Licensure EXCHANGE
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Developing a new mapping exam for the surveying community

In 1994, the Florida Board of Professional Surveyors and Mappers became the first board to widen its practice act to include photogrammetry in the definition of surveying practice. Since that time, other states have also recognized the need to regulate this type of mapping when it is used for purposes that affect public health, safety, and welfare.

No uniform model of licensure exists for photogrammetrists. While some states have no licensure requirements for these mapping professionals, others require them to follow the same path as land surveyors, and some provide a separate licensure path. But there is no exam for photogrammetry licensure. Instead of requiring examination, many states have created grandfathering clauses that allow photogrammetrists who have a certain amount of experience to become licensed.

No uniform model of licensure exists for photogrammetrists. While some states have no licensure requirements for these mapping professionals, others require them to follow the same path as land surveyors.

As grandfathering clauses have expired, the need for a mapping exam has increased. To assist NCEES Member Boards, the Board of Directors decided in 2004 to support an effort to create a jurisdictional exam for photogrammetrists. It is currently being developed and will be available for the April 2008 exam administration.

"The NCEES Principles and Practice of Surveying exam focuses on traditional boundary surveying content and is therefore not suitable for photogrammetrists," says Dave Gibson, a geomatics professor at the University of Florida and an emeritus member of the Florida Surveying and Mapping Board.

"In licensing photogrammetrists, Florida followed the generic engineering licensure process, where all licensees have the same title but focus their practice in their area of expertise as defined by their education, exam, and experience," he continues. "This is similar to a chemical engineer being licensed as a professional engineer by taking the Chemical PE exam. The photogrammetry exam allows photogrammetrists to become licensed by taking an exam that tests their knowledge of their particular field. Some states have assigned a separate license title to the photogrammetric surveyor, but in either case, a specialty exam is needed."

The North Carolina Board of Examiners for Engineers and Surveyors is one of the boards that sees the need for this type of exam. "The Board feels that if licensees are working in a specific area, they should be examined in that area," says Andrew Ritter, executive director of the North Carolina Board. "If a national exam is not available to test them in that area, the Board is then responsible for the examination process.

"This is the same reason that we develop our own state exam," Ritter explains. "But we needed help with photogrammetry. Because this issue is affecting other colonial states as well, we contacted the Colonial States Board to see if we could work together to find a solution."

The Colonial States Board of Surveyor Registration (CSBSR) is familiar with the exam development process. It has assisted NCEES with developing questions for the national surveying exams.

"The partnership between NCEES and CSBSR has been a good cooperative effort over several decades," says Jim Riney, chair of the Committee on Examinations for Professional Surveyors. "It's benefited the Council as well as the entire surveying profession."

This particular effort began about five years ago at an NCEES Annual Meeting surveyors' forum. Several states were licensing

Continued on page 15

Louis A. Raimondi, P.E., L.S.
NCEES President

The President's

MESSAGE

Engineering licensure turns 100

This month NCEES is launching the celebration of 100 years of engineering licensure. In addition to celebrating the Wyoming Legislature's 1907 decision to create the first U.S. engineering licensure law, we'll be observing the significant engineering advances over the past century and the professional engineers who have made them possible.

The anniversary is important in raising awareness of the value of licensure. At this year's Board Presidents' Assembly (BPA) in Atlanta, boards will learn about how they can participate in the celebration. All board presidents will receive the promotional materials the Council will be distributing to the press. These include a news release announcing the anniversary, a list of quick facts about licensure, and an NCEES history timeline.

Later this month, Media Relations Consultant Donald Lehr will send these press kits to media outlets around the country to publicize the celebration. He is our official media contact, and as media outlets request more information, NCEES will contact the appropriate boards for follow-up. We ask board presidents to make themselves available for interviews about the celebration and about the Council and its Member Boards—who we are and what we do to protect the public.

The Council will also provide suggested language for the proclamation requests that boards may send to their mayors, governors, and congressional representatives. NCEES will send a similar request to the White House for a presidential proclamation. This summer, we'll gather the proclamations that we receive and display them at the 2007 Annual Meeting.

You will be able to download all of this information from www.ncees.org after the BPA. In addition to the press kit and the sample proclamation request, you'll find the NCEES 100th anniversary logo. If you have any questions about these materials, contact NCEES Director of Professional Services Davy McDowell, P.E. (dmcdowel@ncees.org).

NCEES is also celebrating by being a major sponsor of *Design Squad*, a PBS series that features teenagers in an engineering competition. The show is scheduled to begin during National Engineers Week, February 18–24. In addition to being a TV series, *Design Squad* is also a platform for events that can teach kids what engineers do (see next page). I encourage all of you to become involved in these activities to promote engineering in your area.

Another part of the anniversary celebration involves working with the National Society of Professional Engineers (NSPE) to create a joint issue of *PE Magazine,* which will focus on the history of licensure, the professional engineers who have played important roles in design and innovation in the United States, and the licensure challenges that lie ahead.

All of these opportunities make 2007 an excellent year for promoting engineering licensure. As Theodore Roosevelt said, "Every man owes a part of his time and money to the business or industry in which he is engaged. No man has a moral right to withhold his support from an organization that is striving to improve conditions within his sphere."

I've enjoyed the engineering profession for more than 45 years, and I'm looking forward to participating in these activities to benefit the profession. I also look forward to seeing how the entire Council works together during this anniversary to heighten awareness of engineering licensure.

Louis A. Raimondi, P.E., L.S.
NCEES President

What would a day without P.E.'s be like?

To celebrate 100 years of engineering licensure, NCEES and NSPE will be producing a special issue of *PE Magazine* in June. Here's how you can take part—and maybe win a prize.

The contest is simple. In 100 words or less, answer the following question: What would a day without P.E.'s be like? Top entries will be published in the June issue of *PE Magazine*, and you'll also be eligible to win an iPod, gift certificates, a free registration at the NSPE annual conference in Denver, and a waiver of the application fee for establishing an NCEES Record ($100–$150 value).

To participate, e-mail your entry to dmcguirt@ncees.org by Friday, March 23.

NCEES extends youth outreach efforts through *Design Squad* events

What happens when you combine a roomful of excited children with a few engineers and some basic items that can be found lying around the house? You get Ping-Pong ball catapults, hidden alarms with buzzers—and quite possibly some future engineers.

A group of Clemson, S.C., fifth-graders recently got the chance to hone their design skills while learning about the engineering profession when a group from NCEES visited the after-school program at Clemson Elementary January 8–12. The visit was part of an outreach campaign associated with *Design Squad*, a new reality-based PBS television series for preteens. The show, which is sponsored by NCEES and several other prominent engineering and educational organizations, features high school students competing to design, construct, and test engineering projects.

The activities at Clemson Elementary, which were each designed to engage critical-thinking skills while illuminating the design process, were a big hit with the children. Particularly popular was "pop fly," which involved using paint stirrers and spools to create levers to launch Ping-Pong balls into the air. The children could work either alone or in teams, and prizes were awarded to those whose ball launched the highest and to those who used the most creativity in design. "I enjoyed it because we got to use our creative minds in new ways," said Angela Gowan, 10.

Many students participating in the Design Squad *events said they enjoyed working on projects in small groups.*

In addition to the activities, a group from the Council, which included past NCEES presidents Bob Krebs, P.E., L.S., and Martin Pedersen, L.S., as well as staff members Davy McDowell, P.E., and Nina Norris, spoke with the children about the engineering concepts underlying the activities and their real-world applications. "I learned that you have to redesign inventions to make them work better," said Jon David Thompson, 11. Several students said they were surprised to learn that skyscrapers such as Taiwan's Taipei 101 Tower—currently the world's tallest—are built to flex and sway under high winds, a fact that was explained after students completed the "kinetic sculpture" activity. "I learned that tall buildings have to bend because they can fall over if they don't," said Rachael Huff.

Each Design Squad *challenge encouraged students to utilize the design process—central to engineering—while competing in both design performance and creativity.*

The goals of the outreach include encouraging children (such as the girls pictured here) to consider engineering as a potential career path.

One of the key components of *Design Squad*, the outreach campaign provides engineering professionals and educators with a kit containing detailed instructions for five problem-solving challenges along with guidelines for planning and overseeing the activities. *Design Squad* is also hosting a series of free training sessions in various U.S. cities for engineers and educators interested in organizing events. Find more information about *Design Squad* and its outreach program, including downloadable event guides, on its Web site at pbskids.org/designsquad.

Doug McGuirt
NCEES Editor

UPDATE

Betsy Browne
NCEES Executive Director

Annual Meeting the center of improvement in 2007

Each fiscal year revolves around the NCEES Annual Business Meeting. Committees present their efforts for the year, delegates discuss and vote on resolutions, and the Council determines many of the upcoming committee charges. The Meeting gives Member Boards the opportunity to discuss licensure issues and vote on the strategies of NCEES.

But are the business sessions efficient? Is the Annual Meeting as profitable as it can be for delegates and guests?

After the Council finished its 86th Annual Meeting last year, the Board of Directors discussed these questions, evaluating the goals and organization of the Annual Meeting. At its November 2006 meeting, the Board decided to revise the structure to increase the value of the meeting and encourage greater participation. These changes will begin with the 2007 Annual Meeting, which will take place in Philadelphia August 22–25.

One difference will be an increase in the number of sessions that offer opportunities to earn professional development hours (PDHs). In the past, there have been two or three sessions that engineers and surveyors could attend for PDH credit. This year, delegates and guests will be able to attend as many as six sessions. Other workshops will also provide delegates the opportunity to learn more about some of the issues the Council will vote on before they attend the business sessions.

In addition, the business sessions will be shortened. Instead of all committees giving reports verbally, only those with motions will make presentations. All committee reports will continue to be included in the *Action Items and Conference Reports*, which will still be sent to all meeting attendees beforehand so that they can learn about the work of each committee and task force.

Zone Meetings

Although the Annual Meeting is six months away, Council committees and staff are already busy preparing for it. Committees are investigating and discussing their charges, which include defining the additional credits for engineering education, creating guidelines for the investigation of suspected exam collusion, and evaluating the level of difficulty and complexity of exam items relative to minimum competency.

The Zone Interim Meetings this spring will provide an excellent opportunity for Member Boards to become familiar with each of these issues. Committees and NCEES officers will present the work they have done during the year, and delegates can evaluate these issues before they attend the Annual Meeting business sessions.

BPA

The BPA on February 15–17 in Atlanta, Georgia, will also offer an opportunity for Member Boards to learn more about Council initiatives. Topics at the BPA include exam security, foreign credential evaluations, and continuing education. Attendees will also discuss the Board of Directors' strategy-setting process, the Council's application to become certified by the American National Standards Institute (ANSI), and the ways the Council will celebrate the 100th anniversary of engineering licensure. For more details about the BPA program, see the agenda beginning on page 6.

New Council staff

Finally, I'd like to introduce you to two new staff members. The Council has hired a second credential evaluator—Nadjejda Chapoteau—to assess documents and to analyze academic program criteria at the Center for Professional Engineering Education Services. Nadjejda has a bachelor's degree in

international relations and a certificate in Latin American and Caribbean studies from Florida International University. She has lectured on the educational system in francophone countries and has two years' experience evaluating foreign credentials, training and supervising other evaluators, and researching international institutions' accreditation status and program requirements.

NCEES has also hired Doug McGuirt as editor of corporate communications. He holds a master's degree in mass communications from the University of South Carolina as well as a bachelor's degree in English Literature with a second major in economics from the University of North Carolina at Chapel Hill. Before coming to the Council, Doug worked as a copywriter for an advertising agency. Here at NCEES headquarters, he is editor of *Licensure Exchange* as well as other Council newsletters. If you have any questions or suggestions for content of *Licensure Exchange*, please contact Doug (dmcguirt@ncees.org).

Betsy Browne
NCEES Executive Director

Upcoming

EVENTS

DATE	EVENT	LOCATION
February 15–17	Board Presidents' Assembly	Atlanta, Ga.
February 23–24	Board of Directors' Meeting	Captiva Island, Fla.
April 12–15	Western Zone Meeting	Gleneden Beach, Ore.
April 20–21	Exam Administrations	
April 26–28	Southern Zone Meeting	Lexington, Ky.
May 3–5	Northeast Zone Meeting	Newport, R.I.
May 15–17	Board of Directors' Meeting	Rapid City, S.Dak.
May 17–19	Central Zone Meeting	Rapid City, S.Dak.
August 21	Board of Directors' Meeting	Philadelphia, Penn.
August 22–25	Annual Meeting	Philadelphia, Penn.
August 25	Board of Directors' Meeting	Philadelphia, Penn.

NCEES Board Presidents' Assembly 2007

Every two years, all Member Board presidents and administrators come together for the Board Presidents' Assembly (BPA). Much like the Annual Meeting, the BPA provides a forum for discussion about the Council's activities for the year. It also allows boards to focus on the larger, strategic issues of the Council. This year, the meeting will be held in Atlanta on February 15–17. Below is a summary of the issues the attendees will address in the Friday and Saturday sessions.

Friday, February 16

MORNING SESSION

WELCOME AND INTRODUCTIONS
Louis A. Raimondi, P.E., L.S.
NCEES President

TREASURER'S REPORT
Gregg Brandow, Ph.D., P.E., S.E.
NCEES Treasurer

UPDATE ON BOARD OF DIRECTORS' ACTIVITIES
Gene Corley, Ph.D., P.E., S.E.
NCEES President-Elect

UPDATE ON COUNCIL ACTIVITIES
Betsy Browne
NCEES Executive Director

Marketing Survey Results

Jerry Carter
NCEES Associate Executive Director

In 2006, NCEES conducted a new round of marketing research intended to measure student perceptions of licensure—to capture their opinions and perceptions about topics such as career planning, the FE exam, and awareness of the licensure promotion campaign. This research will be used to update previous studies, supplement current knowledge, and provide insight on future direction of the Council's licensure advancement efforts. Carter will provide an overview of the new marketing survey results.

Security Initiatives/Collusion Update

Bob Whorton, P.E.
NCEES Security and Compliance Manager

Susan Whitfield
Director of ELSES

In 2004 and 2006, NCEES underwent voluntary audits of its exam processes and procedures by a nationally recognized exam-auditing service. The results of the audits led NCEES to expand its security procedures to include new initiatives such as exam administration audits, identification of potential random guessers, and copying/collusion analyses. Whorton will discuss exam irregularities and these security initiatives, and Whitfield will provide an overview of how ELSES has enhanced its exam administration procedures as a result of the new initiatives.

Registered Continued Education Providers Program

Davy McDowell, P.E.
NCEES Director of Professional Services

The Registered Continuing Education Providers Program was developed in 2006 to streamline the continuing education process by providing a centralized recordkeeping system. McDowell will provide an update about the program's activities since it was launched last summer.

Foreign Credential Evaluations

Eva-Angela Adán
Director of the Center for Professional Engineering Education Services

Since it opened in September, the Center has received more than 300 applications for credential evaluations. Its goal is to generate evaluation reports that NCEES Member Boards can use to assess legitimate engineering graduates seeking professional licensure. Adán will discuss the evaluation process, including the final report and board reporting, service turnaround time, and general principles of the Center's activities.

ANSI Certification Update

Jerry Carter
NCEES Associate Executive Director

The American National Standards Institute (ANSI) officially represents the United States in standardization throughout the world, and the U.S. government has recognized the American National Standards adopted by ANSI. Carter will discuss the efforts of NCEES to become certified as an ANSI Accredited Standards Developer.

AFTERNOON SESSION

STRATEGIC PLANNING SESSION

Jim Dalton

Dalton, a management consultant to the nonprofit community with experience in strategic planning and leadership development, will discuss the purpose of strategy setting and how the NCEES Board of Directors' strategy planning has evolved into a more effective process for the Council over the past year.

Saturday, February 16

MORNING SESSION

DISCUSSION OF COUNCIL POSITION ON RECOGNIZING FOREIGN DEGREES

Louis A. Raimondi, P.E., L.S
NCEES President

Martin A. Pedersen, L.S.
NCEES Past President

In the recent past, the NCEES Board of Directors has been asked to engage in dialogue with various foreign entities interested in securing an arrangement for cross-border recognition of licensees. In this session, the NCEES Board would like to hear from state board leadership on how it wants NCEES to address some of the questions associated with this issue.

100 YEARS OF LICENSURE CELEBRATION

Davy McDowell, P.E.
NCEES Director of Professional Services

NCEES is celebrating 100 years of engineering licensure in 2007. McDowell will provide an overview of the many ways the Council is marking this important milestone. He will also distribute materials to assist boards in requesting gubernatorial proclamations and raising awareness in their own jurisdictions.

OTHER ISSUES/FOLLOW-UP

Louis A. Raimondi, P.E., L.S.
NCEES President

AFTERNOON: MBA FORUM

INTRODUCTION AND WELCOME

Gloria Keene
Central Zone Representative

Lesley Rosier-Tabor
Northeast Zone Representative

Andrew Ritter (spokesperson)
Southern Zone Representative

Brooke Jasmin
Western Zone Representative

COMMITTEE REPORTS AND BPA MEETING BUSINESS

NCEES ITEMS

MBA ITEMS

Limiting exam attempts benefits Rhode Island licensure process

L. "Larry" Robert Smith, P.E.
NCEES Northeast Zone
Vice President

While other boards debated the effectiveness of limiting the number of attempts on NCEES exams, the Rhode Island Board of Registration for Professional Engineers decided to take action more than a decade ago. The board has experienced positive results. Here's a little history and discussion of Rhode Island's "three-strikes-and-you're-out" policy.

About 12 years ago the Rhode Island Board was reviewing a comity application of an individual who had failed more than 10 times before finally passing the Principles and Practice of Engineering (PE) exam.

After much discussion as to whether we had the right to deny this person comity, our legal counsel advised that under our state law we had to register the individual. The vote was taken, and there were no nay votes. However, I do remember that not everyone said, "Aye." Someone asked, "Would you go to a doctor who had failed his licensing exam 10 times?" The answer was, "How would you know, anyway?"

A few weeks later, I asked one of the deans of the Brown University School of Medicine about this issue. He told me that there is a three-try limit on the number of times a prospective doctor can take the licensure exam. Candidates who don't pass on the third try are not allowed to practice. I reported this conversation at the next board meeting. Our legal counsel added that would-be lawyers in Rhode Island are also limited to a maximum of three attempts to pass the bar exam.

The Rhode Island Board then voted to amend our Rules and Regulations to limit the number of attempts for the engineering exams. The proposed language was drafted and advertised. Everyone who came to speak on the issue at a public hearing held in the state house was in favor of the limit. After a 30-day comment period, the board adopted it at our next meeting.

As passed, the Rhode Island regulation allows engineering exam candidates to take the Fundamentals of Engineering (FE) and the PE exams three times each. Those who receive a score of less than 60 on their third attempt of either exam cannot take that exam again in Rhode Island. If they are above that threshold, they may petition the board for a fourth attempt. Board members meet with those who appeal and come up with a prescribed course of study that the board feels would help prepare them for a successful fourth attempt at the exam. If they do not pass on the fourth attempt, they too are done in our state.

Since the board instituted this limit, it has been waived only for individuals who had failed the exam a number of times and were subsequently given an ADA accommodation. The pre-accommodation attempts are not counted in their total number of attempts.

This limit has created a number of unexpected benefits. One is that candidates take the exam much more seriously. They no longer "test drive" the exam to see what it is like.

Candidates for comity are required to complete an affidavit that identifies the number of times they took the exams as well as the location and dates of those exams. Those who list more than four attempts are denied comity. For those showing three attempts, we send a letter to their board asking for verification of that number.

The same is done for comity applicants who list a suspicious pattern of dates. If a person indicates that he took the exam in April and October of one year and then passed it three years later, it causes us to question what happened in the meantime. We've discovered a few individuals who have supplied misleading or incorrect information. These people are denied comity, and a letter reporting the facts of the misinformation is sent to those other jurisdictions where they are registered.

This limit has created a number of unexpected benefits. One is that candidates take the exam much more seriously. They no longer "test drive" the exam to see what it is like. Instead, many of the candidates take review courses before attempting the exam for the first time. The number of candidates who actually strike out is less than we used to have taking the exam for more than three times.

The exam used to be like the Grand Prix circuit. Examinees would get on, and sooner or later they would win. By not allowing candidates to pass by becoming exam smart rather than by mastering their subject, the board is doing a better job of protecting the public health, safety, and welfare.

Exam security is another factor in this issue. We need to address the question of whether the exams are at risk because we are allowing unlimited attempts. In 2004, the Council revised the *Model Law* to require candidates who have failed an NCEES exam more than three times to wait 11 months before taking the exam again. But this language still allows candidates to take the exam again and again.

At the last discussion of this issue before the Council, a major argument for limiting attempts was protecting our exams from those who may try to harvest exam questions. This goal is one of the main reasons for the national exam registration system that the Council voted on at last year's Annual Meeting. Perhaps the time has come to revisit this issue and implement a reasonable limit to exam attempts.

L. "Larry" Robert Smith, P.E.
NCEES Northeast Zone Vice President

Association of engineering societies chooses Nelson as chair-elect

At its most recent meeting, the American Association of Engineering Societies (AAES) elected Jon Nelson, P.E., NCEES president in 2004–2005, as chair-elect. The unanimous vote reflects the renewed connection between NCEES and AAES.

NCEES rejoined AAES in February 2006, six years after withdrawing its membership. As a result of changes in AAES structure and at the urging of other engineering societies, the NCEES Board of Directors has reevaluated and decided it is again beneficial to participate in AAES.

"The purpose of joining AAES is to help create a uniform voice for the engineering profession—one that recognizes the importance of licensure," says NCEES Associate Executive Director Jerry Carter. "These organizations want to become more effective by pointing resources in the same direction and avoiding duplicate efforts."

The objective of AAES is to advance the knowledge and practice of engineering by providing a forum for engineering societies to discuss shared goals and to collaborate to accomplish them. One goal that many of the 12 member organizations share is promoting engineering among children and teens.

The Council's efforts in this area have included major sponsorship of *Design Squad* (see page 3) and annual participation in National Engineers Week and the Future City Competition that accompanies it. To evaluate the benefits of greater collaboration in these and similar efforts, NCEES has joined an AAES study group focused on K-12 programs.

Through this group, NCEES contributed to the development of five chapters of K-12 engineering educational standards. These draft standards, produced by the American Society of Engineering Education, provide a framework for curriculum developers as they integrate information about engineering into K-12 programs, increasing all students' understanding of the engineering profession.

As NCEES representative to AAES since 2005, Nelson has presented the Council's activities to the other members and discussed strategies for AAES members to work together and focus their efforts. Now, as AAES president-elect, he continues to promote cooperation.

"The organization is ready to go forward," says Nelson. "And I believe it will serve its purpose in uniting the profession—something that is truly needed."

NCEES Staff

MISSION

The Mission of NCEES is to coordinate with domestic and international organizations to promote licensure of all engineers and surveyors.

NCEES Strategic Plan

Convincing young nuclear engineers to pursue licensure

After a slump that lasted more than a decade, nuclear engineering is experiencing a resurgence. In 1998, enrollment in nuclear engineering programs dwindled to an all-time low of about 500 students. In 2004, however, enrollment rose to triple that number—and it continues to grow.

Demand is high for qualified nuclear engineers, and those entering the field are eager to learn what it takes to succeed. The American Nuclear Society (ANS), which works with the Council to produce the Nuclear PE exam, is working to explain to them the importance of engineering licensure.

ANS has published articles and coordinated letter campaigns to encourage students to pursue licensure. The society has also developed courses to help engineers prepare for the Nuclear PE exam. Those involved in the society also participate in informal mentoring to help students and young engineers understand the benefits of licensure.

Demand is high for qualified nuclear engineers, and those entering the field are eager to learn what it takes to succeed. ANS...is working to explain to them the importance of engineering licensure.

Two nuclear engineers who have actively promoted licensure with ANS are Rebecca Steinman, Ph.D., P.E., and Alan E. Levin, Sc.D., P.E. Steinman is a certified energy manager and a consultant for Advent Engineering Services Inc. in Ann Arbor, Michigan. She has 7 years of experience consulting for and working with commercial nuclear power plants. Levin is a technical consultant for AREVA NP Inc. in Bethesda, Maryland, and has more than 25 years of experience in nuclear engineering research, academia, industry, and regulation. He has assisted with exam development for the Nuclear PE exam for more than 10 years.

Here are their answers to some of the questions that the next generation is asking about licensure.

States don't require licensure for independent nuclear design work, so why should I pursue it?

Steinman: Although licensure is not a requirement to have a job, there are many limitations on your practical work in the nuclear power industry if you don't have a license. There may not be a state or federal mandate and many nuclear engineers may go through their entire career without a license, but in the nuclear power field some companies have policies that require licensure for certain management positions.

Nothing new can be built without a professional engineer's stamp to sign off on the design. There are licensed civil and mechanical engineers at every operating power plant and every architectural and engineering firm for this purpose, but the last generation of power plants was not built without the input of licensed nuclear engineers—and I don't think the next generation should be built completely devoid of their insight.

Levin: Young engineers in their 20s are probably going to be working for another 30 or 40 years. No one can tell the twists and turns that careers can take, and it's altogether possible for nuclear engineers to find themselves in jobs when they're 45 that they'd never have contemplated at 25. Some jobs require a license, and you can't know where you may eventually end up. Why not be as prepared as possible?

Also, being active in state organizations or professional societies can be valuable in terms of professional networking and might influence future career directions. I took the exam mostly to challenge myself and to prepare myself in case I ever ended up in a job in which it would be useful or necessary.

Getting the license has allowed me to participate in the process of professional engineering licensure through my involvement in the ANS Professional Engineering Examination Committee. Being on that committee has also given me the opportunity to meet and work with some interesting people whom I may otherwise have never met.

Shouldn't I focus on education rather than spending time getting licensed?

Levin: Pursuing licensure is not, in my view, something you do instead of further education. The amount of effort that it takes to prepare for the exam is much less (and takes far less time) than is involved in obtaining an advanced degree.

The preparation for the PE exam has a value in and of itself. It helps to reinforce problem-solving skills, and—if we do our job of assembling the exam well—presents the examinee with real-world engineering problems.

Licensure is not for everyone. But young professionals should consider it as something that could be of value in the future even if it is not of immediate benefit. And it is far easier to pursue licensure at an early stage of a career—when academic training and skills have not atrophied from disuse—rather than later. If young professionals want to have the option of licensure, they should take the exam soon.

Don't people in the field view a Ph.D. as more valuable than a B.S. and a P.E. license?

Steinman: When I graduated with my Ph.D., I knew that I wanted to do work that had a practical application today instead of researching and developing the technologies of tomorrow. However, right after I graduated I couldn't find a single power plant that was willing to hire me. They all told me I was "too expensive" or "overqualified" for the positions I was applying for.

Licensure was not required for any of the jobs I was interviewing for, but they asked just the same. Every interviewer asked me if I had passed the FE exam and planned to pursue a professional license, since my Ph.D. reduced the period of time I needed to work before being eligible to sit for the PE exam. It was not until I interviewed for a consultant job in the industry that my nuclear Ph.D. was given a lot of weight.

In my current work as a consultant, nearly everyone I work with asks if the company owner is licensed, how many of the engineers at the company are licensed, and whether we allow nonlicensed engineers to be the sole sign-off for work deliverables. Even though the state does not require that I be licensed to perform work, my clients view my licensure as a way to gauge my experience and expertise because I am the organizations' performance evaluation system.

I've also been called to act as an expert witness in two cases involving a nuclear power plant. The people requesting my testimony were expressly interested in my "state-recognized" licensure status and happy to have the added benefit of my higher education.

Having something that makes you stand out from all the other applicants for a position can really help give you a leg up. A professional license is one very important way to do this. Although a nuclear engineering license is not necessarily required, it is a way to demonstrate a minimum level of competency that is not guaranteed by simply having a certain degree.

No one thing proves that you will be a good, reputable engineer, but a combination of the right types of certifications can go a long way to demonstrate abilities on paper, which is what you often need to get your foot in the door at a new place.

These are some of the specific issues affecting nuclear engineers, but promoting licensure applies to all engineering disciplines. NCEES wants to know how you are mentoring the next generation in your field. E-mail dmcguirt@ncees.org and explain how you answer the tough questions you hear from young engineers.

NCEES Staff

"The preparation for the PE exam has a value in and of itself. It helps to reinforce problem-solving skills, and—if we do our job of assembling the exam well—presents the examinee with real-world engineering problems."

Alan E. Levin, Sc.D., P.E

Member Board

NEWS

ALABAMA

- Don T. Arkle is a new appointee to the board, and Veston W. Bush is the board's new chair. The term of Lynn C. Doyle has expired.

ARKANSAS

- Frank Vozel is a new appointee to the board, and Mike Marlar is the board's new chair. Robert Walters is no longer on the board.

CALIFORNIA

- Michael Modugno is a new appointee to the board.

FLORIDA PE

- The board's new e-mail address is pmartin@fbpe.org.

INDIANA LS

- Michael L. DeBoy is a new appointee to the board. The term of Randall Miller has expired.

KENTUCKY

- Samuel R. Williams and Ben T. Quinn are new appointees to the board. Dennis D. Smith is the board's new chair. The terms of James M. Yowell and David H. Dummer have expired.

NEBRASKA PE

- The board's new address is 215 Centennial Mall South, Suite 400, Lincoln, NE 68509.

OHIO

- Theodore B. Hubbard is a new appointee to the board. The term of Ronald Zook has expired.

VERMONT LS

- Larry Walter is a new appointee to the board. Blake Thomsen is no longer on the board. Loris Rollins (lrollins@sec.state.vt.us) is now the Member Board administrator for both the Vermont PE Board and the Vermont LS Board.

VERMONT PE

- William E. Atkinson is a new appointee to the board. The term of Daniel Dupras has expired. Loris Rollins (lrollins@sec.state.vt.us) is now the Member Board administrator for both the Vermont PE Board and the Vermont LS Board.

October 2006 pass rates

Fundamentals of Engineering

FE exam pass rates reflect results for examinees who attended EAC/ABET-accredited engineering programs.

All modules

Examination Module	First-time takers	Repeat takers
Chemical	83%	50%
Civil	73%	29%
Electrical	67%	27%
Environmental	73%	32%
Industrial	64%	30%
Mechanical	81%	32%
General	73%	25%

General exam only

Examinees' College/University Degree Discipline	First-time takers	Repeat takers
Aeronautical	82%	40%
Agricultural	68%	52%
Architectural	70%	25%
Biological	75%	50%
Chemical	72%	39%
Civil	69%	22%
Computer	59%	14%
Electrical	55%	17%
Eng. Mechanics	68%	20%
Environmental	74%	14%
General Eng.	77%	31%
Industrial	66%	11%
Mechanical	81%	28%
Petroleum	58%	47%
Structural	69%	27%
Other	74%	17%

Principles and Practice of Engineering

Examination	First-time takers	Repeat takers
Agricultural	75%	44%
Architectural*	63%	31%
Chemical	76%	45%
Civil	64%	30%
Control Systems	80%	49%
Electrical & Computer	64%	23%
Environmental	69%	35%
Fire Protection	42%	34%
Industrial	69%	40%
Mechanical	70%	34%
Metallurgical	55%	54%
Mining and Mineral	84%	35%
Naval Arch./Marine*	81%	75%
Petroleum	93%	33%
Structural I	47%	29%
Structural II	61%	31%

**These PE exams are offered only in the spring. Pass rates shown are for the April 2006 administration.*

Surveying

Examination	First-time takers	Repeat takers
FS	64%	37%
PS	67%	26%

Send letters to *Licensure Exchange* editor at NCEES, PO Box 1686, Clemson, SC 29633 or dmcguirt@ncees.org.

Please include your name and state of residence on the letter. Letters may be edited for clarity, brevity, and readability.

Readers' FORUM

Should NCEES governance be restructured to more effectively manage changes in engineering and surveying practices?

Current situation

Several years ago, service providers dealing with geographic information systems and aerial photography were merged into the practice of surveying under *Model Law* changes enacted by NCEES. Some states have now enacted legislation to incorporate the *Model Law* or similar language.

Increasingly, trends affecting the practice of both engineering and surveying are emerging in dramatic ways. The impact of these changes presents regulators with challenges that have not previously been of much concern. NCEES is more frequently being called upon to interface in public forums with other organizations concerned with how regulation may affect these emerging trends and their professional practice.

In my opinion, the NCEES voice concerning engineering issues is best conveyed by engineers; conversely, issues of concern to surveyors are best addressed by surveyors.

Trends of concern

Electronic technology, national and international mobility, bifurcation of professional practice, changing educational standards, and alternative competency assessment mechanisms are of increasing concern to regulators and practitioners.

Computer systems have the capability to manipulate engineering, land information, and other forms of electronic data through software programs seldom developed and certified by licensed professionals. Today, many of these programs are written and executed from locations quite remote from the office that assumes responsible charge of the work. Design and drafting services are being provided to engineers and surveyors from locations in other states and countries. Although most of this activity flies in the face of current practice regulations, the NCEES *Model Law* has not solved the problem in a way that deals with current realities of service providers.

Efforts by NCEES to expedite comity and develop uniform continuing education requirements have been, at best, mildly successful. For both professions, these issues are moving from national to international stakeholders. Initiatives by the federal government to reduce the barriers that impede mobility of service providers call for ever greater awareness by NCEES leadership.

Meanwhile, engineering disciplines continue to splinter. Nanotechnology and other developments are creating specialty disciplines. Construction contract documents have long ago transitioned to electronic format. New federal regulations now affect the storage and retrieval of electronic data at a time when engineering and surveying plans and specifications are increasingly being developed under multi-party arrangements. These emerging practice arrangements have not yet been reviewed or tested against current regulatory models, and NCEES has not interfaced with those leading the way in this new frontier to assess how the reality of practice can be managed within regulatory standards.

The purpose first established for licensing surveyors—the regulation of land surveys for the transfer and recording of real property—has expanded dramatically. In a number of jurisdictions across the nation, the lines between land surveying and civil engineering increasingly overlap. In many states, the practice of surveying has grown to encompass geographic information and photogrammetric services. These issues demand leadership attention within NCEES by leaders of the surveying community who can speak with knowledge and authority.

Argument for governance change

Given the important issues that separately face both professions, it makes sense to study these matters as part of the governance task force currently assembled within NCEES. The purpose of this commentary is not to promote separate organizations for engineers and surveyors. Instead, it is to stimulate consideration of optional governance structures that can better focus on and direct resources to regulatory issues affecting these professions. As part of the study, it may prove beneficial to consider options that create separate entities for engineers and surveyors, with each functioning independently but under the existing umbrella of NCEES for financial and administrative purposes.

L.G. "Skip" Lewis Jr., P.E.
NCEES Past President 1996–1997 and Emeritus Member of the South Carolina Board of Registration for Professional Engineers and Land Surveyors

Developing a new mapping exam for the surveying community (continued from page 1)

photogrammetrists without an examination process. Others were in the process of creating licensing regulations for this profession. These boards knew it was only a matter of time before they would need an exam that focuses on mapping sciences other than traditional surveying.

"Because of the limited number of states needing the exam and because of the small candidate population, it couldn't be a national exam," explains Doyle Allen, P.E., CSBSR executive director and emeritus member of the Virginia Board of Architects, Professional Engineers, Land Surveyors, Certified Interior Designers, and Landscape Architects. "By working together to create a jurisdictional exam, the states involved are saving money and improving comity by reducing the number of differences in the licensure process."

CSBSR has led the effort to develop the photogrammetry and mapping sciences exam. It has sponsored item-writing sessions for the past three years and has worked with NCEES and the American Society of Photogrammetry and Remote Sensing to develop a bank of nearly 300 questions. All of the questions have been developed according to NCEES procedures, using proper psychometric standards and effective security measures.

In April 2006, a group of subject-matter experts sponsored by CSBSR and NCEES met with a psychometric consultant to perform a Professional Activities and Knowledge Study (PAKS). The group analyzed the 2003 PAKS that guided the creation of specifications for the most recent Principles and Practice of Surveying (PS) exam. Focusing on the content that addresses photogrammetry, the group was able to determine specifications for the mapping sciences exam.

NCEES is contributing to the project by financially supporting the exam development effort and housing the item bank at NCEES headquarters. Eventually, it will also manage exam assembly, scoring, and reporting of scores. NCEES will also continue to ensure that the exam development process adheres to NCEES policies, procedures, and security requirements. The licensure boards involved in the project are dividing the remaining amount equally among themselves in annual funding to CSBSR.

The Colonial boards anticipate that the six-hour photogrammetry exam will be taken by exam candidates after they have passed the NCEES Fundamentals of Surveying exam. Photogrammetrists and other mapping professionals may take it in lieu of the PS exam and in conjunction with any state-specific surveying exams.

At this time, the number of exam candidates is relatively small, primarily due to the grandfathering process that boards have relied on up until this point. By creating an exam to test mapping sciences, boards are preparing for the next generation of photogrammetrists who will need to be examined before becoming licensed.

"CSBSR and the state boards have really worked hard to make this exam possible," says Chuck Wallace, NCEES director of exam development. "They've identified the need and then worked to find a solution. It's a project that could end up being very beneficial to all interested Member Boards."

As the owner of the exam, CSBSR welcomes other state boards to discuss agreements to use the exam.

Desiree Talbert
NCEES Editor

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Credential evaluation exceeds expectations

The Center for Professional Engineering Education Services is off to a strong start. In September, it began accepting applications for credential evaluations, and the next month it completed its first evaluation. By the end of 2006, the Center had received more than 330 applications from people seeking licensure in the United States.

Center applicants represent 51 countries, and the Center's Web site—www.cpees.org—receives traffic from around the world. Although the majority of applicants hold foreign credentials, the Center also provides evaluation services for non-accredited U.S. programs. Evaluators review each academic program to compare it with ABET-accredited programs. At this point, the Center has received five requests to evaluate non-accredited U.S. programs.

In addition to assessing academic programs, a significant component of the evaluation process at the Center involves verifying the legitimacy of academic documents. To update boards about these activities and to inform them of current trends in fraud, the Center created an electronic newsletter, the *Center Bulletin*. The first two issues discuss the growing problem of diploma mills and methods that various countries are using to prevent credential fraud. These issues are available at www.cpees.org/bulletin.

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