



MINNESOTA BOARD OF
ARCHITECTURE ■ ENGINEERING ■ LAND SURVEYING
LANDSCAPE ARCHITECTURE ■ GEOSCIENCE ■ INTERIOR DESIGN

July 22, 2019

Legislative Reference Library
645 State Office Building
100 Rev. Dr. Martin Luther King Jr. Blvd.
St. Paul, Minnesota 55155

Re: In the Matter of the Proposed Amendment to Rules Governing Definitions, Engineering Examination and Experience, Land Surveying Education and Experience, and Geoscience Education and Experience; Minnesota Rules, parts 1800.0050, 1800.2500, 1800.2800, 1800.2805, 1800.2900, 1800.3505, 1800.3910, and 1800.3920; Request to Schedule a Rules Hearing and Request to Review Additional Notice Plan; OAH Docket No. 80 9038 36223; Revisor's ID Number R-04579

Dear Librarian:

The Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design ("Board") intends to adopt rules governing professional conduct. We plan to publish a Dual Notice of Intent to Adopt Rules without a Public Hearing Unless 25 or More Persons Request a Hearing in the August 19, 2019, State Register.

The Board has prepared a Statement of Need and Reasonableness. As required by Minnesota Statutes, sections 14.131 and 14.23, the Board is sending the Library an electronic copy of the Statement of Need and Reasonableness prior to mailing our Dual Notice.

If you have questions, please contact me at 651-757-1511.

Yours very truly,

A handwritten signature in blue ink that reads "Kay Weiss".

Kay Weiss
Rules Coordinator

Enclosure: Statement of Need and Reasonableness

Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture,
Geoscience and Interior Design

STATEMENT OF NEED AND REASONABLENESS

Proposed Amendment to Rules Governing Definitions, Engineering Examination and Experience, Land Surveying Education and Experience, and Geoscience Education and Experience; Minnesota Rules, parts 1800.0050, 1800.2500, 1800.2800, 1800.2805, 1800.2900, 1800.3505, 1800.3910, and 1800.3920.

Revisor's ID Number R-04579

INTRODUCTION

The nature of the proposed rules of the Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design ("Board") is to amend its current rules that generally pertain to all licensees and certificate holders and specifically pertain to individuals applying for examination or licensure as a professional engineer, land surveyor, professional geologist, or professional soil scientist.

The proposed rules will:

- update definitions;
- allow applicants the flexibility to take the Principles and Practice of Engineering (PE) examination before completing the experience requirement;
- clarify the requirements for pre-graduation admission to the Fundamentals of Surveying (FS), Fundamentals of Geology (FG), and Fundamentals of Soil Science (FSS) examinations;
- clarify the experience requirements for land surveying, professional geology, and professional soil science licensure;
- clarify the rules for waiver of the FG and FSS examinations
- replace the requirement for a bachelor's degree with a major in geology for professional geology licensure with the requirement for a bachelor's degree with 40 semester credits among five specific areas of study;
- expand and clarify the areas of study for professional soil science licensure.

ALTERNATIVE FORMAT

Upon request, this information can be made available in an alternative format, such as large print, braille, or audio. To make a request, contact Kay Weiss at the Board of AELSLAGID, 85 E. 7th Place, Suite 160, St. Paul, MN 55101, 651-757-15231, Fax: 651-297-5310, and email: kay.weiss@state.mn.us. TTY users may call the Board at (800) 627-3529.

STATUTORY AUTHORITY

This rulemaking is an amendment of rules for which the Legislature has not revised the statutory authority, so Minnesota Statutes, section 14.125, does not apply.

The Board's statutory authority to adopt the rules is stated in Minnesota Statutes section 326.06, which provides:

326.06 General powers and duties of Board.

Each member of the board shall receive a certificate of appointment from the governor, and, before beginning a term of office, shall file with the secretary of state the constitutional oath of office. The board shall adopt and have an official seal, which shall be affixed to all licenses granted; shall make all rules, not inconsistent with law, needed in performing its duties; and shall fix standards for determining the qualifications of applicants for certificates, which shall not exceed the requirements contained in the curriculum of a recognized school of architecture, landscape architecture, engineering, geoscience, or interior design. The board shall make rules to define classes of buildings with respect to which persons performing services described in section 326.03, subdivision 2, may be exempted from the provisions of sections 326.02 to 326.15, by a finding of no probable risk to life, health, property or public welfare.

Under this statute, the Board has the necessary statutory authority to adopt the proposed rules.

REGULATORY ANALYSIS

Minnesota Statutes, section 14.131, sets out eight factors for a regulatory analysis that must be included in the SONAR. Paragraphs (1) through (8) below quote these factors and then give the agency's response.

“(1) a description of the classes of persons who probably will be affected by the proposed rule, including classes that will bear the costs of the proposed rule and classes that will benefit from the proposed rule”

The classes of persons affected by and benefiting from the proposed modifications to the rules include all licensees and certificate holders subject to the Board's regulation, and applicants for examination and licensure as a professional engineer, land surveyor, professional geologist, or professional soil scientist. A line item in the Board's budget covers the cost of the rulemaking. The Board does not anticipate an increase in the cost to comply with or enforce these rules.

“(2) the probable costs to the agency and to any other agency of the implementation and enforcement of the proposed rule and any anticipated effect on state revenues”

The probable costs to the Board include the costs associated with rulemaking in general. The Board does not anticipate an increase or decrease in the cost of enforcing the rules. It also does not anticipate any probable costs to any other agency because the Board is the only entity charged with the implementing and enforcing the proposed rules.

“(3) a determination of whether there are less costly methods or less intrusive methods for achieving the purpose of the proposed rule”

The purpose of the proposed rule modifications is to clarify and update existing language. Rule writing is the only method that exists to achieve these goals.

“(4) a description of any alternative methods for achieving the purpose of the proposed rule that were seriously considered by the agency and the reasons why they were rejected in favor of the proposed rule”

The rules serve to protect the public health, safety and welfare by ensuring that licensees and certificate holders meet the education, examination, and experience requirements for licensure. Administrative rules are the only method available to the Board to define the requirements.

“(5) the probable costs of complying with the proposed rule, including the portion of the total costs that will be borne by identifiable categories of affected parties, such as separate classes of governmental units, businesses, or individuals”

There are no probable costs for governmental units, businesses, or individuals to comply with the proposed rules. Modifications to the rules offer clarity and updates to existing requirements. The package does not contain changes to fees for application, licensure, or certification.

“(6) the probable costs or consequences of not adopting the proposed rule, including those costs or consequences borne by identifiable categories of affected parties, such as separate classes of government units, businesses, or individuals”

The consequences of not adopting the proposed rules are:

1. definitions are not updated;
2. applicants for the PE examination may not take the examination before completing the experience requirement putting them at a disadvantage to individuals obtaining licensure in other states;
3. applicants for licensure as a land surveyor cannot use all of their experience gained prior to completion of the education requirement putting those on the non-traditional path to licensure at a disadvantage;
4. applicants on the non-traditional path to licensure as a land surveyor cannot take the Fundamentals of Surveying examination prior to completing the education requirement while applicants on the traditional path continue to be able to take the exam early;

5. applicants for licensure as a professional geologist or professional soil scientist must continue to document a minimum of five years of qualifying experience before licensure – an entire year more than the other professions licensed by the Board;
6. applicants obtaining a degree from a college or university that has changed the name of the major to one other than “geology” have to document an additional year of experience prior to licensure than those individuals whose institution used the term “geology” for the major; and
7. applicants for licensure as a soil scientist continue to have fewer options for completing the closely related geoscience credits required for licensure.

“(7) an assessment of any differences between the proposed rule and existing federal regulations and a specific analysis of the need for and reasonableness of each difference”

No relationship exists between these rules and federal regulations.

“(8) an assessment of the cumulative effect of the rule with other federal and state regulations related to the specific purpose of the rule. . . . ‘[C]umulative effect’ means the impact that results from incremental impact of the proposed rule in addition to other rules, regardless of what state or federal agency has adopted the other rules. Cumulative effects can result from individually minor but collectively significant rules adopted over a period of time.”

Neither federal regulations nor other Minnesota state laws address the areas covered in the proposed rules. This consideration is not applicable for these rules.

PERFORMANCE-BASED RULES

Minnesota Statutes, sections 14.002 and 14.131, require that the SONAR describe how the agency, in developing the rules, considered and implemented performance-based standards that emphasize superior achievement in meeting the agency’s regulatory objectives and maximum flexibility for the regulated party and the agency in meeting those goals.

To safeguard life, health and property, and promote the public welfare, the Board provides reasonable assurance that persons practicing architecture, engineering, land surveying, landscape architecture, geology, and soil science and persons using the title certified interior designer are competent, ethical practitioners qualified through education, examination and experience. Additionally, as an official licensing entity, the Board is charged with implementing those statutes and rules which specifically regulate the practice of and title use for these professions.

The proposed rule amendments embodied in this Statement of Need and Reasonableness emphasize superior achievement in meeting the Board’s regulatory objectives with maximum flexibility for the regulated party and the Board in meeting those goals. Outdated or confusing language creates difficulties for all interested parties – the public, members of the regulated

professions, and the Board. The amendments to the definitions and other housekeeping updates ensure that the Board's rules remain current and clear.

The Board has also identified friction points on the path to licensure which may be alleviated through rule changes. The proposed amendments allow for maximum flexibility to the regulated parties and to the Board in meeting its goals in the following ways:

- the Board continues to protect the public by ensuring that applicants complete the education, examination, and experience requirements prior to licensure but applicants for the Principles and Practice of Engineering (PE) examination have the flexibility to take the examination when they feel they are ready rather than being restricted by having to first gain four years of experience;
- applicants on the non-traditional path to licensure as a land surveyor (i.e. those who obtain a bachelor's degree in something other than land surveying) may sit for the fundamentals exam after completing $\frac{1}{2}$ of the required land surveying credits (rather than all the credits), similar to those on the traditional path to licensure; the Board continues to ensure that the education is completed before issuing a land surveyor-in-training certificate;
- applicants for licensure as a land surveyor may count all qualifying land surveying experience gained after high school graduation at full credit (rather than $\frac{1}{2}$ credit);
- applicants for licensure as a professional geologist or professional soil scientist who meet certain requirements may choose to request a waiver from the fundamentals examination, but it is not mandatory; the Board must grant the waiver if the applicant meets the requirements for waiver and wants the waiver;
- applicants for the Fundamentals of Geology and Fundamentals of Soil Science examinations may sit for the examination after completing $\frac{1}{2}$ of the required credits, similar to those in other professions regulated by the Board; the Board continues to ensure that the education is completed before issuing an in-training certificate;
- applicants for licensure as a professional geologist or professional soil scientist are required to document one year less of experience bringing the qualifying experience requirements in line with the other professions regulated by the Board;
- applicants have more flexibility in meeting the education requirement for licensure as a professional geologist in terms of the name of the degree however, applicants still must complete 40 credits of coursework in five areas of geology study therefore the Board continues to ensure the protection of the public; and

- applicants have more flexibility in meeting the education requirement for licensure as a professional soil scientist through additional qualifying areas of study for “closely related geoscience” credits.

ADDITIONAL NOTICE

This Additional Notice Plan was reviewed by the Office of Administrative Hearings and approved in a letter by Administrative Law Judge LauraSue Schlatter, dated July 15, 2019.

Copies of the Dual Notice of Intent to Adopt and the proposed rule change will be mailed to the Minnesota Society of Professional Engineers (“MSPE”) and the American Council of Engineering Companies of Minnesota (“ACEC/MN”), the two largest professional societies representing professional engineers regulated by this Board.

Copies of the Dual Notice of Intent to Adopt and the proposed rule change will be mailed to the Minnesota Society of Professional Surveyors (“MSPS”), the professional society representing land surveyors regulated by this Board.

Copies of the Dual Notice of Intent to Adopt and the proposed rule change will be mailed to the Minnesota Association of County Surveyors (“MACS”), the group that represents land surveyors regulated by this Board who are working for Minnesota local county governments.

Copies of the Dual Notice of Intent to Adopt and the proposed rule change will be mailed to the Minnesota Section of the American Institute of Professional Geologists (“AIPGMN”), the professional society representing professional geologists regulated by this Board.

Copies of the Dual Notice of Intent to Adopt and the proposed rule change will be mailed to the Minnesota Association of Professional Soil Scientists (“MAPSS”), the professional society representing professional soil scientists regulated by this Board.

Copies of the Dual Notice of Intent to Adopt and the proposed rule change will be mailed to the National Council of Examiners for Engineering and Surveying (“NCEES”), the national council representing professional engineering and land surveyors regulated by this Board.

Copies of the Dual Notice of Intent to Adopt and the proposed rule change will be mailed to the National Association of State Boards of Geology (“ASBOG”), the national council representing professional geologists regulated by this Board.

Copies of the Dual Notice of Intent to Adopt and the proposed rule change will be mailed to the National Council of Soil Science Examiners (“CSSE”), the national council representing professional soil scientists regulated by this Board.

Copies of the Dual Notice of Intent to Adopt and the proposed rule change will be mailed to Minnesota academic institutions that offer engineering degree programs accredited by or seeking accreditation from the Engineering Accreditation Commission (“EAC”) of ABET, Inc.:

MN State University – Mankato: Department of Mechanical and Civil Engineering
MN State University – Mankato: Department of Electrical and Computer Engineering
MN State University – Mankato: Integrated Engineering Department
St. Cloud State University: Department of Electrical and Computer Engineering
St. Cloud State University: Department of Mechanical and Manufacturing Engineering
Univ. of MN – Duluth: Department of Electrical Engineering
Univ. of MN – Duluth: Department of Chemical Engineering
Univ. of MN – Duluth: Department of Civil Engineering
Univ. of MN – Duluth: Department of Mechanical and Industrial Engineering
Univ. of MN – Twin Cities: Aerospace Engineering and Mechanics Department
Univ. of MN – Twin Cities: Biomedical Engineering Department
Univ. of MN – Twin Cities: Department of Bioproducts and Biosystems Engineering
Univ. of MN – Twin Cities: Department of Chemical Engineering and Materials Science
Univ. of MN – Twin Cities: Department of Civil, Environmental and Geo- Engineering
Univ. of MN – Twin Cities: Department of Electrical and Computer Engineering
Univ. of MN – Twin Cities: Department of Mechanical Engineering
University of St. Thomas: School of Engineering
Winona State University: Composite Materials Engineering Department

Copies of the Dual Notice of Intent to Adopt and the proposed rule change will be mailed to Minnesota institutions that offer diploma or certificate level courses in land surveying, and to Minnesota academic institutions that offer college level courses in land surveying:

Dakota County Technical College: Civil Engineering Technology Program
Dunwoody College of Technology: Land Surveying Program
Lake Superior College: Civil Engineering Technology Program
Minnesota State Community and Technical College: Civil Engineering Technology Program
South Central College: Civil Engineering Technology Program
St. Cloud State University: College of Social Sciences – Land Surveying and Mapping Program
St. Cloud Technical and Community College: Land Surveying/Civil Engineering Technology Program
St. Paul College: Land Surveying Technology Program
Vermilion Community College: Land Surveying Department

Copies of the Dual Notice of Intent to Adopt and the proposed rule change will be mailed to Minnesota academic institutions that offer bachelor’s degree programs with a major in geology:

Carleton College: Department of Geology
Gustavus Adolphus College: Department of Geology
Macalester College: Geology Department

Minnesota State University – Mankato: Geography Department
Minnesota State University – Moorhead: Anthropology & Earth Science Department
St. Cloud State University: College of Science and Engineering
Univ. of MN – Duluth: Department of Geological Sciences
Univ. of MN – Morris: Division of Science and Mathematics; Geology Discipline
Univ. of MN – Twin Cities: Department of Earth Sciences
University of St. Thomas: Department of Geology
Winona State University: Department of Geoscience

Copies of the Dual Notice of Intent to Adopt and the proposed rule change will be mailed to Minnesota academic institutions that offer soil science coursework:

Univ. of MN – Twin Cities: Department of Soil, Water and Climate

The Board will post the Dual Notice of Intent to Adopt and the proposed rule change on the Board's website.

A postcard notification of the proposed rule changes with the website address where recipients will find the Dual Notice of Intent to Adopt, official language of the proposed rules, and SONAR will be mailed to all current licensees and certificate holders.

A postcard notification of the proposed rule changes with the website address where recipients will find the Dual Notice of Intent to Adopt, official language of the proposed rules, and SONAR will be mailed to all those granted Engineer-in-Training certification by the Board in the last four years.

A postcard notification of the proposed rule changes with the website address where recipients will find the Dual Notice of Intent to Adopt, official language of the proposed rules, and SONAR will be mailed to all those granted Geologist-in-Training, Soil Scientist-in-Training, or Land Surveyor-in-Training certification by the Board in the last five years.

Our Notice Plan includes giving notice required by statute. We will mail the proposed rules and the Notice of Intent to Adopt to everyone who has registered to be on the Board's rulemaking mailing list under Minnesota Statutes, section 14.14, subdivision 1a. We will also give notice to the Legislature per Minnesota Statutes, section 14.116.

Our Notice Plan did not include notifying the Commissioner of Agriculture because the rules do not affect farming operations per Minnesota Statutes, section 14.111.

CONSULTATION WITH MMB ON LOCAL GOVERNMENT IMPACT

As required by Minnesota Statutes, section 14.131, the Board will consult with Minnesota Management and Budget (MMB). We will do this by sending MMB copies of the documents that we send to the Governor's Office for review and approval on the same day we send them to the

Governor's office. We will do this before the Board's publishing the Notice of Intent to Adopt. The documents will include: the Governor's Office Proposed Rule and SONAR Form; the proposed rules; and the SONAR. The Board will submit a copy of the cover correspondence and any response received from Minnesota Management and Budget to OAH at the hearing or with the documents it submits for ALJ review.

DETERMINATION ABOUT RULES REQUIRING LOCAL IMPLEMENTATION

As required by Minnesota Statutes, section 14.128, subdivision 1, the Board has considered whether these proposed rules will require a local government to adopt or amend any ordinance or other regulation in order to comply with these rules. The Board has determined that they do not because the rules pertain to individuals licensed or certified by this Board, not to governmental entities. Compliance with the rules falls on these individuals and enforcement of the rules falls solely on the Board.

COST OF COMPLYING FOR SMALL BUSINESS OR CITY

Agency Determination of Cost

As required by Minnesota Statutes, section 14.127, the Board has considered whether the cost of complying with the proposed rules in the first year after the rules take effect will exceed \$25,000 for any small business or small city. The Board has determined that the cost of complying with the proposed rules in the first year after the rules take effect will not exceed \$25,000 for any small business or small city.

The Board has made this determination based on the probable costs of complying with the proposed rule, as described in the Regulatory Analysis sections on pages 2 to 4 of this SONAR.

LIST OF WITNESSES

If these rules go to a public hearing, the Board anticipates that any of the current Board members could potentially offer testimony in support of the need for and reasonableness of the rules. The Board will identify one individual to speak on behalf of the Board with others available for questions.

BACKGROUND AND RULE-BY-RULE ANALYSIS

Changes to 1800.2800, 1800.2805, and 1800.3920 are housekeeping in nature.

1800.0050 DEFINITIONS

The proposed rules will define “accredited institution of higher learning” as an educational institution accredited by one or more of the regional or national accrediting agencies or successor agencies recognized by the United States Department of Education. This ensures that the college or university offering the degree meets the rigorous standards for institutional accreditation in the United States and that the degree is not obtained through a random school that has not been thoroughly vetted.

The proposed rules will also define a semester credit as the traditional US college credit allowing the Board to evaluate whether a degree obtained in a foreign country has credits equivalent to the Board’s requirements.

Engineering Experience: The current rules require applicants for the Principles and Practice of Engineering (PE) examination to supply documentation showing completion of three to six years of qualifying engineering experience (depending on their level of education) before being allowed to sit for the exam. Changes to these rules will allow applicants who have completed the education requirement to sit for the PE examination while concurrently completing the experience requirement. This is known as “decoupling,” or getting rid of the sequencing requirement.

Individuals may take the PE examination when they feel they are ready to take it. Though the highest pass rates for the exam are at four years post education, many students find that taking the exam closer to when they graduated college while they are still in “test-taking mode” can be beneficial. This is especially true for women, who are more likely than their male counterparts to experience a delay on their path to licensure due to family obligations. Allowing applicants the option to take the examination “early” then take their time completing the experience requirement may encourage and facilitate emerging professionals to pursue the path to licensure without having to “go back” to polish their exam-taking skills many years post-graduation.

Applicants will still be required to complete all education, examination, and experience requirements before obtaining their initial license, but allowing individuals the option of taking the examination before completing the experience requirement may also reduce the time to initial licensure. Individuals who are a month or two short of meeting the experience requirement at the deadline for exam application currently have to wait another six months to a year to sit for exam that are only administered one to two times per year delaying the date of initial licensure. Individuals cannot get licensed until all education, examination, and experience requirements are complete so public protection is not compromised. The only change is the order in which the requirements may be completed.

Additionally, individuals who take examinations and get their initial license in states that have already decoupled the examination and experience requirements can obtain a license in Minnesota faster than their counterparts completing the same process as a Minnesota applicant. This creates an unfair advantage to individuals in the seventeen states that have already decoupled (and the many more states that are working toward decoupling).

For example, let's assume we have two completely identical applicants, the only difference being the state in which they apply for the exam (Minnesota, which is not decoupled, and a state that is decoupled). Both applicants obtained an EAC-ABET-accredited degree and must document four years of qualifying experience after graduation. Both applicants fail the examination two times and pass on the third time. The PE exam for the discipline they are taking is currently offered in April and October each year, therefore there are six months between exam administrations. Both applicants obtain their initial license immediately after receiving notification of passing the exam (assuming it takes two months to get the exam results after taking the exam). In the example illustrated below, the individual who takes the exam in the decoupled state applies for a license in Minnesota the month after obtaining their initial license. Since the individual has completed an EAC-ABET-accredited degree, documented four years of qualifying experience, and passed the required examination, the applicant is granted a license in Minnesota (17 months before the Minnesota applicant with identical qualifications).

	May 2019	May 2020	May 2021	April 2022	May 2022	Oct 2022	April 2023	May 2023	June 2023	July 2023	Oct 2023	Apr 2024	Oct 2024	Dec 2024
MN	Graduate	1 year exp	2 year exp	---	3 year exp	---	---	4 year exp	---	---	Exam (fail)	Exam (fail)	Exam (pass)	MN Lic.
OTHER	Graduate	1 year exp	2 year exp	Exam (fail)	3 year exp	Exam (fail)	Exam (pass)	4 year exp	Initial Lic.	MN Lic.	---	---	---	---

The changes to the rules will level the playing field for all applicants, no matter where they decide to take the examination and complete the experience requirements. Applicants first licensed in Minnesota who subsequently apply for licensure in another state will not be adversely affected by the rule change. All jurisdictions have provisions in their rules allowing individuals who take the examinations before completing the experience requirements to obtain a license in that jurisdiction.

1800.2500

Subpart 2a: The changes to this rule will eliminate the experience requirement to sit for the Principles and Practice of Engineering (PE) examination and renumber the education requirement.

Subpart 4: This new subpart delineates the experience requirement required for licensure as a professional engineer (moved from subpart 2a). Additionally, the proposed language clarifies what constitutes a year of experience. A year of experience is defined as full- or part-time employment that extends over a period of no less than 12 months and includes no fewer than 2,000 hours of performance of engineering work. This language will ensure that a year of experience consists of a full calendar year of experience. Individuals working more than 40 hours per week cannot complete a year of experience in less time than one full calendar year. Additionally, someone working less than 40 hours per week will take more than one calendar year to gain the required experience.

1800.2900

Subparts 2 and 2a: Changes to this rule remove the requirement to document experience prior to admission the PE examination from subpart 2 and move it to a new subpart 2a requiring documentation of experience before licensure as a professional engineer.

Subpart 7: The addition of item E to this subpart clarifies that an applicant who passes the PE examination but does not submit evidence of qualifying experience within three years must submit a new application. This rule is consistent with other Board rules about application expiration.

Land Surveying Education and Experience: In August 2018, new rules regarding land surveying experience went into effect. Unfortunately, even after carefully vetting the rules before they were adopted and receiving no comments from affected parties with any concerns about the proposed rules, when the rules went into effect and individuals began submitting applications under the new rules, the Board quickly discovered unintended consequences that were negatively affecting some applicants.

The rule language adopted in 2018 mirrored the language for engineering experience requirements and was intended to clarify when a land surveying applicant could begin accruing qualifying experience. The engineering rules allowed individuals to complete half of the experience requirement prior to completing the education requirement, but the land surveying rules were silent on this topic. Therefore, land surveying applicants had no limits to using experience obtained before completing their education. It seemed logical that land surveyors should be limited to obtaining half of the experience prior to completing the education, just like the engineers.

Additionally, the land surveying rules did not allow applicants to sit for the Fundamentals of Surveying examination prior to completing the education requirement, but the engineering rules allowed applicants to sit for the Fundamentals of Engineering examination when they were within 32 semester credits of graduation. Again, it seemed logical that land surveyor applicants should be afforded the same privilege of taking the examination before graduation.

However, the education and experience requirements for engineers and land surveyors are very different from each other, so making the thresholds for sitting for the fundamentals examinations and the limitations on experience before completing the education requirement the same for both professions did not work in practice. The education requirements for engineering are very specific – applicants must have either an EAC-ABET-accredited undergraduate or graduate degree. There is a definitive date in which the education requirement is met so it is easy to determine the point in which an applicant meets the requirements to sit for the fundamentals exam (i.e. is within 32 credits of graduation) or can begin counting experience (i.e. after completing 2 years of the accredited undergraduate program or after completing 1 year of the accredited graduate program). Second, the rules for experience obtained prior to completing the education requirement state that experience may be obtained after completing either 2 years of the under

On the other hand, land surveyors have the option of two different paths. The first is obtaining a four-year land surveying degree. This path is similar to the engineering requirements and determining when an applicant can begin counting experience and when he or she can take the fundamentals exam is easy. The second path allows an applicant to obtain an undergraduate degree in any subject and then obtain 22 semester credits in land surveying. The Board discovered quickly that applicants following this path did not fit neatly into the new rules adopted in 2018.

It is very common for individuals to begin working in the land surveying field, often after they have gotten a degree in something other than land surveying, decide after a few years that they like the profession and want to become licensed, then go back to school to obtain the required 22 semester credits in land surveying. The intention was that individuals following this path could sit for the Fundamentals of Surveying (FS) exam after completing half of the land surveying credits and that they could complete half of the experience required for licensure before graduation. Unfortunately, that is not the interpretation of the rules as they are written.

In regard to sitting for the fundamentals exam, Minnesota Rule 1800.3505, subpart 2 states that an applicant must graduate from a bachelor's curriculum that meets the statutory requirements in place at the time of graduate, or be within 32 semester credits of obtaining a bachelor's degree under a curriculum approved by the board with a minimum of 22 semester credits in land surveying as specified [in another rule]. The literal interpretation of this rule is that anyone with a bachelor's degree would be within 32 semester credits of obtaining 22 semester credits in land surveying, and therefore, anyone with any type of bachelor's degree would qualify to sit for the FS exam. As stated above, the intention was that individuals who had completed half of the land surveying credits (either by completing ½ of a bachelor's degree in land surveying or by completing 11 of the 22 credits in land surveying for individuals with a bachelor's degree in something else) would be eligible to sit for the FS exam.

In regard to the experience requirement, Minnesota Rule 1800.3505, subpart 3C, states that qualifying land surveying experience gained before completion of at least two full years of one of

the land surveying curricula specified in items A and B must receive no credit. (Item A is graduation from a four-year land surveying curriculum and item B is graduation from a bachelor's curriculum with a minimum of 22 semester credits in land surveying.) Individuals meeting the education requirement of item A can obviously start accruing experience after completing 2 years of that program. Applicants who get a bachelor's degree and later go back to school to obtain 22 semester credits in land surveying do not fit into this scenario. The rule is not clear about when they would be considered to have completed "two full years of one of the land surveying curricula" because the bachelor's degree itself is not a land surveying curriculum and the 22 semester credits in land surveying is not two years' worth of coursework. The intent was that applicants could count experience after completing half of the 22 semester credits in land surveying, but that is not what the rule says,

Further complicating matters is the specificity of the land surveying experience requirements. Applicants for engineering licensure must simply document between 3 and 6 years of progressive engineering experience (depending on the level of education) whereas land surveying applicants must document a specific number of hours of experience in at least 11 different categories. Oftentimes individuals work in the land surveying field for many years before going back to school to obtain 22 semester credits in land surveying. They have moved up considerably in the field and are no longer doing entry-level work (i.e. the work delineated in some of those 11 required categories). Those individuals are being discouraged from achieving licensure because the rules do not allow them to count the experience they obtained before deciding to go back to school to get the 22 semester credits in surveying. In order to meet the experience requirements, they would be forced to complete the education, then move backward in their profession to document the required hours of experience in each category, further delaying the ultimate goal of licensure. It was not the Board's intention to create an obstacle on the path to licensure for these individuals when it implemented rules limiting the experience allowed before completing the education requirement.

The modifications to the rules will:

1. clarify that individuals may sit for the exam after either
 - a. being within 32 semester credits of graduating from a four-year land surveying curriculum; or
 - b. graduating from a bachelor's curriculum, or being within 32 semester credits of obtaining a bachelor's degree, *and* completing a minimum of 11 credits in land surveying; and
2. allow applicants to count qualifying land surveying experience gained after obtaining a high school degree toward the experience requirements for licensure (limited to experience gained within 10 years prior to taking the Fundamentals of Surveying exam).

The Board has worked closely with the leadership from the Minnesota Society of Professional Surveyors and the Minnesota Association of County Surveyors to draft rules resolving the unintended consequences of the 2018 rule changes.

Subpart 2, item A: Changes to this rule eliminate the phrase “that meets the statutory requirements in place at the time of graduation” and replaces it with “from an accredited institution of higher learning.” Meeting the statutory requirements is inherent for rules as rules cannot be in conflict of statute so there is no need to spell it out. However, it is important to state that the institution from which an applicant graduates must be accredited. Very few land surveying degree programs are specifically accredited by ABET (unlike architecture, engineering, landscape architecture, and interior design degrees which are specifically accredited by certain accrediting bodies), therefore it is important to ensure that the institution itself is accredited by a recognized regional or national accrediting body (see definitions section above). This language eliminates the possibility of individuals obtaining a degree from a random degree program that is not accredited.

Subpart 2, item B: Changes to this rule allow applicants who have a bachelor’s degree in a subject other than land surveying to sit for the Fundamentals of Surveying (FS) examination after completing half of the land surveying credits that are required for licensure. The current rule requires that these individuals complete all 22 semester credits before sitting for the exam while applicants who are in the process of completing a land surveying degree can sit for the examination during their last year of college. This language will allow all candidates to sit for the FS examination before completing the education requirement no matter which education path they are completing.

Subpart 3, item C, subitem (2): In the last rule package, the Board added the requirement that experience gained before completion of the education requirement must be credited at the rate of 50%. This was modeled after the engineering rules. However, the Board has found that applicants are being detrimentally affected by this rule change. Unlike the engineering rules, the land surveyor rules are very specific about the number of hours and type of experience required for each category and all experience must be obtained under the direct supervision of a licensed land surveyor. There is no need to credit experience gained before completing the education requirement at a rate of 50% because experience gained both before and after meeting the education requirement is the same for land surveyors. (For engineering, experience gained before graduation is not at the same level as that gained after graduation so it makes sense to credit the pre-graduation experience at 50%).

Subpart 3, item C, subitem (3): In the last rule package, the Board added the requirement that experience gained before completing at least two full years of one of the land surveying curricula specified in items A and B could not be counted. This was modeled after the engineering rules, however, as explained above, it is not clear when an applicant following the bachelor’s degree plus 22 semester credits in surveying path would meet the “two full years” requirement. Additionally, experience for land surveying is the same whether it was gained before or after completing the education requirement so there is no need to limit experience gained before meeting the education requirement. That said, experience does need to be gained with a basic minimum competency of math, history, and science as gained in high school. Therefore, the

proposed rule has been renumbered as subitem (2) and the statement that experience gained before completing at least two full years of a land surveying curricula must receive not credit has been removed and replaced with the requirement that experience gained before completion of a high school degree or equivalent must receive no credit.

Subpart 3, item D: The proposed language reduces the requirement that half of the experience be obtained after completing the education requirement (2-3 years) to one year.

Subpart 3, item E: As in the engineering rules explained above, the proposed rules add a definition for one year of experience.

Geoscience Education and Experience: The proposed rules make several changes to remove friction points on the path to licensure.

1. Waiver of the fundamentals exam: The current rules state that an applicant with a doctorate degree in the geoscience discipline in which the applicant is seeking licensure *must* be granted a waiver of the fundamentals exam. However, there are reasons why an applicant might choose to take the Fundamentals of Geology or Fundamentals of Soil Science exam even if the applicant is qualified for a waiver (i.e. needed for licensure in another state). Modifications to the rule will allow affected individuals to choose whether or not to apply for a waiver. If the applicant does request a waiver and the applicant is qualified for a waiver, the Board must grant the waiver.
2. In recent years, colleges and universities have changed the names of their geology degree programs in order to attract students, without regard to the licensure rules. The changes to the names of the degrees are negatively impacting applicants for licensure. The rules require an applicant to present evidence of a bachelor's degree or higher *with a major in geology* and a minimum of 30 semester credits in at least three geology areas. Applicants presenting this documentation are considered to have graduated from a "curriculum approved by the board" (M.R. 1800.3910) and are therefore required to complete five years of qualifying experience for licensure. However, an applicant graduating with a major in something other than geology (for example, "Geological Sciences," "Earth Science," or "Environmental Geoscience"), would be considered a "non-board-approved curriculum" and the applicant would have to document 6 years of experience, even though the degree was earned through the geology department and was formerly titled as a geology degree.

The rule change will eliminate the requirement for a "major in geology" and, similar to the soil science licensure requirements, will replace it with a requirement for a bachelor's degree with 40 semester credits divided among five geology areas of study. The five geology areas of study are the same as the areas delineated in the current rule. The requirement for 40 semester credits was derived from research of area schools offering

degrees from the geology department which require anywhere from 40 to 58 credits in the major. The rules must establish the minimum standard of competency, therefore the Board determined that the minimum number of geology credits should be 40.

3. Admission to the fundamentals examination: As a result of the change to the education required for licensure described in #2 above, the rules regarding pre-graduation admission to the fundamentals examination must be updated. The current rules allow an applicant that is within 30 semester credits of graduation from a geoscience curriculum approved by the Board to sit for the fundamentals examination. Based on the assumption that a degree requires 120 credits, someone within 30 credits of graduation would have completed 90 credits (or $\frac{3}{4}$ of their education requirement for graduation).

The new rules will specify the required number of credits for the fundamentals exam as a proportion of the total credits required for licensure. In the case of geology, the new rules will require 40 semester credits in geology; therefore, an individual applying to sit for the Fundamentals of Geology examination under the new rules will be required to have completed 30 semester credits in geology (or $\frac{3}{4}$ of the total requirement). In the case of soil science, the rules require a total of 16 semester credits in soil science and 14 semester credits in closely related areas of study (as defined by rule); therefore, an individual applying to sit for the Fundamentals of Soil Science examination will be required to complete 12 semester credits in soil science ($\frac{3}{4}$ of the total required credits) and 10 semester credits in closely related areas of study (approximately 71% of the total required credits).

4. Reduce the experience requirement: The current rules were established when geoscience became a licensed profession in the late 1990s and require graduates from a board-approved curriculum to document five years of qualifying experience prior to licensure and graduates from a non-board-approved curriculum to document six years. This is a minimum of one year longer than any other profession regulated by the Board, which made sense when the profession was newly licensed and individuals were not required to gain experience under a licensed professional. However, now that the profession has been regulated for twenty years and qualifying experience must be obtained under the direct supervision of a licensed professional, the updated rules will reduce the experience requirement by one year bringing the requirements more into alignment with other professions.
5. Clarify how much experience may be obtained prior to completing the education requirement: The current rules state that experience gained before completion of at least two full years of one of the geoscience curricula described in rule must receive no credit. The new rules described in #2 above change the education requirement to a certain number of credits which makes it difficult to determine when “two full years” have been completed. The intent of the current rules is that the applicant must have completed half of the education requirement (i.e. two full years of a four year degree) before being able to document experience. Therefore, the proposed rules change the

requirement from “two full years” to “20 semester credits in geology” (1/2 the education requirement for licensure as a geologist) or “8 semester credits in soil science and 7 semester credits in closely related areas of study” (1/2 the education requirement for licensure as a professional soil scientist) clarifying when an applicant may begin accruing qualifying experience.

6. The updated rules will add more areas of study to the list of topics that can be considered for education credit for soil science licensure and will clarify that the list is not a list of course titles but rather a list of areas of study. The content of a particular course must be evaluated to ensure that it meets the requirements of the rule.

1800.3910

Subpart 1: The proposed language adds the requirement that applicants request a waiver for the Fundamentals of Geology (FG) or Fundamentals of Soil Science (FSS) examination and furnish evidence of meeting the requirements for waiver. The current rule requires the Board to waive the FG or FSS exam whether or not an applicant actually wants the exam waived. Adding the requirement for the applicant to request the waiver gives the applicant the ability to decide whether they want the waiver.

Subpart 2: Proposed changes to this rule clarify when an applicant qualifies for admission to the FG or FSS examination, specifically for those who have not yet completed the education requirement. FG applicants will need to complete 30 of 40 credits and FSS applicants will need to complete 22 of 30 credits. Requiring that number of credits to be completed should put applicants in their last year of school – similar to when the engineering applicants may sit for the Fundamentals of Engineering examination.

Additionally, changes to this rule clarify that there are two paths to completing the education requirement:

1. graduation from a curriculum approved by the Board; or
2. graduation from a curriculum not approved by the Board.

“Curriculum approved by the Board” is defined in subpart 5. Curriculum not approved by the Board includes foreign-educated applicants.

Subpart 3, item A: As in subpart 2 for the fundamentals examination education requirements, the language for admission to the professional examination has been clarified to two paths: board approved and non-board-approved.

Subpart 3, item B: The proposed rules reduce the experience requirement from five years to four years for graduates of an approved curriculum and from six years to five years for graduates of a non-approved-curriculum. Individuals with a master’s or doctorate degree do not see a reduction in the experience requirement (however, they could apply for waiver of the fundamentals exam).

Subpart 3, item C: The proposed rules clarify how much education must be completed before applicants may begin counting experience. The current rules states that applicants must complete two full years of the geoscience curricula, however, the Board the proposed language will no longer require a particular degree but rather a certain number of credits in specific areas of study (see subpart 5 below). The intent of the current rule is for applicants to complete ½ of the degree requirement (2 of 4 years) in order to begin counting experience. The proposed rules will make it clear that geology applicants must complete 20 of 40 credits (½ of the requirement) and soil science applicants must complete 15 of 30 credits (½ of the requirement). Specifying the number of credits will make it easier for both applicants and the Board to determine when the education requirement has been completed in order to begin counting experience.

Subpart 3, item E: As with the engineering and land surveying rules above, the proposed rules contain a definition of one year of experience.

Subpart 5, item A: The proposed language will eliminate the requirement for a degree with a major in geology and replace it with the requirement for a bachelor’s degree with a minimum of 40 semester credits in geology divided among five areas of study. As stated above, colleges and universities change the names of their degree programs resulting in students graduating with degrees other than “geology” even though they were taught in the geology department. Because there is not a specific accrediting body accrediting geology degree programs across the United States (like there is for engineering degrees), the current rules require the Board to rely on the name of the degree to determine whether the requirement was met. Because the specific degree name has been eliminated and in order to ensure diversity among areas of study, the proposed rules increase the required areas of study from three to five areas and the minimum number of credits from 30 to 40. Eliminating the requirement for a specific degree name will allow the Board to evaluate the transcripts of all applicants to ensure that 40 credits of coursework have been completed within five areas of study. Also to ensure diversity in subject areas, the proposed language limits an applicant to nine credits in any one area of study.

Subpart 5, item B, subitem (2): Proposed changes to this subitem are housekeeping in nature.

Subpart 5, item B, subitem (3): The proposed language expands the areas of study that can be considered for education credit for soil science licensure. This will allow applicants more variety in the courses they can take to meet this requirement, including the option to take additional soil science courses beyond those requirement in subitem (2) and reflects areas of study important to the practice of soil science. The list of areas of study has also been reorganized to be congruent with the general areas of study descriptor in the introduction of the subitem.

The Board worked with several interested parties including representatives from the Minnesota Association of Professional Soil Scientists and the University of Minnesota to develop the areas of study list.

Subpart 6: Proposed changes to this subpart are housekeeping in nature.

CONCLUSION

Based on the foregoing, the proposed rules are both needed and reasonable.

Date July 16, 2019

Doreen Johnson
Executive Director