

Societies collaborate to attract students to surveying

Throughout the year when I meet with surveyors across the country, I hear that they are busy, often even overworked. This situation has remained the same in spite of the economic downturn of the past few years.

I also hear a growing concern that the supply of licensed professional surveyors will not meet the demands of the future. The perception among many in our profession is that the number of surveyors achieving licensure is not keeping pace with attrition. About 38,000 licensed professional surveyors currently practice in the United States, and their average age is in the mid-40s.

This concern is one of the reasons that the National Society of Professional Surveyors (NSPS), the American Congress on Surveying and Mapping (ACSM), and NCEES have collaborated to develop the Surveying Speaker's Kit.

This guide is intended to attract young people to the surveying profession. The primary target audience is the middle-school to college age group. Presentation materials emphasize the importance of education in preparing for the challenges of the practice of professional surveying in an ever-changing technological environment.

Almost 40 colleges and universities nationwide provide the fundamental education essential to practice in all of the many aspects of professional surveying. Students in these programs are also prepared to achieve "in-training" status by passing the NCEES Fundamentals of Surveying (FS) exam.

The current FS exam is configured to align with the education obtained by those graduating from these colleges and universities rather than with the experience track that has historically been followed toward licensure. There appears to be a growing consensus that education—not experience—is the appropriate vehicle through which to achieve in-training status.

Yet less than half of all states actually have licensing laws that require a four-year surveying degree as a prerequisite for attempting the FS exam. Until the licensing laws among all, or at least most, states do

require the four-year degree as a prerequisite for the FS exam, we will have a difficult time meeting the demand for fundamentally educated and fully qualified professional surveyors. I believe this to be true for a couple of reasons.

First, we have not yet presented professional surveying as a viable career choice, neither from the perspective of prestige nor from the perspective of income level. This makes it difficult to attract young people to the degree programs. In fact, many of these university and college programs are struggling for survival, and a number of their graduates are pursuing careers that do not include practice as a licensed professional surveyor. The Surveying Speaker's Kit is one way we are attempting to address this.

Second, even though many intelligent and motivated individuals want to achieve licensure and are currently gaining experience as technicians, there is no mechanism through which they can receive the education required to pass the FS exam. Degree requirements have the potential to resolve this problem over time, but the current situation provides another opportunity for NCEES and NSPS/ACSM to work together.

Obviously, we must promote the importance of a solid fundamental education and work together toward uniform prerequisite qualifications for the FS exam. We should not, however, ignore the reality of current licensing laws in a majority of states.

It may well be in the best interests of NCEES and the surveying profession to find ways to adequately educate—and prepare for the FS exam—those who aspire to become licensed professional surveyors in states that do not currently have degree requirements. This may be the only way to meet short-term demands while ensuring that licensure is not relegated to just one aspect of the broader surveying discipline.

Curtis W. Sumner, P.L.S.

Curtis Sumner is a licensed surveyor in Virginia and Maryland. He is former president of NSPS and is currently executive director of ACSM.



*Curtis W. Sumner, P.L.S.
 ACSM Executive Director*

The perception among many in our profession is that the number of surveyors achieving licensure is not keeping pace with attrition. About 38,000 licensed professional surveyors currently practice in the United States, and their average age is in the mid-40s.

NCEES is committed to promoting licensure

In 1999, the Council began a concerted effort to promote the value of licensure. It adopted a long-term licensure promotion plan that outlines the materials and activities needed to promote the use of the Fundamentals of Engineering (FE) exam for outcomes assessment, to encourage students to take the exam in their senior year, and to increase the percentage of graduates pursuing licensure. Since then, NCEES has continued and added to its promotional efforts for engineering and surveying in a variety of ways.

Speaker's Kits

The Council promotes the value of licensure chiefly through its Speaker's Kits and student outreach. The Engineering Speaker's Kit, introduced in 2003, has been highly successful, and NCEES will introduce the new Surveying Speaker's Kit at the upcoming Board Presidents' Assembly (see page 12). These professionally packaged kits include a script, video, brochures, and PowerPoint presentation designed to make it easy to talk about the professions and licensure.

In connection with the Speaker's Kits, the Council continues to recruit licensed professionals to speak at their local university campuses. These volunteers form a Speaker's Bureau from which the Council's outreach coordinator can draw when a student organization or engineering group requests a licensure presentation.

Web sites

The engineering license Web site, www.engineeringlicense.com, is another important tool for the promotion of engineering licensure. The site is designed specifically to appeal to university-level students. A similar Web site, www.surveyingcareer.com, has recently been developed to promote the surveying profession.

E-Week and Future City Competition

The Council is reaching out to students to interest them in engineering and surveying at a time when they start thinking about possible career paths. In 2004, the Council initiated and sponsored a new award, Best Land Surveying Practices, as part of the Future City Competition™ held during National Engineers Week. Future City is an innovative way to get students across the United States involved in city planning. With the guidance of teachers and mentors, they build computer and 3-D scale models of cities of tomorrow. The Council is again sponsoring the award at this year's competition.

The Future City National Finals will take place in Washington, D.C., February 21–23, 2005, during E-Week.

Extraordinary Women Engineers Project

NCEES is a founding sponsor of the Extraordinary Women Engineers Project (EWEP). This new awareness and outreach program is designed to

encourage secondary school students to choose engineering as a career and to develop a new generation of role models for those already in the field. EWEP is supported by a coalition of more than 50 engineering organizations, professional societies, and universities. NCEES President Jon Nelson is serving on the steering committee, and Western Zone Vice President Jill Tietjen is a member of the advisory committee.

FE as outcomes assessment tool

NCEES promotes the FE as an outcomes assessment tool by seeking opportunities to network and speak at meetings of the American Association of Engineering Educators, the Engineering Deans Council, and meetings of engineering professional and technical organizations.

NCEES Staff

The Council is reaching out to students to interest them in engineering and surveying at a time when they start thinking about possible career paths.

MESSAGE

Volunteers can find many ways to strengthen licensure

Like most nonprofit organizations, NCEES is sustained by its volunteers. Volunteers make up our leadership, our committee membership, and our committee resources. This year, as part of the committee-appointment process, I solicited preference information from the 816 Council members, emeritus members, and associate members who were eligible to serve. Here are a few statistics that I found interesting.

- ◆ Of the 816 total solicitations, I received 238 responses—a 29 percent response rate.
- ◆ Of the 816 total, 205 were willing to serve—a 25 percent positive response rate.
- ◆ Of the 514 members (sitting board members) solicited, I received 112 positive responses—a 22 percent positive response rate.
- ◆ Of the 70 jurisdictions, 8 had no one willing to serve.
- ◆ Of the 70 jurisdictions, 17 had no sitting board members willing to serve.

At last year's zone meetings, I expressed disappointment at some of these statistics. I was disappointed that only 205 of our total membership offered to volunteer. When I went on to say that I expected to have only 140 committee slots to fill, some members attending those meetings could not understand my disappointment. Why should I be disappointed when I received almost 50 percent more volunteers than needed? If I had received more, wouldn't it have just led to that many more members being disappointed at not being selected?

To me, the answer to both questions is easy. I wish we could get 100 percent of our membership to volunteer, and I firmly believe that no one needs to be disappointed. Serving as a full committee member is important, but it is only one of several ways to make a difference for the Council and for licensure. Here are some other possibilities.

Be an exam committee resource

The exam committees need people to write items, check items, analyze items, and set cut scores, among other tasks, and they could really use more sitting board members. These volunteers are not full

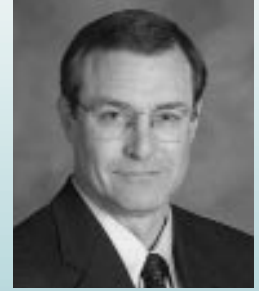
members of the exam committees, but their role is just as important. Some people shy away from this activity, saying that they have been away from the technical side of the profession too long. I think others fear that they might look foolish by what they do not know. I know I was part of the latter group when I first started as an item writer for the civil exam committee, but I got over it quickly. I expect you would be surprised at what you can do. Most volunteers find this activity to be as much fun as it is challenging. I can assure you that it is fundamentally important to our mission.

Promote licensure

Promotion is extremely important to the future of licensure. It may even be the most important activity. Promotion does not have to be organized by the Council. It can be effective at the state level and even at a personal level. I wish every board had a promotional program at their state's universities. I am certain it would make a difference in the number of engineers and surveyors taking the licensure path. It would strengthen licensure and I think the profession as a whole. Even if your board chooses not to start a promotional program, you need not be deterred. I have found that many university department heads and professors teaching capstone courses or practice-related courses welcome licensed engineers and surveyors—particularly state board members—to speak to their students. Usually all you have to do is express interest. With the Council's Engineering and Surveying Speaker's Kits, all you need is the desire, and you can make a difference.

Be active in the professional societies

Although the various engineering and surveying societies do not have as direct a tie to licensure as we do in the Council, they are involved. They shape the professions and thereby affect the qualifications on which licensure relies. Being active in these organizations connects you to the profession in a broader way and keeps you informed. Offering your knowledge of licensure can lead to better society decisions related to licensure issues, and bringing your knowledge of the profession to the Council can



Jon D. Nelson, P.E.
NCEES President

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UPDATE



Betsy Browne
NCEES Executive Director

Member Boards to see changes in exam procedures

Several procedural changes will affect Member Boards as they prepare for the upcoming April exam administration. These include a short list of approved calculators, a new way of ordering exam booklets, and an earlier deadline for special accommodations requests.

New list of approved calculators

At its 2004 Annual Meeting, NCEES voted to revise the examination policy concerning materials permitted in the examination room so that only models of calculators specified by NCEES are allowed. The following models are the only calculators that will be permitted in the examination room for the April and October 2005 exam administrations:

- Hewlett Packard—HP 33s
- Hewlett Packard—HP 9s
- Casio—FX115 MS and FX115 MS Plus
- Texas Instruments—TI 30X IIS and TI 30X IIB
- Texas Instruments—TI 36X

Each year, an NCEES subcommittee on calculators will review and revise the approved calculator list, and it will provide an updated calculator list by November 15.

Ordering exam booklets

Beginning with the April exam administration, NCEES will use a new printer for printing and shipping the Principles and Practice of Engineering (PE) and the Surveying exam booklets to the Member Boards. Some ordering procedures will also change in order to enhance security and to streamline procedures.

Exam booklets are already stamped with a serial number and bar code when they come off the printing press, but they will now also be immediately shrink-wrapped in bundles. Most of the Group I PE exams will be packed in bundles of 5, 10, and 15 exams. All other PE and LS exams will be bundled in groups of 3, 5, and 10 exams.

The bundling enhances security because it means the exams are handled less and can be tracked more efficiently. It also means procedural changes for Member Boards.

Member Boards will now need to round up to the nearest 3 or 5 exams. For example, if a board needs 63 civil engineering exams, it will need to order 65 booklets. It will receive four bundles of 15 exams and

one bundle of 5 exams. Another change is that exams will be ordered by site, not by board location. When an order is placed, it will need to be broken down by the number of exams at each site. The printer will box the exams for each site, which will allow a particular exam to be tracked to the exact site it is sent.

The boxes can still be shipped to one site as needed. Member Boards were mailed more in-depth information about the procedural changes a few weeks ago. Please contact us if you have questions.

Special testing accommodations

Council policy requires that NCEES review all requests for special testing accommodations and then notify the licensing board or testing agency of approval or denial.

Special testing accommodations fall under two categories. First, candidates whose religious convictions prohibit them from testing on the regularly scheduled exam date may qualify to take the exam on an alternate date. Second, individuals who have a documented disability covered by the Americans with Disabilities Act (ADA) may request special accommodations such as extended testing time or extra breaks.

The NCEES document *Guidelines for Requesting Religious and ADA Accommodations* explains the requirements for taking an NCEES exam with these accommodations. Member Boards should inform candidates who wish to request special testing accommodations to go online to the NCEES home page (www.ncees.org) under the "Exams" heading to find this document, along with frequently asked questions and forms for making the requests.

Several procedural changes will affect Member Boards as they prepare for the upcoming April exam administration.

Candidates requesting special accommodations must notify NCEES in writing each time they apply to take an NCEES exam. To allow adequate evaluation time, NCEES must receive requests no later than 60 days prior to the exam administration.

Exam name changes

Beginning with the April 2005 exam administration, the names of the surveying exams will be as follows:

- ◆ Fundamentals of Surveying (FS)
- ◆ Principles and Practice of Surveying (PS)

These names reflect the removal of the word land from all references to the profession of surveying in the *Model Law* and *Model Rules*. The Council approved this change at last year's Annual Meeting.

Values assigned to exam items

In the case of legal matters, it's important for the Council to have a per-item value so that it can

determine damages if an exam were breached. This past year, NCEES staff and consultants researched how much it would cost to replace exam questions. They factored in travel, subject-matter experts' time, psychometric costs, and office and personnel costs to come up with estimated values.

In November, the Board of Directors approved the following amounts as reasonable valuations of each exam item for 2004–05:

FE Exam Item Cost	\$2,595.40
PE Exam Item Cost Group I	\$2,637.69
PE Exam Item Cost Group II	\$2,178.82
FS/PS Exam Item Cost	\$2,443.19

The Board will review these item costs each year to determine if they need to be adjusted.

Betsy Browne
NCEES Executive Director

PURPOSE

The purpose of this Council shall be to provide an organization through which state boards may act and counsel together to better discharge their responsibilities in regulating the practice of engineering and land surveying as it relates to the welfare of the public in safeguarding life, health, and property. The Council also provides such services as may be required by the boards in their mandate to protect the public.

Constitution Article 2, Section 201

October 2004 exam pass rates

FE exam pass rates

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

FE all modules

Examination Module	First-time takers	Repeat takers
Chemical	87%	50%
Civil	77%	25%
Electrical	76%	30%
Environmental	81%	33%
Industrial	61%	23%
Mechanical	83%	38%
General	76%	24%

FE general exam only

Examinees' College/University Degree Discipline	First-time takers	Repeat takers
Chemical	80%	26%
Civil	75%	23%
Electrical	60%	25%
Environmental	71%	32%
Industrial	54%	12%
Mechanical	83%	28%
Others	75%	26%

PE exam pass rates

Examination Module	First-time takers	Repeat takers
Agricultural	55%	42%
Chemical	72%	30%
Civil	59%	28%
Control Systems	71%	45%
Electrical and Computer	62%	25%
Environmental	69%	40%
Fire Protection	51%	27%
Industrial	62%	26%
Mechanical	65%	31%
Metallurgical	64%	21%
Mining and Mineral	75%	50%
Nuclear	41%	0%
Petroleum	66%	32%
Structural I	43%	18%
Structural II	56%	34%

Surveying exam pass rates

Examination Module	First-time takers	Repeat takers
FS	55%	27%
PS	71%	37%

Forensic engineering and P.E. licensure: are we protecting the public?



Allison J.P. Launey, P.E.
Emeritus Member of the
Louisiana Board and
Chair of the Committee for
Examinations
for Professional Engineers

The challenge for the engineering profession is in determining whether forensic activities are really “engineering.” Are performing the basic on-site investigation, taking photos, and gathering data considered engineering? What about analyzing the data? Preparing a report? Testifying in court? How do our laws and rules deal with this?

Forensic engineering is a growing practice area largely misunderstood by traditional practitioners. Everyone agrees that the bottom line is protection of the public, but the approach is different depending on one’s perspective. Professional engineers working in forensics are concerned with licensure and enforcement issues. Licensing boards are concerned with protecting the public and regulating engineers practicing in their jurisdiction. Judges and attorneys are concerned with the qualifications of expert witnesses who testify in the courts.

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This article provides insight into the practice so that others can make an informed decision. The questions that can be answered are:

- ◆ What is forensic engineering?
- ◆ What part do engineers play in the legal system?
- ◆ Who determines if an engineer is qualified to be an expert witness?
- ◆ What are the licensing issues?

What is forensic engineering?

Forensic engineering is a subspecialty of the profession, and it crosses all disciplines. By its very nature, it resides at the tension point between the legal system and the engineering profession. The National Academy of Forensic Engineers (NAFE) defines forensic engineering as “the application of the art and science of engineering in the jurisprudence system, requiring the services of legally qualified professional engineers. Forensic engineering may include investigation of the physical causes of accidents and other sources of claims and litigation, preparation of engineering reports, testimony at hearings and trials in administrative or judicial proceedings, and the rendition of advisory opinions to assist the resolution of disputes affecting life or property.” (www.nafe.org)

What part do engineers play in the legal system?

Engineers serve as technical consultants to attorneys and insurance companies. They are called upon to

be expert witnesses who are allowed to give opinion testimony at trials. An expert is an unbiased witness who has special skills and knowledge to help the court and jury reach a verdict that is based on sound scientific information and principles.

Who determines if an engineer is qualified to be an expert witness?

Judges act as gatekeepers for all testimony permitted in court. What is permitted is dictated by the Rules of Evidence that courts and judges use for procedural guidance. The current Federal Rule of Evidence (F.R.E.) 702 addresses expert witnesses and states: “If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert may testify thereto in the form of opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.”

The courts use numerous guidelines to determine if an individual is qualified. Ultimately, the judge, acting as gatekeeper and using F.R.E. 702, has the authority to accept an individual as an expert on a case-by-case basis. This litmus test applies to P.E.’s and non-P.E.’s alike. Licensure may or may not be important depending on the case and the judge’s personal views.

Many non-P.E.’s are accepted as experts alongside engineers who discuss the same topics and in many cases perform the same analyses and reach the same conclusions. These may include retired police officers, college professors, safety professionals, marine surveyors, and retired engineers from industry. These individuals possibly have unique expertise that is helpful to the courts, but they are not subject to the same ethical and practice standards as P.E.’s. Furthermore, they are not restricted in crossing state lines and jurisdictional boundaries.

The courts and the public want the best technical minds available. Situations or disputes that involve product liability, safety, automobile accidents, and marine incidents often cross many boundaries—technical as well as jurisdictional.

When major events occur, such as the tragic World Trade Center attack, the loss of the Columbia space

shuttle, a refinery explosion, or even a high-profile automobile accident, it is in the best interest of the public to have the best and most experienced engineers involved. But should an investigation of a major catastrophe be limited to only those licensed in a specific jurisdiction? Is that serving the public's best interests? Does the best engineering talent always reside in our home jurisdiction?

What are the licensing issues?

There are instances when a forensic P.E. finds that a zealous licensing board is conducting an investigation and making accusations of his or her testifying without an engineering license in that jurisdiction. This activity can create problems for not only the P.E. but also for others.

Conducting an investigation of a potential expert witness before the matter is resolved could affect the outcome of a case that may have been ongoing for many years. Even if the engineer is not censured by a licensing board, the existence of an inquiry into an engineer's activities can be revealed in court. This revelation could end or damage a career. Credibility and reputation are more important than technical expertise in how the courts and the public view an expert.

On the other hand, a P.E. censured for practice or competency issues can usually resume "business as usual" with few or no repercussions to his or her career. P.E.'s have a responsibility to be sensitive to and knowledgeable of the laws and rules of a particular jurisdiction in which they practice, but sometimes they may not realize that a problem exists until it is too late.

How can this be? Cases involve many activities that may unknowingly lead to activities outside one's home base. Any part of the process can be done anywhere, and in today's global economy, there are no state or even country boundaries to business and commerce.

Many cases involve multistate or multinational companies in the insurance, manufacturing, marine, transportation, services, and real estate industries. In a fairly typical marine case, it is not unusual for an expert to receive an emergency request to inspect a berthed vessel that was involved in an incident in federal or perhaps another state's waters. The case may involve foreign vessel owners or equipment manufacturers. A court of jurisdiction in another state, and perhaps some years later, may require a report from the investigating engineer, and the attorneys may want to take a deposition in a completely different state.

So, which jurisdiction of licensure determines where the forensic engineer is to be licensed without getting in trouble?

Suggestions

This is not to propose that the bar be lowered for forensic engineers. The need to protect the public is crucial, but protecting the public includes making the best engineering skills and talent available. Medical practitioners are not prohibited from traveling outside their practice jurisdiction to serve as experts in legal matters because consulting/testifying is not considered the practice of medicine. Perhaps it would be in the best interests of the engineering profession and the legal system to more efficiently facilitate the movement of professional forensic engineers from state to state without fear of retribution.

While it is the individual's responsibility to be knowledgeable and to understand the rules, the rules are often unclear and inconsistent as they pertain to forensics. Licensing boards should study the issues dealing with forensic engineering practice before complaints are received. Once the issues are understood, consistent rules and enforcement protocols should be developed and publicized to the profession. Any action on a complaint or even acceptance of a complaint should be withheld until a related matter in litigation is resolved. Any punitive actions should, as always, be very carefully considered. When a complaint is being investigated, the board should consider whether the complaint is legitimate or is being made by someone seeking retribution against an adverse expert witness.

This complex issue has many possible solutions. Some ideas to consider include exempting forensic engineering activities from the definition of engineering, relaxing licensing requirements for forensic engineers, issuing temporary licenses for the duration of a case, and requiring notification by visiting P.E.'s of their activities. This matter can surely be resolved if the engineering profession will work together and use the ingenuity and innovation for which we are known.

We all agree that the bottom line is protection of the public.

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and Chair of EPE
and
Charles E. Prewitt, P.E.
Vice-Chair of the Mechanical Engineering
Examination Committee*



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Louis A. Raimondi, P.E., L.S.
NCEES Northeast Zone
Vice President

Why not comity for continuing education credits?

For the last several years, Member Boards have focused attention on comity for easier licensure mobility between states. They have cooperated to provide quick turnarounds for applicants who apply for comity from one jurisdiction to another. The consensus of opinion has been that mobility of licensure should be relatively easy and quick in order to accommodate professional engineers and surveyors who wish to be licensed in other jurisdictions. This effort to give licensees the ability to work where the project is has been highly successful.

As continuing education becomes mandatory in many jurisdictions, mobility of continuing-education credits has also become a question of comity. It could soon become an obstacle in the licensure-renewal process.

Why shouldn't continuing-education credits be similarly accepted by the Member Boards to enable the licensee who receives licensure by comity to also receive continuing education credits by comity?

The Council should consider the creation of a special task force to explore the issue.

A model law for comity

Before every jurisdiction adopts its own continuing-education requirements, the Council should adopt a model law for comity of continuing-education credit. This would help establish uniformity from state to state and would keep licensees from having to gain the requisite continuing-education credits in every jurisdiction of licensure. Absent uniformity, we should allow the licensee's state of residence to be used as the sole requirement to meet any state's continuing-education requirements. If the home state does not require continuing education for license renewal but another state in which the engineer is licensed does, then allowance should be made for the licensee to designate the other state as his or her primary jurisdiction for the continuing-education requirements to be met.

As continuing education becomes mandatory in many jurisdictions, mobility of continuing-education credits has also become a question of comity. It could soon become an obstacle in the licensure-renewal process.

Recordkeeping burdens

Instead of uniformity, a broad range of mandatory continuing-education requirements currently exists. These requirements vary in terms of the number of credit hours required per annum, the types of courses given for credit, the credibility of the instructors offering courses outside formal educational institutions, and the evaluation process of the courses given. Some states allow credits for membership in a technical/professional society, while other states do not.

Someone licensed in several jurisdictions could conceivably spend many hours at seminars and in classrooms to meet one state's requirements but not be earning credits accepted in another state. The expenditure of time for professional development hour (PDH) credits could exceed that of the engineering degree itself.

Obviously, recordkeeping for the multilicensed individual could become enormously complicated and burdensome. I am licensed as a professional land surveyor in

both New Jersey and New York and as a professional engineer in New Jersey, New Mexico, Florida, and New York. To keep track of my PDH credits and their applicability in these states, I maintain a chart similar to the one on the facing page.

Why not comity for continuing education credits?

Without accurate and up-to-date recordkeeping, the task of tracking and reporting PDH credits could swiftly become uncontrollable. And without accurate and up-to-date reporting of PDH credits, the task of offering comity of continuing education requirements seems virtually impossible. Non-standardization of recordkeeping serves only to make the problem even more unmanageable.

A national clearinghouse of licensure and PDH credits

Yet this same reporting problem presents a unique and possibly profitable opportunity for NCEES.

Seminar Title	Date	Instructor	Place	PDH Credits	NJ L.S.	NJ P.E.	NM P.E.	A.A.E.E.	FL P.E.	NY L.S.	NY L.S.
Land Surveyor Forum	8/7	NCEES	LaJolla, CA	3	3						3
When ADR Fails	2/6	NJSPLS	Atlantic City, NJ	4	4		4		4	4	4
Law Enforcement Program	8/4	NCEES	Little Rock, AR	7			7			7	7
Risk Management Corr. Course	5/2	Red Vector	Corr. Course	4			4	4	4	4	4

We need a central recordkeeping repository that Member Boards and licensees can access. NCEES could create a repository that would allow an individual simply to register his or her information with NCEES and update it when PDH credits are earned. This information would then be immediately available to other jurisdictions, eliminating the need for licensees to file the same information individually with each state of licensure. It would also simplify matters for Member Boards, making it much easier to access

an individual's current licensure and PDH credit information.

Such a national clearinghouse of licensure and PDH credits could become a profitable venture for NCEES, would provide Member Boards with current information on professionals, and would allow licensees to concentrate their efforts where they belong—on their profession.

Louis A. Raimondi, P.E., L.S.
NCEES Northeast Zone Vice President



Jill S. Tietjen, P.E.
Western Zone
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So what does an EAC/ABET engineering degree mean anyway?

Within NCEES, we often refer to the three Es of licensure—education, experience, and examination. For engineers, the gold standard for education is a B.S. degree from an engineering degree program accredited by the Engineering Accreditation Commission (EAC)¹ of ABET, Inc. Some states will not license applicants as professional engineers unless they possess an EAC/ABET degree, even if they have been licensed in another jurisdiction.

But what exactly is the accreditation process for engineering degree programs? In the past, accreditation was fairly easy to understand because it was a prescriptive process that measured the number of hours, specific courses taken, number of faculty, etc. But with the implementation of Engineering Criteria 2000, the emphasis changed to assessing a program's outcomes instead, and many state board members now have a fuzzier understanding about how the accreditation process works. Are there still prescriptive requirements? What is outcomes assessment? How is NCEES involved with ABET and accreditation? How can I as a state board member get involved in the engineering accreditation process?

What is the accreditation process?

The accreditation process begins when an institution asks EAC/ABET to perform a site visit to evaluate one or more of its engineering degree programs.² The request must be received by January 31 for a visit to occur during the fall of that same year. Upon its acceptance of this invitation, EAC/ABET forms a team that will visit the site and evaluate the program. The team consists of a chair, program evaluators, and technical society and licensing board observers. The team chair is selected from among the elected members of EAC.³ The professional technical societies assign a program evaluator for each degree program to be evaluated. The technical societies may also assign observers—individuals in “training” to become full-fledged program evaluators. Finally, a licensing board observer is always invited to be an observer on the ABET team.

The institution must complete a self-study report by June 30. All team members thoroughly review this report before the on-site visit that fall, when they spend two to three days on campus. At the end of the visit, the team's factual findings are orally presented to the department chairs, dean, and president of the institution and then followed up with a draft statement. The institution has from that time until the time of the next summer's EAC/ABET annual meeting to respond to any accreditation shortcomings noted by the visiting team. A final statement is submitted to the full ABET membership for review at the annual meeting (usually in July). In August or September, EAC/ABET notifies the institution of the accreditation action taken.

Are there still prescriptive requirements?

Yes. Each engineering degree program is evaluated using eight criteria: students, program educational objectives, program outcomes and assessment, professional component, faculty, facilities, institutional support and financial resources, and program criteria. The professional component requires every student to complete a specific minimum number of hours of college-level mathematics and basic sciences and engineering topics. Students must also have what ABET calls a “major design experience,” in which the students devise a system, component, or process.

What is outcomes assessment?

The accreditation process previously focused on assessing what are known as “inputs”—for example, the number of hours of math, science, and engineering courses a student takes. The process now focuses on “outcomes” instead. Outcomes are what students are expected to know and be able to do by the time they graduate. A program may set an objective to prepare students for professional practice. One outcomes assessment of this goal might be to measure the number and percentage of that program's students who take the FE examination. An appropriate outcomes-assessment process includes measurements and

In the past, accreditation was fairly easy to understand because it was a prescriptive process that measured the number of hours, specific courses taken, number of faculty, etc.

provides feedback to ensure that a program actually achieves its objectives.

How is NCEES involved with ABET and accreditation?

NCEES currently has representation on the ABET board of directors and on three of the ABET commissions. In addition, ABET personnel have been and continue to be actively involved in NCEES task forces that are examining issues of education, accreditation, and licensure qualifications. NCEES representatives also sit on ABET task forces. ABET on-site visit teams contact the state licensing board to determine if an observer from the state board would like to participate as a member of the team.

How can I as a state board member get involved in the engineering accreditation process?

Any state board member can serve as an ABET observer on ABET visits scheduled in his or her state after passing a conflict-of-interest check. This effort requires some preparation but not to the level required of a program evaluator. If you are an engineer, you can become a program evaluator through your technical society and then participate in ABET visits. The process for becoming a program evaluator varies among technical societies. Generally, it includes completing an application, being selected by a technical society as a potential program evaluator, and attending a one-day training session offered by technical societies. As a program evaluator, you are put into the pool of

evaluators for your discipline. The on-site visit teams draw from this pool in upcoming years. Generally, the requirement of a program evaluator is to commit to visiting engineering degree programs over a period of five years.

The engineering accreditation process is continually evaluated and assessed, with improvements and modifications implemented on an ongoing basis.

*Jill S. Tietjen, P.E.
Western Zone Vice President and
Member Emerita, Colorado*

Note 1: ABET actually has four commissions: Engineering Accreditation Commission (EAC); Technology Accreditation Commission (TAC), which accredits engineering technology programs; Applied Science Accreditation Commission (ASAC), which accredits surveying programs (among others); and Computing Accreditation Commission (CAC).

Note 2: ABET will accredit either a B.S. or an M.S. degree program at an institution but not both. The large majority of engineering degree programs accredited are at the undergraduate level. ABET accredits degree programs, not institutions.

Note 3: There are 54 members (including a public member) plus 10 members of the executive committee and a board liaison. Member societies include AAEE, ACSM, AIAA, AICHE, ANS, ASAE, ASCE, ASHRAE, ASME, BMES, CSAB, IEEE, IIE, NCEES, NICE, NSPE, SAE, SME, SME-AIME, SNAME, SPE, and TMS. For more information, go online to www.abet.org.

EVENTS

DATE	EVENT	LOCATION
February 10–12	Board Presidents' Assembly	Kansas City, Mo.
February 25–26	Board of Directors' Meeting	Napa Valley, Calif.
April 7–9	Joint Central/Northeast Zone Meeting	Washington, D.C.
April 15	PE/PS Exam Administration	
April 16	FE/FS Exam Administration	
May 5–7	Southern Zone Meeting	Oklahoma City, Okla.
May 17–19	Board of Directors' Meeting	Anchorage, Alaska
May 19–21	Western Zone Meeting	Anchorage, Alaska
August 23	Board of Directors' Meeting	Memphis, Tenn.
August 24–27	NCEES Annual Meeting	Memphis, Tenn.

Board Presidents' Assembly

The Board Presidents' Assembly will be held February 10–12, 2005, in Kansas City, Mo. NCEES provides funds for all Board chairs/presidents and Member Board Administrators to attend the meeting, which takes place every two years. This year, the Council is also funding several chairs to attend so that they can present updates about their committee and task force activities.

Additional topics to be addressed include zone finances, the NCARB white paper, licensure promotion, and potential revisions to the continuing professional competency guidelines. The MBA Networking Group will concentrate on reviewing the use and value of the MBA Survey and modifying it as necessary.

Meeting Agenda

Thursday, February 10

6:00–8:00 p.m.

Welcome Reception

Friday, February 11

7:00–8:00 a.m.

Breakfast

8:00–10:00 a.m.

Welcome and Introductions

Jon D. Nelson, P.E.
NCEES President

Treasurer's Report—Audit and Finances

Gregg E. Brandow, Ph.D., P.E., S.E.
NCEES Treasurer

Examination Policy and Procedures Report

L. "Larry" Robert Smith, P.E.
EPP Committee Chair

Examinations for Professional Engineers Report

Allison "Sonny" J.P. Launey, P.E.
EPE Committee Chair

Examinations for Professional Surveyors Report

Rita M. Lumos, P.L.S.
EPS Committee Chair

Examination Administration Task Force Report

Rosemary Brister
Task Force Chair

Meeting Agenda continued
Friday, February 11

10:00–10:30 a.m.

Break

10:30 a.m.–noon

Education/Accreditation Task Force Report

Melvin W. Anderson, Ph.D., PE.
Task Force Chair

Licensure Qualifications Oversight Group Report

Monte L. Phillips, Ph.D., PE.
LQOG Chair

Noon–1:30 p.m.

Lunch and Break

1:30–2:30 p.m.

Other Council Issues

President Nelson

2:30–3:00 p.m.

Break

3:00–5:00 p.m.

NCEES Exam Security Audit Results

Jim Impara
Senior Director
Caveon Test Security Services

6:00–8:00 p.m.

Reception and Dinner

Saturday, February 12

7:00–8:00 a.m.

Breakfast

8:00–8:30 a.m.

NCEES Response to NCARB White Paper

Architecture as It Differs from Engineering
President Nelson

8:30–9:30 a.m.

Licensure Promotion Discussion

John M. "Mike" Shannon, PE.
NCEES Director of Professional Services

9:30–10:00 a.m.

Continuing Professional Competency Discussion

Mike Shannon

10:00–10:30 a.m.

Break

10:30–noon

Other Council Issues

President Nelson

Noon–1:30 p.m.

Lunch and Break

1:30–5:00 p.m.

MBA Networking Group

B. David Cox, C.PA., Southern Zone Representative
Mark T. Jones, P.S., Central Zone Representative
Lesley L. Rosier, PE., Northeast Zone Representative (spokesperson)
George A. Twiss, P.L.S., Western Zone Representative

1:00–1:30 **Introductions and New Business**

1:30–2:45 **MBA Survey**

2:45–3:00 **Break**

3:00–4:00 **Breakout Sessions**

4:00–4:30 **Group Discussion**

4:30–5:00 **New Business**

6:00–8:00 p.m.

Reception and Dinner

NEWS

ARKANSAS

- ◆ Ken Cotter is the new board chair. Bill Fletcher is a new appointee, and Mike Marlar has been reappointed to the board. Donald R. Brady and H. James Engstrom are no longer on the board.

DELAWARE PE

- ◆ J. Paul Jones is the new chair. Vincent G. Robertson is a new appointee to the board. Dennis L. Schrader is no longer on the board.

DELAWARE LS

- ◆ Several board members have new e-mail addresses: Michael J. Early, michael.early@merestoneconsultants.com; Russel Dolbeare, russel.dolbeare@state.de.us; Roy B. Kemp III, adamskemp@comcast.net and adamskemp@dmv.com; Elton M. Murray, Elton@landtechllc.com.

DISTRICT OF COLUMBIA

- ◆ Ernest T. Boykin Jr. is a new appointee to the board.

FLORIDA PE

- ◆ Paul Martin is the new executive director. His e-mail address is pmartin@fbpe.org. He replaces Carrie Flynn, who was acting Member Board Administrator.

FLORIDA LS

- ◆ Christa Patterson is the new acting executive director. She replaces Juanita Chastain.

GUAM

- ◆ Paul L. Santos is a new appointee to the board. Nestorio C. Ignacio is no longer on the board.

ILLINOIS

- ◆ M. David Brim is the new design licensing manager for the state and the Member Board Administrator for the Illinois PE, LS, and Structural boards.

INDIANA LS

- ◆ Gary Kent is a new appointee to the board.

LOUISIANA

- ◆ Rhaoul A. Guillaume and Mark A. Jusselin are new appointees to the board. The term of William H. Miller has expired. Timothy J. Allen and Paul N. Hale Jr. are no longer on the board.

OHIO

- ◆ David L. Cox has been reappointed to a five-year term on the board.

OKLAHOMA

- ◆ Emeritus board member Bruce Pitts is the new director of enforcement.

SOUTH CAROLINA

- ◆ Mitchell S. Tibshirany Jr. is the new chair. Miller L. Love Jr. and Gene R. Dinkins are new appointees to the board. The terms of James T. McCarter and Sidney C. Miller have expired.

TENNESSEE PE

- ◆ Barbara Bowling is no longer executive director. John Cothron is the board's interim executive director.

TEXAS PE

- ◆ Dale Beebe Farrow is the new executive director. Her e-mail address is db.farrow@tbpe.state.tx.us; phone, 512-440-3050; fax, 512-440-0417. She replaces Paul Cook, who was acting executive director.

The President's Message (continued from page 3)

lead to better decisions within our own organization. I know that numerous Council members are active in various societies, but the membership rolls in many societies are declining. If you are not active, consider involvement in professional societies as another way to make a difference.

I understand the desire for committee appointments. I want to encourage all members of the Council to

continue to seek them. However, if an appointment is not in the cards, try not to be disappointed or frustrated. Simply try another approach. There are many ways to improve and sustain the concept of licensure. You can still contribute even if you do not receive an appointment.

*Jon D. Nelson, P.E.
NCEES President*



Roger B. Stricklin Jr.

Roger B. Stricklin Jr. passed away Friday, December 17, 2004. He served as NCEES executive director from August 1983 until his retirement in September 1995.

During Stricklin's tenure as executive director, the Council experienced significant growth. He oversaw the expansion of the office facility to 25,000 square feet in 1990 and guided the Council through many technological modernizations, including the installation of a local area network and the development of the online Law Enforcement Reporting System.

Stricklin served as secretary-general of the United States Council for International Engineering Practice (USCIEP). During his stewardship, a Mutual Recognition Document was signed by representatives of Canada, Mexico, and the United States. This document is recognized as a crucial element in the success of the engineering services section of the North American Free Trade Agreement (NAFTA). Stricklin also served as staff liaison to several committees and often participated in activities of other national engineering organizations.

Upon Stricklin's retirement, the Maine Board of Registration for Professional Engineers bestowed an honorary lifetime membership, and the Pennsylvania Registration Board for Professional Engineers, Land Surveyors, and Geologists bestowed the title of honorary Professional Engineer.

Stricklin is survived by his wife, children, and grandchildren. A memorial service was held for him in Clemson, S.C., on January 21.

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

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

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Records Program implements MLSE designation

In January, the NCEES Records Program began reviewing candidates for the new Model Law Structural Engineer (MLSE) designation as a result of an approved motion at the 2004 Annual Meeting. The MLSE designation is expected to eventually work in a similar manner to the Model Law Engineer designation in promoting fast comity among jurisdictions.

The MLSE designation is available to licensed engineers who meet the following criteria:

- ◆ Graduated from an engineering program accredited by EAC/ABET.
- ◆ Passed a minimum of 18 semester (27 quarter) hours of structural analysis and design courses. At least 9 semester (14 quarter) hours must be structural design courses.
- ◆ Passed the NCEES Fundamentals of Engineering exam.
- ◆ Passed 16 hours of one of the following:
 - ◆ NCEES PE structural examinations, including the 8-hour Structural II examination
 - ◆ NCEES PE Structural Engineering II examination plus 8 hours of state-specific examinations
 - ◆ State-specific structural examinations taken prior to 2004
- ◆ Completed 4 years of acceptable structural engineering experience after confirmation of a bachelor's degree. A maximum of 1 year of credit may be given for graduate engineering degrees that include at least 6 semester (9 quarter) hours of structural engineering (in addition to the 18 hours noted above).
- ◆ Have no disciplinary action on record.

The fee is \$50 for both new applicants and existing Record holders. Complete instructions for applying for the MLSE designation are available at www.ncees.org/records/mlse.

Thank you to everyone who completed the reader poll in the last issue of *Licensure Exchange*. We've received responses from many of you—look for poll results in the upcoming issue. And, if you have not already completed the survey, it's not too late. Just go to www.ncees.org/readerspoll, and answer it today.

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