



NCSEA

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Structural Connection

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Why is Counting Engineers so Difficult?

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Fundamental to every engineering degree is the requirement for advanced mathematics courses. Far beyond basic arithmetic, algebra, and trigonometry, the engineering curriculum requires, at a minimum, courses in differential, integral, and multivariable calculus, linear algebra, and differential equations. With such stringent requirements with respect to mathematical principles and problem-solving tools, it is interesting that counting structural and professional engineers is difficult for so many. It is hard to know if the source of the problem is the result of an unintentional error by well-meaning individuals, the result of an over-zealous marketing department, or indifference to state laws governing licensure.

Regardless of the origin of the problem, the fact is that each state has licensing laws which must be followed. Each state has established criteria a person must meet for that person to be able to use certain titles. Those requirements are listed in the Licensing Act.

Violations of the Act are too common and cause unnecessary confusion. Recent examples of misuse that I have encountered include:

- A registered architect announced during an interview that “I’m also an engineer. I completed my education at XYZ University.” He had completed an undergraduate university degree in engineering, but never obtained experience and did not take the required examinations which would have enabled him to use the title engineer.
- A website announcing a company employs over 1000 engineers. In fact, the company only had around 20 licensed engineers, and the remaining employees, although engaged in engineering-type work, were not licensed and therefore should not be counted as engineers.
- A government employee who is exempt from licensure and legally allowed to practice without being licensed insisting that she “Is a professional and does engineering work; therefore she is a professional engineer.” Being exempt from licensure by state law and being allowed to practice engineering does not give a person the right to use titles that are protected and reserved for use by those who have met the requirements stipulated in the Licensing Act.
- An employee of a construction firm using the title “Project Engineer” and the abbreviation PE on correspondence. The individual did not meet any of the education, experience, or examination requirements for licensure and should not use the title Engineer.

With regard to licensure, each state defines acts that constitute unlawful conduct. Usually included in the definition of unlawful conduct are acts such as using the title professional engineer, professional structural engineer, structural engineer, or any other words, letters, abbreviations, or designations which

represent recognized professional engineering disciplines indicating that a person using them is a professional engineer or professional structural engineer, if the person has not been licensed. In addition, using terms like engineering, or structural engineering, or any similar words, letters, or abbreviations in marketing material, to describe the type of activity performed or offered to be performed, is considered unlawful conduct if the person has not been licensed under the Act.

Protected titles are a way of protecting the public. Protected titles may include:

- **Professional Engineering Intern (EI):** EI means a person who has graduated and received a bachelor's or master's degree from an engineering program, has passed the fundamentals of engineering examination, and is engaged in obtaining the four years of qualifying experience for licensure under the direct supervision of a licensed professional engineer.
- **Professional Engineer (PE):** PE means a person licensed as a professional engineer. Beyond submitting an application, providing evidence of good moral character, and paying the required fees, to be licensed as a PE means that the person has graduated and received a bachelor's or master's degree, has successfully completed a program of qualifying experience, and has successfully passed the 8-hour NCEES Principles and Practice of Engineering (PE) examination.
- **Professional Structural Engineer (SE):** SE means a person licensed as a professional structural engineer. Beyond meeting the requirements of licensing as a PE, to be licensed as an SE means that the person has successfully completed an additional program of qualifying experience and successfully passed the 16-hour NCEES Structural Engineering examination or been grandfathered in.

Each state has laws in place regarding the use of these (or similar) titles. These titles are **PROTECTED** by law and can only be used by a person meeting all of the established requirements.

Please note that the above definitions are generic. The requirements and wording may vary from state to state. It is incumbent on each person performing, or offering to perform, engineering work to know the laws in the state where the project is located. Penalties for violating state law may include receiving a citation, formal notice of non-compliance, fines (\$500 to \$10,000 depending on the severity of the offense), probation, postponed licensure, or suspension or revocation of existing licenses. Egregious violations may be prosecuted in civil court as a fraud. Consequences as a result of a violation of the code of ethics for misrepresentation may also be applicable.

Before you pursue work in any state, take the time to familiarize yourself with, and understand, the laws governing the practice of engineering. Because each state may interpret similar wording in their Licensing Act differently, contact the licensing board for clarifications.

To avoid problems, follow the established laws regarding protected titles with exactness. Be willing to report violations. I believe that protecting and defending our titles is essential to maintain the foundation of the engineering profession and more importantly, the health, safety, and welfare of the public.