

## **Change Takes Time: The History of Licensure and Continuing Professional Competency**

ASCE Policy Statement 465 Academic Prerequisites for Licensure and Professional Practice calls for a major reorganization of the educational system for civil engineering. Such a proposed endeavor will be implemented gradually over time—revolution by evolution. Just how long the process will take is hard to say, but it took nearly half a century for licensure to become required by all 50 states, and it has taken another quarter of a century for continuing professional competency (CPC) to become required in roughly half the states. The following brief case studies of the adoption of licensure and CPC for the professional practice of civil engineering help make the point that change takes time.

### **The History of Licensure for Civil Engineering**

The first state to pass a licensure law was Wyoming, in 1907. Wyoming engineers were concerned with water speculators who lacked the qualifications or experience of trained engineers but were nonetheless using the term “engineer.” The law was passed so that “all the surveying and engineering pertaining to irrigation works should be properly done.” ASCE supported this piece of legislation, but otherwise resisted the notion of state-controlled licensure at this time.

From its inception, ASCE had preferred self-regulation to licensure, arguing that only engineers should pass judgment on other engineers. However, as issues of public safety became a leading cry of the days’ reformers, licensure began to appear inevitable. After about 1910, many civil engineers supported the concept of state licensing in order to control what aspects of practice would be regulated and to ensure that restrictions placed on professional practice would not be overly onerous. The Society did not fully endorse the notion of any outside body regulating the practice of professional engineering, but ASCE leaders thought it prudent to develop a model law they found acceptable. Following the passage of the Louisiana law in 1908 and a fierce debate for licensure in New York, ASCE promulgated a model law for licensure in 1910. This shift in attitude also helped civil engineering stay in-line with other professions such as medicine and law, which had already accepted licensure and were beginning to enjoy increased public prestige (Haber 1991; Pfatteicher 1996).

As engineering licensure laws were enacted by state legislatures, the need for communication between state boards soon became acute. Accordingly, around 1920 the National Council of State Boards of Engineering Examiners, currently the National Council of Examiners for Engineering and Surveying (NCEES), was formed to work for fair licensure in every state, help enforce regulations, and ensure appropriate levels of experience and education for professional practice—roles NCEES fulfills to this day. As more and more states adopted regulations for professional practice, NCEES also became involved in advocating for the standardization of engineering curricula. In cooperation with ASCE and ASEE, NCEES helped create the Engineers’ Council for Professional Development in 1932. This body was the first permanent council consisting of multiple engineering societies and was entrusted with the responsibility of the formal accreditation of engineering curricula from 1936 up to the present, albeit under the current name of the Accreditation Board for Engineering and Technology (ABET).

It took nearly 45 years for all 50 states to require licensure for the practice of civil engineering, as Table 1 helps convey. With the passage of the Montana law in 1947, followed by the District of Columbia in 1950, licensure became a fact of professional engineering practice.

**Table 1 . Civil Engineering Licensure Laws of State and Jurisdiction by Year (Pfatteicher 1996)**

<i>Year</i>	<i>States</i>
1907	Wyoming
1908	Louisiana
1917	Florida
1919	Colorado, Idaho, Iowa, Michigan, Nevada, Oregon
1920	New York, Virginia
1921	Arizona, Indiana, Minnesota, New Jersey, North Carolina, Pennsylvania, Tennessee, West Virginia
1922	South Carolina
1923	Hawaii
1925	Arkansas, South Dakota
1927	Puerto Rico
1928	Mississippi
1931	California
1933	Ohio
1935	Alabama, Connecticut, Maine, New Mexico, Oklahoma, Utah, Washington
1937	Georgia, Nebraska, Texas
1938	Kentucky, Rhode Island
1939	Alaska, Maryland, Vermont
1941	Delaware, Massachusetts, Missouri
1943	North Dakota
1945	Illinois, New Hampshire
1947	Montana
1950	Washington, D.C.
1960	Guam
1968	U.S. Virgin Islands
1978	Northern Mariana Island

Haber, Samuel. (1991). *The Quest for Authority and Honor in the American Professions, 1750-1900*. University of Chicago Press, Chicago, IL.

Pfatteicher, Sarah K.A. (1996). "Death by design: ethics, responsibility and failure in the American civil engineering community, 1852-1986." Ph.D. diss., University of Wisconsin-Madison.

## History of Continuing Professional Competency (CPC)

Continuing professional competence (CPC), or continuing education, requirements began in Iowa in 1979 but did not spread quickly to other states. It was not until 1993 that another state, Alabama, passed legislation to require mandatory CPC for licensure. However, in the last ten years, over 20 states require or plan to require mandatory CPC. Table 1 lists the status of all fifty states, the District of Columbia, and the four US protectorates. Table 2 presents the states that have CPC requirements on the books, while Figure 2 charts the passage of these requirements over time.

Currently, 21 states, the four protectorates, and the District of Columbia **do not** require mandatory CPC as a condition of professional practice or licensure. Twenty-three (23) states **do** require some form of mandatory CPC, New York has a law under development, while five (5) other states are investigating or have a voluntary CPC program through the state NSPE chapter.

Many proponents of mandatory CPC, including NCEES, would like to allow continuing competence to be accepted from state to state without having to meet different regulations in each state. In a similar fashion to national licensing, such a model could help facilitate interstate commerce.

### Four Examples of State laws

The following overviews four states' CPD laws and regulations: Minnesota, Florida, Oregon, and Iowa. Each state regulates the completion of CPD in similar fashion, using the Professional Development Hour (PDH) as the unit of credit. Each state requires a different amount of CPD, with Florida requiring the least at 8 PDHs per biennial and Iowa requiring the most at 45 hours per biennial. It is typical for a state to make a case-by-case assessment of the relevancy of a particular activity for a particular engineer, and therefore most states do not seem to pre-qualify CPD venues.

#### *Minnesota*

Minnesota law mandates that licensed professional engineers must earn a minimum of 24 professional development hours per biennial renewal except for permitted carryover. The carryover allowed from each previous renewal period must not exceed 12 professional development hours. One professional development hour is equal to 50 minutes of instruction or presentation. Continuing education for professional engineers must consist of learning experiences that enhance and expand the skills, knowledge, and abilities of practicing engineers to remain current and render competent professional services to the public. Practitioners may pursue technical, non-technical, regulatory, ethical, and business practice needs for a well-rounded education provided the education directly benefits the health, safety, or welfare of the public. A new license holder is exempt for the individual's first biennial renewal period. A licensee who has experienced a serious injury, illness, or other extenuating circumstances, as reviewed and approved by the board, is exempt from the requirements. Finally, a licensee who serves on active duty in the military services for more than 120 consecutive days during the renewal period is also exempt.

**Table 1. Continuing Professional Competency (CPC) Status by States, as of August 5, 2002 (Source: The National Society Of Professional Engineers)**

<b>Rule in effect</b>	<b>No action</b>
Alabama	Alaska
Arkansas	Arizona
Florida	California
Georgia	Colorado
Iowa	Connecticut
Kansas	District of Columbia
Louisiana	Guam
Minnesota	Hawaii
Mississippi	Idaho
Missouri	Illinois
Montana	Indiana
Nebraska	Kentucky
Nevada	Maryland
New Hampshire	Michigan <sup>vii</sup>
New Mexico	North Dakota
North Carolina	Northern Mariana
Oklahoma	Ohio
Oregon	Pennsylvania
South Carolina	Puerto Rico
South Dakota	Rhode Island
Tennessee <sup>i</sup>	Utah
West Virginia	Vermont
Wyoming	Virginia
	Virgin Islands
	Washington
	Wisconsin

**Rule under development**

New York

**Other (see Footnotes)**

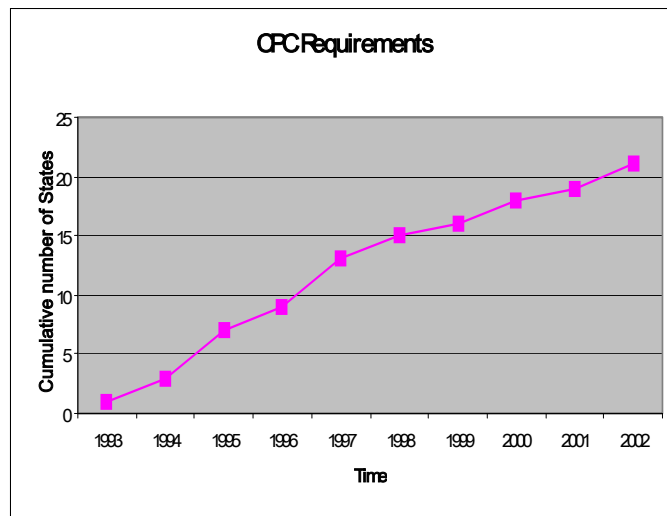
Delaware<sup>ii</sup>  
 Maine<sup>iii</sup>  
 Massachusetts<sup>iv</sup>  
 New Jersey<sup>v</sup>  
 Texas<sup>vi</sup>

**Footnotes:**

- <sup>i</sup> Engineers 65 or older exempted
- <sup>ii</sup> Voluntary program administered by Delaware Association of Professional Engineers.
- <sup>iii</sup> Bound by Code of Ethics that has a voluntary requirement.
- <sup>iv</sup> Board supports voluntary CPC.
- <sup>v</sup> Under study.
- <sup>vi</sup> Voluntary program.
- <sup>vii</sup> Opposed by executive office.

**Table 2. CPC by State and Effective Date**

State	Year statute was passed or the effective date
Alabama	1993
Arkansas	1997
Florida	2000
Georgia	1997
Iowa	1979
Kansas	1995
Louisiana	1998
Minnesota	1999
Mississippi	2001
Missouri	unknown
Montana	1995
Nebraska	2002
Nevada	1997
New Hampshire	1998
New Mexico	1995
New York	2002
North Carolina	1994
Oklahoma	1996
Oregon	1997
South Carolina	1996
South Dakota	unknown
Tennessee	1995
West Virginia	1994
Wyoming	2000



**Figure 1. Cumulative CPC Requirements**

*Qualifying Programs and Activities:* Continuing education activities include, but are not limited to, completing seminars, short courses (live, distance, and self-study), and college courses; presenting or instructing qualifying courses or seminars; authoring published papers, articles, or books; participating in professional examination grading; providing professional service to the public which draws upon the licensee's expertise on non-work-related volunteer service (a maximum of ten hours per biennium may be applied from this source); acquiring patents, after they are granted (credit of ten hours) The licensee shall maintain a file in which records of courses and activities are kept, including dates, subjects, duration of programs, sponsoring organizations, professional development hours earned, registration receipts, and other pertinent documentation. Licensees may be required to produce this information for the board.

### ***Florida***

To renew an active license, the licensee must remit a statement certifying the completion of eight (8) hours of approved continuing education that were required during the last biennium. Four hours shall relate directly to the licensee's area(s) of practice, defined as the engineering discipline for which a Principles and Practice of Engineering examination is offered by the National Council for Examiners of Engineering and Surveying (NCEES). Florida does not permit carryover of hours. A Professional Development Hour (PDH) is equivalent to a minimum of 50 minutes instruction or presentation per hour. One (1) college or unit semester hour credit is equal to 15 PDH. One (1) college or unit quarter hour credit is equal to 10 PDH. One (1) continuing education unit is equal to 10 PDH. One (1) contact hour of professional development in course work, seminars, or professional or technical presentations made at meetings, conventions, or conferences is equal to 1 PDH or, if teaching, 2 PDH.

*Qualifying Programs and Activities:* Among other activities, Florida recognizes the successful completion of college courses, continuing education courses (seminar, correspondence, and distance); teaching or instructing a relevant course; authoring published papers, articles, books, or patents; and active participation in professional or technical societies.

### ***Oregon***

The purpose of professional development requirements is to demonstrate a continuing level of competency of professional land surveyors and engineers. Every registrant shall meet the professional development requirements as a condition of registration renewal. Every registrant is required to obtain 30 PDH units during each biennial renewal period. PDH units for each renewal period may be obtained as follows: 1 college semester hour equals 45 PDH; 1 college quarter hour equals 30 PDH; 1 continuing education unit (CEU) equals 10 PDH; and 1 hour of professional education in course work, seminars, professional conventions, workshops equals 1 PDH. The number of PDH units required shall remain a total of 30 PDH per renewal period for persons who hold registration as an engineer or a land surveyor or more than one discipline of engineering. At least one third (1/3) of the PDH units required in courses/activities shall be related to each registration. Registrants who are licensed for a part of a renewal period shall obtain a prorated amount

of PDH. If a registrant exceeds the annual requirement in any renewal period, a maximum of 15 PDH units in courses/activities may be carried forward into the next renewal period.

*Qualifying Programs and Activities:* Oregon recognizes the following forms of professional development: successful completion of courses (college, short courses, and distance); active participation in seminars and professional conventions; teaching or instructing courses; authoring or co-authoring published papers, articles or books; active participation in professional or technical societies; self study.

### ***Iowa***

Iowa rules require 30 professional development hours (PDH) every two years in order to maintain the license to practice engineering or land surveying. One PDH equals one hour of professional development activity. One semester hour of university credit equals 45 PDHs. One quarter hour of university credit equals 30 PDHs. One CEU (continuing education unit) equals 10 PDHs. The requirements must be satisfied during the biennium prior to registration renewal. The number of professional development hours which may be carried forward to the next biennium cannot exceed 15. Iowa will not pre-qualify a class or activity for professional development hours because what may qualify for one individual may not qualify for another. Courses professional engineers take should be relevant to their practice of engineering. Those licensed as both professional engineers and licensed land surveyors must have 20 PDHs in each area.

*Qualifying Programs and Activities:* The following activities are intended to maintain, improve, or expand skills and knowledge obtained prior to initial licensure. Quantities listed are maximum per renewal: mathematics and basic sciences, 10 PDH; engineering sciences, 10 PDH; humanities and social sciences, 5 PDH; and engineering curriculum courses, 10 PDH. Iowa stipulates classes of activities that do not qualify, including courses in CAD and fundamental computer applications, regular employment, service club meetings or activities, professional society business meeting portions of technical seminars, personal self-improvement courses, and self-study.