Developments in Professional Engineering License Mobility and Recognition of International Credentials

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Developments in Professional Engineering Licensure Mobility and Recognition of International Credentials in the U.S.

Abstract:

With increasing globalization, issues regarding international mobility of (often licensed) professionals in a host of disciplines have gained importance. Basic considerations of fairness and economic efficiency prompt questions about restraint of trade, unnecessary barriers to professional practice, and policies that can facilitate domestic and international mobility of license holders in different occupations. Positions can be extreme. In the United States, a changing political climate has made libertarian ideas questioning the necessity of professional licensure itself more prominent.[1]

Licensed professions in the United States, including engineering, have been concerned and, in some cases, felt threatened in the aftermath of the 2014 Supreme Court decision about the case of the North Carolina State Board of Dental Examiners v. Federal Trade Commission.[2] Because of the potential antitrust ramifications of that decision for licensed occupations in the U.S., licensing boards, including those for engineering,[3] have become much more concerned with any actions they take that could potentially run afoul of antitrust law.

In addition to protection of the health, safety, and welfare of the public, the National Council of Examiners for Engineering and Surveying (NCEES), an organization whose membership is composed of jurisdictional (chiefly state) licensing boards for engineering and surveying in the U.S., has from its inception had a goal of promoting engineering licensure mobility both domestically and internationally.[4] To enhance domestic and international licensure mobility, reduce restraint of trade and antitrust concerns, and remove unnecessary barriers to entry into the engineering profession, NCEES has, among other steps, encouraged recognition of international engineering education and professional engineering licensure credentials.[5]

The Delaware Association of Professional Engineers (DAPE) Council that serves as the State of Delaware's engineering licensing board, supports those goals and has recently initiated efforts to change state law to enhance licensure mobility for both domestic and international applicants. The proposed law changes include recognition of engineering degrees from programs accredited by Washington Accord[6] signatories as equivalent to those accredited through EAC of ABET[7] and extending eligibility for licensure through comity to any applicant who is registered as an International Professional Engineer (IntPE).[8] This paper discusses the international and domestic engineering licensure regulatory framework and the details of Delaware's engineering law changes.

Introduction:

With expanding globalization of the world's economy and the growing prominence of trade in services, the ability to engage in professional licensed practice across international borders has become a subject of great interest. Issues of economic efficiency and especially fairness to individuals are at the forefront. In an ideal world, there might be a move to some consensus on a form of global licensure.[9] A fundamental problem, however, is that professional licensure, in general, and engineering licensure, in particular, are fractured across many geopolitical boundaries. Internationally, professional licensure is often controlled at the national level, but in

the U.S., the responsibility of regulating professional licensure is granted to the states and other territorial jurisdictions. There is no "national" engineering licensure in the U.S.

Each state or jurisdiction has its own standards and laws for engineering licensure. One of the key reasons NCEES was founded in the U.S. in 1920 was "to help improve uniformity of laws and to promote mobility of licensure."[4] To encourage uniformity of licensure laws, NCEES publishes a "Model Law" and "Model Rules" that it recommends for use by the different U.S. jurisdictions that regulate the practice of engineering and surveying.[10] There are few jurisdictions that have adopted the NCEES model law and model rules in their entirety, but they are exemplar of typical jurisdictional requirements.

The NCEES model for engineering licensure relies on a "three-legged stool" composed of the "three Es": education, examination, and experience.[11] The NCEES standard for education is the 4-year EAC of ABET[12] accredited undergraduate engineering degree. Licensure applicants also need to pass two exams, both developed and supplied by NCEES: the Fundamentals of Engineering (FE) and the Principles and Practice of Engineering (P&PE) exams. The model law and rules allow the FE to be taken any time after the junior year of undergraduate study. The model law and some jurisdictions allow waiver of the FE exam if the applicant has an engineering Ph.D. from a board-recognized institution. In Delaware, applicants who "have a baccalaureate degree from Council-approved 4-year engineering educational program"[13] and 15 years of Council-approved engineering experience are also eligible for a waiver of the FE exam.

Originally, the NCEES model law did not allow applicants to sit for the P&PE exam until they had gained four years of approved engineering experience. Some states such as Delaware have followed the most recent version of the NCEES model law and "decoupled" the P&PE exam so that applicants can take the exam any time they feel ready subsequent to graduation and/or passing the FE exam. Regardless of when the exams are passed, applicants must acquire the requisite board-approved experience before being licensed. Some states will not allow applicants to be licensed who have taken the P&PE exam before completing the required amount of experience.

For applicants with EAC of ABET undergraduate degrees, the NCEES standards require four years of approved "progressive" engineering experience of a nature that indicates the applicant is qualified to be in responsible charge of engineering works. Progressive experience is defined as having an increasing level of complexity and responsibility over time. Many jurisdictions, including Delaware, do not insist the applicant's experience be progressive. Some boards may have other stipulations such as requirements for a minimum number of years of design experience, or they may recognize only the experience that has been acquired in the U.S., for example.

Motivation and Mechanisms for Change:

Differences in eligibility for engineering licensure among states come into play mostly when the applicant's credentials differ from the idealized strictures of the NCEES model law and rules. Instances when engineers might be eligible for licensure in one or several states, but not in some or many others are not uncommon. There are several states in which the author could still not be licensed simply because his undergraduate degree (from many years ago) is in engineering technology. As difficult as it can be to obtain engineering licensure across state boundaries for U.S. citizens, it can be many times more difficult, if not impossible, for international applicants who do not possess U.S.-recognized credentials. Basic concepts of economic efficiency, fairness

to individuals, and elimination of unnecessary barriers to engineering practice demand a better approach.

The Supreme Court decision of 2014 in the case of the North Carolina State Board of Dental Examiners v. Federal Trade Commission[2] was an alarm bell for licensed professions in the U.S. The case involved an anti-trust challenge by unlicensed purveyors of tooth-whitening services to the restrictive actions of the state dental board, a majority of whom actively practiced in the dental profession. The court held that state occupational licensing boards that are primarily composed of actively practicing members of the profession regulated by the board are not exempt from antitrust law unless they are actively supervised by the state. Engineering licensing boards across the country, including the DAPE Council, are invariably composed primarily of actively practicing licensed engineers and are impacted by this decision.

Libertarian perspectives on professional licensure in all disciplines have traditionally questioned its necessity, because libertarians prefer as little government interference in markets as possible.[1] After the aforementioned U.S. Supreme Court decision of 2014, several state legislatures introduced bills severely restricting or even eliminating licensure for some professions. Fortunately, no legislation targeting engineering licensure for elimination was adopted. In this political climate, professional licensing boards in the U.S., including those for engineering, have become much more cognizant of any actions they take that might be construed as restraint of trade and that could potentially run afoul of antitrust law.

Beyond these political considerations, there is little or no justification for arbitrarily making licensure more difficult for international engineering licensure applicants in the U.S. In answer to those who might object to licensing international applicants in the U.S. because of perceived cultural differences that could put some international engineering practices at odds with U.S. norms, there appears to be little evidence. The most important cultural aspects in this regard are those associated with professional ethics.

In a pair of articles published in *Civil Engineering* magazine, Tara Hoke, J.D., general counsel to the American Society of Civil Engineers (ASCE), explored the characteristics of a wide variety of engineering codes of ethics from a mix of developed and developing countries around the world in comparison to the ASCE Code of Ethics.[14,15] She examined provisions in the codes that address competence, truthfulness, faithful agency, fair competition, corruption, honor, integrity, dignity of the profession, professional development, and inclusion that are present in the ASCE Code of Ethics and several others that appeared in the international ethics codes but not in ASCE's. The similarities were considerable. Hoke found that "Ultimately, the ethical codes surveyed … are far more striking in their similarities than in their differences."[15]

The Delaware DAPE, as an instrumentality of the state charged with regulating the practice of engineering within the State of Delaware, and its sister jurisdictional engineering licensing boards must focus on their duty to promote a no-less-than adequate supply of *qualified* engineers who will, through their practice of engineering, protect the health, safety, and welfare of the public. Political considerations unrelated to ethics and technical competence should have no role in licensing board policy. The main reason these issues are now coming to the fore is the increased role of globalization in the world economy. International competition amongst engineering firms and the desirability of increased licensure mobility are facts given the ever-expanding globalization of services – including those in engineering.

In response to these developments, interests within NCEES have broadened beyond promotion of engineering licensure mobility within just the United States. Ms. Patty Mamola, P.E., a past president of NCEES (2013-14), has been a leader in that effort. Mamola is currently the NCEES representative in the Governing Group of the International Engineering Alliance (IEA)[16] serving as Chair of the Asian-Pacific Economic Cooperation forum (APEC) Agreement of which the U.S. is a member represented by NCEES.

The IEA is an international non-profit organization comprised of engineering accreditation and licensing agencies within 29 countries.[16] Using educational accords and competence agreements, the IEA's purpose is to "establish and enforce internationally bench-marked standards for engineering education and expected competence for engineering practice."[16] For engineering education, the operative agreement for IEA is the Washington Accord.[6] The Washington Accord is an international agreement between bodies responsible for accrediting engineering degree programs.

Signatories of the Washington accord mutually "recognize the substantial equivalency of participating organizations' accreditation processes and their graduates' preparedness to begin professional practice at the entry level."[17] Washington Accord accreditation regimes rely on outcomes-based assessment.[18] Signatories of the Washington Accord recognize that the quality of engineering education obtained by holders of degrees accredited by fellow members should be considered roughly equivalent. ABET and Engineers Canada are signatories of the accord along with substantial representation from current and former members of the British Commonwealth. Twenty engineering education accreditation agencies from every continent are represented. There are relatively few signatories from western Europe, however, with Ireland and the United Kingdom being the sole representatives. More comprehensive recognition of international credentials would also include signatories of the European Network for Accreditation of Engineering Education (ENAEE) Accord.[19] There are 21 engineering accreditation agencies that are members of ENAEE from western and eastern Europe and other regions not represented in the Washington Accord.

With respect to engineering licensure standards promoted by IEA, the International Professional Engineers Agreement (IPEA) "recognises the substantial equivalency of standards establishing the competency of professional engineers for independent practice."[8] There are 16 members of the IPEA agreement including the United States (represented by NCEES), Japan, the United Kingdom, Canada, several other current and former members of the British Commonwealth, and a number of other large economies from around the world. Bangladesh, Russia, and the Netherlands are provisional members.[8]

To qualify for listing in the IPEA's International Professional Engineers Register (IPER) as an International PE (IntPE), applicants need to meet educational, experience, and ethical standards that typically exceed what is necessary in U.S. jurisdictions.[5] For example, rather than four years of engineering experience usually needed in the U.S. for licensure, the IPER standard calls for seven years of practical engineering experience that includes at least two years in responsible charge of significant engineering work.[5] Note, however, that no engineering exams are required. While the lack of an exam requirement might be perceived as a weakness, the additional rigor required in engineering experience compensates to a large degree. The U.S. is, at any rate, relatively unique in requiring technical exams for engineering licensure. NCEES, which promulgates the FE and P&PE exams, has, as a member of the IPEA Agreement,

committed to the conditions of the IPER standards, so it accepts the equivalence of engineering licensure processes that do not include examination.

Along with NCEES's memberships in and support of the Washington Accord and the IPEA, comes encouragement from NCEES leadership for U.S. engineering licensing boards to recognize these international credentials. Jim Purcell, P.E., then-president of NCEES, wrote in the August 2019 issue of NCEES *Licensure Exchange*:[5]

> *As an IEA signatory, NCEES recognizes the equivalency of other APEC Engineer Agreement and IPEA members' competency standards to its own Model Law and Model Rules; and ABET recognizes the equivalency of IEA accord signatories' educational accreditation processes. Shouldn't our member boards—who recognize both NCEES models and ABET accreditation—do the same?*

Recognition of International Credentials in Delaware:

The state of Delaware has taken up the challenge of recognizing international engineering credentials. The Council of DAPE serves as the state's engineering licensing board. Delaware's engineering profession is unique in the US in that it is "self-regulating." DAPE is established by law as an "instrumentality" of the state (as opposed to a state-operated licensing board) charged with regulating the practice of engineering[20] for the health, safety, and welfare of the public. DAPE membership is composed of all the professional engineers licensed in Delaware. The DAPE Council is the organization's governing body and is comprised of 15 members. Unlike other licensing boards, the members of DAPE Council are not all appointed by the governor. Twelve Council members are elected directly by DAPE membership, while the remaining three public Council members are appointed by the governor.[13] Elected members of Council occupy seats representing different engineering constituencies such as civil, chemical, private practice, industry, and education. The DAPE Council cannot issue regulations; any regulatory changes must be accomplished through changes to the licensing law. Council members serve a maximum of two consecutive four-year terms.

Because the Delaware DAPE Council is composed primarily of practicing PEs who are elected by the licensed PEs in the state, Council was particularly concerned about the aforementioned Supreme Court dental board ruling. Since DAPE Council's actions are always carried out in cooperation with and contingent upon the approval of the Delaware Attorney General's office, it was, however, determined that Council is actively supervised by the state. The Supreme Court decision did serve to strengthen Council's commitment to promoting licensure mobility and removing unnecessary barriers to entry into the profession, however.

In fall of 2019, the DAPE Council considered and approved proposed changes to the law that among other things would:

- Treat candidates for licensure who possess engineering degrees from institutions accredited by signatories to the Washington Accord the same as those having EAC of ABET-accredited degrees.
- Provide IntPE applicants the same rights to comity enjoyed by engineers licensed in other jurisdictions of the U.S.

Note that "comity" refers to the process by which a licensee in one U.S. jurisdiction can obtain licensure in another U.S. jurisdiction by a streamlined but not automatic process. Comity is not the same as "reciprocity" because it is not essentially automatic as is reciprocity. Candidates for

comity licensure must submit a full application and must still satisfy all requirements for licensure in the jurisdiction. Hence, comity applicants who have passed the FE and P&PE exams, for example, would not be required to take the exams again; but they would need to submit a full application that includes a list of references and descriptions of their engineering work experience for verification by their supervisors and approval by Council. Most U.S. jurisdictions use comity rather than reciprocity to license P.E. registrants from other jurisdictions.[21]

The DAPE Council is now working with its legislative lobbyist and sponsors in the state legislature to have these proposed law changes approved and signed into law. Engineering licensure law in Delaware since DAPE was created in 1972 has always been fairly liberal compared to other states. In Delaware, it is possible to license applicants with undergraduate degrees in engineering technology or science related to engineering if in addition to meeting the other requirements, they have eight years of experience.[13] Applicants with no degree related to engineering or, indeed, no degree at all can be licensed with 15 years of experience. Up until these proposed law changes, applicants for licensure in Delaware who had engineering degrees that were not EAC of ABET- or Engineers Canada-accredited were required to have eight years of experience.

In another example of the openness of Delaware engineering licensure law, many states will not accept engineering experience if it is acquired outside the U.S., but Delaware will accept international engineering experience if it can be verified by the applicant's supervisor. One more progressive feature of Delaware engineering licensure law is crucial to making comity for IntPE applicants feasible. Delaware engineering licensure law has had since its 1972 inception in its current form a provision for "10-year comity"[13] whereby applicants who have 10 years of DAPE-approved *licensed* engineering experience through another U.S. or Canadian jurisdiction and a clean record with no engineering law violations can be licensed without consideration of education or examination. Delaware licensure law already recognizes the Canadian P.Eng. as licensed experience in this regard.

Since IntPE applicants from outside the U.S. will typically not have taken and passed the FE or P&PE exams, otherwise qualified applicants could not be licensed without such a provision. In this round of law changes, the period of *licensed* practice necessary has been reduced from ten to five years to bring engineering law more into line with *reciprocity* provisions that are typical for other licensed professions in the state such as law, architecture, and geology. In the new law, this provision thus becomes "five-year comity." Widespread adoption of a five- or ten-year comity provision like Delaware's by other U.S. jurisdictions would by itself contribute to a vast improvement in U.S. engineering licensure mobility.

Conclusions:

Because of its liberal licensure law, Delaware has attracted many licensees from outside the state thus providing a rich source of qualified engineers to its public. Anecdotal evidence conveyed to the author by Ms. Patty Mamola, P.E., currently executive director of the Nevada licensing board, has indicated that when Nevada liberalized its licensure law,[22] AEC business activity was stimulated due to the influx of newly available engineering talent. In Delaware, we expect to see some of those same benefits, plus we have deflated arguments about how licensure exists only to serve the interests of the licensees by restricting entry into the profession.

Much more can be done in the U.S., however. Engineers with non-ABET degrees from programs accredited by Washington Accord signatories will still face more difficult pathways to licensure in states other than Delaware. Those with degrees accredited by ENAEE signatories do not benefit from recognition of Washington Accord credentials, so expansion of educational recognition to ENAEE signatories should be considered. IntPE applicants who gain licensure in Delaware through 5-year comity provisions will likely be ineligible for licensure in a majority of other U.S. jurisdictions. Other U.S. jurisdictions should consider expanding recognition of international engineering education and licensure credentials that mirrors Delaware's upcoming law changes.

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