

AN OFFICIAL NCEES PUBLICATION FOR THE EXCHANGE OF INFORMATION, OPINIONS, AND IDEAS REGARDING THE LICENSURE OF ENGINEERS AND SURVEYORS

FROM THE PRESIDENT

## RECENT EVENTS EMPHASIZE NEED FOR COMPETENT, ETHICAL PRACTICE

DAVID WHITMAN, PH.D., P.E.  
NCEES PRESIDENT



I can't believe that my year of leading this outstanding organization is nearly over. I have already contacted President-Elect Timms and told him that I would be happy to serve another year as president for half the pay (by the way, I have enough calculus knowledge to know that if  $Annual\ Salary = \int_0^{12} Monthly\ Salary(t)dt = 0$ , then  $1/2(Annual\ Salary)$  is still 0). For some reason, he declined my offer.

We have accomplished quite a bit this year, as I outline in my report in the Annual Meeting *Action Items and Conference Reports*. I am looking forward to continuing to assist the Council in any way I can.

Back in June, the Board of Directors issued a news release related to the Deepwater Horizon blowout and subsequent oil leak in the Gulf of Mexico (see page 14).

There's a semi-hidden message in that release for those of you serving on licensing boards: Now is a good time to have your board review the rules and guidelines of governmental agencies in your jurisdiction that oversee activities that have the potential to impact the health, safety, and welfare of the public. Particularly, I encourage you to review those agencies that are exempt from having professional engineers or surveyors either stamp the original design plans or review them for governmental

approval. Agencies dealing with oil and natural gas, environmental quality, geographic information, school facilities, water development, and similar areas fit into this category.

As licensing board members, we can change the culture where appropriate so that the public is better protected from unlicensed practice. Can we make the argument with these agencies that licensed engineers and surveyors will be infallible in their designs and reviews? Of course not. However, two facts support the idea that licensees will place the public's health, safety, and welfare above all else. First, licensees have been judged competent by their peers through the three-legged stool of education, examinations, and experience. Second, licensees have a formalized requirement to follow a code of ethics. How could they not accept such an argument?

On the national level, I'm hopeful that through cooperation between NCEES, NSPE, and professional societies, we might make similar inroads with federal government agencies. The Department of Interior has already made some strides to change the culture within their Bureau of Ocean Energy (the former Minerals Management Service), which has oversight over drilling in the Gulf. Perhaps we can provide additional momentum.

I would be remiss if I didn't thank the more than a thousand volunteers who do the important work of this Council. Please know that your efforts are appreciated by

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As licensing board members, we can change the culture where appropriate so that the public is better protected from unlicensed practice.

# Latest NCEES publication celebrates professional engineering in the classroom

Engineering Award Book promotes value of bringing P.E.s and students together

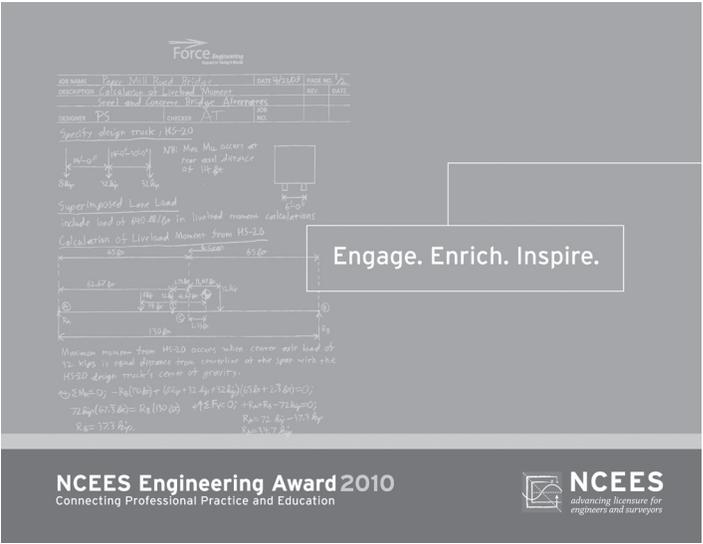
At its Annual Meeting in August, NCEES will release the 2010 NCEES Engineering Award Book, which features the six engineering programs recognized this year for excellence in connecting professional practice and education.

The book includes interviews with some of the participants for the grand prize-winning project. The following excerpt is an interview with Michael Paul, P.E., AIA, the course coordinator for the senior design course in the University of Delaware Department of Civil and Environmental Engineering.

The \$25,000 winning project, Pomeroy Trail East Annex, was part of this course. For the project, student teams competed to win a commission and perform the preliminary engineering for an expansion of a multiuser

The civil and environmental engineering students get what for most of them is their first experience in practicing engineering—on a complex, open-ended, multidiscipline project.

trail system in their city. The teams worked with engineering mentors from professional practice to consider drainage and environmental upgrades, wastewater system improvements, reevaluation of a proposed groundwater remediation program, and associated infrastructure improvements.



*The University of Delaware is featured in the 2010 NCEES Engineering Award Book, which will be available in August. The publication will be mailed to NCEES member boards and engineering educators in September, and copies can also be requested at [engineeringaward.com](http://engineeringaward.com).*

## POINT OF VIEW

An interview with Michael Paul, P.E., AIA Adjunct Faculty, University of Delaware Senior Consultant, Duffield Associates

### What does using real-world projects bring to the senior design course?

When students are asked at the very beginning of the course what they most hope to gain from the course, many write that they hope to get a taste of real-world engineering on an actual project. At the end of the course, most of those same seniors confirm that they did gain this experience—with all of its trials and tribulations.

From my perspective as the course coordinator, I believe that an important aspect of the course is introducing the many challenges of performing collaborative engineering on an open-ended design.

### How do you decide which projects to work on?

This, somewhat regretfully, has become our summer chore. We try to find a current or imminent local project that we can adapt to the limitations and requirements of the course and to the skills that senior civil engineering students possess. Since the coordinator and instructors all have active local practices, there is good awareness of what may be available. We are working to develop three or four prototype projects that can be reused serially, with some modest changes each time through.

### How did professional engineers and engineer interns work with students on the Pomeroy Trail project?

The four discipline instructors provided engineering methods and information

that built on what those students should have learned in prerequisite courses. The instructors also served as “senior” mentors for all six student teams, advising on each team’s engineering approach and execution and on the team’s overall project management and, occasionally, team operation.

The young engineers who served as team mentors were advocates for their teams, advising mostly on team organization and management and overall task performance and deliverables development.

### How were other professionals involved?

Other professionals, who included architects, attorneys, and professional engineers in private practice, public agencies, and construction firms, gave guest lectures on such topics as sustainable design, engineers in construction, presentations, legal aspects of projects and engineering practice, liability and risk, project delivery, and professional registration.

### How did this project help students prepare for professional practice?

The project and course address professional practice two ways. First, in executing the engineering for preliminary design, the civil and environmental engineering students get what for most of them is their first experience in practicing engineering—on a complex, open-ended, multidiscipline project. Second, many of the whole-group lectures address fundamental issues and responsibilities that underpin professional practice.

### What’s ahead for the senior design course?

Our immediate challenges are developing a new project that is based on a very large, environmentally complex, real project that is being undertaken by the university and retooling the course to be able to accommodate a large jump to 100-plus seniors for 2010–11.

Our longer-term challenges are to finish developing our four prototype projects and create an instructional library for the course so that it can continue indefinitely while easily accommodating inevitable changes in instructors, mentors, guest lecturers, instructional focus, department priorities, and student needs and expectations.

### What advice do you have for other programs wanting to incorporate similar collaborative projects into their curriculum?

Start planning early and develop the course incrementally. Formulating the project and required deliverables adequately and appropriately takes much time and effort, and the instructors need to be on board to do this. Similarly, organizing the course, including logistics and scheduling, takes much time and effort since it involves breaking students into balanced teams, lining up and coordinating appropriate guest lecturers, and simply accommodating the inevitable glitches that arise with such a large group of participants.

Instead of trying to create the course and project fully its first year, perhaps start by developing a multidiscipline project that is engineered by student teams. Later, add the professional-issue guest lectures and the assignment to win the commission by generating a proposal and supporting presentation.

Contact me. I’m happy to share what we’ve done and help you map out your own course.

### How does the University of Delaware plan to use its \$25,000 prize?

Our department chair, Dr. Tripp Shenton, says that the department will use the prize money to support undergraduate activities and to strengthen the senior design experience. Examples of undergraduate activities include support for our student chapters of the American Society of Civil Engineers, Engineers Without Borders, and the Institute of Transportation Engineers; financial support for study abroad and undergraduate research; and financial support for students to attend regional and national meetings and conferences. The senior design experience will be enhanced with new technology and support for field trips or events related to the current project.



JERRY CARTER  
NCEES EXECUTIVE DIRECTOR

# IEA meeting brings focus to engineering education qualifications used across the globe

Our foremost concern will always be the protection of the public, but where possible we should be willing to consider whether other countries' education accreditation systems can also fit with the U.S. model of licensure.

I recently attended a biennial workshop of the International Engineering Alliance (IEA) in Ottawa, Canada. The IEA is an umbrella organization of international education and mobility accords governing mutual recognition of engineering qualifications and professional competence. Of the six accords, NCEES is a signatory to the Engineers Mobility Forum (EMF) and the Asia Pacific Economic Cooperation (APEC Engineer) along with countries from Europe, South Africa, and the Pacific Rim.

I have attended only three meetings of the IEA, but the significant difference between the U.S. licensure system and that of other countries became readily evident within a few minutes of my first meeting. With the exception of Canada, most members of the IEA have a nationalized system of licensure. That is, once an individual becomes licensed by the designated authority in a jurisdiction, the individual typically is licensed to practice anywhere in that country without further qualification.

The notion that the United States has a confederation of all the licensure boards that collectively establishes standards for licensure and develops and scores the exams is not too difficult to understand. What is hard for most of the IEA membership to appreciate is that the national organization (i.e., NCEES) cannot obligate any individual member board to accept mutual recognition agreements with other countries.

## Demystifying the U.S. licensure system

I have explained that the system for licensure in the United States was not created to incorporate a bias against individuals educated at foreign institutions and that the qualifications required by the individual member boards are applied equally to domestic candidates. I have also explained that the term “substantial equivalency” as applied by the NCEES member boards refers to individual engineering degree programs rather than accreditation processes.

Although my explanations have not totally eliminated the frustration of some IEA members, I believe that NCEES’s participation continues to provide value and allows for dialogue with the global engineering community.

## Examining other education accreditation systems

Through my involvement with the IEA and many conversations with representatives of the member organizations, I have been struck by the degree of professionalism I have seen and the primary interest of all to safeguard the welfare of the general public.

As we continue to learn about various countries’ qualifications to accredit engineering education through competency-based criteria, it is easy to predict that in the near future NCEES member boards will recognize the graduates of such

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programs as equivalent to those EAC/ABET-accredited programs. That recognition is already taking place with the majority of NCEES member boards in the evaluation of graduates of programs accredited by the Canadian Engineering Accreditation Board.

Many member boards have seen a recent rise in the number of engineering licensure applicants who were educated outside the United States. I have my own opinions concerning this recent influx of foreign applicants, but a statistic offered at the IEA workshop helped me understand a basic reality for much of the world. It was reported that 85 percent of the citizens of New Zealand hold valid passports, as opposed to only 15 percent of U.S. citizens. For many people around the globe, it is a fact of life that practicing your profession may involve traveling and working abroad.

The world is growing smaller by the day with the regular advent of new technologies that allow us to do our jobs more efficiently and in ways never considered only a few years ago. We need to ensure that as this occurs, we are willing to give proper consideration to the rigorous qualifications used by other countries. Our foremost concern will always be the protection of the public, but where possible we should be willing to consider whether other countries' education accreditation systems can also fit within the U.S. model of licensure.

# FE Other Disciplines module: not the easy option

## Pass rates higher for examinees taking the appropriate discipline-specific module

One of the urban legends about the FE is that the Other Disciplines module is somehow easier to pass,” said Lehmon Dekle, P.E., an exam development engineer at NCEES.

Working with the FE exam development over the past four years, Dekle has heard the notion often. But he says the statistics do not support the theory. In fact, examinees

Other Disciplines module. The Other Disciplines module contains questions on topics relevant to most engineering programs.

“In most cases, you should choose the module that best corresponds to your degree. If your degree is not in one of these major engineering disciplines, you should choose the Other Disciplines module,” said Tim Miller, P.E., director of exam services at NCEES.

“The afternoon portion of the FE tests knowledge that’s usually gained in the final two years of an engineering degree, so it makes sense that examinees would perform better on the module corresponding to their specialty,” Miller said.

Dekle pointed to a twofold disadvantage for an examinee not taking the module corresponding to his or her degree. First, the Other Disciplines module may cover topics to which the examinee has had little exposure. For example, electrical engineering majors learn little about engineering mechanics in standard curricula, yet they will encounter the topic on the Other Disciplines module. Secondly, the Other Disciplines module may not cover the topics on which the examinee is most knowledgeable. For civil engineering, transportation is a key area, but the Other Disciplines module does not include items on this topic.

### Average Pass Rates October 2005 to April 2010

Engineering Discipline	Discipline-Specific Module*	Other Disciplines Module**
Chemical	85%	76%
Civil	74%	69%
Electrical	70%	56%
Environmental	79%	74%
Industrial	66%	54%
Mechanical	81%	81%

The above averages are for first-time examinees from ABET-accredited programs.

\*Average pass rate for all examinees who chose this discipline-specific module

\*\*Average pass rate for examinees with degree in this discipline who chose the Other Disciplines module

with degrees that fall into the discipline-specific modules typically have higher pass rates when they select the module matching their degree rather than the Other Disciplines module.

All FE examinees take a common module in the morning and one of seven modules in the afternoon, choosing a discipline-specific module (Chemical, Civil, Electrical, Environmental, Industrial, or Mechanical) or the

The pass rates support this advice. For the last 10 exam administrations, the pass rate for first-time examinees taking the Civil module is 5 percent higher than that of civil engineering majors who took the Other Disciplines module. For the Electrical module, there’s a 14 percent difference. The other major disciplines follow this trend, with only mechanical engineering holding at 81 percent for both the Mechanical and Other Disciplines modules.

### Benefits for program assessment

Higher pass rates may be the key concern for examinees, but there is an added advantage for engineering educators. FE exam results can be used as a tool in assessing aspects of degree program outcomes. Following each exam administration, NCEES produces subject matter reports for ABET-accredited programs that detail student performance on specific topic areas. A program’s reports will be less useful if its students do not take the appropriate afternoon module.

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# UPDATE

## April 2010 Pass Rates

### FE EXAM

Exam Module	First-Time Takers	Repeat Takers
Chemical	86%	46%
Civil	75%	33%
Electrical	72%	27%
Environmental	82%	38%
Industrial	69%	33%
Mechanical	83%	34%
Other Disciplines	78%	32%

### FE EXAM—OTHER DISCIPLINES MODULE ONLY

Examinees' Degree Discipline	First-Time Takers	Repeat Takers
Aeronautical/Aerospace	84%	57%
Agricultural	83%	53%
Architectural	77%	37%
Biological	80%	40%
Biomedical	81%	33%
Chemical	79%	41%
Civil	70%	29%
Computer	52%	15%
Electrical	61%	24%
Engineering Mechanics	67%	17%
Engineering Physics	80%	18%
Environmental	79%	23%
General Engineering	82%	26%
Geological/Geophysical	56%	21%
Materials	86%	0%
Mechanical	84%	41%
Mining/Mineral	67%	48%
Naval Arch./Marine	84%	38%
Nuclear	90%	0%
Ocean	71%	29%
Petroleum	61%	69%
Structural	81%	53%

### PE EXAM

Exam	First-Time Takers	Repeat Takers
Agricultural*	80%	0%
Architectural	75%	47%
Chemical	72%	46%
Civil	64%	35%
Control Systems*	81%	60%
Electrical/Computer	66%	29%
Environmental	73%	23%
Fire Protection*	64%	43%
Industrial*	67%	21%
Mechanical	69%	41%
Metallurgical/Materials*	56%	33%
Mining/Mineral Proc.*	73%	38%
Naval Arch./Marine Eng.	85%	75%
Nuclear*	79%	80%
Petroleum*	83%	29%
Structural I	46%	25%
Structural II	63%	29%

\*These exams are given only in October. Pass rates shown are for October 2009.

### SURVEYING EXAMS

Exam	First-Time Takers	Repeat Takers
FS	70%	31%
PS	74%	37%

## Council to elect president-elect and induct new zone vice presidents at Annual Meeting

“Our main reason for existence is to protect the public health, safety, and welfare. When much of the work of industry is being done by unlicensed engineers, it should be a priority for NCEES to continue to promote licensure and to help establish what minimum competency is.”

**N**CEES will vote for president-elect at the Annual Meeting on August 19. The Committee on Nominations submitted Dale Jans, P.E., as the nominee for president-elect. Delegates may make nominations from the floor. These must be seconded by at least four member boards, and nominees must meet the requirements for the office.

The terms of the Central and Western Zone vice presidents expire this year, and the zones elected Nancy Gavlin, P.E., S.E., to be the incoming Central Zone vice president and Patty Mamola, P.E., to be the incoming Western Zone vice president.

### Nominee for President-Elect



**Dale Jans, P.E.**  
**South Dakota Board of  
Technical Professions**

*NCEES Experience: Central Zone Vice President (2008–10), Committee on Uniform Procedures and Legislative Guidelines Board of Directors' Liaison*

*(2009–10), Engineering Education Task Force Board Liaison (2008–10), Sustainable Building Design Task Force Consultant (2008–09), Special Task Force on Governance Chair (2006–08), Committee on Awards Chair (2006–08), Committee on Finances Chair (2002–04, 1997–98) and Member (2000–02, 1994–97), Special Committee on Bylaws (1998–2000), Committee on Professionalism and Ethics (1998–99)*

### Why do you want to serve as NCEES president?

The first NCEES Annual Meeting that I attended was in 1994, and I was impressed by the organization and scope of what NCEES was doing. I have been involved ever since then and continue to be impressed by the dedication and quality of the people that I have met. The volunteers, the MBAs, the past and current board members, and the staff—I have been privileged to associate with people who are passionate about their professions and intent on making the process better.

I've served on several different boards over the years at local, state, and national levels and have been involved in the leadership of those boards, and I can truthfully say that NCEES is one of the best-run organizations I have seen.

I've learned much over the years and have had the opportunity to make some great friends. Whether it's in your community or your profession, you need to give back to those who have benefited you. I feel that it is my turn to give back to NCEES. I consider it an honor and a privilege to be able to serve the next two years as president-elect and president.

On a personal note, I'm always looking for an excuse to plan a motorcycle trip, and hopefully there will be some opportunities for that with some of the meetings I will be attending the next couple of years.

$$F = Q_B \rho V_B - Q_C \rho V_C = \rho \frac{\pi D_B^2}{4} V_B^2 - \rho \frac{\pi D_C^2}{4} V_C^2$$

**As you look ahead to the next two years as president-elect and president, what particular issues or goals do you want to focus on?**

One of the great things about NCEES is that it is a member-driven organization. Our process allows the members to determine the direction of the association, and it is up to the leadership to ensure that happens. I intend to continue the tasks started by my predecessors, and some of the more current issues, I think, deal with computer-based testing and additional education.

An issue that obviously needs more attention is industrial exemptions. Within the last year, we have been made painfully aware of shortfalls in the automotive, mining, and petroleum industries that have cost people their lives and caused incomprehensible amounts of damage. Our main reason for existence is to protect the public health, safety, and welfare. When much of the work in industry is being done by unlicensed engineers, it should be a priority for NCEES to continue to promote licensure and to help establish what minimum competency is. Being in the construction industry, I am also aware of the increasing number of engineers and surveyors who are seeking careers in construction. It will be a focal point for me to work on encouraging those people to pursue licensure as well.

An area that I want to be sure NCEES is working hard on is creating exams that accurately test an examinee's experience. If people are able to pass the PE immediately after graduation, we need to look at how effective our practice exams really are. The

exam committees do an excellent job, but as in anything, there is always room for improvement. There is no easy solution to that problem, but I am confident that with all the talent and dedication we have from our volunteers and committees we can accomplish the task of making the practice exams more indicative of an individual's competence from an experience standpoint.

**You've served on a number of NCEES committees and as Central Zone vice president. What have you learned from these experiences?**

I have learned that we are an extremely diverse group. What we all do as engineers and surveyors can be very complex and different. One size does not fit all, and we need to be flexible and open minded in our approach to what works best for the whole. Each board has its own specific issues and challenges, and each profession has its differences, so it becomes easier to understand why it can sometimes be difficult to achieve consensus. I am hopeful that we can continue to work together as we have done in the past to work for the good of the association and put our individual interests aside.

**At the Annual Meeting, NCEES will vote on moving the FE and FS exams to a computer-based format. What do you see as the major concerns for this transition? What are the main advantages or opportunities for member boards and examinees?**

The CBT Task Force has worked very diligently and has done a great job of assembling the pertinent information that

the Council will need to make a decision. One of the major concerns I see is the fear of the unknown. Any time you venture into new territory, there is always the possibility of the unexpected. Some concerns I have heard are: What will it cost the Council? What if the number of exam takers drops off drastically? What kind of problems will we have getting legislative approval? Will individual boards lose control? Some of those are valid concerns, but I think some will never be an issue and many of them can be easily addressed.

I think there is a strong case for proceeding with computer-based testing. Security of the exams would appear to be extremely advantageous and would create less liability for the individual boards. There would be a more-uniform test experience for the examinees, with potentially more exam sites. There would be more-frequent testing opportunities and quicker turnaround times for scoring. Starting with the FE and FS is a great way to better understand the process and make adjustments if needed before we begin moving to computer-based testing for the professional exams.

The pros and cons cannot be properly addressed in just a few words here, so I would encourage everyone to do their homework and read the report the task force has prepared.

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## Q&A: BOARD NOMINEES & INCOMING VPs

Q&A continued from page 9

### Incoming Central Zone Vice President



**Nancy Gavlin,  
P.E., S.E.  
Illinois Structural  
Engineering  
Board**

*NCEES Experience:  
Central Zone  
Assistant Vice  
President (2008–10),*

*Credentials Evaluation Advisory Council (2009–10), Committee on Examinations for Professional Engineers Member (2007–10), Structural Exam Task Force Chair (2006–08), Engineering Practice Exam Task Force Member (2005–06), Committee on Uniform Procedures and Legislative Guidelines Consultant (2005–06) and Member (2003–04), Advisory Committee on Council Activities Member (2004–05), Fire Protection/Design-Build Task Force Chair (2003–04), Structural Engineering Examination/Recognition Task Force Member (2002–04) and Resource (2001–02), Committee on Examination Audit Consultant (2000–01 and 1998–99) and Member (1999–2000), Committee on Examination Policy and Procedures (2000–01), PE Structural Exam Development Committee Volunteer*

### Why do you want to serve as Central Zone vice president?

Over the years that I have been a member of NCEES, I have had the opportunity to serve on many different committees and task forces as both a member and chair. I've learned a lot about many different aspects of engineering and surveying licensure, and I've gained a great respect for the NCEES organization and its members. NCEES has a

tradition of leadership in providing guidance for the direction of licensure to ensure the public is protected through changing times. I would like to help continue in that effort. I'm looking forward to the next two years as Central Zone vice president. I think that they will be very interesting.

### What insights from your professional experience do you bring to this office?

I have worked as an employee and an employer, and as a designer and an academic. Most of my professional experience has been as a structural engineering designer, but I also have spent several years teaching full time at a university. Currently, I am director of education for a national not-for-profit technical institute and trade association. This background puts me in a unique position to understand the knowledge required of professional engineers and the environment in which the knowledge can and should be made available.

### What do you think are the most important long-term issues NCEES will address during your term on the Board of Directors?

Maintaining the integrity of the "three Es," education, examination, and experience, while looking toward the future. Or, in other words, computer-based testing, education requirements, and mobility.

### What issues or goals do you plan to focus on during your term?

My primary goals are to provide good representation of the Central Zone on the Board of Directors and to help ensure that NCEES continues to provide appropriate

exams for engineering and surveying licensure. I would like to see us continue to support our member boards in their efforts to administer their professional engineering and surveying licensing laws.

### Incoming Western Zone Vice President



**Patty Mamola,  
P.E.  
Nevada State  
Board of  
Professional  
Engineers and  
Land Surveyors**

*NCEES Experience:  
NCEES Engineering*

*Award Jury Member (2010), Engineering Education Task Force Member (2008–10), Bachelor's Plus 30 Task Force Member (2007–08), PE Civil Exam Development Committee Volunteer*

### Why do you want to serve as Western Zone vice president?

Throughout my professional life, I have held the belief that engineers should participate in aspects of their profession, not just be a spectator. In our company, we encourage all professionals to become involved. Be a part of the solution, not the problem. From my participation in professional societies and organizations, I see increasing advocacy for national boards of directors. Yet, I feel strongly that it is the membership that should direct the organization, not the other way around. As the Western Zone vice president, I want to advocate for Western Zone issues and communicate national issues to our Western Zone members.

### What insights from your professional experience do you bring to this office?

Participation on state licensing boards brings experiences that are unique to our profession and to the licensure of professionals. For me, having been the chair of our state board and having actively participated on national committees, I bring the insight of implementing the rules, regulations, and model law that the Board of Directors has presented to its member organizations.

Additionally, my communication and listening skills create an opportunity for our Western Zone membership to enter into dialogues with me on issues important to our zone. Having worked for both the public and the private sector allows me to look at issues from a broad perspective. I understand what it takes to run a large organization, and I also understand what it takes to run a business.

### What do you think are the most important long-term issues NCEES will address during your term on the Board of Directors?

Ensuring the financial stability of our organization is the foremost issue we face. I believe that as a member of the Board of Directors, there is a fiduciary responsibility to guide and direct the organization to maintain its stability and advance NCEES's primary goal of promoting licensure. Promoting licensure requires a solid financial foundation to ensure resources are available to take advantage of opportunities as they arise.

Because of the globalization of the world's work force, NCEES has an important role in the international community to establish the standard for the profession. NCEES was formed 90 years ago, playing a key role in national licensure. Now, with globalization,

NCEES must play a role internationally in promoting licensure and facilitating professional mobility.

### What issues or goals do you plan to focus on during your term?

I plan on focusing on issues important to the Western Zone membership. In conversations with members of the Western Zone, there appears to be consensus that the issues of significant importance to the zone are computer-based testing, engineering education, and exam security. As dialogue continues with the membership of Western Zone and as additional issues are identified, I will advocate for the consensus position of the zone on the issues that arise.

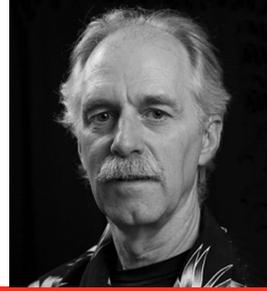
## FE EXAM PASS RATES

*continued from page 6*

For example, most mechanical engineering departments include coursework on vibrations, and they may want to use the subject matter reports in assessing the effectiveness of this material. But the Other Disciplines module does not include items on vibrations, so a department would not receive any performance data on this topic for its students who took the Other Disciplines module.

"Examinees should choose whichever module they feel best prepared to pass," said Dekle. "But the stats show better success overall for those who take the module matching their degree, and the performance data available to academic institutions is certainly more meaningful that way."

The FE exam specifications, which list the topics included in each module, are available at [ncees.org](http://ncees.org).



## Setting approximate corners puts short-term client satisfaction above long-term public protection

A mistake can happen easily enough; we should never intentionally place a monument in any other location than its true position just because a client requests an approximate corner and doesn't want to pay for a proper survey.

I am sure all surveyors in private practice have been asked by clients or potential clients to set an approximate corner for their property. This probably happened right after the client received an estimate for establishing the exact property corner. Often, the individual is either sitting down looking dazed or picking himself up off the floor after collapsing from the shock of the real cost.

A request to set an approximate corner is not usually associated with small urban parcels, whose property values tend to be higher, thereby making the cost of establishing exact corners economically feasible and reasonable. On the other hand, the idea of setting an approximate corner for larger, lower-value parcels is tempting for some. I have known a few surveyors who offered this service, which is, to my mind, a disservice. I have seen several problems associated with approximate corners over the years. Here are a couple of examples from my home state, Alaska.

A surveyor set a wood stake at the approximate corner locations, in lieu of a metal pin for the exact positions, explaining to his client that the stakes were within 15 feet of the actual property corners. The client did not have a big bill to pay and was very happy with the product he received at the time of survey.

A few years later, the property owner decided to build a fence along the "property line" between the approximate corners. Several years later, the adjacent property owner built a fence tying into the

first owner's fence. The first property owner then became concerned about the position of the fences and ordered an accurate survey to be completed by the same surveyor who placed the approximate corner stakes. It turned out that the fences were several feet inside the first owner's property. In this case, the two property owners were able to work out the problem, but the surveyor had to forego his fee for the second (more expensive) survey. The surveyor was very lucky, in spite of losing his fee. This could have been an ugly court case with a substantial judgment against the surveyor.

In a second example, a Native American corporation received entitlement land from the federal government in the early 1980s, for which the Bureau of Land Management had surveyed the exterior boundary and monumented only at two-mile intervals. The corporation, with the help of a private surveyor, then recorded a right-of-way (ROW) map granting 66-foot rights-of-way along all section, quarter, and sixteenth lines within 23 sections of the entitlement land received. The local platting authority did not consider this a subdivision and did not contest the plat. (Please note that this was probably Bureau of Indian Affairs lands and the borough might not have been able to do anything anyway.) However, with the recording of the ROWs, 365 parcels of approximately 40 acres were created as unsubdivided remainders without any additional surveying. A further complication occurred due to several U. S. surveys within the 23 sections interrupting the dedications on the ROW map.

$$\pi_3: M^0 L^0 T^0 = (L T^{-2})^i (M L^{-3})^j (L^2)^k M^1$$

$$M^0 L^0 T^0 = M^{j+1} L^{i-3j+2k} T^{-2i}$$

The corporation then transferred ownership of the 40-acre parcels to its shareholders based on the paper plot. The corporation put the responsibility of locating the 40-acre parcel boundaries on the shareholder receiving the title. In the 1980s, when the ROW map that created this mess was recorded, the cost of surveying a single 40-acre parcel was more than the value of the parcel. Many of the parcels have since been sold and resold to other individuals and partnerships.

Alaska statute allows property to be subdivided down to 5- and 10-acre parcels by plat waiver (hence, no field survey) if the newly created parcels front on a dedicated ROW. Many of the partnerships wanted their 40 acres divided into parcels for individual members. (Talk about expanding on a problem!)

Subsequent to conveyance of the 40-acre parcels, a few surveyors offered to set approximate corners, with the stipulation that the parcel owners sign affidavits stating that they were well aware that the corners were only accurate to 50 feet. Some of the property owners then built structures that turned out to be within the granted rights-of-way. Other structures were completely on another owner's property. These are problems that would have been avoided had actual corners been established.

One of the major things the surveyors forgot was that whenever you take on a project, you have more than one client. Your primary client is paying the bill and may not have a claim against the surveyor; however, all of the adjacent property owners are also your clients, whether they are aware of it or not. Every one of the adjacent property owners has the right to expect the work completed by a professional surveyor to be correct and accurate. They have the right to use the property corners set to develop their own property.

### Being a professional requires professional behavior

Years ago, the crew of a surveyor friend of mine set a primary corner on a sixteenth line in the wrong place by mistake by going away from the chaining point instead of toward it. A simple check would have caught this, but it was late in the day for the crew. This was rural farmland of large parcels, and later an adjacent property owner a quarter mile away extended the sixteenth line through this monument and ended up cutting across his neighbor's property. When the error was discovered, my friend immediately corrected the location of the monument and wrote a check for the damages. Now that is a true professional.

A mistake can happen easily enough; we should never intentionally place a monument in any other location than its true position just because a client requests an approximate corner and doesn't want to pay for a proper survey.

I also believe that we should never allow our employees to use company equipment on their own time to do this kind of work for a friend or neighbor. It should be stressed to employees that any work they perform on their own time with your knowledge can still be construed as being performed under your direction and that any work done without your knowledge is practicing without a license unless, of course, that employee is licensed.

Setting approximate corners does not meet the requirement of safeguarding the life, health, property, and welfare of the public and therefore may be an infraction of state statutes and regulations. Clients might focus on immediate monetary savings, but it's our responsibility as professional surveyors to consider the long-term risks and provide more than an approximate service.

## Professional engineers provide the needed link between industry and public welfare

Two months after oil began leaking into the Gulf of Mexico, it is now clear to the American public that their health, safety, and welfare can fall victim to bottom-line driven business decisions. This is particularly true when corporations such as BP, while operating in a climate of lax enforcement, fail to pursue properly qualified technical expertise.

In response to the unresolved Deepwater Horizon blowout, the Department of the Interior is in the process of implementing several new regulations on activities on the Outer Continental Shelf. One of the measures outlined in NTL No. 2010-N05, "National Notice to Lessees and Operators of Federal Oil and Gas Leases, Outer Continental Shelf," specifies that a professional engineer (P.E.) must certify all well casing designs and cementing procedures and verify that designs are appropriate for expected wellbore conditions. This is a much-needed requirement, and we should all hope that the proper steps are taken to ensure that it is enacted. We should also hope that similarly qualified professionals are called on more often to make informed judgments during the enforcement stage.

P.E.s, many of whom are employed in the private sector, demonstrate that business activities need not sacrifice the interests of the public. Professional engineers are licensed at the state level; they must meet education and experience requirements in addition to passing a standardized examination program. To maintain the license, a P.E. must adhere to a strict code of conduct, with the primary charge being to practice the profession in a manner that protects the health, safety and welfare of the public. A P.E. who violates this obligation is subject to losing his or her license.

Under model rules developed by the National Council of Examiners for Engineering and Surveying (NCEES) and required by many states, a P.E. is obligated to notify authorities if his or her professional judgment is overruled under circumstances where the life, health, property, or welfare of the public is endangered. Unfortunately, cost considerations can prevent corporations from requesting the services of a P.E. unless they are compelled to do so.

It should be obvious by now that the millions of Americans who will be affected by the oil spill could have benefited from requiring the parties responsible to secure a professional engineer's sealed approval. While we can't go back and prevent what has already happened, we can work to ensure that the proper steps are taken to prevent similar disasters. Oil drilling is only one of many areas where professional engineers can be called on to ensure that business activities do not ignore the public welfare.



David L. Whitman, Ph.D., P.E.  
NCEES President



Jerry T. Carter  
NCEES Executive Director

June 2010

# MEMBER BOARD NEWS

**ALABAMA** Former board member Carroll Hastings, 79, passed away on May 21. Hastings served on several NCEES committees, including the Governance and Records Verifications committees. He also served two terms as chair of the Committee on Communications. In 1997, Hastings received the NCEES Distinguished Service Award in recognition of his work with the Council.

**DELAWARE PS** Sandra Wagner is the new board administrator.

**IDAHO** George Wagner is a new appointee. William Ancell is no longer a board member.

**IOWA** Bryan Myers is a new appointee.

**MARYLAND PE** David Mongan is a new appointee. Eugene Harvey is no longer a board member.

**MINNESOTA** Emeritus board member John Madden, 82, passed away in May. A 2003 recipient of the NCEES Distinguished Service Award, Madden served on a number of NCEES committees, including EPE and UPLG. He was a past chair of the Law Enforcement Committee and a former volunteer for the PE Structural exam development committee.

**NEBRASKA PE** Jon Wilbeck is the new executive director.

**OHIO** Franklin Snyder Jr. is a new appointee. Fred Frecker is no longer a board member.

**PENNSYLVANIA** Michael Huwar is a new appointee. David Geoffrey Smith is no longer a board member.

## Upcoming Events

### August 13-14

FE Exam Meeting  
Clemson, South Carolina

### August 17 and 21

Board of Directors Meetings  
Denver, Colorado

### August 18-21

NCEES 89th Annual Meeting  
Denver, Colorado

### August 27-28

Structural Exam Meeting  
Clemson, South Carolina

### September 9-11

EPE Committee Meeting  
Atlanta, Georgia

### September 17-18

Mechanical Exam Meeting  
Clemson, South Carolina

### September 24-25

Civil Exam Meeting  
Clemson, South Carolina

## FROM THE PRESIDENT

*continued from cover*

everyone in the organization. If you're on a member board and you've never served on one of our exam development committees, I would encourage you to get involved.

The standing committees and task forces did some outstanding work this year. Those of you who are licensing board members will have the opportunity to vote on some key decisions that will shape the future of NCEES. They include

- Moving forward with computer-based testing
- Creating a new licensure path for those with an earned doctorate in engineering
- Creating consistency in the handling of exam irregularities
- Requiring a resident professional in branch offices of firms

I look forward to addressing these issues with you in Denver at the Annual Meeting later this month.

David L. Whitman, Ph.D., P.E.  
*President*  
Laramie, Wyoming

Henn Rebane, P.E.  
*Past President*  
Tampa, Florida

Leonard J. (Joe) Timms Jr., P.E.  
*President-Elect*  
Bridgeport, West Virginia

Gene L. Dinkins, P.E., P.L.S.  
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*Vice President Northeast Zone*  
Beaver Falls, Pennsylvania

Govind Nadkarni, P.E.  
*Vice President Southern Zone*  
Corpus Christi, Texas

Patrick J. Tami, P.L.S.  
*Vice President Western Zone*  
Sacramento, California

Jerry T. Carter  
*Executive Director/Secretary*  
Clemson, South Carolina

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## NCEES dedicates funding to surveying promotional campaign

**T**he NCEES Board of Directors has authorized a contribution of up to \$30,000 to the American Congress on Surveying and Mapping to fund a PBS campaign to promote the surveying profession.

This promotion will be part of *Spotlight On*, a series of short educational programs that has been broadcasting on national public television for 19 years. From nutrition to outer space exploration, these programs cover a wide range of topics, including other occupations such as architecture and court reporting. According to Trivue Entertainment, the producers of *Spotlight On*, each four- to five-minute segment airs at least 500 times, reaching over 3 million viewers across the United States. At least 40 percent of those airings are during prime time.

The Board of Directors approved sponsorship of the project at its February meeting. The Committee on Examinations for Professional Surveyors reviewed the proposal prior to this meeting and recommended supporting the initiative.

As a condition of the funding agreement, the Board of Directors will review the content of the segment to ensure that the information included is in concert with the NCEES mission to advance engineering and surveying licensure in order to protect the health, safety, and welfare of the public.

*"Spotlight On produces high-quality, informative, and engaging segments,"* said NCEES Executive Director Jerry Carter. *"We think it's a great avenue for educating the public about the surveying profession."*

*"Spotlight On produces high-quality, informative, and engaging segments. We think it's a great avenue for educating the public about the surveying profession."*