

**Approval and Adoption of Rulemaking Proposals relating to
Approved Curricula and Waiver of Fundamentals Examination
[Title 16, California Code of Regulations sections 404, 424, 425, 438, and 460]**

The proposed amendments to Board Rules 404, 424, 425, 438, and 460 were noticed for public comment on February 18, 2010. The 45-day period for the submittal of written comments ended on April 5, 2010. No public hearing was scheduled on this rulemaking proposal, and none was requested during the time period in which to request a hearing. One written comment was received during the comment period. Based on that comment, modifications were made to the proposed language. These modifications were then noticed for a 15-day public comment period, which ran from July 26 through August 10, 2010.

During that 15-day comment period, written comments were received from one individual. The comments did not pertain to the modifications which were the subject of the 15-day notice; they pertained to other proposed amendments which had been the subject of the original 45-day notice. Although by law the Board is only required to consider comments that pertain to the subject of the 15-day notice, it is viewed as a best practice for the Board to consider all comments received from the public during the rulemaking process.

The individual who submitted the comments is a Professional Engineer. He indicated that he served on the ABET Board of Directors from 1995 through 2001 but does not recall discussion of any of the issues he raises. He also indicated that he has not been following ABET's activities since his term on its Board of Directors expired. A summary of his comments and the staff response/recommendations are below.

Comment: The individual recommends that Board Rule 404 should be changed to refer to "ABET" as including both "ABET Inc." and "Accreditation Board for Engineering and Technology" since degree programs accredited under either name are valid.

Staff Response: The amendment to Board Rule 404 regarding the definition of ABET as originally noticed includes both names. It states that "ABET' means ABET, Inc., formerly known as the Accreditation Board for Engineering Technology." Therefore, the proposed amendment already addresses the individual's comment, and staff recommends that no further changes be made.

Comment: The individual recommended that language be included to address the dates for which the program was accredited and the dates the applicant completed the program so it would be clear to the applicants whether or not their program was accredited during their enrollment in and completion of their program.

Staff Response: The determination of whether a program is accredited and during what period of time that accreditation is valid is a determination that is made by

ABET. The Board determines how many years of qualifying experience an applicant receives based on whether or not the applicant's program was accredited by ABET. Staff does not believe it would be appropriate for the Board to include information in its regulations about how ABET accredits programs or how ABET determines the dates or time periods of accreditation. If the Board were to include such information, the Board would then have to amend its regulations whenever ABET made changes to its accreditation processes, which are outside the purview of the Board. Therefore, staff recommends that the Board not make any changes to the language as proposed.

Since staff recommends that no further changes be made to the rulemaking proposal, the next step in the process is for the Board to formally adopt the proposed changes and direct staff to finalize the rulemaking file. The final rulemaking file is then submitted to the Department of Consumer Affairs and then to the Office of Administrative Law for review and approval.

RECOMMENDED MOTION

Adopt the proposed changes to Title 16, California Code of Regulations sections 404, 424, 425, 438, and 460 and direct staff to finalize the rulemaking file for submittal to the Department of Consumer Affairs and the Office of Administrative Law for review and approval.

NOTE: Proposed changes in the text are shown in underlined text for additions and ~~striketrough text~~ for deletions.

Board for Professional Engineers and Land Surveyors

Title 16, California Code of Regulations

Amend Section 404 of Title 16 of the California Code of Regulations to read as follows:

404. Definitions.

...

(ii) "ABET" means ABET, Inc., formerly known as the Accreditation Board for Engineering and Technology.

(jj) "Approved Engineering Curriculum" refers to any curriculum under an ABET accredited engineering program leading to a baccalaureate degree in engineering.

(kk) "Approved Engineering Technology Curriculum" refers to any curriculum under an ABET accredited engineering program leading to a four-year degree or a baccalaureate degree in technology.

(ll) "Approved Post-Graduate Engineering Curriculum" refers to any curriculum under an ABET accredited engineering program leading to a master's degree in engineering or to a post-graduate degree earned from an engineering program where the baccalaureate degree program is accredited by ABET.

(mm) "Approved Cooperative Work-Study Engineering Curriculum" refers to any curriculum under an ABET accredited cooperative work-study engineering program.

(nn) "Non-Approved Engineering Curriculum" refers to any engineering program that has not been accredited by ABET.

(oo) "Approved Land Surveying Curriculum" refers to any curriculum under an ABET accredited program leading to a baccalaureate degree.

(pp) "Approved Cooperative Work-Study Land Surveying Curriculum" refers to any curriculum under an ABET accredited cooperative work-study surveying program.

(qq) "Non-Approved Land Surveying Curriculum" refers to any land surveying program that has not been accredited by ABET.

Note: Authority cited: Sections 6716, 6717, 6751.5, and 8710, Business and Professions Code. Reference: Sections 6701, 6702, 6702.1, 6702.2, 6704, 6706.3,

6710, 6730, 6731, 6731.5, 6731.6, 6732, 6732.1, 6732.2, 6732.3, 6734, 6734.1, 6734.2, 6736, 6736.1, 6751, 6751.2, 6751.5, 6753, 6756, 6763, 6775, 8701, 8726, 8741, 8742, 8747 and 8780, Business and Professions Code.

Amend Section 424 of Title 16 of the California Code of Regulations to read as follows:

424. Experience Requirements – Professional Engineers.

(a) The engineering branches and title authorities described in Section 404, herein, overlap and some activities are common to two or more engineering branches and title authorities. The minimum number of years of qualifying experience in such overlapping engineering branches and title authorities may be used in securing licensure in any applicable engineering branch or title authority but cannot be used more than once. The only exception to this is experience credit for education ~~and experience credit used to qualify for the land surveyor examination~~. Qualifying education entitles a candidate to experience credit, and this experience credit ~~can~~ may be used again even though it has already been used to qualify for another examination.

(b) An applicant for licensure as a professional engineer shall be granted credit towards the experience requirement, as stated in subdivision (a), for the following education curriculum:

(1) Four (4) years experience credit for graduation from an approved engineering curriculum.

(2) Two (2) years experience credit for graduation from a non-approved engineering curriculum or from an approved engineering technology curriculum.

(3) Five (5) years of experience credit for graduation from an approved cooperative work-study engineering curriculum.

(4) Five (5) years of experience credit for graduation from an approved post-graduate engineering curriculum.

(5) One-half (1/2) year of education credit for each year of study completed in an approved engineering curriculum that did not result in the awarding of a baccalaureate degree, except that the maximum of such experience shall be two (2) years.

“Life Experience Degrees” are not acceptable and will not be counted towards the education credit.

The additional actual work experience required to meet the six (6) years of experience requirement shall have been gained after graduation, except for cooperative work study experience and post-graduate education.

~~four years experience credit for graduation from an approved engineering curriculum; or, two years experience credit for graduation from a non-approved engineering curriculum or an approved engineering technology curriculum. The additional actual work experience required to meet the six years experience requirement shall have been gained after graduation, except for cooperative work study experience. A maximum of five years experience credit shall be granted for graduation from a cooperative work-study engineering curriculum accredited by the Accreditation Board for Engineering and Technology (ABET).~~

~~A graduate of an approved postgraduate engineering curriculum shall be given one year of additional experience credit over and above credit given for undergraduate education. Incomplete undergraduate engineering education at an approved institution shall be given one-half year of experience for each year of study completed.~~

The sum of qualifying experience credit for education and engineering teaching experience shall not exceed five years.

(c) Qualifying experience is that experience satisfactory to the Board which has been gained while performing engineering tasks under the ~~direction~~ responsible charge of a person legally qualified to practice in an applicant's branch of engineering.

(1) For the purposes of this section, "legally qualified" means having an appropriate license as a professional engineer; ~~or by being an employee of the Federal Government;~~ ~~or, except for civil engineers, by virtue of being an employee of a manufacturing, mining, public utility, research and development, or other industrial corporation;~~ or, except for civil engineers, by holding an appropriate license as a contractor.

(2) Qualifying experience shall be computed on an actual time worked basis, but not to exceed forty hours per week.

(3) Applied engineering research is an engineering task for the purposes of determining qualifying experience.

(d) Computation of qualifying experience for licensure as a professional engineer or for authority to use the title "structural engineer" or "geotechnical engineer" shall be to the date of filing of the application; or it shall be to the final filing date announced for the examination if the application is filed within a period of thirty (30) days preceding the final filing date announced for such examination.

Note: Authority cited: Section 6716, Business and Professions Code. Reference: Sections ~~6706.3, 6710, 6732, 6751, 6751.2, 6751.5, 6752, 6753,~~ and 6753.5, Business and Professions Code.

Amend Section 425 of Title 16 of the California Code of Regulations to read as follows:

425. Experience Requirements – Professional Land Surveyors.

(a) An applicant for licensure as a professional land surveyor shall ~~fulfill the educational and~~ be granted credit towards the experience requirements contained in Sections 8741 and 8742 of the Code, for the following education curriculum:

(1) Four (4) years experience credit for graduation from an approved land surveying curriculum.

(2) Two (2) years experience credit for graduation from a non-approved land surveying curriculum.

(3) Five (5) years of experience credit for graduation from an approved cooperative work-study land surveying curriculum.

(4) One-half (1/2) year of education credit for each year of study completed in an approved land surveying curriculum that did not result in the awarding of a baccalaureate degree, except that the maximum of such experience shall be two

(2) years. A year of study shall be at least 32 semester units or 48 quarter units, no less than 10 semester units or 15 quarter units of which shall be from classes clearly identified as being land surveying subjects.

“Life Experience Degrees” are not acceptable and will not be counted towards the education credit.

(b) All qualifying work experience in land surveying shall be performed under the ~~direction and review~~ responsible charge of a person legally authorized to practice land surveying. An applicant shall possess at least two years of actual responsible training experience in land surveying which shall involve at least four of the land surveying activities specified in subdivisions (a) - (g) and (k) - ~~(m)~~ (n) of Section 8726 of the Code. Qualifying experience in activities specified in subdivision (a), (b), ~~and (m), and (n)~~ of Section 8726 shall not exceed one year. Qualifying experience shall be computed on an actual time worked basis, but not to exceed forty hours per week.

~~(c) An applicant shall be credited with qualifying experience for post-secondary education that may be applied to the six years necessary for admission to the professional land surveyor examination. A graduate from a four year curriculum with an emphasis in land surveying accredited by the Accreditation Board for Engineering and Technology (ABET) shall be given four years experience credit. A graduate of a curriculum with an emphasis in land surveying not accredited by ABET shall be given two years experience credit. Incomplete undergraduate education in land surveying at an institution accredited by ABET shall be given one-half year of experience for each year of study completed, except that the maximum of such experience credit shall be two years per applicant. A year of study shall be at least 32 semester units or 48 quarter units, no less than 10 semester units or 15 quarter units of which shall be from classes clearly identified as being land surveying subjects.~~

~~— A maximum of five years experience shall be credited for graduation from a cooperative work-study land surveying curriculum accredited by the Accreditation Board for Engineering and Technology (ABET).~~

(d) For purposes of Section 8742 of the Code, the term “responsible field training” experience may include, but is not limited to, the land surveying activities listed below. Under the responsible charge, direction, and review of a person legally authorized to practice land surveying, the applicant:

- (1) Determines field survey methods and procedures, including selection of accuracy standards.
- (2) Selects or verifies that the correct control monumentation is used to establish the designated survey datum(s) (horizontal and vertical) and selects on-the-ground locations for control monuments.
- (3) Determines the relevance of monuments and physical field evidence for the purpose of establishing boundary and property lines.
- (4) Reviews measurement observations for the determination of accuracy, completeness, and consistency.
- (5) Reviews field notes and records for application of proper field survey procedures.
- (6) Plans, performs, and reviews field checks and, based on such checks, determines if completed field surveys are accurate and sufficient.

- (7) Searches for boundary and control monuments; assists in analyzing field evidence for locating boundary points and lines; identifies and describes such evidence; compares record data to found physical evidence; compares record data to measured data; documents discrepancies; assists in acquiring and documenting testimony regarding boundary locations; recommends boundary location and/or establishment; selects or verifies that the correct controlling monuments are used to locate or establish boundary points and lines; and prepares draft record documents.
- (8) Coordinates the fieldwork necessary to prepare maps, plats, reports, descriptions, or other documents.
- (9) Recommends when existing boundary monuments are to be replaced, selects the method(s) to be used for replacing and resetting monuments, and prepares field documentation of such work, including that necessary for Parcel Maps, Final Maps, Record of Survey Maps, and Corner Records.
- (10) Functions as a party chief, chief of parties, or lead person in charge of field crew(s) in the performance of field surveys.
- (11) Plans and performs field observations using Global Positioning System technology and determines if completed field surveys are accurate and sufficient in geodetic and land surveying applications.
- (12) Performs surveys to facilitate the location or construction of infrastructure and fixed works of improvement.

The enumeration of the above tasks does not preclude the Board from awarding "responsible field training" credit for training of a similar character in other current or future land surveying activities not specifically enumerated herein. It is also understood that the listed tasks are only some of those that may be considered as responsible training, and that this list is not in any way intended to enumerate all of the tasks which may be performed by licensed Professional Land Surveyors.

(e) (d) For purposes of Section 8742 of the Code, the term "responsible office training" experience may include, but is not limited to, the land surveying activities listed below. Under the responsible charge, direction, and review of a person authorized to practice land surveying, the applicant:

- (1) Performs the planning and analysis necessary for the preparation of survey documents, such as Parcel Maps, Final Maps, Record of Survey Maps, Corner Records, legal descriptions, topographic maps, plat maps, lot line adjustments, annexations, and boundary line agreements.
- (2) Reduces and evaluates field data.
- (3) Develops procedures and systems for the collection, reduction, adjustment, and use of land surveying data.
- (4) Prepares data to be used by field surveyors or field crews.
- (5) Coordinates the processing of maps, plats, reports, descriptions, or other documents with local agencies, other licensed surveyors, or County Surveyors Offices.
- (6) Coordinates the office work necessary to prepare maps, plats, reports, descriptions, or other documents.
- (7) Coordinates survey and design efforts for improvement plans as required for sufficiency to enable proper location of improvements in the field.

- (8) Researches public and private records to obtain survey and title data.
- (9) Performs boundary analysis and determination using record descriptions, survey, and title data.
- (10) Plans and coordinates the application of Global Positioning System technology for geodetic and land surveying applications.
- (11) Plans, coordinates, performs, and reviews the entry of property boundary related geo referenced data into an electronic database.
- (12) Prepares topographic mapping utilizing photogrammetric methods.

The enumeration of the above tasks does not preclude the Board from awarding "responsible office training" credit for training of a similar character in other current or future land surveying activities not specifically enumerated herein. It is also understood that the listed tasks are only some of those that may be considered as responsible training, and that this list is not in any way intended to enumerate all of the tasks which may be performed by licensed professional land surveyors.

(f) (e) Computation of qualifying experience for a license as a professional land surveyor shall be to the date of filing of the application, or it shall be to the final filing date announced for the examination if the application is filed within a period of thirty (30) days preceding the final filing date announced for such examination.

(g) (f) An applicant for licensure as a land surveyor who holds a valid and unexpired registration or license as a civil engineer is exempt from the application requirements of subdivisions (b), (c), and (d) of this section provided he or she submits sufficient documentation that he or she has a minimum of two years of actual broad based progressive experience in land surveying as required by Business and Professions Code Section 8742(a)(3).

Note: Authority cited: Section 8710, Business and Professions Code. Reference: Sections 8726, 8741, and 8742, Business and Professions Code.

Amend Section 438 of Title 16, California Code of Regulations, as follows:

438. Waiver of Fundamentals Examination.

(a) An applicant for licensure as a professional engineer whose qualifications meet all requirements of the code and rules of the Board will be allowed to appear for only the second division of the written examination prescribed by Section 6755 of the Code if he or she meets one or more of the following requirements:

(1) Holds valid licensure as a professional engineer in another branch in California.

(2) Holds valid certification as an engineer-in-training in another state obtained by passing a written examination which normally requires a minimum of eight hours to complete and the content of the examination is designed to test the candidates knowledge of fundamental engineering subjects, including mathematics and the basic sciences.

(3) Is a graduate of an approved engineering curriculum and submits satisfactory evidence to the Board that he or she has fifteen (15) years or more of additional engineering work experience satisfactory to the Board that has been gained

in addition to graduation, or any other education experience, and while performing engineering tasks under the direction of a person legally authorized to practice in an applicant's branch of engineering.

(4) Is a graduate of a non-approved engineering curriculum or an approved engineering technology curriculum and submits satisfactory evidence to the Board that he or she has seventeen (17) years or more of additional engineering work experience satisfactory to the Board that has been gained in addition to graduation, or any other education experience, and while performing engineering tasks under the direction of a person legally authorized to practice in an applicant's branch of engineering.

(5) Is a graduate of an approved engineering curriculum and an approved post-graduate engineering curriculum and submits satisfactory evidence to the Board that he or she has fourteen (14) years or more of additional engineering work experience satisfactory to the Board that has been gained in addition to graduation, or any other education experience, and while performing engineering tasks under the direction of a person legally authorized to practice in an applicant's branch of engineering.

(6) Is a graduate of a non-approved engineering curriculum or an approved engineering technology curriculum and an approved postgraduate engineering curriculum and submits satisfactory evidence to the Board that he or she has ~~sixteen (16)~~ fourteen (14) years or more of additional engineering work experience satisfactory to the Board that has been gained in addition to graduation, or any other education experience, and while performing engineering tasks under the direction of a person legally authorized to practice in an applicant's branch of engineering.

(7) Is the holder of an earned doctorate in engineering from a department or program at a university or college where the undergraduate engineering curriculum in the same branch of engineering is an approved engineering curriculum; or is serving in a tenure-track faculty position in an approved engineering curriculum at the level of Assistant Professor or higher.

(b) An applicant for licensure as a land surveyor whose qualifications meet all requirements of the code and rules of the Board will be allowed to appear for only the second division of the written examination prescribed by Section 8741 of the Code if he or she meets one or more of the following requirements:

(1) Holds valid licensure as a professional civil engineer in California.

(2) Holds valid certification as an engineer-in-training obtained by passing a written examination which normally requires a minimum of eight hours to complete and the content of the examination is designed to test the candidate's knowledge of fundamental engineering subjects including mathematics and the basic sciences.

(3) Is a graduate of an approved land surveying curriculum and submits satisfactory evidence to the Board that he or she has fifteen (15) years or more of additional land surveying work experience satisfactory to the Board that has been gained in addition to graduation, or any other education experience, and while performing land surveying tasks under the direction of a person legally authorized to practice land surveying.

(4) Is a graduate of a non-approved land surveying curriculum and submits satisfactory evidence to the Board that he or she has seventeen (17) years or more of additional land surveying work experience satisfactory to the Board that has been gained in addition to graduation, or any other education experience, and while performing land surveying tasks under the direction of a person legally authorized to practice in land surveying.

(5) Is a graduate of an approved land surveying curriculum and an approved post-graduate land surveying curriculum and submits satisfactory evidence to the Board that he or she has fourteen (14) years or more of additional land surveying work experience satisfactory to the Board that has been gained in addition to graduation, or any other education experience, and while performing land surveying tasks under the direction of a person legally authorized to practice in land surveying.

(6) Is a graduate of a non-approved land surveying curriculum and an approved post-graduate land surveying curriculum and submits satisfactory evidence to the Board that he or she has sixteen (16) years or more of additional land surveying work experience satisfactory to the Board that has been gained in addition to graduation, or any other education experience, and while performing land surveying tasks under the direction of a person legally authorized to practice in land surveying.

(7) Holds valid certification as a land surveyor-in-training in another state obtained by passing a written examination which normally requires a minimum of eight hours to complete and the content of the examination is designed to test the candidate's knowledge of fundamentals of land surveying including mathematics and the basic sciences.

(c) An applicant for a California certification as an engineer-in-training or a land surveyor-in-training who holds valid certification in another state obtained as in (a)(2) or (b)(7) above may be issued a California certificate.

Note: Authority cited: Sections 6716, 6755, 8710, and 8741, Business and Professions Code. Reference: Sections 6706.3, 6710, 6732, 6751, 6755, 6755.1, 6759, 8741, 8742, 8745, and 8748, Business and Professions Code.

Repeal Section 460 of Title 16 of the California Code of Regulations.

~~460.—Curricula Approved by the Board.~~

~~(a) A curriculum approved by the board as qualifying a graduate of that curriculum for four years' engineering experience, or a non-graduate with one-half year of experience for each year of study completed, as provided in Section 6753 of the code, is defined as any engineering curriculum leading to a first degree in engineering accredited by the Accreditation Board for Engineering and Technology (ABET). The effective date of accreditation shall be one year prior to the initial year of accreditation as specified in the ABET Accreditation Yearbook.~~

~~(b) The board may give one-half year of experience credit for each year of study completed in a non-approved engineering curriculum except that the maximum of such experience credit shall be two years per applicant.~~

~~(c) (1) The board may give one half year of experience credit for each year of study completed in an approved curriculum leading to a degree in engineering technology except that the maximum of such experience credit shall be two years per applicant.~~

~~(2) The board has approved the curricula leading to a degree in engineering technology which have been accredited by the Engineers' Council for Professional Development.~~

~~Note: Authority cited: Sections 6716 and 6751.5, Business and Professions Code.
Reference: Sections 6751, 6751.2 and 6753 and 6751.5, Business and Professions Code.~~