

# ENGINEERING AND SCIENCE

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## Registration of Engineers in California

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ON FEBRUARY 20, 1947, in the City of Los Angeles, a factory blew up. Property damage was estimated at \$2,000,000, and at least 151 persons were injured and 15 killed. The explosion was caused by the mishandling of certain chemicals under the control and supervision of a man who posed as a chemical engineer. This tragedy emphasized, as no other occurrence could have, the responsibilities of engineers to the public. It is apparent that the man who builds a bridge or designs a steam turbine or installs a wiring circuit has responsibilities that extend beyond his immediate employ.

It is thus for the protection of the public health and safety that legislation has developed in this country requiring the registration and licensing of engineers. Wyoming was the first state to pass any such type of legislation. From the date of its enactment in 1907 through 1917, only three other states followed in Wyoming's footsteps. Since 1917 every state has in some measure or other sought to protect the public by the passage of acts regulating the engineering profession.

### NEW ACT—ASSEMBLY BILL 1930

The latest such regulatory act was passed in the State of California on July 17, 1947 as Assembly Bill No. 1930 and became effective September 19. This bill was the culmination of the efforts of responsible California engineers who, as far back as 1925, had been successful in securing passage through the legislature of a Professional Engineering Registration Act. Through a clerical error, however, this Act was never signed by the Governor. In 1929 the so-called Civil Engineers' Act was passed, affecting only the practice of civil engineering. This Act has been administered successfully and to the overwhelming satisfaction of the civil engineers in this state. Continuous pressure has been brought to bear to extend such regulation to other branches of engineering. Finally, on February 3, 1947, Assembly Bill No. 1930 was introduced, rescinding the Civil Engineers' Act and substituting therefor a statute covering all branches of engineering. A fear arose in the mind of members of the civil engineering group, during discussion of this Bill as introduced, that in the event it was

declared unconstitutional for any reason the benefits theretofore available to the civil engineers would automatically be removed. Accordingly, the civil engineering group asked for regulatory legislation to be passed as an amendment to the existing Act, thus leaving intact the 1929 Civil Engineers' Bill. The argument presented was persuasive and the Bill, as finally signed by Governor Warren, represents a two-headed compromise: first, that portion of the old Act which dealt with the regulatory board's powers was simply amended to include branches of engineering other than civil; and second, provisions dealing with registration of other than civil engineers were appended to the old Act by means of a new Article.

### OLD ACT—CIVIL ENGINEERS' ACT

The Civil Engineers' Act provided, prior to its amendment, principally as follows:

It detailed the scope of the board's authority, made the practice of civil engineering illegal without proper registration, barred the use of the title of "Civil Engineer" to all but registered civil engineers, and prescribed the registration procedure for civil engineers, including the taking of examinations and paying of license fees, etc.

### AMENDMENTS TO OLD ACT BY ASSEMBLY BILL 1930

The principal changes in the old Civil Engineers' Act effected by Assembly Bill No. 1930 are as follows:

1. The regulatory board is now called the State Board of Registration for Civil and Professional Engineers.
2. The number of members of the board is increased from three to seven.
3. The old board consisted of three civil engineers. The new board consists of three civil engineers, plus one mechanical engineer, one electrical engineer, one chemical engineer and one petroleum engineer.
4. The board's jurisdiction applies not only to civil engineers but to all other branches of engineering covered by the Act.
5. An entirely new article has been added, dealing with the registration of professional engineers in the

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branches of chemical, electrical, mechanical, and petroleum engineering.

### REGISTRATION OF PROFESSIONAL ENGINEERS

The touchstone of registration under the Act is the ability to use the title "Professional Engineer." A "Professional Engineer" is defined as a person engaged in the professional practice of rendering service requiring education, training, and experience in engineering sciences, and the application of special knowledge of the mathematical, physical, and engineering sciences. All civil engineers registered under the old Act may use the title "Professional Engineer" automatically. Engineers in the chemical, electrical, mechanical, and petroleum engineering branches may use the title "Professional Engineer" and, according to registration with the board, the titles "Structural Engineer," "Chemical Engineer," "Electrical Engineer," "Mechanical Engineer," "Petroleum Engineer," or "Engineer in Training" only upon registration.

In order to receive a certificate of registration as a Professional Engineer in any of the foregoing branches, the applicant must furnish satisfactory evidence of good moral character, pay the application fee of \$15, furnish evidence of six years or more of experience, and pass a written examination. Until June 30, 1948, a person who complies with these qualifications will be issued a certificate of registration without taking an examination.\* Graduation from a reputable school of engineering approved by the board is considered the equivalent of four years of required experience. Satisfactory completion of each year at such an approved school of engineering without graduation is considered equivalent to one-half year of such experience. The board may at its discretion give credit as experience, not in excess of one year, for special post-graduate work in a reputable school of engineering approved by the board. Engineering teaching, if of a character satisfactory to the board, shall be considered as engineering experience. Engineering experience in the armed forces shall be given equal credit with any comparable engineering experience.

### EXAMINATIONS

The examinations will be divided into two parts, one of which shall test the applicant's knowledge of fundamental engineering subjects, the other the applicant's ability to apply his knowledge and experience. An applicant may request that he take the prescribed examination in two stages. The first stage may be taken at any time after the applicant has completed four years of the required engineering experience, as defined above, upon submission of an application for certification as an engineer-in-training and the payment of a \$5 fee. The second stage may be taken after completion of the six years of engineering experience, as defined above, upon the payment of the \$15 application fee. Those persons who shall have graduated on or before June 30, 1948,

\*Registration may be made at the branch office of the State Board of Registration, 907 State Building, Los Angeles, whose telephone is MADison 1271. The main office is at 529 Business and Professions Building, Sacramento. No forms are available for registration, but they are expected not later than the first of next year. Due publicity will be given out by the Board of Registration to accredited professional societies well in advance of this date.

from an approved engineering curriculum of four years or more shall be entitled upon payment of a \$5 application fee to a certificate of registration as an engineer-in-training without having to take a further examination. Thereafter, upon completion of the required six years of engineering experience, as above defined, he will be required to take the second stage of the examination.

The foregoing represents a thumbnail summary of the principal provisions of Assembly Bill No. 1930. For further details reference made be made to Chapter 7 of Division 3 of the Business and Professions Code of the State of California, as amended.

### GENERAL OBSERVATIONS

By reason of the peculiar legislative history of Assembly Bill No. 1930 (the requirement laid down by the civil engineers that the new bill be an amendment to the old Act), certain irregularities and inconsistencies exist between the civil engineering group on the one hand and the other branches of engineering covered by the Act on the other. For example, the old Act (still in effect upon this point) makes it illegal to use the title "Civil Engineer" unless registered, under penalty of a \$500 fine and three months in jail. On the other hand, the punitive provisions of the amendment, insofar as it deals with other than civil engineers, merely states that use of an improper title is unlawful and stipulates no punishment for the offense. The lobbying history of the bill likewise produced some odd results. Thus, while mining engineers were covered by the original bill and by all but the last amendment thereto, the last amendment deleted reference to mining engineering and to substituted therefor the term "Petroleum Engineer." It would thus appear from this legislative history that mining engineers are not covered by the Act. Another illustration of applied lobbying technique is the specific exclusion from the purview of the act of employees in the communication industry and of employees of contractors while engaged in work on communication equipment.

On the whole, however, the legislation which has been discussed above represents a creditable advance towards the regulation of a profession definitely "affected with the public interest." Engineers now take their place along with accountants, attorneys, contractors, architects, and land surveyors as members of a regulated profession. Engineers throughout California hail this step as a progressive move toward the establishment of needed minimum professional standards and toward the protection of the public from the activities of unqualified persons.

It has been suggested that there is room for further development. The present law could be made mandatory; and, were agreement forthcoming, all registered engineers could be known by the title of "Professional Engineer" without emphasis upon the particular specialty. Such changes would make for uniformity among all engineers and in the long run provide the type of prestige which, for example, the Certified Public Accountant enjoys over the uncertified accountant. These improvements are for the future, however, and California may well be proud of at least its present accomplishment.\*

\*Due credit is given to Mr. W. L. Chadwick, manager of the Engineering Department, Southern California Edison Company, for assistance in the preparation of this article. Mr. Chadwick, as president of the Los Angeles Engineers' Council, was heavily responsible for the enactment of the present law.