

RULES AND REGULATIONS

Title 4—ADMINISTRATION

[4 PA. CODE CH. 113]

LEGISLATIVE REFERENCE BUREAU

Replacement of References

Under section 6 of the act of December 23, 2013 (P. L. 1256, No. 129) (Act 129), the Legislative Reference Bureau (Bureau) is directed to “replace references to the Pennsylvania Emergency Management Agency with references to the Office of the State Fire Commissioner” in Chapter 113 (relating to volunteer fire company, ambulance service and rescue squad assistance). Act 129 is effective February 21, 2014.

To accomplish the replacement, the Bureau is deleting the definition of “Agency” and adding a definition of “OSFC—Office of the State Fire Commissioner” in § 113.1 (relating to definitions). Throughout §§ 113.2—113.12, 113.101—113.110, 113.201—113.207 and 113.301—113.307, references to “Agency” will be changed to “OSFC” as needed.

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Director

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Title 49—PROFESSIONAL AND VOCATIONAL STANDARDS

STATE REGISTRATION BOARD FOR PROFESSIONAL ENGINEERS, LAND SURVEYORS AND GEOLOGISTS

[49 PA. CODE CH. 37]

Qualifications for Licensure

The State Registration Board for Professional Engineers, Land Surveyors and Geologists (Board) amends §§ 37.1, 37.16, 37.17, 37.31—37.33, 37.34, 37.36, 37.37, 37.47—37.49 and 37.57 and adds §§ 37.33a and 37.36a (relating to grandfather requirements for licensure as a professional engineer without certification as an engineer-in-training; and requirements for licensure as a professional geologist without certification as geologist-in-training) to read as set forth in Annex A.

Background and Need for the Final-Form Rulemaking

The act of May 12, 2010 (P. L. 192, No. 25) (Act 25) amended section 4.4 of the Engineer, Land Surveyor and Geologist Registration Law (act) (63 P. S. § 151.4) to provide for certification of geologists-in-training, in addition to licensure of professional geologists. This two-stage process is analogous to the two-stage processes for certification of engineers-in-training and licensure of professional engineers and for certification of surveyors-in-training and licensure of professional land surveyors. Additionally, in looking at and amending regulations concerning the licensure process for geologists in response to Act 25, the Board also reviewed regulations concerning

the licensure process for engineers and land surveyors and concluded that those regulations should be updated to conform to current administrative practice.

Summary of Comments and Responses to Proposed Rulemaking

The Board published the proposed rulemaking at 41 Pa.B. 6975 (December 31, 2011) with a 30-day public comment period. The Board did not receive comments from the public. The Board received comments from the House Professional Licensure Committee (HPLC) and the Independent Regulatory Review Commission (IRRC) as part of their review of proposed rulemaking under the Regulatory Review Act (71 P. S. §§ 745.1—745.12). The Board did not receive comments from the Senate Consumer Protection and Professional Licensure Committee (SCP/PLC).

The HPLC commented that the change from “applicant” to “candidate” was not consistent throughout the proposed rulemaking. IRRC agreed and recommended that the Board use one term consistently. The Board revised §§ 37.16, 37.32(a), 37.34(b), 37.37(a) and 37.47(2)(ii) to use “candidate” when referring to an individual whose qualifications are at issue, rather than “applicant.” To the extent the references in § 37.34(b) (relating to branches of engineering) concern the practice of a professional engineer, the Board uses “professional engineer” rather than “applicant” or “candidate.” Because these provisions focus on the act of applying and the supporting documentation rather than the applicant’s qualifications, the Board has not amended §§ 37.18, 37.37, 37.61 and 37.71 to replace “applicant” with “candidate.” Additionally, because § 37.61 (relating to temporary practice) addresses the process by which a professional engineer, professional land surveyor or professional geologist licensed to practice in another jurisdiction may apply for a temporary permit to practice in this Commonwealth, “candidate” is not appropriate for an applicant who has already been licensed. To be consistent with the other provisions concerning the registration number and seal, the Board replaced “applicant” in § 37.57 (relating to registration number) with “registrant.” Because there is not a need to make the method of determining the registration number into a regulatory requirement, the Board also deleted the second sentence of § 37.57 concerning the assignment of consecutively issued registration numbers and inserted into the first sentence a notation that the assigned registration number will be unique. Similarly, for additional clarity, the Board uses “accredited” and not “approved” when referring to an engineering or land surveying curriculum accredited by ABET. The HPLC also commented that the organization mentioned in § 37.36 (relating to requirements for certification as a geologist-in-training and for licensure as a professional geologist) should read “World Education Services.” The Board revised § 37.36(b)(1)(iii) to reflect the correct name as suggested.

IRRC commented about consistency with case law. Because an issue raised by the petitioner but not decided by the court in *Whymeyer v. State Reg. Bd. for Professional Engineers, Land Surveyors and Geologists*, 997 A.2d 1254 (Pa. Cmwlth. 2010) was whether the Board “abdicated its statutory responsibility” to approve engineering programs by delegating that authority to ABET, IRRC questioned whether the Board would independently approve programs under section 4(a) of the act (63 P. S. § 151(a)), despite providing in this final-form rulemaking

for ABET to be the exclusive accreditor. Absent extraordinary circumstances and except when the regulations specify an evaluation of the candidate's educational program, the Board will not independently review engineering or surveying programs. The Board will defer exclusively to ABET.

At the end of its opinion, the *Whymeyer* majority noted:

Because of our disposition of the issues [of whether the regulation at issue is unconstitutionally vague and whether the Board erred in refusing to independently evaluate the program *Whymeyer* attended], we need not address whether a regulation which clearly specified graduation from a program with ABET accreditation as a mandatory prerequisite to taking the initial exam would amount to an abdication of the Board's statutory responsibilities and an unlawful delegation of the authority vested in it by the General Assembly.

Whymeyer at 1260 n. 7. In dissent, Judge Pellegrini wrote:

In *Appeal of Murphy*, 482 Pa. 43, 393 A.2d 369 (1978), our Supreme Court addressed the issue of whether the Board of Law Examiners properly refused admission of one applicant to sit for the bar exam and another applicant admission by comity (recognizing five or more years of practice in a reciprocating sister state and good standing). Both applicants graduated from law schools which were not accredited by the American Bar Association (ABA). The applicants argued that the "selection of the American Bar Association as the accrediting agency... [was] an unconstitutional delegation of judicial authority to a non-governmental body such as the ABA." *Id.*, 482 Pa. at 47, 393 A.2d at 371.

In determining that the Board properly refused admission due to the lack of accreditation of the law schools, the Court stated that it had not delegated any judicial function to the ABA and "Pennsylvania, like every other state in the union, has chosen to avail itself of the results of the ABA accreditation procedure, and accepts and adopts the ABA listing. The ABA's long-standing concern with the quality of legal education in the United States needs no documentation here." 482 Pa. at 48, 393 A.2d at 372. The Court went on to explain the credentials of the ABA and then stated:

[W]e see no virtue either in allowing a school unapproved by the ABA to seek independent recognition from Pennsylvania, or in permitting a bar examination applicant to attempt to prove to this Court that his unapproved school does in fact measure up to ABA standards. Our holding today is in accord with longstanding and unanimous authority which has rejected the non-delegation argument here advanced as well as a host of other constitutional attacks on the requirement that an applicant for admission to the bar be a graduate of an ABA-approved law school. See, e.g., *Potter v. New Jersey Supreme Court*, 403 F.Supp. 1036 (D.N.J. 1975), *aff'd* 546 F.2d 418 (3d Cir. 1976); *Rossiter v. Colorado State Board of Law Examiners*, No. C-4767 (D. Colo., filed August 26, 1975) (three-judge court); *Lombardi v. Tauro*, 470 F.2d 798 (1st Cir. 1972) (no unlawful delegation).

482 Pa. at 52, 393 A.2d at 374.

Similarly, in this case, the Board has the authority to delegate the accreditation function to ABET to ensure that future engineers meet all of the necessary requirements before beginning their careers. Here, *Whymeyer* did not graduate from a curriculum approved by ABET.

Whymeyer at 1261. Thus, the Board is permitted to—and has in this final-form rulemaking—determine that it is appropriate to rely on accreditation by ABET and approve only those engineering and surveying programs that have been accredited by ABET.

IRRC noted that although the Regulatory Analysis Form of the proposed rulemaking cited as the Board's authority for the rulemaking sections 4(b) and (l) and 4.4 of the act and sections 4.2 and 4.3 of the act (63 P.S. §§ 151.2 and 151.3), the preamble cited only section 4(l) of the act. The Board included all of these provisions of the act in this preamble as the statutory authority for this final-form rulemaking.

IRRC addressed the clarity of certain terms used by the Board in § 37.31 (relating to requirements for certification as an engineer-in-training and for licensure as a professional engineer) and similar sections. IRRC noted that proposed § 37.31(1) and (2) required candidates to "successfully complete" the required examinations and suggested that the final-form regulation specify what constitutes "satisfactory" completion. IRRC expressed similar concerns with §§ 37.33(b) and (c), 37.36(b) and (c), 37.47(1) and (2) and 37.49(b). The Board revised these sections to use the phrase "achieve a passing score." IRRC noted that proposed § 37.31(1)(i) permitted a qualified student to sit for the fundamentals of engineering examination but required the student to provide "proof of graduation" before being certified as an engineer-in-training and suggested that the Board clarify the type of documentation required to demonstrate that proof. IRRC expressed similar concerns about § 37.36(b)(1)(i) and (ii) and § 37.47(1)(i) (relating to requirements for certification as a surveyor-in-training and for licensure as a professional land surveyor). Virtually every candidate who has applied based upon graduation from an approved program has been able to prove graduation by having the school provide a transcript showing that the candidate has graduated, as directed by the application forms. In the extremely rare instances in which the candidate could not have a transcript provided directly by the school (such as the school is out of operation and adequate provisions to maintain records were not made), the candidates have been able to provide other documentary proof of graduation. Because there have not been instances of confusion and to avoid being overly prescriptive, the Board has not revised these sections.

IRRC noted that the required "grade and character" of experience necessary under proposed § 37.31(1)(iii) to qualify for the principles and practice of engineering examination was vague and suggested clarifying the intent of this language in the final-form regulation. IRRC expressed similar concerns about proposed §§ 37.31(2)(i), 37.47(1)(iii), 37.47(2)(i) and 37.49(c). As stated in section 4.2(c)(1) of the act, an engineer-in-training must obtain 4 years or more of experience that, among other things, is "of a grade and character to fit [the candidate] to assume responsible charge of the work involved in the practice of engineering." Throughout its history, the Board has been applying this standard in reviewing candidate qualifications. The Board does not set certain criteria for the grade or character of the work; instead, the standard

is whether it has prepared the candidate to assume responsible charge of the work involved in the practice of engineering. Adopting criteria for the grade and character of the experience would be overly prescriptive for the engineers-in-training who have a tremendously wide variety of experience. Accordingly, the Board has not revised this provision in response to this comment. IRRC also noted that proposed § 37.31(1)(iii) (final-form § 37.31(a)(1)(v)) permits “academic training in engineering subjects” to be counted as part of the experience to qualify to sit for the fundamentals of engineering examination without a degree and recommended that the Board define this term and specify how this training will be counted toward the experience requirement. Section 4.2(b)(1)(iii) of the act permits a candidate to qualify for the fundamentals of engineering examination by having 8 years or more of “progressive experience in engineering work and knowledge, skill and education approximating that attained through graduation from an approved engineering curriculum.” This regulation implements that statutory provision and permits a candidate to use academic training that is similar to that in an accredited engineering program to be counted toward the requirement. Because it views this provision as sufficiently clear, the Board has not revised it.

IRRC noted that proposed § 37.31(2) (final-form § 37.31(a)(2)) requires a candidate to sit for the “NCEES principles and practice of engineering examination in one of the branches of engineering” and suggested that the Board cross-reference this provision with § 37.34. The Board revised final-form § 37.31(a)(2) to include this cross-reference. IRRC noted that proposed § 37.31(2)(ii) required that the teaching experience a candidate could use to qualify to sit for the principles and practice of engineering must include teaching at a third-year, fourth-year or graduate level “covering the breadth and depth of the curriculum” and suggested that the Board specify what it meant to cover through the use of this vague term. IRRC expressed similar concerns in § 37.47(2)(ii) for teaching in a land surveying curriculum. This phrase comes from the former definition of “progressive teaching experience” in § 37.1 (relating to definitions) and incorporating in the substantive text of the regulation. The purpose of this provision is to ensure that the candidate is gaining experience in a wider range of engineering subjects that are not merely what is required for entry-level practice. Because there has not been a history of confusion with this term in administering the current regulations, the Board has not made revisions in response to this comment.

IRRC’s next set of comments addressed § 37.33 (relating to grandfather requirements for certification as an engineer-in-training and for licensure as a professional engineer). The act of December 19, 1990 (P. L. 782, No. 192) (Act 192) amended the act to raise the standards for licensure. Section 14 of Act 192 provided that the new standards do not apply and instead the prior requirements apply to a candidate who by June 30, 1994, completed the educational requirements or by the effective date of the amendments (February 19, 1991) began the experience requirements. IRRC recommended that the Board explain the significance of the date in providing in § 37.33(b) that candidates who received a degree prior to January 1, 1968, are not required to complete the fundamentals of engineering examination. This provision is statutorily required. Former section 4(a)(3) of the act provided that to become licensed a candidate was required to have 4 years or more of progressive experience in engineering work under the supervision of a profes-

sional engineer or a similarly qualified engineer of a grade and character to fit him to assume responsible charge of the work involved in the practice of engineering, and be either an engineer-in-training or a graduate in engineering of an approved institution or college having a course in engineering of 4 years or more. Former section 4(a)(3) of the act also provided that the candidate was required to successfully pass the examinations prescribed by the Board for both professional engineers and engineers-in-training, except that “graduates in engineering who were graduated prior to January 1, 1968, or engineers-in-training who received a certificate from the board prior to January 1, 1968, shall not be required to take the examination prescribed for engineers-in-training.”

IRRC next asked the Board to explain the difference between “satisfactory completion” of the fundamentals of engineering examination in § 37.33(b) and “successful completion” of the same examination in § 37.33(c)(1)(ii). As previously noted, the Board revised these provisions to refer to “achieving a passing score” on the examination. IRRC also noted that § 37.33(c)(1)(i) requires a graduate of an approved engineering curriculum to have 4 years of progressive experience and § 37.33(c)(1)(ii) requires a candidate who was not a graduate to have 8 years of progressive experience; IRRC asked the Board to explain how these time frames were determined to be appropriate. These time frames are statutorily required. As noted previously, former section 4(a)(3) of the act required a candidate who was either an engineer-in-training or a graduate of an approved engineering program to have at least 4 years of experience meeting the standard to sit for the licensure examination. Former section 4(a)(4) of the act permitted a candidate to qualify to sit for the examinations if the candidate had 12 years or more of progressive experience in engineering work, at least 8 years of which shall have been under the supervision of a professional engineer or similarly qualified engineer of a grade and character to fit him to assume responsible charge of the work involved in the practice of engineering.

IRRC also commented on § 37.36. Under § 37.36(b)(1)(iii), a candidate educated in a foreign country shall have an evaluation from World Education Services or “other Board-approved professional evaluation service” to qualify to sit for the fundamentals of geology examination. IRRC inquired as to what other professional evaluation services are approved by the Board and recommended that they either be identified in the regulation or maintained in a list on the Board’s web site in a way that cross-references the regulation. At this time, the Board is not aware of any other appropriate evaluation services; no candidate has inquired about using any service other than World Education Services. However, the Board will post on its web site a notice about approved professional evaluation services for foreign geology education. IRRC also noted that under § 37.36(c)(2) acceptable experience may include “technical completeness reviews” and suggested that the final-form regulation define this term. Section 37.1 defines “professional geological work” as the performance of geological service or work, “including technical completeness reviews.” “Technical completeness review” is generally understood in the geology profession as verifying that all required documentation is included with necessary topics addressed based upon an appropriate utilization of the principles of the geological sciences. Because this term of art is understood in the profession, the Board has not provided a separate definition.

IRRC next commented on § 37.37 (relating to references for licensure as a professional geologist). In contrast

to analogous provisions for engineers and land surveyors in §§ 37.32(a) and 37.48(a) (relating to references for certification as an engineer-in-training or licensure as a professional engineer; and references for certification as a surveyor-in-training or licensure as a professional land surveyor), respectively, § 37.37(a) does not require that references be unrelated to the candidate for licensure as a professional geologist. The Board revised all three subsections to be essentially identical and require that at least three of the references are licensees unrelated to the candidate.

IRRC also commented on § 37.47 asking how the Board determined that it was appropriate for § 37.47(1)(iii) to require that a candidate qualifying to sit for the fundamentals of land surveying examination without a qualifying degree have at least 6 years of appropriate diversified field and office experience that includes at least 25% in each area. This requirement is continued from § 37.47(1)(iii), which requires an applicant to show “diversification of field and office experience, with a minimum of 25% of the experience in each area.”

IRRC’s final comment addressed § 37.49 (relating to grandfather requirements for licensure as a professional land surveyor). IRRC asked the Board to further explain the basis and need for changes to the grandfathering requirements for land surveyors. The existing regulation merely provides that for those applicants who completed the prior educational requirements by June 30, 1994, or who began the prior experience requirements before February 19, 1991, the prior requirements apply instead of the current requirements. However, because the regulation did not give an indication of what those prior requirements were, the Board amends § 37.49 so that applicants who qualify for treatment under the prior provisions will know exactly what is required of them. IRRC then asked how the Board determined that it was appropriate for § 37.49(c) to require that a candidate qualifying to sit for the land surveying examinations without a qualifying degree have at least 6 years of appropriate diversified field and office experience that includes at least 25% in each area. This requirement is statutorily mandated by former section 4(d)(2) of the act, which required that applicants for licensure as a professional land surveyor “show a diversification in both field and office experience, with the smallest percentage of time allowed in either category to be twenty-five percent.” IRRC also asked how the Board determined that it was appropriate for § 37.49(b)(1) and (2) to require that a candidate qualifying to sit for the land surveying examinations with a qualifying degree have at least 4 years of progressive experience in land surveying work and for § 37.49(b)(3) to require that a candidate qualifying to sit for the land surveying examinations without a qualifying degree have at least 10 years of progressive experience in land surveying work that includes at least 5 years in responsible charge of primary land surveying functions. These requirements are statutorily mandated by former section 4(d)(1) of the act, which required that an applicant for licensure as a professional land surveyor with a qualifying degree have “four or more years’ progressive experience in land surveying, under the supervision of a professional land surveyor or a similarly qualified land surveyor of a character indicating that the applicant is competent to assume responsible charge of the practice of land surveying,” and by former section 4(d)(2) of the act, which required that an applicant for licensure as a professional land surveyor without a qualifying degree have “ten or more years’ progressive experience in land surveying work half of which time shall have been spent

in responsible charge of primary land surveying functions, under the supervision of a professional land surveyor or a similarly qualified surveyor of a character indicating that the applicant is competent to assume responsible charge of the work involved in the practice of land surveying.”

In addition to the revisions made in response to comments, the Board has significantly reorganized § 37.31 in the final-form rulemaking. To follow parallel structure, the Board renumbered as subsection (a) the existing regulation addressing licensure under the current provisions of the act, maintaining the identified paragraphs. The Board correspondingly added subsection (b) to direct those who would be evaluated under the grandfather provisions of the act to § 37.33 or § 37.33a. The Board revised § 37.31(a)(1)(i) to limit this provision to graduates of ABET-accredited undergraduate programs in the United States—the only category of candidates who may sit for the fundamentals of engineering examination while still a student. The Board further revised this provision to make clear that the effective date of certification as an engineer-in-training is the later of graduation or notification from the National Council of Examiners for Engineering and Surveying (NCEES) of passing the fundamentals examination. Because ABET accredits a limited number of graduate programs in the United States as well as a limited number of both undergraduate and graduate programs in foreign countries, the Board provides in final-form § 37.31(a)(1)(ii) that graduates of this type of program are eligible to sit for the fundamentals of engineering examination. Subsequent to the Board’s preparation of the draft proposed rulemaking, the method of evaluating qualifications of certain candidates who did not attend an ABET-accredited program has changed dramatically. Both ABET’s Engineering Credentials Evaluation International and NCEES’s Center for Professional Engineering Education Services have gone out of existence and no longer evaluate credentials. However, NCEES has a credentials evaluations division that now provides this service. Previously, only foreign education would be evaluated and not education in the United States at other than an ABET-accredited program. NCEES now will evaluate the education of a candidate with a graduate degree in engineering from a school in the United States who completed an undergraduate engineering program in the United States that was not accredited by ABET. On the theory that holding a graduate degree qualifies one at least as well as holding an undergraduate degree, all other things being equal, the Board proposed in § 37.31(1)(ii) to permit a graduate of a graduate engineering curriculum at a school that has an ABET-accredited curriculum in the same discipline and has completed basic engineering courses to sit for the exam. Because NCEES will evaluate the education of a candidate with a graduate degree in engineering, there is not a need for the Board to conduct this independent review; the Board provided in final-form § 37.31(a)(1)(iii) that one with a graduate degree in engineering from a school in the United States who also graduated from an undergraduate engineering curriculum in the United States that is not ABET-accredited may sit for the fundamentals of engineering examination if an evaluation by NCEES’s credentials evaluation division shows that the candidate’s education was substantially equivalent to an ABET-accredited curriculum. The Board acknowledges that this does not allow for those with a graduate degree in engineering whose undergraduate degree was in a field other than engineering. However, a candidate may be considered with 8 years of experience, giving appropriate credit for engineering education. Qualifying to sit for the

fundamentals of engineering examination based upon an evaluation of a foreign education has been moved to final-form § 37.31(a)(1)(iv) revising the permitted evaluator and allowing that the foreign education may include graduate study in engineering. Qualifying for the fundamentals of engineering examination on the basis of experience has been moved to final-form § 37.31(a)(1)(v) without change to the substantive provisions.

The Board has also revised final-form § 37.31(a)(2) setting forth requirements to sit for the principles and practice of engineering examination. Because often a candidate sat for the fundamentals of engineering examination and became certified as an engineer-in-training in another state, the Board should allow for candidates who were certified in the other state, but also ensure that the certification was based upon criteria substantially similar to those of the Commonwealth. Accordingly, the Board revised final-form § 37.31(a)(2) to provide for a candidate who has been certified as an engineer-in-training “in this Commonwealth or another jurisdiction having satisfied the requirements . . . to sit for the fundamentals of engineering examination.” Additionally, because not all other states require that the experience be gained after certification as an engineer-in-training, the Board also revised this paragraph to provide that the effective date of certification for one who was certified as an engineer-in-training in another jurisdiction is the date the certificate was first issued, unless otherwise stated by that jurisdiction.

Similar to the revisions to final-form § 37.31(a)(1) under the current provisions of the act, the Board revised § 37.33(b) to provide the requirements for a candidate under the former provisions of the act to sit for the fundamentals of engineering examination. Because a candidate will not be permitted to sit for the examination while a student, the provisions for a graduate of an ABET-accredited program have been consolidated into § 37.33(b)(1). The provision for the evaluation of the education of a candidate with both a graduate degree and an undergraduate engineering degree in the United States has been placed in § 37.33(b)(2). The provision for the evaluation of a candidate’s foreign engineering education has been placed in § 37.33(b)(3). The previously-proposed provision for a candidate qualifying on the basis of experience has been moved to § 37.33(b)(4) without change to the substantive provisions. Similar to the revisions to final-form § 37.31(a)(2) under the current provisions of the act, the Board also revised § 37.33(c)(1) to provide that a candidate under the former provisions of the act who has been certified as an engineer-in-training “in this Commonwealth or another jurisdiction having satisfied the requirements . . . to sit for the fundamentals of engineering examination” may sit for the principles and practice of engineering examination upon meeting the additional experience requirement. With the deletion of proposed § 37.33(c)(1)(ii), the Board has reorganized final-form § 37.33(c)(1) to list in separate subparagraphs the requirements to qualify for the principles and practice examination (possession of an engineer-in-training certificate, satisfaction of the requirements to sit for the fundamentals of engineering examination and 4 years of progressive engineering experience) as proposed and required under former section 4(b)(3) of the act. The Board also looked more closely at this section for consistency with the prior provisions of the act. Because former section 4(c) of the act permitted a candidate to be certified as an engineer-in-training based upon experience instead of engineering education, the Board revised § 37.33(c)(1) to delete the limitation that it applies to a

candidate who “is a graduate from an approved engineering curriculum” and replaced that with “satisf[ies] the requirements under subsection (b) to sit for the fundamentals of engineering examination.” Moreover, to avoid confusion associated with this phrase due to the coincidence of the amount of time being 4 years, the Board further provided that this experience cannot be used to satisfy the 4 years of progressive experience required under § 37.33(c)(1)(iii). The Board noticed that proposed § 37.33(c)(2) would require a candidate’s experience to comply with the standards of proposed § 37.31(2). Because that paragraph included standards other than experience, the Board revised this provision to refer to § 37.31(a)(2)(i) and (ii). As included in proposed § 37.33(c)(1)(ii), an individual satisfying these requirements would be permitted to sit for both examinations and upon passing both would become licensed as a professional engineer without prior certification as an engineer-in-training, the Board moved this provision into § 37.33a. Also, the language used by the Board in this proposed provision in attempting to describe it in terms of the experience required in addition to what was required to sit for the fundamentals of engineering examination was not a clear and accurate statement about the requirement to qualify for licensure as a professional engineer based upon experience alone without engineering education. The Board also revised this provision to track the language of former section 4(b)(4) of the act to require “at least 12 years of progressive engineering experience, at least 8 years of which shall have been under the supervision of a professional engineer or a similarly qualified engineer.” Although an individual who meets these requirements qualifies to sit for both examinations, a candidate may not sit for the principles and practice of engineering examination until achieving a passing score on the fundamentals examination.

Similar to the revision to allow for candidates for the principles and practice of engineering examination who sat for the fundamentals of engineering examination and were certified as engineers-in-training in another state, the Board revised § 37.36(c)(1) to provide for a candidate who has been certified as a geologist-in-training “in this Commonwealth or another jurisdiction having satisfied the requirements . . . to sit for the fundamentals of geology examination.” Because certification as a geologist-in-training is not a mandatory step in licensure as a professional geologist and a candidate could first apply after meeting all criteria to sit for both examinations, the Board revised § 37.36(a) to make clear that there is an alternative and added § 37.36a to provide that a candidate qualifying under this provision who has not already been certified as a geologist-in-training may, upon meeting the education and experience requirements, apply to sit for both examinations. However, a candidate may not sit for the principles and practice of geology examination until achieving a passing score on the fundamentals examination.

Similar to proposed § 37.31(1)(i) for engineering students who sat for the fundamentals of engineering examination prior to graduation, the Board revised § 37.36(b)(1)(i) and (ii) to make clear that the effective date of certification as a geologist-in-training for one who sat for the fundamentals of geology examination while a geology student is the later of graduation from an accredited program or notification from the National Association of State Boards of Geology (ASBOG) of passing the fundamentals examination. To make clear that those candidates who sat for the fundamentals examination while a geology student must comply with the

additional provisions about the content of the geology program, the Board added to the requirement of providing proof of graduation that this include compliance with § 37.36(b)(2). Similarly, the Board revised § 37.36(b)(1)(iii) to make clear that a graduate of a foreign education program must also satisfy that requirement.

The Board also revised § 37.47(1)(i) to make clear that the effective date of certification as a surveyor-in-training for one who sat for the fundamentals of surveying examination while a surveying student is the later of graduation from an accredited surveying program or notification from NCEES of passing the fundamentals examination. Additionally, because not all other states require that the experience be gained after certification as a surveyor-in-training, the Board also revised § 37.47(2) to provide that the effective date of certification for one who was certified as a surveyor-in-training in another jurisdiction is the date the certificate was first issued, unless otherwise stated by that jurisdiction. Because certification as a surveyor-in-training was not a mandatory step in licensure as a professional land surveyor under the prior provisions of the act and a candidate could first apply after meeting all criteria to sit for both examinations, the Board added § 37.49(d) to provide that a candidate qualifying under this provision may not sit for the principles and practice of land surveying examination and the state-specific land surveying examination until achieving a passing score on the fundamentals examination, similar to § 37.33a(c) for engineers and § 37.36a(c) for geologists.

As previously indicated, NCEES has changed its process for evaluating education other than at an ABET-accredited program. NCEES is also changing its examination means. Beginning with the administration in April 2014, the fundamentals of engineering and the fundamentals of land surveying examinations will be computer-based instead of “pencil and paper.” The principles and practice of engineering and the principles and practice of land surveying examinations will later also become computer-based. Once the principles and practice of land surveying examination is computer-based, the Board’s state-specific land surveying examination will also be computer-based. The computer-based exams will be offered not on a single day twice each year, but instead on any business day within a testing window each quarter. As a result of these changes, the Board is also amending §§ 37.16 and 37.17 (relating to general information; application and examination; and schedule of fees). Section 37.16(a) formerly provided that the examination applications was available by contacting the Board. The Board has replaced this provision first to require that applications for certification or licensure, most typically by reciprocity, in addition to any applications to sit for the examinations, are to be submitted to the Board office along with the appropriate application fee and supporting documentation and second to make clear that the fee is nonrefundable and nontransferable. Section 37.16(b) addresses reexamination. As previously discussed, the Board replaced “applicant” with “candidate” and made clear that these requirements apply to a candidate who did not sit for the examination, as well as a candidate who failed the examination. Because both NCEES and ASBOG require candidates to submit a scheduling form or other documentation directly to these organizations, the Board also revised this subsection to provide that a reexamination candidate may be required by NCEES or ASBOG to submit the paperwork directly to the testing organization and pay an additional fee. Section 37.16(c) formerly

provided that “written examination will be held in Pittsburgh, Harrisburg and Philadelphia . . . during the months of April and October of each year.” Because the examinations will be computer-based, the Board deleted “written.” Because the examinations will be available in windows throughout the year, the Board deleted the requirement that the examination be held in those specific months. The Board also amended this subsection to delete the two application deadline dates and instead require the candidate to apply at least 120 days in advance of the testing organization registration deadline so that the Board will have adequate time to review the application without guaranteeing that the review will be completed for that administration of the examination. Because NCEES and ASBOG require candidates to submit a scheduling form or other documentation directly to these organizations, the Board amended this subsection to require the candidate to submit the paperwork directly to the testing organization as required by the testing organization.

Section 37.17 was inconsistent in the way in which fees were listed. It identified fees for engineers and land surveyors in subsection (a), fees for geologists in subsection (b) and other fees in subsection (c). However, there are no “other” classifications of licensees. Moreover, the applications are not listed under subsection (a) for engineers and land surveyors, as these fees are listed under subsection (b) for geologists. The Board reorganized § 37.17 so that subsection (a) addresses renewal fees, subsection (b) addresses nonrenewal application fees and subsection (c) addresses fees for other services, such as certification of licensure. These changes do not in any way alter the fees charged by the Board, but merely place the recitation of the fee in a more understandable user-friendly location. The Board amended § 37.17(d) to clarify that only the fees for the state-specific examination are set by agreement between the Commonwealth and the third-party testing organization. The fee for NCEES and ASBOG examinations are set by the National organizations and are paid directly to NCEES or ASBOG separate from the fees paid to the Board.

Fiscal Impact and Paperwork Requirements

The final-form rulemaking will not have fiscal impact on the regulated community, the Commonwealth or its political subdivisions and will not impose additional paperwork requirements upon the Commonwealth, political subdivisions or the private sector.

Effective Date

The final-form rulemaking will become effective upon publication in the *Pennsylvania Bulletin*.

Statutory Authority

The final-form rulemaking is authorized by sections 4(b) and (l), 4.2, 4.3 and 4.4 of the act.

Regulatory Review

Under section 5(a) of the Regulatory Review Act (71 P. S. § 745.5(a)), on December 15, 2011, the Board submitted a copy of the notice of proposed rulemaking, published at 41 Pa.B. 6975, to IRRC and the Chairpersons of the HPLC and the SCP/PLC for review and comment.

Under section 5(c) of the Regulatory Review Act, IRRC, the HPLC and the SCP/PLC were provided with copies of the comments received during the public comment period, as well as other documents when requested. In preparing the final-form rulemaking, the Board has considered all comments from IRRC, the HPLC, the SCP/PLC and the public.

Under section 5.1(j.2) of the Regulatory Review Act (71 P. S. § 745.5a(j.2)), on January 15, 2014, the final-form rulemaking was deemed approved by the HPLC and the SCP/PLC. Under section 5.1(e) of the Regulatory Review Act, IRRC met on January 16, 2014, and approved the final-form rulemaking.

Additional Information

Persons who require additional information about the final-form rulemaking should submit inquiries to the Regulatory Unit Counsel, Department of State, P.O. Box 2649, Harrisburg, PA 17105-2649, (717) 783-5540, RA-STRegulatorycounsel@pa.gov.

Findings

The Board finds that:

(1) Public notice of proposed rulemaking was given under sections 201 and 202 of the act of July 31, 1968 (P. L. 769, No. 240) (45 P. S. §§ 1201 and 1202) and the regulations promulgated thereunder, 1 Pa. Code §§ 7.1 and 7.2.

(2) A public comment period was provided as required by law and all comments were considered.

(3) The amendments to this final-form rulemaking do not enlarge the scope of the proposed rulemaking published at 41 Pa.B. 6975.

(4) The final-form rulemaking adopted by this order is necessary and appropriate for the administration of the act.

Order

The Board, acting under its authorizing statute, orders that:

(a) The regulations of the Board, 49 Pa. Code Chapter 37, are amended by adding §§ 37.33a and 37.36a and amending §§ 37.1, 37.16, 37.17, 37.31—37.33, 37.34, 37.36, 37.37, 37.47—37.49 and 37.57 to read as set forth in Annex A.

(Editor's Note: The amendments to §§ 37.16, 37.17, 37.34 and 37.57 and the addition of §§ 37.33a and 37.36a were not included in the proposed rulemaking published at 41 Pa.B. 6975.)

(b) The Board shall submit this order and Annex A to the Office of Attorney General and the Office of General Counsel for approval as required by law.

(c) The Board shall certify this order and Annex A and deposit them with the Legislative Reference Bureau as required by law.

(d) The final-form rulemaking shall take effect upon publication in the *Pennsylvania Bulletin*.

ELIZABETH A. CATANIA, PE,
President

(Editor's Note: For the text of the order of the Independent Regulatory Review Commission relating to this document, see 44 Pa.B. 751 (February 1, 2014).)

Fiscal Note: Fiscal Note 16A-4711 remains valid for the final adoption of the subject regulations.

Annex A

TITLE 49. PROFESSIONAL AND VOCATIONAL STANDARDS

PART I. DEPARTMENT OF STATE

Subpart A. PROFESSIONAL AND OCCUPATIONAL AFFAIRS

CHAPTER 37. STATE REGISTRATION BOARD FOR PROFESSIONAL ENGINEERS, LAND SURVEYORS AND GEOLOGISTS

GENERAL PROVISIONS

§ 37.1. Definitions.

The following words and terms, when used in this chapter, have the following meanings, unless the context clearly indicates otherwise:

ABET—The Nationally-recognized accrediting body that accredits undergraduate engineering programs offered by colleges and universities in the United States. ABET was formerly known as the Accreditation Board for Engineering and Technology, Inc.

ASBOG—The National Association of State Boards of Geology.

Act—The Engineer, Land Surveyor and Geologist Registration Law (63 P. S. §§ 148—158.2).

Board—The State Registration Board for Professional Engineers, Land Surveyors and Geologists.

Bureau—The Bureau of Professional and Occupational Affairs.

Documents—Specifications, land surveys, reports, plats, drawings, plans, design information and calculations.

Hearing examiner—An individual appointed by the Board, with the approval of the Governor, to conduct hearings as may be required under the act in accordance with the act and this chapter.

NCEES—The National Council of Examiners for Engineering and Surveying.

Office management—

(i) The term includes mechanical office and business skills, such as typing, speed writing, preparation of advertising copy, development of sales promotion devices, word processing, calculator and computer operation, and internal operations and procedures that do not have a professional interest.

(ii) The term does not include the use of technology in delivering engineering, land surveying or geologic services.

PDH—*Professional development hour*—Fifty minutes of instruction or presentation relevant to professional practice as defined in section 2 of the act (63 P. S. § 149).

Practice building—

(i) Marketing or any other activity that has as its primary purpose increasing the business volume or revenue of a licensee or employer and does not involve the practice of engineering, land surveying or geology as defined in section 2 of the act.

(ii) The term includes procuring or offering to procure land surveying work for the licensee or others and managing or conducting as managers, proprietors or agents any place of business from which land surveying work is solicited, performed or practiced as included in the definition of “practice of land surveying” in section 2(d) of the act. This term includes procuring or offering to

procure engineering or geologic work for the licensee or others and managing or conducting as managers, proprietors or agents any place of business from which engineering or geologic work is solicited, performed or practiced.

(iii) The term does not include education in a professional area merely because it would expand the licensee's skills enabling the licensee to practice in an additional area.

Special meetings—A meeting scheduled by the Board after the Board's regular schedule of meetings has been established.

QUALIFICATIONS FOR LICENSURE

§ 37.16. General information; application and examination.

(a) *Applications.* Applications to take a licensing examination to be certified as an engineer-in-training, surveyor-in-training or geologist-in-training, or to be licensed as a professional engineer, professional land surveyor or professional geologist shall be submitted directly to the Administrative office of the Board at Post Office Box 2649, Harrisburg, Pennsylvania 17105-2646. Applications shall be submitted with the appropriate application fee in § 37.17 (relating to schedule of fees) and required supporting documentation. Application fees are nonrefundable and nontransferrable.

(b) *Reexaminee applications.* An approved examination application shall entitle the candidate to take the examination once upon payment of one fee. If the candidate fails the examination or fails to sit for the examination, the candidate shall submit a reexamination application to the Board and pay a new fee. If the candidate fails an examination or fails to sit for the examination, the candidate may also be required to submit a reexamination application, scheduling form and examination fees directly to NCEES or ASBOG or the examination service on behalf of the Board. NCEES or ASBOG may limit the number of reexamination attempts. Reexamination fees are nonrefundable and nontransferrable.

(c) *Examinations.* Examinations will be held in places designated by the Board, NCEES or ASBOG during at least two examination windows each year. Applications for examination eligibility shall be submitted to the Board office at least 120 days prior to the examination registration deadline established by NCEES, ASBOG or the examination service on behalf of the Board. The candidate shall register with NCEES or ASBOG as required and comply with the deadlines set by NCEES, ASBOG or the examination service on behalf of the Board.

(d) *Eligibility determination.* The Board will not review an application until the completed application, required supporting documents, if any, and required fees have been received by the Board office. Submission of an application to sit for an examination does not guarantee that the Board will approve or disapprove the application within a specified time frame.

§ 37.17. Schedule of fees.

(a) *Renewal fee.* The Board will charge the following renewal fee:

Biennial renewal of registration \$50

(b) *Application fees.* The Board will charge the following nonrefundable application fees:

Permission to sit for examination \$50

Certification, licensure or registration \$50

Temporary permit. \$25

(c) *Other fees.* The Board will charge the following fees:

Certification of license, registration, permit or scores \$25

Verification of license, registration or permit. \$15

(d) *Fees to testing organizations.* Examination fees for state-specific examinations are established by agreement between the Commonwealth and the third-party testing organizations that develop, administer and grade the examinations. Examination fees for the National examinations are established by NCEES or ASBOG. Examination candidates shall pay the required examination fees directly to the relevant testing organizations. Examination fees are paid separate from the application fees.

REGISTERED PROFESSIONAL ENGINEERS

§ 37.31. Requirements for certification as an engineer-in-training and for licensure as a professional engineer.

(a) The following requirements apply to a candidate who received a qualifying academic degree on or after June 30, 1994, or who began acquiring qualifying experience on or after February 19, 1991.

(1) *Engineer-in-training.* A candidate for certification as an engineer-in-training shall be of good moral character and achieve a passing score on the NCEES fundamentals of engineering examination. To qualify for the fundamentals of engineering examination, the candidate shall possess one of the following qualifications:

(i) Graduation from an undergraduate engineering curriculum in the United States accredited by ABET. A student who has completed 2 years in an ABET-accredited undergraduate curriculum in the United States and has maintained current enrollment may, with Board approval, sit for the fundamentals of engineering examination, but will not be eligible for certification as an engineer-in-training until the student provides proof of graduation. The effective date of certification will be the later of the date of graduation or the date of notification from NCEES of achieving a passing score on the fundamentals of engineering examination.

(ii) Graduation from an ABET-accredited graduate-level engineering curriculum in the United States or from a foreign ABET-accredited undergraduate or graduate engineering curriculum. Enrollment in a graduate-level or foreign engineering curriculum does not authorize the student to sit for the fundamentals of engineering examination prior to graduation.

(iii) Graduation from both a graduate-level engineering curriculum at a college or university in the United States and from an undergraduate engineering curriculum at a college or university in the United States that was substantially equivalent to an ABET-accredited curriculum, as shown by an evaluation of the candidate's credentials by NCEES's credentials evaluation division.

(iv) Graduation from a foreign undergraduate or graduate, or both, engineering curriculum that was substantially equivalent to an ABET-accredited curriculum, as shown by an evaluation of the candidate's credentials by NCEES's credentials evaluation division.

(v) Eight years of progressive experience in engineering work and knowledge, skill and education approximating that attained through graduation from an approved engineering curriculum. The experience must be of a grade and character sufficient to enable the candidate to independently learn through practice the principles of math-

ematics and science attained through formal education. Academic training in engineering subjects may be counted towards the experience requirement.

(2) *Professional engineer.* A candidate for licensure as a professional engineer shall be of good moral character, be certified as an engineer-in-training in this Commonwealth or another jurisdiction having satisfied the requirements under paragraph (1) to sit for the fundamentals of engineering examination, and achieve a passing score on the NCEES principles and practice of engineering examination in one of the branches of engineering as listed in § 37.34 (relating to branches of engineering). Unless otherwise stated by the appropriate licensing authority of that jurisdiction, the effective date of the engineer-in-training certificate of a candidate who was certified in a jurisdiction other than this Commonwealth will be the date the certificate was first issued. To qualify for the principles and practice examination, the engineer-in-training shall have obtained one of the following experience qualifications after the effective date of the engineer-in-training certificate and before the submission of the examination application:

(i) Four years of progressive experience in a major branch of engineering, acquired under the supervision of a professional engineer licensed in the United States or an engineer who, through education and experience, possesses the equivalent level of expertise as that of a professional engineer licensed in the United States. The experience must be of a grade and character to qualify the candidate to assume responsible charge of the work involved in the practice of the major branch of engineering in which the candidate indicates proficiency. For sales, construction and similar nondesign experience to be acceptable, the candidate shall demonstrate that engineering principles and engineering knowledge were actually employed. Unacceptable experience includes the selection of data or equipment from a company catalog or similar publication, the execution as a contractor of work designed by a professional engineer, the supervision of construction work as a superintendent and the operation or maintenance of machinery or equipment. The candidate shall support all work experience, regardless of duration, with adequate references.

(ii) Four years of progressive full-time teaching experience in an ABET-accredited engineering curriculum under the supervision of a professional engineer or an engineer who, through education and experience, possesses the equivalent level of expertise as a professional engineer. The experience must include the teaching of engineering courses at the third-year, fourth-year or graduate level, covering the breadth and depth of the curriculum, and be of a grade and character to qualify the candidate to assume responsible charge of the work involved in the practice of engineering.

(3) A post-baccalaureate engineering degree may be substituted for each year of experience required under paragraph (2), up to a maximum of 2 years, if the following conditions are met:

(i) The degree is from an academic institution that has an ABET-accredited undergraduate curriculum.

(ii) The degree is in the same discipline as an earned undergraduate degree.

(iii) The academic time is not concurrent with earned experience.

(b) A candidate who received a qualifying academic degree before June 30, 1994, or who began acquiring qualifying experience before February 19, 1991, may

apply under § 37.33 or § 37.33a (relating to grandfather requirements for certification as an engineer-in-training and for licensure as a professional engineer; and grandfather requirements for licensure as a professional engineer without certification as an engineer-in-training), as appropriate.

§ 37.32. References for certification as an engineer-in-training or licensure as a professional engineer.

(a) A candidate for licensure as a professional engineer, and a candidate for certification as an engineer-in-training who seeks to qualify for the examination based on experience, shall provide as references the names and addresses of at least five persons who can attest to the candidate's good moral character and who either directly supervised the candidate or can otherwise verify the candidate's experience. At least three of the references shall be professional engineers licensed in the United States who are unrelated to the candidate. The remaining references may be professional land surveyors, professional geologists or unlicensed engineers who, through education and experience, possess an equivalent level of expertise as that of a professional engineer. A reference who is not a professional engineer licensed in the United States is required to submit a curriculum vitae.

(b) If, in the opinion of the Board, the references adversely reflect on the candidate's character or qualifications, the Board may withhold processing the candidate's application until an investigation into the candidate's character or qualifications, or both, is completed. The candidate will be notified in writing of any investigation that is being conducted. Based on the results of the investigation, the Board may require the candidate to submit additional references.

§ 37.33. Grandfather requirements for certification as an engineer-in-training and for licensure as a professional engineer.

(a) *Scope.* This section applies to a candidate for certification as an engineer-in-training and subsequent licensure as a professional engineer who received a qualifying academic degree before June 30, 1994, or who began acquiring qualifying experience before February 19, 1991.

(b) *Engineer-in-training.* A candidate for certification as an engineer-in-training under this subsection shall be of good moral character and achieve a passing score on the NCEES fundamentals of engineering examination, except that completion of the fundamentals of engineering examination is not required of a candidate who received a qualifying academic degree before January 1, 1968. To qualify for the fundamentals of engineering examination, the candidate shall possess one of the following qualifications:

(1) Graduation from an undergraduate or graduate-level engineering curriculum in the United States accredited by ABET or graduation from a foreign undergraduate or graduate-level engineering curriculum accredited by ABET.

(2) Graduation from both a graduate-level engineering curriculum at a college or university in the United States and from an undergraduate engineering curriculum at a college or university in the United States that was substantially equivalent to an ABET-accredited curriculum, as shown by an evaluation of the candidate's credentials by NCEES's credentials evaluation division.

(3) Graduation from a foreign undergraduate or graduate, or both, engineering curriculum that was substan-

tially equivalent to an ABET-accredited curriculum, as shown by an evaluation of the candidate's credentials by NCEES's credentials evaluation division.

(4) Four years of experience in engineering work, having acquired knowledge, skill and education approximating that attained through graduation from an approved engineering curriculum. Experience used to satisfy this requirement may not also be used to satisfy the experience requirements of subsection (c)(1)(iii).

(c) *Professional engineer.* A candidate for licensure as a professional engineer under this subsection shall be of good moral character and achieve a passing score on the NCEES principles and practice examination in one of the branches of engineering.

(1) To qualify for the principles and practice examination, the candidate shall:

(i) Possess an engineer-in-training certificate in this Commonwealth or another jurisdiction.

(ii) Satisfy the requirements under subsection (b) to sit for the fundamentals of engineering examination.

(iii) Have at least 4 years of progressive engineering or teaching experience.

(2) The engineering and teaching experience required under this subsection must comply with the standards in § 37.31(a)(2)(i) and (ii) (relating to requirements for certification as an engineer-in-training and for licensure as a professional engineer). A candidate may not substitute a post-baccalaureate engineering degree for any part of the required experience.

§ 37.33a. Grandfather requirements for licensure as a professional engineer without certification as an engineer-in-training.

(a) *Scope.* A candidate who began acquiring qualifying experience before February 19, 1991, may apply for licensure as a professional engineer without being certified as an engineer-in-training by satisfying the requirements of this section.

(b) *Qualifications.* A candidate for licensure as a professional engineer shall be of good moral character and have had 12 years or more of progressive experience in engineering work, at least 8 years of which must comply with the standards in § 37.31(a)(2) (relating to requirements for certification as an engineer-in-training and for licensure as a professional engineer).

(c) *Examinations.* A candidate who has satisfied the requirements of subsection (b) will be licensed as a professional engineer upon achieving a passing score on the NCEES fundamentals of engineering examination and the NCEES principles and practice examination in one of the branches of engineering. A candidate may not be admitted to sit for the principles and practice of engineering examination until achieving a passing score on the fundamentals of engineering examination.

§ 37.34. Branches of engineering.

(a) The Board recognizes the following as major branches of engineering practice and may eliminate or add other branches of engineering practice it deems necessary in the interest of the profession.

- (1) Aeronautical/aerospace engineering.
- (2) Agricultural engineering.
- (3) Chemical engineering.
- (4) Civil engineering.

- (5) Electrical engineering.
- (6) Industrial engineering.
- (7) Manufacturing engineering.
- (8) Mechanical engineering.
- (9) Metallurgical engineering.
- (10) Mining/mineral engineering.
- (11) Nuclear engineering.
- (12) Petroleum engineering.
- (13) Fire protection engineering.
- (14) Sanitary engineering.
- (15) Structural engineering.
- (16) Control systems engineering.

(b) A candidate who has passed an examination in one of the major branches of engineering listed in subsection (a), or in other branches of engineering as are subsequently recognized by the Board, will be granted registration as a professional engineer. The professional engineer may then practice any branch of engineering in which the professional engineer has proven proficiency by reason of education and experience, and in which the professional engineer is willing to accept full legal, financial and professional responsibility. A professional engineer may not be limited to the practice of any one major branch of engineering because the professional engineer has passed a written examination based upon the major branch of engineering, subject to this chapter and the provisions of the act relating to Code of Ethics.

REGISTERED PROFESSIONAL GEOLOGISTS

§ 37.36. Requirements for certification as a geologist-in-training and for licensure as a professional geologist.

(a) *General.* The requirements in this section apply to candidates for certification as a geologist-in-training and candidates for subsequent licensure as a professional geologist. A candidate who meets the applicable requirements may apply at the same time both to sit for the fundamentals of geology examination and to sit for the principles and practice of geology examination to be licensed as a professional geologist as provided in § 37.36a (relating to requirements for licensure as a professional geologist without certification as geologist-in-training).

(b) *Geologist-in-training.* A candidate for certification as a geologist-in-training shall be of good moral character and achieve a passing score on the ASBOG fundamentals of geology examination.

(1) To qualify for the fundamentals of geology examination, the candidate shall possess one of the following qualifications:

(i) Graduation from an accredited institution of higher learning in the United States, having majored in geology, geophysics, geochemistry or engineering geology and having completed 30 semester hours or 45 quarter hours in the major. A student who has completed 2 years in a program and has maintained current enrollment may, with Board approval, sit for the fundamentals of geology examination, but will not be eligible for certification as a geologist-in-training until the student provides proof of graduation, including compliance with the educational content requirements of paragraph (2). The effective date of certification will be the later of the date of graduation

or the date of notification from ASBOG of achieving a passing score on the fundamentals of geology examination.

(ii) Graduation from an accredited institution of higher learning in the United States that does not offer a major in geology, geophysics, geochemistry or engineering geology, having completed 30 semester hours or 45 quarter hours or an equivalent amount of geological education, including 24 semester hours or an equivalent amount in third-year or fourth-year courses or graduate courses. A student who has completed 2 years in a program and has maintained current enrollment may, with Board approval, sit for the fundamentals of geology examination, but will not be eligible for certification as a geologist-in-training until the student provides proof of graduation, including compliance with the educational content requirements of paragraph (2). The effective date of certification will be the later of the date of graduation or the date of notification from ASBOG of achieving a passing score on the fundamentals of geology examination.

(iii) Graduation from a foreign college or university that World Education Services or other Board-approved professional evaluation service deems equivalent to a bachelor's degree in geology, geophysics, geochemistry or engineering geology from an accredited institution of higher learning in the United States and which satisfies the educational content requirements of paragraph (2).

(2) The formal education required under this subsection must include field geology and structural geology coursework that is sufficient to demonstrate that the candidate has educational experience in tectonics and fractured bedrock geology and the field methods needed to measure, map and evaluate geologic data.

(c) *Professional geologist.* A candidate for licensure as a professional geologist shall be of good moral character, be certified as a geologist-in-training and achieve a passing score on the ASBOG principles and practice of geology examination.

(1) To qualify for the principles and practice examination, the geologist-in-training certified in this Commonwealth or another jurisdiction who also satisfies the requirements under subsection (b) to sit for the fundamentals of geology examination shall have obtained one of the following experience qualifications prior to the submission of the examination application:

(i) Five years of experience performing geological services or work in a position that requires independent judgment, competence and accountability.

(ii) Five years of experience performing geological services or work, including 3 years under the supervision of a professional geologist, except that experience acquired prior to February 16, 1993, may be under the supervision of an unlicensed geologist who, through education and experience, possesses the equivalent level of expertise as that of a professional geologist.

(iii) Five years of progressive full-time teaching experience in a geological curriculum, including senior-level or graduate-level coursework, at an accredited institution of higher learning.

(2) The experience required under this subsection must require the utilization, application and interpretation of fundamental and practical principles of the geological science and be of a character and grade to qualify the candidate to assume responsible charge of the work involved in the practice of geology. Acceptable experience may include the technical completeness reviews or inspec-

tions of unfinalized work product. Unacceptable experience includes routine sampling, laboratory work and geological drafting. A graduate degree in geology, geophysics, geochemistry or engineering geology may be substituted as part of the experience requirements in this paragraph, at a rate of 1 year for a master's degree and 1 year for a doctoral degree. Credit for graduate degrees may not exceed 2 years of experience.

§ 37.36a. Requirements for licensure as a professional geologist without certification as geologist-in-training.

(a) *General.* As an alternative to the requirements of § 37.36 (relating to requirements for certification as a geologist-in-training and for licensure as a professional geologist), a candidate who is not certified as a geologist-in-training may apply for licensure as a professional geologist by satisfying the requirements of this section.

(b) *Qualifications.* A candidate for licensure as a professional geologist shall be of good moral character and satisfy the requirements of this subsection.

(1) The candidate shall possess one of the following educational qualifications that include field geology and structural geology coursework that is sufficient to demonstrate that the candidate has educational experience in tectonics and fractured bedrock geology and the field methods needed to measure, map and evaluate geologic data:

(i) Graduation from an accredited institution of higher learning in the United States, having majored in geology, geophysics, geochemistry or engineering geology and having completed 30 semester hours or 45 quarter hours in the major.

(ii) Graduation from an accredited institution of higher learning in the United States that does not offer a major in geology, geophysics, geochemistry or engineering geology, having completed 30 semester hours or 45 quarter hours or an equivalent amount of geological education, including 24 semester hours or an equivalent amount in third-year or fourth-year courses or graduate courses.

(iii) Graduation from a foreign college or university that World Education Services or other Board-approved professional evaluation service deems equivalent to a bachelor's degree in geology, geophysics, geochemistry or engineering geology from an accredited institution of higher learning in the United States.

(2) The candidate shall have obtained experience in accordance with this paragraph prior to the submission of the examination application. The experience must require the utilization, application and interpretation of fundamental and practical principles of the geological science and be of a character and grade to qualify the candidate to assume responsible charge of the work involved in the practice of geology. Acceptable experience may include the technical completeness reviews or inspections of unfinalized work product. Unacceptable experience includes routine sampling, laboratory work and geological drafting. A graduate degree in geology, geophysics, geochemistry or engineering geology may be substituted as part of the experience requirements in this paragraph at a rate of 1 year for a master's degree and 1 year for a doctoral degree. Credit for graduate degrees may not exceed 2 years of experience. The candidate shall possess one of the following experience qualifications:

(i) Five years of experience performing geological services or work in a position that requires independent judgment, competence and accountability.

(ii) Five years of experience performing geological services or work, including 3 years under the supervision of a professional geologist, except that experience acquired prior to February 16, 1993, may be under the supervision of an unlicensed geologist who, through education and experience, possesses the equivalent level of expertise as that of a professional geologist.

(iii) Five years of progressive full-time teaching experience in a geological curriculum, including senior-level or graduate-level coursework, at an accredited institution of higher learning.

(c) *Examinations.* A candidate who has satisfied the requirements of subsection (b) will be licensed as a professional geologist upon achieving passing scores on the ASBOG fundamentals of geology examination and the ASBOG principles and practice of geology examination. A candidate may not be admitted to sit for the principles and practice of geology examination until achieving a passing score on the fundamentals of geology examination.

§ 37.37. References for licensure as a professional geologist.

(a) A candidate for licensure as a professional geologist shall provide as references the names and addresses of at least five persons who can attest to the candidate's good moral character and who either directly supervised the candidate or can otherwise verify the candidate's experience. At least three of the references shall be professional geologists licensed in the United States who are unrelated to the candidate. The remaining references may be professional engineers, professional land surveyors or unlicensed geologists who, through education and experience, possess an equivalent level of expertise as that of a professional geologist. A reference who is an unlicensed geologist is required to submit a curriculum vitae.

(b) If, in the opinion of the Board, the references reflect adversely on the candidate's character or qualifications, the Board may withhold processing the candidate's application until an investigation into the candidate's character or qualifications, or both, is completed. The candidate will be notified in writing of any investigation that is being conducted. Based upon the results of the investigation, the Board may require the candidate to submit additional references.

REGISTERED PROFESSIONAL LAND SURVEYORS

§ 37.47. Requirements for certification as a surveyor-in-training and for licensure as a professional land surveyor.

The following requirements apply to a candidate who received a qualifying academic degree on or after June 30, 1994, or who began obtaining qualifying experience on or after February 19, 1991.

(1) *Surveyor-in-training.* A candidate for certification as a surveyor-in-training shall be of good moral character and achieve a passing score on the NCEES fundamentals of surveying examination. To qualify for the fundamentals of surveying examination, the candidate shall possess one of the following qualifications:

(i) Graduation from an undergraduate civil engineering curriculum in the United States accredited by ABET, including a minimum of 10 credit hours of instruction in surveying or graduation from an undergraduate 4-year surveying curriculum in the United States accredited by ABET. A student who has completed 2 years of a 4-year surveying curriculum and has maintained current enrollment may, with Board approval, sit for the fundamentals

of surveying examination, but will not be eligible for certification as a surveyor-in-training until the student provides proof of graduation. The effective date of certification will be the later of the date of graduation or the date of notification from NCEES of achieving a passing score on the fundamentals of surveying examination.

(ii) Graduation from an associate's degree program in a surveying technology curriculum accredited by ABET.

(iii) Six years of progressive experience in surveying, and knowledge, skill and education equivalent to that attained through graduation from an approved land surveying or civil engineering curriculum. The experience must reflect diversification of field and office work, with no less than 25% of the experience in either area and be of a grade and character sufficient to enable the candidate to independently learn through practice the surveying skills and principles of mathematics attained through formal education.

(2) *Professional land surveyor.* A candidate for licensure as a professional land surveyor shall be of good moral character, be certified as a surveyor-in-training and achieve a passing score on the NCEES principles and practice of surveying examination. Unless otherwise stated by the appropriate licensing authority of that jurisdiction, the effective date of the surveyor-in-training certificate of a candidate who was certified in a jurisdiction other than this Commonwealth will be the date the certificate was first issued. To qualify for the principles and practice examination, the surveyor-in-training shall have obtained one of the following experience qualifications between the effective date of the surveyor-in-training certificate and the submission of the examination application:

(i) Four years of progressive experience in surveying work acquired under the supervision of a professional land surveyor or a land surveyor who, through education and experience, possesses the equivalent level of expertise as that of a professional land surveyor. The experience shall be of a grade and character to qualify the candidate to assume responsible charge of the work involved in the practice of land surveying.

(ii) Four years of progressive full-time faculty teaching experience in a surveying curriculum accredited by ABET under the supervision of a professional land surveyor or a surveyor who, through education and experience, possesses the equivalent level of expertise as a professional land surveyor. The experience must include the teaching of surveying courses at the third-year, fourth-year or graduate level, covering the breadth and depth of the curriculum, and be of a grade or character to qualify the candidate to assume responsible charge of the work involved in the practice of land surveying.

§ 37.48. References for certification as a surveyor-in-training or licensure as a professional land surveyor.

(a) A candidate for licensure as a professional land surveyor, and a candidate for certification as a surveyor-in-training who seeks to qualify for the certification examination based on experience, shall provide as references the names and addresses of at least five persons who can attest to the candidate's good moral character and who either directly supervised the candidate or can otherwise verify the candidate's experience. At least three of the references shall be professional land surveyors licensed in the United States who are unrelated to the candidate. The remaining references may be professional engineers, professional geologists or unlicensed surveyors

who, through education and experience, possess an equivalent level of expertise as that of a professional land surveyor. A reference who is an unlicensed surveyor is required to submit a curriculum vitae.

(b) If, in the opinion of the Board, the references reflect adversely on the candidate's character or qualifications, the Board may withhold processing the candidate's application until an investigation into the candidate's character or qualifications, or both, is completed. The candidate will be notified in writing of any investigation that is being conducted. Based on the results of the investigation, the Board may require additional references.

§ 37.49. Grandfather requirements for licensure as a professional land surveyor.

(a) This section applies to a candidate who received a qualifying academic degree before June 30, 1994, or who began obtaining qualifying experience before February 19, 1991.

(b) A candidate for licensure as a professional land surveyor under this section shall be of good moral character and achieve passing scores on the NCEES fundamentals of surveying examination and principles and practice of surveying examination. To qualify for the examinations, the candidate shall possess one of the following sets of qualifications prior to submission of the examination application:

(1) Graduation from an undergraduate civil engineering curriculum in the United States accredited by ABET, including a minimum of 10 credit hours of instruction in surveying, and 4 years of progressive experience in land surveying work.

(2) Graduation from an associate's degree program in a curriculum in surveying accredited by ABET and 4 years of progressive experience in land surveying work.

(3) Ten years of progressive experience in land surveying work, including 5 years in responsible charge of primary land surveying functions.

(c) The experience required under this section must have been acquired under the supervision of a professional land surveyor or an unlicensed surveyor who, through education and experience, possesses the equivalent level of expertise as that of a professional land surveyor. The experience must be of a grade and character to qualify the candidate to assume responsible charge of the work involved in the practice of land surveying. The experience must reflect diversification of field and office work, with no less than 25% of the experience in either area.

(d) A candidate may not be admitted to sit for the principles and practice of land surveying examination and the state-specific land surveying examination until achieving a passing score on the fundamentals of land surveying examination.

REGISTRATION NUMBER AND SEAL

§ 37.57. Registration number.

Upon registering with the Board, each registrant will be assigned a unique registration number.

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