

3. *Requirements for examination.* The specific requirements for initial licensing in Iowa are established in Iowa Code section 542B.14, and it is the board's policy to issue initial licensures only when those requirements are satisfied chronologically in the order set forth in the statute. Thus, an applicant first must satisfy the practical experience or educational requirements; secondly, the Fundamentals Examination, the Engineer Intern requirements or Land Surveyor Intern requirements as appropriate, and the professional experience; and thirdly, the Professional Examination. A Fundamentals Examination may be taken anytime after satisfying the practical experience or educational requirements, but it must be taken prior to the Professional Examination: College seniors studying an Accreditation Board of Engineering and Technology (ABET) or Canadian Engineering Accreditation Board (CEAB) approved curriculum may take the appropriate Fundamentals Examination during the final academic year; applicants will be permitted to submit for examination during the testing period which most closely precedes anticipated graduation. However, a certified transcript showing that the applicant was graduated must be sent by the registrar to the board before an applicant's examination results will be considered. Applicants who were graduated from a satisfactory engineering or land surveying program and have 25 years or more of work experience satisfactory to the board shall not be required to take the Fundamentals Examination.

An applicant who has earned a Doctor of Philosophy degree from an institution in the United States of America with an accredited Bachelor of Science engineering degree program in the same discipline, or a similar doctoral degree in a discipline approved by the board, shall not be required to take the Fundamentals Examination.

An applicant for the professional examination shall have a minimum of one year's practical experience in the United States of America or a territory under its jurisdiction.

4. *Verification of experience.* An applicant for a Principles and Practice Examination who has had professional experience under more than one employer shall provide names and addresses of individuals with knowledge of the work performed under a minimum of two employers. The board reserves the right to contact employers for information about the applicant's professional experience and competence.

5. *References.* An applicant for a Principles and Practice Examination or for licensure by comity shall submit five references, at least three of which shall be from licensed professional engineers or land surveyors as appropriate on forms provided by the board. At least two of the references shall be from a supervisor of the applicant.

1.4(1) *Education and experience prerequisites.* The board generally will require the minimum number of years set forth below before an applicant will be permitted to take either the Fundamentals or the Professional Examination. Only engineering programs accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET), programs that have been evaluated by an agency or body acceptable to the board as substantially equivalent, or engineering programs that are strongly associated with and related to EAC/ABET-accredited programs may be considered as qualifying education for licensure as a professional engineer. Engineering technology or other technology programs are not qualifying education for licensure as a professional engineer.

Only experience preceding the cutoff date for the examination application will be considered in the evaluation of applications for examinations.

EXPERIENCE REQUIREMENTS FOR ENGINEERING APPLICANTS

Effective July 1, 1991

Educational Level	1 Minimum additional years experience prior to taking Fundamentals Examination	2* Minimum additional years experience prior to taking Professional Examination
Mathematics or Physical Sciences 4-year Bachelor's Degree plus Master's Degree in Engineering**	0	4
All Engineering Technology Programs and Architecture 4-year Bachelor's Degree, Technology or Architecture plus Master's Degree in Engineering**	0	4
Engineering Program Nonaccredited 4-year Bachelor's Degree 4-year Bachelor's Degree plus Master's Degree in Engineering**	1 0	4 4
Engineering Program Accredited*** 4-year Bachelor's Degree	0	4

*NOTE: Column 1 indicates the years of practical experience required for the Fundamentals Examination in addition to the completion of the stated educational level. In order to determine the total years of practical experience required before taking the Professional Examination, column 2 must be added to column 1.

**The Master's Degree in engineering must be from an institution in the United States of America with an accredited Bachelor's Degree in the same curriculum, and the Master's Degree candidate must be required to fulfill the requirements for the Bachelor's Degree in the same area of specialization.

***Accredited shall mean an engineering program accredited by the Accreditation Board for Engineering Technology, Inc. (ABET) or the Canadian Engineering Accreditation Board (CEAB) or another accrediting body accepted by the National Council of Examiners for Engineering and Surveying (NCEES).

EXPERIENCE REQUIREMENTS FOR LAND SURVEYING APPLICANTS
Effective July 1, 1988

Educational Level	1 Minimum additional years' experience prior to taking Fundamentals Examination	2** Minimum additional years' experience prior to taking Professional Examination
College or Technology Program* with fewer than 6 Semester Hours of Surveying		
2-year Degree	6	4
4-year Bachelor's Degree	4	4
College or Technology Program with 6 or more Semester Hours of Surveying		
2-year Degree	6	4
4-year Bachelor's Degree	2	4
Engineering Program with fewer than 6 Semester Hours of Surveying		
2-year Degree	6	4
4-year Bachelor's Degree	2	4
Engineering Program with 6 or more Semester Hours of Surveying		
2-year Degree	6	4
4-year Bachelor's Degree	0	4
Surveying and Mapping Program Nonaccredited		
2-year Degree	6	4
4-year Bachelor's Degree	2	4
Surveying and Mapping Program Accredited***		
2-year Degree	6	4
4-year Bachelor's Degree	0	4

*Mathematics or physical sciences.

**NOTE: Column 1 indicates the years of practical experience required for the Fundamentals Examination in addition to the completion of the stated educational level. In order to determine the total years of practical experience required before taking the Professional Examination, column 2 must be added to column 1.

***Accredited shall mean a program accredited by the Accreditation Board for Engineering Technology, Inc. (ABET) or the Canadian Engineering Accreditation Board (CEAB) or another accrediting body accepted by the National Council of Examiners for Engineering and Surveying (NCEES).

1.4(2) Practical experience requirements. Practical engineering or land surveying experience is required prior to licensing. The purpose of such requirement is to ensure that the applicant has acquired the professional judgment, capacity and competence to design engineering works, structures, and systems or to determine land boundaries. The following guidelines will be considered by the board in determining whether an applicant's experience satisfies the statutory requirements.

a. Quality. Experience should be of such quality as to demonstrate that the applicant has developed technical skill and initiative in the correct application of surveying or engineering principles. Such experience further should demonstrate the capacity to review the applications of these principles by others and to assume responsibility for surveying or engineering work of professional character. To be readily acceptable, an applicant's experience should be under the tutelage of a professional engineer or land surveyor.

An applicant, who is an engineer intern and whose tutelage or portion of tutelage has not been under a licensed professional engineer, must submit a cover letter to the board requesting consideration of such experience along with the application. The applicant shall also submit a letter of reference from the applicant's supervisor(s). The letter of reference shall assess the applicant's performance, development, integrity, and ability to assume responsible charge and shall contain a description of the supervisor's background in education and experience and the nature of the tutelage provided to the applicant. The board may require the applicant to submit additional letters of reference or other evidence of suitable tutelage. The board may require an oral interview with the applicant or other evidence to verify the applicant's knowledge and experience in the principles and practice of engineering. The board may conduct interviews with persons providing tutelage to the applicant.

b. Scope. Experience should be of sufficient breadth and scope to ensure that the applicant has attained reasonably well-rounded professional competence in land surveying or a basic engineering field, rather than highly specialized skill in a very narrow and limited field.

c. Progression. The record of experience should indicate successive and continued progress from initial work of simpler character to recent work of greater complexity and higher degree of responsibility, as well as continued interest and effort on the part of the applicant toward further professional development and advancement.

d. Advanced education and special work experience. Part-time and summer work experience prior to graduation from college generally is not accepted toward satisfaction of professional experience requirements. However, cooperative work programs administered by engineering colleges and verified on the transcript will be evaluated on a case-by-case basis in order to determine whether the content and supervision of the program is such as would justify experience credit for student participation. Cooperative work experience may be considered as half-time credit, with a maximum total allowance of 6 months (12 months of cooperative work) applicable toward the satisfaction of professional experience requirements. Likewise, an applicant's advanced education or military experience, or both, will be reviewed in order to determine if either is applicable toward the statutory requirements for experience.

An applicant who has earned a Master of Science degree that includes research experience, in addition to writing an associated thesis, from an institution in the United States of America with an accredited Bachelor of Science engineering degree program in the same discipline, or a similar Master's degree in a discipline approved by the board, and has fulfilled the requirements for a Bachelor of Science degree may be granted a maximum of one-half year's experience credit. An applicant who has earned a Doctor of Philosophy degree from an institution in the United States of America with an accredited Bachelor of Science engineering degree program in the same discipline, or a similar doctoral degree in a discipline approved by the board, may be granted a maximum of one year's experience credit in addition to the one-half year for the Master's degree.

Teaching of engineering or surveying and mapping subjects at the level of assistant professor or higher in an accredited engineering or surveying and mapping program or research may be considered as experience, provided the applicant's immediate supervisor is a licensed professional engineer or land surveyor as applicable in the jurisdiction in which the college or university is located. If the applicant's immediate supervisor is not a licensed professional, a program of mentoring or peer review by a licensed engineer or land surveyor acceptable to the board must be demonstrated. Applicants using teaching or research as experience must have a minimum of four years of acceptable experience obtained in research, industry, consulting or land surveying. At least one year of that acceptable experience must be full-time professional level engineering or land surveying experience outside academic employment. The board shall consider the length of time in each assignment, the complexity of the project(s) presented, the degree of responsibility of the applicant within the project, and the correspondence of the experience presented outside academic employment with respect to typical professional practice and other factors the board deems relevant. The board reserves the right to contact employers for information about the applicant's professional experience and competence.

e. Joint applications. Applicants requesting licensure both as professional engineers and land surveyors must submit a history of professional experience in both fields. Such histories will be considered separately on a case-by-case basis, and it is the board's general practice not to allow full credit for concurrent experience in both professions.

1.4(3) Branch licensure. A list of engineering branches in which licensure currently is being granted can be obtained from the board's office. Branches conform to those branches generally included in a collegiate curricula.

An applicant for licensure in Iowa shall be licensed first in the branch or branches indicated by the applicant's education and experience.

A minimum of 50 percent of the required practical experience in which the individual is to be examined shall have been in that same branch of engineering.

1.4(4) Examination. The board prepares and grades the Iowa State Specific Examination administered to land surveyor applicants and, in special cases, the examination for licensure in engineering. All other examinations are uniform examinations prepared and graded by the National Council of Examiners for Engineering and Surveying (NCEES). The board may negotiate an agreement with an examination service to administer the examinations to applicants approved by the board, in which case applicants shall pay examination fees directly to the service.

a. Fundamentals examinations. The Fundamentals of Engineering Examination is a written, eight-hour examination; it covers general engineering principles and other subjects commonly taught in accredited engineering programs. The Fundamentals of Land Surveying Examination is a written, eight-hour examination and covers general land surveying principles.

b. Professional engineering examinations. The Professional Engineering Examination is a written, eight-hour examination designed to determine proficiency and qualification to engage in the practice of professional engineering only in a specific branch. A separate examination shall be required for each branch in which licensure is desired.

c. *Professional land surveying examinations.* The Professional Land Surveying Examination shall consist of two examinations. The first is a six-hour examination designed to determine general proficiency and qualification to engage in the practice of land surveying. The second is a two-hour Iowa State Specific Examination, which is designed to determine an applicant's proficiency and qualifications to practice land surveying specifically in Iowa. Each of the two examinations shall be scored separately. One or more of the land surveyor members of the board must conduct an oral interview with each applicant for the Professional Land Surveying Examination prior to the examination. An applicant will not be permitted to write the examination without successfully passing the oral examination. This interview is to verify the applicant's knowledge and experience in the principles and practice of land surveying in Iowa. The applicant is required to bring to the oral interview samples of the applicant's work which include surveying plats, subdivision plats, acquisition plats, corner certificates, and related field notes. The applicant is expected to have knowledge in the following: conduct of original surveys, restoration of obliterated corners, reestablishing of lost corners, retracement work and how to use evidence in restoration of obliterated land lines as well as corners, laws governing riparian rights, accretions, adverse possession, acquiescence, and Iowa laws regarding minimum standards for surveying, platting and corner certification.

d. *Passing scores.* The board reviews test scores for each examination and determines what level shall constitute a minimum passing score for that examination. In making its determination, the board generally is guided by the passing score recommended by the NCEES. Although a 70 percent score on examinations prepared and graded locally has been the score which the board historically has regarded as passing, the board fixes the passing score for each examination at a level which it concludes is a reasonable indication of minimally acceptable professional competence.

e. *Reexamination.* Applicants who fail an examination may request reexamination at the next examination period. An applicant who fails an examination twice is not permitted to appear for another examination until the applicant can demonstrate two additional years of satisfactory education or work experience. The aforementioned two years of satisfactory education or work experience shall apply only if the applicant has failed an examination twice within a time span of less than one and one-quarter years. Applicants who have completed the aforementioned two additional years of satisfactory education or work experience and applicants that have failed one examination more than one and one-quarter years before must completely reapply to the board for reexamination; such applicants will be processed as an applicant applying to take the examination for the first time.

(1) Applicants who have failed one or both parts of the Professional Land Surveying Examination twice and have fulfilled at least two additional years of satisfactory education or work experience and submitted a complete application to the board for reexamination must be interviewed by one of the land surveyor members of the board prior to the examination in order to be approved to write the examination. The applicant is required to bring samples of the applicant's survey work to the oral interview as described above in subrule 1.4(4), paragraph "c," and documentation of any classwork or land surveying workshops or seminars attended during the two-year period.

(2) Applicants failing one or both parts of the Professional Land Surveying Examination will be required to retake only the failed portions. An applicant successful in passing one portion of the land surveying examination need not be reexamined for that portion regardless of how much time elapses between the successfully passed portion and any future appearance to retake the failed portion of the examination. A satisfactory score must be obtained on each portion of the examination before the board will grant licensure as a land surveyor.

f. *Failure to appear.* An applicant who fails to appear for an examination may sit for the examination the next time it is offered upon payment of a fee set by the board, provided the application will not be more than one year old at the time of the application cutoff date for the examination.

g. Iowa State Specific Examination. An applicant for licensure as a land surveyor in Iowa (by comity or examination) that need only be examined for the state specific portion of the Professional Land Surveying Examination may take the examination at the board office by appointment in accordance with all other requirements.

h. Materials permitted in examination room. For security reasons, applicants shall adhere to the list of items that may be taken into an examination room. Applicants shall refrain from taking items which are identified as being not permitted in the examination room.

(1) Battery-operated, silent, nonprinting calculators are permitted. If a calculator has the capability to have interchangeable modules, once the examination begins no applicant shall insert, remove, or exchange any module. Any calculator that has a memory unit that retains stored information when the calculator is turned off must have the memory erased prior to the applicant's leaving the examination room. All calculators must be turned off before the applicant leaves the examination room.

(2) Computers, laptop computers, and notebook computers are not permitted.

(3) Devices that may compromise the security of the examination or the examination process are not permitted. Wireless facsimile machines, cellular telephones, or any device which receives any radio or wireless communication is not permitted. External communication channels of any kind are prohibited.

(4) Any device which requires a cord connection to electric power is not permitted.

(5) For open-book examination, an applicant may take into the examination room for personal use only handbooks, textbooks, and bound reference materials, provided that the materials remain bound in a cover during the entire examination. Materials are considered bound if they are stitched or glued permanently or fastened securely in their covers by fasteners which penetrate all papers such as ring binders, spiral binders, plastic snap binders, brads, and screw posts. Applicants are not permitted to exchange any reference materials. Writing tablets, unbound tables or unbound notes are not permitted.