

**481—1048.1(542B) Licensure by examination.** The board will issue initial licensure only when an applicant satisfies the provisions of Iowa Code section 542B.14 as follows:

**1048.1(1)** An applicant is eligible for the Engineer in Training certificate by meeting one of the following educational standards:

*a.* The applicant graduates from an engineering program of four years or more with an Accreditation Board of Engineering and Technology/Engineering Accreditation Commission (ABET/EAC)- or Canadian Engineering Accreditation Board (CEAB)-accredited curriculum. An engineering technology curriculum does not constitute an engineering program of four years or more.

*b.* After graduation from a nonaccredited engineering program of four years or more as described above, the applicant will complete one extra year of practical experience satisfactory to the board, verified by a professional engineer (PE) supervisory reference.

*c.* The applicant graduates with a master's degree in engineering from an institution in the United States of America that offers an accredited bachelor's degree in the same curriculum. The master's degree or a doctor of philosophy degree candidate must fulfill the requirements for the bachelor's degree in the same area of specialization.

*d.* An applicant with a master's degree or a doctor of philosophy degree in engineering from an institution in the United States of America that does not offer an accredited bachelor's degree in the same curriculum will be required to have an additional year of qualifying experience obtained after receipt of the qualifying degree. Applicants using a master's degree or a doctor of philosophy degree as the qualifying degree may not also use the master's degree or a doctor of philosophy degree for qualifying experience credit or as an exemption for the Fundamentals of Engineering examination (FE exam).

**1048.1(2)** An applicant successfully completes the FE exam.

*a.* An applicant may take the FE exam any time after the educational requirements as specified above are completed, but the applicant must successfully complete the FE exam prior to taking the Principles and Practice of Engineering examination.

*b.* College seniors studying an ABET/EAC- or CEAB-accredited curriculum may take the FE exam during the final academic year. Applicants will be permitted to take the examination during the testing period that most closely precedes anticipated graduation.

*c.* An applicant who graduated from a satisfactory engineering program and has ten years or more of work experience satisfactory to the board is not required to take the FE exam. This experience is in addition to the four or five years of experience necessary for the PE license.

*d.* 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, is not required to take the FE exam.

*e.* FE exam candidates will apply directly to the National Council of Examiners for Engineering and Surveying (NCEES) and will self-attest as to the candidate's eligibility to sit for the FE exam. The board will verify acceptable education and experience at the time an applicant applies for an Engineer in Training (EIT) number. The board shall apply the education and experience standards set forth in this rule but may allow reasonable flexibility in timing in the event an applicant sat for and passed the FE exam at a point earlier than provided in this rule. The board will not, however, issue an EIT number unless all experience required for candidates who hold engineering degrees from nonaccredited programs has been satisfied at the time of the EIT application.

**1048.1(3)** An applicant successfully completes the Principles and Practice of Engineering examination (PE exam).

*a.* An applicant may take the PE exam any time after passing the FE exam.

*b.* PE exam candidates will apply directly to the NCEES. The applicant will document a qualifying education. The board will verify acceptable experience at the time the applicant applies for a professional engineer license.

**1048.1(4)** An applicant obtains satisfactory practical experience in engineering work as follows:

*a. Oversight.* An applicant has direct supervision or professional tutelage (instruction, guidance, mentoring, review, and critique) from one or more licensed professional engineers. This experience will

be verified by one or more licensed professional engineers who are familiar with the applicant's work and can attest that the experience was of the required quality and was accurately described. Verification of the qualifying experience is provided through the reference forms. It is the responsibility of the applicant to provide reference forms to the licensed professional engineers to complete and return directly to the board.

(1) To be readily acceptable, all of the practical experience is under the direct supervision and tutelage of one or more licensed professional engineers.

(2) To be considered, a portion of the qualifying experience is under the direct supervision or tutelage of one or more licensed professional engineers, and the rest of the practical experience is under the direct supervision or tutelage of an unlicensed graduate engineer.

*b. Documentation of experience.* An applicant submits references and a work project description. The board reserves the right to contact the employer and the person providing tutelage on the project for information about the project experience acquired by the applicant.

(1) References. An applicant for the professional engineer license shall submit three references from professional engineers or a combination of professional engineers and graduate engineers on forms provided by the board.

1. The practical experience provided under the direct supervision or professional tutelage of the licensed professional engineers in the course of a mentoring relationship must include technical skills; professional development; the exercise of professional judgment, ethics, and standards in the application of engineering principles and in the review of such matters by others; and the professional obligations of assuming responsible charge of professional engineering works and services.

2. If the applicant has had more than one supervisor, at least two of the references shall be from a supervisor of the applicant. An applicant shall submit supervisor references to verify at least four years of qualifying experience.

3. If an applicant has had professional experience under more than one employer, the applicant shall provide references from individuals with knowledge of the work performed under a minimum of two employers.

4. The board reserves the right to contact references, supervisors, or employers for information about the applicant's professional experience and competence or to request additional references.

5. The board uses references partially as a means of verifying an applicant's record of experience. The applicant must distribute a reference form to individuals who are asked to submit references for the applicant. To each reference form, the applicant shall attach a narrative of the applicant's experience record that is being addressed by the referring individual.

6. The board may require the applicant to submit other evidence of suitable tutelage and supervision.

7. The board may conduct interviews with persons providing tutelage or supervision to the applicant.

(2) Work project description. An application for initial licensure includes a work project statement describing a significant project on which the applicant worked during the previous 12 months. The board will review all work project statements and will approve only those that include all of the following components:

1. Description of the applicant's degree of responsibility for the project.

2. The project's owner and location.

3. The name of the supervisor in charge of the project and, if the supervisor is a professional engineer, the license number of the supervisor.

4. The applicant's signature and date of signature.

(3) Criteria the board uses in evaluating the acceptability of the project as qualifying experience for the applicant includes, but is not limited to, the following:

1. The degree to which the project and the experience described have progressed from assignments typical of initial assignments to those more nearly expected of a licensed professional;

2. The scope and quality of the professional tutelage experienced by the applicant;

3. The technical decisions required of the applicant in the project; and

4. The professional decisions required of the applicant.

*c. Quality.* An applicant has experience that demonstrates that the applicant has developed technical skill and initiative in the correct application of engineering principles. Such experience should demonstrate

the applicant's capacity to review the application of these principles by others and to assume responsibility for engineering work of professional character.

*d. Scope.* The applicant has experience that includes sufficient breadth and scope to ensure that the applicant has attained reasonably well-rounded professional competence in a basic engineering field, rather than highly specialized skill in a narrow and limited field.

*e. Progression.* The record of experience indicates successive and continued progress from initial, subprofessional work of simpler character to recent, professional work of greater complexity and a higher degree of responsibility, as well as continued interest and effort on the part of the applicant toward further professional development and advancement. In evaluating this progression, the board will consider both subprofessional and professional activity as reported by the applicant. However, only work experience obtained after the applicant's receipt of the qualifying degree will be considered, except as described in paragraph 1048.1(4)"f." Subprofessional work includes the time spent as an engineering technician, engineering assistant, inspector, or similar under the direct supervision of a licensed professional engineer. Professional work includes the time during which the applicant was occupied in engineering work of higher grade and responsibility than that defined above as subprofessional work. Time spent in teaching engineering subjects in a college or university at the level of assistant professor or higher may be listed as professional work.

*f. Special work experience.* Work experience prior to graduation from college may be accepted toward satisfaction of practical experience only as follows: Cooperative work programs and internships administered by engineering colleges and verified on the transcript, with a verifying reference from the internship supervisor, will be considered as half-time credit, with a maximum allowance of 6 months (12 months of cooperative work experience or internship) applicable toward the satisfaction of qualifying experience requirements. An applicant's advanced education, military experience, or both will be reviewed in order to determine if they are applicable toward the statutory requirements for experience.

*g. Advanced education.* 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 and who has fulfilled the requirements for a bachelor of science degree may be granted a maximum of one 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 may be granted a maximum of two years of experience credit in addition to the one-half year's credit for the master of science degree. An applicant using an advanced degree as experience credit may not also use the advanced degree as the qualifying degree to become licensed.

*h. Teaching experience.* Teaching of engineering subjects at the level of assistant professor or higher in an accredited engineering program may be considered as experience, provided the applicant's immediate supervisor is a licensed professional engineer in the jurisdiction in which the college or university is located. If the applicant's immediate supervisor is not a licensed professional engineer, a program of mentoring or peer review by a licensed professional engineer acceptable to the board must be demonstrated. Applicants using teaching or research as experience must have a minimum of four years of acceptable experience in research, industry, or consulting. The board will consider the complexity of the project(s) presented, the degree of responsibility of the applicant within the project, and other factors the board deems relevant. Academic experience must demonstrate increasing levels of responsibility for the conduct and management of projects involving engineering research, development, or application. The board reserves the right to contact employers for information about the applicant's professional experience and competence.

*i. Joint applications.* Applicants requesting licensure both as a professional engineer and a land surveyor must submit a history of professional experience in both fields. Such histories will be considered separately on a case-by-case basis. The board does not grant full credit for concurrent experience in both professions.

*j. Corporate exemption.* The purpose of the provisions on qualifying experience that authorize the board to consider some experience that was not acquired under the direct supervision and tutelage of a licensed professional engineer is to provide a path toward licensure for those applicants who gain

experience in settings where licensure is not required under the corporate exemption set forth in Iowa Code section 542B.26 or under similar statutory provisions in other jurisdictions. Such applicants may lawfully gain professional engineering experience under the supervision or tutelage of graduate engineers who are not licensed. To aid such applicants, the following guidelines are provided:

(1) The board will not consider any of the following experience:

1. Experience gained under circumstances where the applicant could not lawfully have practiced professional engineering.

2. Experience attained in compliance with the law but that was not under the supervision or tutelage of a graduate engineer. The fundamental purpose of qualifying experience is professionally guided training to expand and complement engineering education. Self-guided experience does not qualify.

(2) Unlicensed graduate engineers are not authorized to offer professional engineering services to the public or to be in responsible charge of such services, nor are they subject to the examinations required for licensure, the professional and ethical standards applicable to licensees, or the regulatory oversight of a licensing authority. Qualifying experience is intended to address both technical competence and the obligations to the public of a licensed professional engineer.

(3) Because the circumstances of individual applicants in corporate exemption settings are diverse, it is not possible to identify the minimum period of time during which the applicant must receive supervision or tutelage from one or more licensed professional engineers to be eligible for licensure. The board will evaluate both the quantity and quality of such experience. In general, an applicant's exposure to supervision or tutelage by one or more licensed professional engineers should reflect a sustained period of in-depth interaction from which the licensed engineers are in a position to form credible opinions on the applicant's qualifications to be in responsible charge of engineering services offered to the public as a licensed professional engineer.

(4) The burden is on the applicant to demonstrate to the board's satisfaction that the combination of unlicensed and licensed supervision and tutelage satisfies the requirements of qualifying experience described in this rule.

*k. Practical experience.* An applicant for a professional engineer license shall have a minimum of one year of practical experience in the United States of America or a territory under its jurisdiction.

**1048.1(5)** Education and experience requirements. The board will require the minimum number of years set forth on the following chart before an applicant will be eligible for licensure.

Experience Requirements	
If the education is:	Required years of experience
A four-year bachelor's degree in a nonaccredited engineering program	5
A four-year bachelor's degree in an accredited engineering program OR a qualifying master's degree pursuant to paragraph 1048.1(1) "c" OR a qualifying PhD pursuant to paragraph 1048.1(1) "d"	4
A four-year bachelor's degree in an accredited engineering program AND a qualifying master's degree pursuant to paragraph 1048.1(4) "g"	3
A four-year bachelor's degree in an accredited engineering program AND a qualifying PhD pursuant to paragraph 1048.1(4) "g"	2
A four-year bachelor's degree in an accredited engineering program AND a qualifying master's degree AND a qualifying PhD pursuant to paragraph 1048.1(4) "g"	1

**1048.1(6)** Required examinations. All examinations are uniform examinations prepared and graded by the 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 of Engineering examination.* The Fundamentals of Engineering examination is a computer-based examination covering general engineering principles and other subjects commonly taught in accredited engineering programs.

*b. Principles and Practice of Engineering examination.* A separate examination is required for each branch in which licensure is granted. An applicant may obtain a Principles and Practice of Engineering Civil (Structural) branch license by passing either the Structural examination or the Principles and Practice of Engineering Structural examinations.

*c. Conduct during the examination.* Examinees will comply with the testing rules and regulations of the examination administrator.

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