In addition, it recommends that the clearinghouse approve ALD providers, approve coursework, review applications, and maintain a list of approved public ALD providers and certified mentors.

Respectfully submitted, the **Alternate Licensure Pathway Task Force:**

Henry Liles, P.E., Chair

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