



American Society of Civil Engineers

**Testimony of
Dale Jacobson, P.E., BCEE,
On behalf of the
The American Society of Civil Engineers
Before the
Committee on Health & Human Services
On
Licensure Requirements for Engineers
February 27, 2008**

Chairman Johnson and Members of the Committee:

Good Afternoon. I am Dale Jacobson and I am pleased to appear before you today to testify on behalf of the American Society of Civil Engineers¹ (ASCE) in support of Nebraska Legislative Bill (LB) 742. The issue of academic and practice requirements for licensure is of great importance in order to safeguard the health, safety and welfare of the public.

I am the President of Jacobson Satchell Consultants from Omaha. I am a registered professional engineer with 36 years of experience in the professional practice of civil engineering. I am currently the President Elect of the Environmental & Water Resources Institute (EWRI) of ASCE, the ASCE Trustee to the American Academy of Environmental Engineers (AAEE), and I serve on the Board of Civil Engineering Certification, an organization that sponsors specialty certification programs for civil engineers.

The legislation before the committee, LB 742, would increase the education requirements needed in order to be admitted to the examination to become a professional engineer. LB 742 follows the recently adopted Model Law for Licensure of the National Council of Examiners for Engineering and Surveying

¹ ASCE was founded in 1852 and is the oldest national civil engineering organization. It represents over 140,000 civil engineers in private practice, government, industry and academia who are dedicated to the advancement of the science and the profession of civil engineering. ASCE is a non-profit educational and professional society organized under Part 1.501(c)(3) of the Internal Revenue Code.

(NCEES). Specifically, the bill will require that graduates of an accredited engineering program, who have four years of experience, will need an additional 30 hours of education before they can take the examination to become a licensed Professional Engineer (P.E.)

ASCE has been studying this concept for more than 13 years and supports LB 742 and the implementation of the requirements laid out in the NCEES Model Law. ASCE believes that requiring education beyond the baccalaureate degree for admission to the examination to be a professional engineer is essential in today's complex and rapidly changing times. As noted by the National Academy of Engineering in 2005, "...it is evident that the exploding body of science and engineering knowledge can not be accommodated within the traditional four-year degree." The minimum education and experience requirements for licensure as a professional engineer must be raised.

The attainment of the P.E. license grants an individual a great deal of responsibility as the individual has the authority to work on projects that affect the public's health, safety and welfare. . Licensure requirements for engineers must be increased in preparation for entry into tomorrow's practice of engineering. This concept is a legacy for future generations of engineers.

Changes in the Engineering Profession

The engineering profession is undergoing significant, rapid, and revolutionary changes that have increased the knowledge required of the profession. These changes include the following:

- Information technology continues to make more information available; however, the synthesis and application of this information is becoming more challenging.
- Complex systems are requiring integration of our knowledge and skills outside of traditional sub-discipline focus.
- The diversity of society is challenging our traditional views and increasing our need for improved interpersonal and communications skills.
- Many clients are searching for leadership in project management approaches that manage risk as well as improve cost, quality and safety performance.
- New technologies in engineering and construction are emerging at an accelerating rate.

- Infrastructure within the United States is rapidly changing from a focus on development and operation, to the innovative renewal, maintenance, and improvement of existing systems, and the visionary development of new systems.

These changes have created the need for civil engineers to have a greater breadth of capability and specialized technical competence than that required of previous generations. For example, many engineers must increasingly assume a different primary role from that of designer to that of program, project or team leader. With engineers assuming these increased roles there is a need for increased education in order to safeguard the public health, safety and welfare.

Admission to the professional practice of engineering requires formal education beyond the baccalaureate degree.

Engineering versus Other Learned Professions

Requiring education beyond the traditional baccalaureate degree for the practice of engineering at a professional level is consistent with other learned professions.

One hundred years ago, four (4) years of formal schooling were considered the standard for medical, law and engineering professionals. While the education requirements for physicians and attorneys have been increased with the growing demands of their respective professions, the requirements for the practice of engineering have remained virtually unchanged.

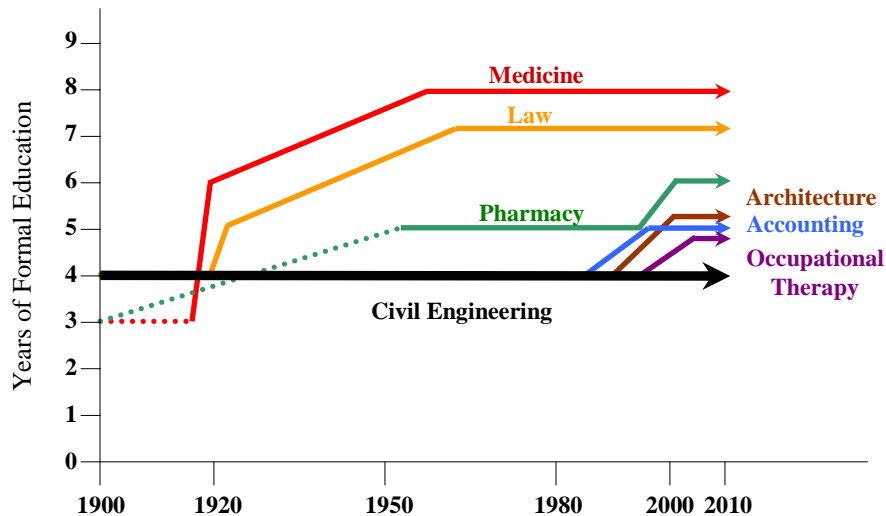


Figure 1. YEARS OF FORMAL EDUCATION REQUIRED TO ENTER THE PROFESSION

Today, many other professions beyond medicine and law require education beyond the baccalaureate degree including pharmacy, architecture, occupational therapy and accounting.

Engineering Education Today

Current baccalaureate engineering programs still retain the nominal four-year education process. This program length limits the ability of these programs to provide a formal education consistent with the increasing demands of the practice of engineering at the professional level.

There are diametrically opposed forces trying to squeeze more content into the baccalaureate curriculum while at the same time maintaining or reducing the credit hours necessary for the baccalaureate degree. This leads to a loss of depth of engineering in core subjects.

The result is a baccalaureate engineering degree that is satisfactory for an entry-level position, but becomes inadequate for the professional practice of engineering. The four-year internship period after receipt of the baccalaureate degree cannot make up for the formal educational material, i.e. the expanded knowledge that would be gained from additional education.

Conclusion

In closing, between the changes that have taken place in the engineering profession and the different and varied demands on the baccalaureate degree itself it is evident that requirements for licensure as an engineer must be increased.

ASCE believes that requiring education beyond the baccalaureate degree for admission to the examination to be a professional engineer is essential in today's complex world. ASCE supports the implementation of the requirements in the NCEES Model Law for Licensure as it will prepare for the entry into tomorrow's practice of engineering.

ASCE looks forward to working with the Nebraska Legislature on this most important issue.

Thank you, Mr. Chairman. That concludes my testimony. I would be pleased to respond to any questions you may have.

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