

# Licensure EXCHANGE

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



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## FEATURE STORY

### FLORIDA ATLANTIC UNIVERSITY WINS NCEES ENGINEERING AWARD

\$25,000 grand prize winner selected for work on nanofiltration plant expansion

The winners of the NCEES Engineering Award for Connecting Professional Practice and Education have been named, with the grand prize going to the Florida Atlantic University Department of Civil, Environmental, and Geomatics Engineering. The award jury met on May 31 in Clemson, South Carolina, to select the winning projects from among this year's 30 entries.

"Emphasizing the importance of technical competency and ethical practice is critical to educating the next generation of professional engineers. We hope this award will inspire other colleges to introduce similar collaborations."

Florida Atlantic University received the \$25,000 grand prize for its entry, *Dania Beach Nanofiltration Plant Expansion*. For the project, civil engineering students collaborated with faculty, professional engineers, and city officials to find innovative and cost-effective solutions to designing a new water treatment facility for the city, resulting in the construction of the world's first LEED Gold-certified water treatment plant.

The jury praised the project for incorporating many aspects of civil engineering and renewable energy, noting the student contributions from concept through construction and obtaining LEED Gold certification.

"Emphasizing the importance of technical competency and ethical practice is critical to educating the next generation of professional engineers," said NCEES



President Dale Jans, P.E. "We hope this award will inspire other colleges to introduce similar collaborations."

The jury selected five additional winners to receive awards of \$7,500 each:

- Oklahoma State University School of Civil and Environmental Engineering  
*Roadway and Water Feature Design at the Botanic Garden*
- Seattle University Department of Civil and Environmental Engineering  
*Design of an Orphanage, Learning and Community Center in Ethiopia*
- Seattle University Department of Civil and Environmental Engineering  
*Historic Dam Guard Rail and Vehicle Barrier Retrofit for Public Safety*
- University of Texas at El Paso Department of Civil Engineering  
*Multidisciplinary SMART Design of Fire Station 513*
- Valparaiso University College of Engineering  
*Maji for Masaera: Rehabilitation of a Man-Made Irrigation Canal*

The NCEES Engineering Award recognizes engineering programs that encourage collaboration between students and licensed professional engineers. EAC/ABET-accredited programs from all engineering disciplines were

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



## FROM THE PRESIDENT

DALE JANS, P.E.  
NCEES PRESIDENT

# Volunteers have different roads to advance licensure

The best way to learn about earning a license is from someone who's done it.

**N**CEES is sustained by its volunteers. They make up our leadership, our standing committees and task forces, and our exam development committees. There are many different ways to help NCEES advance licensure for engineers and surveyors, and I encourage you to find the one that's the right fit for you.

Each year, the NCEES president-elect sends committee preference forms to NCEES members, emeritus members, and associate members who are eligible to serve on standing committees and task forces. These committees and task forces address a variety of issues, including exams, law enforcement, and bylaws. I joined my first NCEES committee in 1994—the Committee on Finances—and over the years, I've had the privilege to help shape the direction of this organization and the professions through my work with NCEES committees.

I encourage those of you who are eligible to consider volunteering to serve, but it is only one way to contribute to NCEES and the engineering and surveying professions.

### Join an exam development committee

Each year, hundreds of licensed engineers and surveyors from across the country come to NCEES headquarters to help write and evaluate exam questions. The efforts of these individuals are vital to our exam program—and they can always use the help of others who are willing to give their time and expertise to the exam development process.

Click on the Volunteers link on [ncees.org](http://ncees.org) to learn more about volunteer opportunities in exam development. You can complete a short form about your professional background and volunteer preferences, and an NCEES staff member will contact you. It's a great way to give back to your profession while meeting other licensed engineers and surveyors and earning professional development hours.

### Promote licensure

The best way to learn about earning a license is from someone who's done it. That's why NCEES developed Speakers Link and a Speakers Kit for engineers and surveyors. Speakers Link is a network of professional engineers and surveyors who are available to talk to students and young professionals about the licensure process. When a professor or a local engineering society requests a speaker, NCEES finds a member of Speakers Link in their area who's available. It makes such a difference to hear someone talk firsthand about what it takes to become a P.E. or P.S. and the impact doing so has had on his or her career.

The NCEES Speakers Kit takes you step-by-step through such a presentation. It includes a PowerPoint slide show, embedded videos, a presentation script, and guidelines for the presenter. It can be adjusted to your audience: you can include slides detailing your state's specific requirements, and discipline-specific versions are available for download.

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## HEADQUARTERS UPDATE

JERRY CARTER  
NCEES EXECUTIVE DIRECTOR

# International licensure applicants are changing the paradigm

**A**long with President Dale Jans and President-Elect Gene Dinkins, I recently attended the biennial workshop of the International Engineering Alliance in Sydney, Australia. The IEA provides administrative oversight to six international agreements governing mutual recognition of engineering qualifications and professional competence. Of the six agreements, NCEES is a signatory to the Asia-Pacific Economic Cooperation (APEC) and the Engineers Mobility Forum (EMF), both of which are intended to help facilitate mobility of practicing engineers between the participating countries.

The concept of these agreements is that a person recognized in one country as having reached the agreed international standard of competence should only be minimally assessed (primarily for local knowledge) prior to obtaining registration in another country that is party to the agreement. This model should sound familiar; it replicates the vision on which the U.S. system of licensure is based. The primary purpose for the creation of the Council was to promote reciprocity/comity, allowing qualified engineers to cross state boundaries. Engineering has always been a mobile profession, and it became clear early on that this country needed a process that would eliminate impediments to crossing state boundaries to provide professional services. Through the years, the importance of facilitating mobility has not changed; the boundaries are just different. Today, the issue has expanded from "how to get a license in an adjoining state" to "how to get a license in another country."

Whenever I represent NCEES internationally, I am always impressed by the common thread that we share with our overseas counterparts. Although we may have linguistic and cultural differences, the predominant concern is ensuring that the individuals who offer engineering services are competent in their field and will provide their expertise in a manner that protects the well-being of the general public.

There has been significant interest in NCEES exams in recent years by foreign entities. This is partly the result of foreign programs receiving ABET accreditation and wanting to use the Fundamentals of Engineering exam as an outcomes assessment tool. The interest is also based on the prestige associated with being designated as a professional engineer licensed in the United States. Whatever the motive, the end result is that a growing number of individuals educated and living outside the United States will be pursuing licensure with an NCEES member board (see Andrew Ritter's article on page 8 for further discussion of this issue).

Several boards have already taken measures to address the increase in foreign applicants, while others remain in a quandary about how to assess experience gained outside this country. As an organization, we must determine what changes will be required to evolve the licensure process to accommodate this situation, while also ensuring that no action we take will impair our mission to protect the public.

Today, the issue has expanded from "how to get a license in an adjoining state" to "how to get a license in another country."

# President-elect nominee and incoming zone vice presidents discuss vision for NCEES

**"NCEES was formed over 90 years ago, playing a key role in national licensure. Now, with globalization, NCEES must play a role internationally in promoting licensure and facilitating the mobility of licensed professional engineers and surveyors."**

**N**CEES will choose a new president-elect on Thursday, August 23 during Business Session I of the annual meeting. The Committee on Nominations has submitted Patty Mamola, P.E., as the nominee for president-elect. Delegates may also make nominations from the floor. These must be seconded by at least four member boards, and nominees must meet the requirements for office.

The terms of the Central and Western Zone vice presidents expire this year, and the zones elected Michael Conzett, P.E., as the incoming Central Zone vice president and Von Hill, P.S., as the incoming Western Zone vice president. Returning for the second year of their two-year terms are Northeast Zone Vice President Howard (Skip) Harclerode II, P.E.; Southern Zone Vice President Theodore Sack, P.L.S.; and Treasurer David Widmer, P.L.S.

The 2012–13 NCEES board of directors will be installed on Friday, August 24 at the awards and installation banquet.



**Nominee for President-Elect  
Patty Mamola, P.E.  
Nevada State Board of Professional Engineers and Land Surveyors**

*NCEES Experience: Public Outreach/Communications*

*Task Force Board Liaison (2011–12), Western Zone Vice President (2010–12), Committee on Uniform Procedures and Legislative Guidelines Board Liaison (2010–12), 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 (2007–12)*

### **Why do you want to serve as NCEES 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 some of them run by directors/board members who turn a deaf ear to their membership. I feel strongly that it is the membership that should direct the organization, not the other way around. As NCEES president, I will continue to advocate for states' issues and be an active participant in licensure discussions on national and international levels.

## What are the key issues or goals you want to focus on as president?

I plan on focusing on issues that are important to the NCEES membership. In conversations with members, I have seen a consensus that the following issues are important to NCEES:

- Mobility of licensed professional engineers and surveyors
- Implementation of computer-based testing
- Quality of engineering and surveying education
- Preserving the security of NCEES exams

## What do you think are the most important long-term issues NCEES is facing?

Ensuring the financial stability of our organization is the foremost issue we face. I believe there is a fiduciary responsibility to guide and direct the organization to maintain its stability and to advance NCEES' primary goal of promoting licensure. To seize opportunities to promote licensure, a solid financial foundation is required.

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 over 90 years ago, playing a key role in national licensure. Now, with globalization, NCEES must play a role internationally in promoting licensure and facilitating the mobility of licensed professional engineers and surveyors.

## What have you learned about NCEES during your term as Western Zone vice president?

I've learned that there are many dedicated professionals who donate freely of their time, talent, and other resources to make NCEES a successful organization. All member boards are beneficiaries of that commitment. I've also been impressed with the many talented NCEES staff members that continually strive to make NCEES the best organization it can possibly be.

## How do you feel about the prospect of becoming the first female president of NCEES?

Humbled and honored.

## Incoming Central Zone Vice President



**Michael Conzett,  
P.E.  
Nebraska Board  
of Engineers and  
Architects**

*NCEES Experience:  
Committee on  
Examination*

*Policy and Procedures Member (2011–12),  
Advisory Committee on Council Activities  
Consultant (2010–11), Engineering Education  
Task Force Chair (2008–10), Committee on  
Uniform Procedures and Legislative Guidelines  
Consultant (2008–09) and Member (2004–  
06), Bachelor's Plus 30 Task Force Chair  
(2007–08)*

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

I was encouraged to run for Central Zone vice president by my colleagues on the Nebraska board and by a number of NCEES leaders whom I highly respect. I have spent the past nine years serving on NCEES committees and task forces, and I feel that now is a great time in my professional career to give back to the organization in a different leadership role. I now have both the time and desire to serve NCEES as a zone vice president.

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

In my years of serving on various boards and commissions during my career, one insight I have gained is the value of consensus building. My experience is that consensus building can lead to positive progress in moving issues forward. I believe it is worth the hard work that it takes to bring together people having polar opposite agendas to reach some kind of a common ground. One of the strengths I bring to the office of vice president is my consensus-building skills. Many of the issues the Council faces are fairly noncontroversial, but there are a handful that tend to be divisive among Council members and state boards. Over the years I have "spent time" smack dab in the middle of one of them. In the future, I will continue to use my skills to move forward those initiatives that have the goal of advancing engineering and surveying licensure to safeguard life, health, and property and promote the public welfare.

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 \end{aligned}$$

## Q&A: BOARD NOMINEE & INCOMING VPs

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

The short answer is I want to work on the strategic plan goals identified last year by the NCEES board of directors. These were well thought out and deserve our attention. One of those issues near and dear to my heart is the future education requirement for P.E. candidates pursuing their first license. In addition to that, I think it is important to work at the zone level to help increase comity among the state boards. Because the states in the NCEES zones share common borders, it is important for engineers and surveyors to have as easy a comity process as possible in the practice of their profession.

### How can NCEES most effectively advance licensure and increase the number of people pursuing engineering and surveying licensure?

In most respects, licensure brings with it the greatest degree of responsibility for engineers and surveyors. The standard of protection of life, health, and property is certainly a high one. We in NCEES understand the importance of licensure in the engineering and surveying professions. However, the value of or need for licensure in many engineering disciplines is not recognized by a large number of individuals, especially those employed by industries and government agencies.

Licensure brings with it added value for the public as a broader range of skills becomes necessary for those who are licensed.

We need to better tell the story of licensure to those in college who are at the point of making a decision whether or not to enter the licensure system via the FE exam. Once an individual chooses to enter the system, it will be much easier for them to continue on the licensure path, rather than doing so later in their career.

I became a P.E. while working in industry. As a college senior, taking the FE (EIT at that time) exam was what I did since I didn't know where I would land in my career. My first job out of grad school was in industry. Even though obtaining my P.E. license was not important for a successful career in that industry, I personally wanted to be licensed because I didn't know where my future would take me. It turned out to be the most important decision I made in my engineering career because of the doors it opened.

Studies tell us that today's young professionals will be more mobile in their careers than previous generations. We must help the "millennials" and those that follow them understand that a license can open doors that would not be available to them otherwise. This will also help to make the engineering and surveying professions more relevant at a time when more and more people see them as mere commodities, as something to buy off the shelf at the lowest possible price. This attitude will not serve our professions or the public very well.



**Incoming Western Zone Vice President**  
**Von Hill, P.S.**  
**Utah Professional Engineers and Professional Land Surveyors Board**

*NCEES Experience: Committee on Finances Chair (2011–12) and Member (2010–11), Committee on Nominations Member (2010–11), Evaluations of Applications Task Force Member (2009–11), Committee on Examinations for Professional Surveyors Member (2005–09), Special Task Force on Governance Member (2007–08), Surveying Exam Development Committee Volunteer (2005–12)*

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

I want to serve as zone vice president in part because people that I greatly respect asked me to. I want to encourage licensure by extolling the benefits to the licensee and the public and not by merely making it a legislative requirement. We need to reach out to the academic community and make sure they are on our side. I enjoy serving in the profession and in the community.

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

I have worked with the legislature and understand the legislative process. I know that you rarely get everything you want and you have to be able to adjust. The public and the legislature largely don't understand what we do. It is our responsibility to educate them and gain their confidence. We need to be able to look at things from their perspective.

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

I would like to accelerate the process of requiring mandatory education for licensure as a professional surveyor. I would like to continue to do all we can to have the academic community be licensed and have them encourage licensure. Also, we must make sure that the model laws and rules that we propose are relevant, make sense, and are attainable. Lastly, we need to seriously look at how to best use the financial resources of our organization.

## How can NCEES most effectively advance licensure and increase the number of people pursuing engineering and surveying licensure?

Convince the public and legislature that licensure of professionals is in their best interest. Our professions need to continue to promote ourselves. Encourage the academic community.

## FROM THE PRESIDENT

*continued from page 2*

You can visit the Outreach page at [nkees.org/outreach](http://nkees.org/outreach) to download the Speakers Kit and to sign up for Speakers Link.

This issue of *Licensure Exchange* contains stories about two other great outreach opportunities. The NCEES Engineering Award (see page 1) focuses on bringing together professional engineers and students through collaborative projects. Many of these projects are organized through engineering departments' capstone courses or service projects. If you'd like to get involved in a project like this, contact engineering departments in your area or at your alma mater and let them know you're interested in mentorship opportunities. National Engineers Week offers a variety of K-12 outreach opportunities, including serving as an engineering mentor for the Future City Competition (see article on page 16).

Also, National Surveyors Week is held each March, and the National Society of Professional Surveyors website ([nsps.us.com](http://nsps.us.com)) has information on ways to get involved in that initiative.

Serving as president this year, I have been inspired and gratified to see how engineers and surveyors are giving back to their professions. NCEES would not be the organization it is without the dedication and expertise of its volunteers, and I thank you for your service and encourage you to look for new paths to advance licensure.

### Exam volunteer wins national award

Congratulations to Col. Bobby (Grant) Crawford, Ph.D., P.E., one of our FE exam volunteers, on receiving the American Society for Engineering Education's National

Outstanding Teaching Award at the ASEE annual conference on June 13.

An associate professor and director of the mechanical engineering program at the U.S. Military Academy, Crawford was recognized by ASEE for his "exemplary performance as a teacher, educational innovator, and mentor to his students; for his distinction as a role model of professional excellence; and for his outstanding service to engineering education and the engineering profession."

Crawford has worked with the FE exam for seven years, and this month, he steps into the role of chair of the FE exam development committee. On behalf of NCEES, I congratulate him on his award and thank him for his continued efforts to advance the engineering profession.

# Licensing boards face increased interest from foreign applicants as barriers to U.S. licensure are overcome

With the NCEES exams headed for computer-based testing and the PE exam viewed as the international standard for licensure, the number of foreign applicants will continue to rise at a rapid pace. ... It is the goal of NCEES to make sure that the member boards have the tools necessary to assess foreign applicants' credentials.

**O**ne of the more interesting issues facing NCEES member boards in recent years has been the growing number of FE and PE exam applications from individuals not living in the United States. Those applicants include engineers whose technical expertise leads to U.S.-based employment opportunities that require a P.E. license as well as engineers who want to become U.S. professional engineers because the U.S. system is recognized worldwide as the international benchmark for licensure.

Until recently, member boards had a standard response to the foreign applicants in assessing their credentials: the applicant must meet the minimum criteria laid out by the “three Es”—education, experience, and examination. They were hurdles that most foreign applicants found too high to get over. NCEES *Model Rules* set the minimum education for licensure at a bachelor’s degree from an EAC/ABET-accredited engineering program. *Model Rules* state that to take the PE exam, the applicant must have four years of progressive engineering experience and, among other criteria, that experience must be gained in part under the responsible charge of a “licensed professional engineer.” Most, if not all, states consider that “licensed professional engineer” to be a U.S.-licensed P.E. And lastly, the *Model Rules* state that the applicant must have passed both the FE and PE exams. These three primary criteria would leave most, if not all, foreign applicants without a path to licensure.

ANDREW RITTER  
EXECUTIVE DIRECTOR  
OF NORTH CAROLINA  
BOARD OF EXAMINERS  
FOR ENGINEERS AND  
SURVEYORS



## Overcoming hurdles to U.S. licensure

So what’s changed? Hurdles surrounding two of the three Es have been virtually eliminated. In recent years, ABET has begun accrediting foreign engineering programs. As of last year, ABET had accredited 181 programs at 39 different institutions in 20 different countries. In addition, ABET has entered into several mutual recognition agreements, including the multilateral Washington Accord and the bilateral CEAB/EAC agreement with Engineers Canada for engineering programs, and the multilateral Sydney Accord for engineering technology programs, which increases the number of foreign education degrees that could be considered. To expand the pool even further, NCEES offers its own Credentials Evaluations service for those applicants’ institutions that are not ABET accredited.

The second hurdle that has changed drastically over the past several years is the administration of the NCEES exam in foreign countries. This process actually dates back to the 1990s, when the Oregon board entered into an agreement with Japan to give the NCEES exams overseas. In 2004, Oregon asked NCEES to take over the administration of the exam, and it has done so since 2005. Shortly thereafter, NCEES adopted Exam Administration Policy 10, NCEES Examinations Offered to a Foreign Entity. This policy dictated the process by which a foreign organization could enter into a contract with NCEES to allow NCEES to give the FE and PE exams in that country. Since then, NCEES

has entered into contracts with seven foreign professional organizations or institutions to offer the exams in Japan, South Korea, Turkey, Egypt, the Emirate of Sharjah, Canada, and Saudi Arabia and has received requests from an additional 10 countries. With the advent of computer-based testing and Pearson VUE having test locations around the world, it is expected that this number will continue to grow.

### Focusing on the final obstacle

That leaves the last hurdle—experience—to be addressed, and as such, President Jans charged the 2011–12 Member Board Administrators Task Force to consider the issue. The task force looked at the rise in the number of foreign applicants and the issues this brings to the member boards.

Do member boards have enough resources in their toolbox to adequately assess a foreign applicant, and is the public being adequately protected? The question of whether a state should allow foreign applicants was not part of the charge. That is a state-to-state issue—not one for the Council.

After lengthy discussions, the task force defined the issue to be whether experience gained in a foreign country should be counted towards licensure and, secondly, should foreign references be counted towards that state's reference requirement? A survey of the member boards yielded the following results:

- 29 out of 30 respondents allowed a foreign applicant to apply for licensure
- 27 out of 30 allowed foreign experience to be counted if it could be verified
- 16 out of 30 required the P.E. reference to be from a U.S.-licensed P.E.

Discussion ensued over whether foreign experience should count, and if so, from what countries? And why only accept references from P.E.s licensed in U.S. jurisdictions? Why not accept references from engineers licensed in other countries? One word kept coming up, and all on the task force agreed it was the key. If the experience or references could be *verified*, then that state would feel more confident in its assessment of the application. The task force felt that there is a high level of confidence in the quality of the experience and references of an applicant who's a U.S. citizen because both of those can be verified by a member board. The task force felt that if a foreign applicant's experience and references could be verified, we could begin to reach that same level of confidence.

The next step in the discussion was how to verify foreign experience, which in turn has led to a fantastic addition to the member boards' toolbox. The task force felt that if a foreign country has a regulatory system that tracks engineers, it could be a source that a state board could contact in an attempt to verify the experience and references contained in the application. The result is the newest NCEES tool: the International Regulatory Protocol, which is posted on the MyNCEES section on the NCEES website.

NCEES reached out to organizations that are signatories for various education and mobility accords that operate under the umbrella of the International Engineering Alliance to obtain information concerning the regulation of engineers in their respective countries. Representatives were asked to

complete a brief, Internet-based survey about their professional protocols. As of today, 15 countries have responded, and the number is growing. The information contained in the registry provides basic information on that country's licensure model and contact information. With that information, a state board can better assess the quality of the foreign applicant's experience and whether it can truly be verified. Then, the state board can make an informed decision on whether to approve the application.

The last item the task force discussed was a proposal to adopt a policy that all foreign applicants should apply for licensure with a respective member board through a program that NCEES would develop, similar to a Model Law Engineer application. This proposal received positive feedback and has been referred to a committee for further study this year.

With the NCEES exams headed for computer-based testing and the PE exam viewed as the international standard for licensure, the number of foreign applicants will continue to rise at a rapid pace. This is already an issue that the member boards and their staff face every day. It is the goal of NCEES to make sure that the member boards have the tools necessary to assess foreign applicants' credentials. We all want to make sure that individuals we grant a license to—regardless of where they are from—have the requisite education, have passed the NCEES licensing exams, and have the quality of experience necessary to protect the health, safety, and welfare of the public.

DAVID MONGAN, P.E., AAES CHAIR  
CAROL BOWERS, PG, CAE, AAES INTERIM EXECUTIVE DIRECTOR (L TO R)



# American Association of Engineering Societies: the Strength of a Million Voices

The American Association of Engineering Societies, or AAES, was founded in 1979. Its membership is composed of 16 of the major engineering societies. The original mission of AAES was to be the voice of the engineering profession in the United States. The vision was for AAES to become the organization to which policy makers would turn for answers when addressing issues with engineering implications. Prior to that, engineering was heard as several independent voices reflecting the various disciplines and interests. With AAES, those voices could be united into one, yielding a more focused response for the good of the public as well as the profession.

AAES currently provides a unified voice for its member societies, which represent all engineering disciplines in the United States. It is dedicated to ensuring that the contributions and interests of the U.S. engineering profession help shape national and global engineering practice and policy. The strength of AAES is its ability to foster cross-disciplinary collaboration among its base of more than 1 million engineers. AAES is actively engaged in critical areas on both a domestic and global stage. AAES is recognized by the United Nations as the official U.S. representative to the World Federation of Engineering Organizations and the Union of Pan American Engineering Societies, which shape the role of engineering practice globally and in the Americas, respectively. Through participation in AAES, member societies ensure that the unique

concerns and contributions of their field of practice are addressed in the global arena. The AAES International Activities Committee serves as the principal forum for timely coordination and development of policies and programs affecting the professional and technical practice of engineering in the international arena. Member societies also have the opportunity to nominate distinguished members for leadership positions in these global organizations.

AAES achieves its goals primarily through the AAES working groups. AAES working groups and forums examine and address areas in which unified engagement and consensus are beneficial and essential. Each working group is chartered by the AAES Executive Committee and reports its activities to the AAES Board of Directors. Working groups are responsible for determining their own sources of support in order to fund their activities.

- Engineers' Forum on Sustainability: Promotes principles and practice of sustainable development through various activities, including interdisciplinary discussions and information exchange
- Forum on STEM/K-12 Engineering: Provides a venue for AAES member societies to stay informed on the latest STEM and K-12 engineering programs, outreach initiatives, and messaging
- Professional Licensure Issues: Seeks opportunities with AAES member societies to combine resources and

work together to effectively support and advance licensure as a professional engineer

- Diversity Coalition: Serves as a catalyst in the engagement, recruitment, and retention of traditionally underrepresented groups in the



engineering workforce through member society collaboration and strategic partnerships

- Engineering Education: Serves as a forum to discuss issues and opportunities related to engineering education with the aim of developing policies, practices, activities, and/or programs to advance engineering education by AAES member societies, individually and collectively.
- Astronautics and Aerospace: Serves as a forum to discuss, as appropriate, issues related to astronautics and aerospace. The group will develop activities and programs to advance astronautics and aerospace in general and support these activities in the member societies.
- Nuclear Energy: Serves as a forum to discuss, as appropriate, issues and opportunities related to nuclear energy

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

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

AAES also includes the Engineering Workforce Commission (EWC). EWC has been committed to assessing America's technical and engineering workforce. EWC is the authoritative source for accurate, objective reports on engineering workforce statistics, salaries, and engineering enrollment and degrees. EWC tracks the entire engineering student population in U.S. colleges and universities with ABET-accredited engineering programs. In a series of annual surveys, the EWC collects data that is used to predict the ebb and flow of new engineering professionals, including the participation rates of women and minorities.

The EWC also conducts a survey of engineers' salaries to help gauge the demands of the current job market. The commission is composed of deans of engineering, corporate directors of university relations, professional society representatives, and members of the engineering community who are interested in the health and status of the engineering workforce. EWC information is used by many organizations, including federal and state governments, higher education, industry, and others.

The prestigious AAES awards program celebrates the contributions of engineers by recognizing individuals for outstanding contributions to the engineering profession

and society. Seven awards are funded by AAES and conferred through nominations by AAES member societies, honoring lifetime achievement, contributions to the welfare of the nation, and engineering journalism and communication. The awards are presented at an evening banquet held in Washington, D.C., each spring in conjunction with the National Academy of Engineering Convocation. AAES cohosts the convocation and shares planning responsibilities with NAE.

The AAES board consists of one director from each of the 12 voting and 4 non-voting member societies. The member societies include

- ABET, Inc.
- American Institute of Aeronautics and Astronautics
- American Institute of Chemical Engineers
- American Institute of Mining, Metallurgical, and Petroleum Engineers, Inc.
- American Nuclear Society
- American Society for Engineering Education
- American Society of Civil Engineers
- American Society of Mechanical Engineers

- Engineers Without Borders
- Human Factors and Ergonomics Society
- Institute of Electrical and Electronics Engineers-USA
- International Society of Automation
- National Council of Examiners for Engineering and Surveying
- National Society of Professional Engineers
- Society of American Military Engineers
- Society of Women Engineers

The Executive Committee includes the following voting members: the chair, chair-elect, and past-chair and three at-large committee members, as well as the following non-voting members: the secretary, treasurer, and executive director.

AAES's office is in Reston, Virginia, in close proximity to Washington, D.C. For additional information, see the AAES website, [www.aaes.org](http://www.aaes.org).

*David Mongan, P.E., is currently chair of AAES and a member of the Maryland State Board of Professional Engineers. He is also a past president of the American Society of Civil Engineers. Carol Bowers, PG, CAE, is the interim executive director of AAES.*

$$T_3 : M^0 L^0 T^0 = (L T^{-2})^c (M L^{-3})^j (L^2)^k \cdot M^l$$
$$M^0 L^0 T^0 = M^{j+l} L^{i-3j+2k} T^{-2c}$$

## ENFORCEMENT BEAT

DON JOHNSON, P.E.

WEST VIRGINIA STATE BOARD OF REGISTRATION  
FOR PROFESSIONAL ENGINEERS INVESTIGATOR

# Discipline for one can become a lesson for many

Should you ever get an opportunity like this, ask yourself what are you looking for—punitive or corrective action?

I would like to share with you a creative resolution reached by the West Virginia engineering board and one of our licensees. The registrant was dissatisfied with his current position and sought to change jobs. Unable to find employment in the surrounding area, he chose to start his own consulting firm, which would be competing with his current employer. There was no employment contract and no non-compete agreement. The engineer was concerned that his employer would not give the clients copies of their files if they chose to follow him to his new firm. The engineer copied the files.

The employer became aware that the engineer was leaving and immediately terminated him. The employer suspected the engineer had copied the files and requested that he return them. The engineer immediately did so.

The employer filed criminal charges against the engineer for theft of proprietary information under the West Virginia Computer Crime and Abuse Act. There were two charges, each of which carried a one-year prison term plus potential monetary penalties.

In addition to filing a complaint with this board, the employer filed charges against the engineer with boards in other states and with another West Virginia board with which the engineer was licensed. At the time, no one had been prosecuted under the newly enacted West Virginia Computer Crime and Abuse Act, and there were legal questions inasmuch as the engineer had free access to the files in question during his employment

and had even prepared some of the files. The prosecuting attorney chose to not pursue the case, and all criminal charges were dropped.

The West Virginia PE board investigated the case. The engineer readily admitted he had copied the files. The board met with the engineer and his attorney at the engineer's request. The board found a repentant engineer who obviously wanted to keep his P.E. license and not face civil penalties that could potentially put him out of business.

Because there were no health and safety issues involved in this case, the board chose to seek a different approach in negotiating the terms of the consent order. The board decided to offer the individual the opportunity to participate in board ethics presentations in lieu of a monetary fine or license suspension. This option not only assisted the engineer but also provided a unique educational training tool to bring to the West Virginia engineering college and university classrooms.

To resolve the complaint, the engineer agreed to participate in four board ethics presentations chosen from a list prepared by the board. The list included four of the five engineering and engineering technology schools in the state and the annual West Virginia Construction and Design Expo. The engineer's presentation would be the main attraction at each.

One of our board members is a university professor. He tailored a senior design homework assignment focusing on a hypothetical example

of an engineer involved in a similar situation to what happened in our case. The students turned in their assignments and then heard the real-life story. The impact was much greater when the students put a face to the ethics violation.

The engineer spoke from talking points approved by the board. He admitted what he did was wrong and explained why, answered questions candidly, and made an impression on the students as well as the professors when he asked if they had ever been arrested, fingerprinted, and photographed. He talked about the uncertainty of going to jail and the potential of losing his license and his livelihood. He spoke about having this hanging over his head for over a year and about the profound influence it has had on his life.

As it turned out, all five of the engineering and engineering technology schools asked that he come and speak to their seniors. The engineer readily agreed to travel to the fifth campus, even though he was

only bound by consent order to participate in four presentations. He has since said that this helped him deal mentally with the situation he found himself in and was pleased with the opportunity to participate.

Should you ever get an opportunity like this, ask yourself what are you looking for—punitive or corrective action?

The board often looks to the instructive points that can be made through its disciplinary actions, the details included in board orders and consent orders. However, to actually utilize teaching as the disciplinary action itself turned a serious ethics violation into a positive experience for many in our West Virginia engineering community.

## ENGINEERING AWARD

*continued from cover*

invited to submit projects that integrated professional practice and education.

In selecting this year's winners, the 11-member jury of NCEES members and representatives from academic institutions and professional engineering organizations considered criteria such as

- Successful collaboration of faculty, students, and licensed professional engineers
- Benefit to public health, safety, and welfare
- Multidiscipline and/or allied profession participation
- Knowledge or skills gained

Florida Atlantic University will be honored at the upcoming NCEES annual meeting. Representatives from the winning project will receive the award on behalf of the university's civil, environmental, and geomatics engineering department at a luncheon on August 24.

NCEES is currently preparing for the 2013 award cycle, and entry information will be available in late September. The 2012 NCEES Engineering Award Book will also be released this fall. More information on all of this year's winning projects is available online at [ncees.org/award](http://ncees.org/award).

# UPDATE

## April 2012 Pass Rates

### FE EXAM

*FE pass rates for examinees who attended EAC/ABET-accredited engineering programs:*

Exam	First-Time Takers	Repeat Takers
Module		
Chemical	85%	45%
Civil	72%	28%
Electrical	75%	32%
Environmental	82%	47%
Industrial	75%	50%
Mechanical	86%	49%
Other Disciplines	74%	37%

### FE EXAM—OTHER DISCIPLINES MODULE ONLY

*Only EAC/ABET degrees with more than 50 examinees are reported.*

Examinees' Degree Discipline	First-Time Takers	Repeat Takers
Aeronautical/Aerospace	88%	38%
Agricultural	90%	64%
Architectural	70%	59%
Biological	77%	56%
Biomedical	85%	100%
Chemical	74%	41%
Civil	68%	32%
Electrical	57%	34%
Engineering Physics	75%	25%
Environmental	87%	14%
General Engineering	76%	43%
Geological and Geophysics	50%	29%
Materials	87%	100%
Mechanical	78%	46%
Mining and Mineral	48%	61%
Naval Architecture	85%	0%
Nuclear	87%	100%
Ocean	78%	50%
Other Engineering	76%	25%
Petroleum	65%	50%

### PE EXAM

Exam	First-Time Takers	Repeat Takers
Agricultural*	31%	25%
Architectural	71%	31%
Chemical	74%	31%
Civil	70%	39%
Control Systems*	71%	46%
Electrical/Computer	61%	32%
Environmental	59%	32%
Fire Protection*	68%	44%
Industrial*	66%	24%
Mechanical	74%	38%
Metallurgical/Materials*	53%	46%
Mining/Mineral Proc.*	80%	47%
Naval Arch./Marine Eng.	66%	17%
Nuclear*	93%	83%
Petroleum*	78%	50%

*\*These exams are given only in October. Pass rates shown are for October 2011.*

### SE EXAM

Exam	First-Time Takers	Repeat Takers
Vertical Forces	45%	34%
Lateral Forces	46%	40%

*The above pass rate reflect the percentage of candidates who attained acceptable results by component. To pass the SE exam, candidates must attain acceptable results on both components.*

### SURVEYING EXAMS

Exam	First-Time Takers	Repeat Takers
FS	71%	33%
PS	74%	37%

# MEMBER BOARD NEWS

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

**ALABAMA** Marc Barter is a new appointee. Don Arkle is no longer a member.

**CONNECTICUT** Board member William Giel passed away on January 24. Kenneth Peterson and Richard Szewczak are new appointees. John Hallisey is no longer a member.

**DELAWARE PE** William Balascio and Soheil Gharebaghi are new appointees. Guy Marcozzi and Gregory Pawlowski are no longer members.

**DELAWARE PS** Kenneth Monroe is a new appointee. Elizabeth Rowe is no longer a member.

**FLORIDA PS** Frank Conkling and Deborah Hill are new appointees. Lamar Evers, Patrick Talbott, and Larry Wright are no longer members.

**GEORGIA** William Womack is a new appointee.

**IDAHO** George Murgel is a new appointee. James Milligan is no longer a member.

**ILLINOIS SE** Steven Bishop is a new appointee.

**MICHIGAN PE** Michael Drewyor and Anthony Vizzini are new appointees. Charles Dulic is no longer a member.

**MICHIGAN PS** Michael Drewyor and Ginger Michalski-Wallace are new appointees.

**MISSOURI** Kelley Cramm, Melissa Edwards, and Robert Shotts are new appointees. Royce Fugate and Marian Pacino are no longer members.

**PENNSYLVANIA** Robb Keith is a new appointee. Michael Huwar is no longer a member. Board administrator DeAndra Burger's name is now DeAndra Field.

**PUERTO RICO** Luis Campos-Bistani is a new appointee.

**RHODE ISLAND PS** Dawne Broadfield is the board administrator, replacing Christina Styron.

**TENNESSEE PE** Richard Bursi is a new appointee. Dennis Henderson is no longer a member.

**TENNESSEE PS** Galyon Northcutt is a new appointee. Jackie Dillehay is no longer a member.

**TEXAS PE** The Quality Texas Foundation recently recognized the board for dedication to quality and high performance. It was the only state regulatory agency to be recognized during the 2012 review cycle. This is the second consecutive year that the board has been recognized for its commitment to quality.

**VERMONT PE** Brad Aldrich is a new appointee; Aldrich is a past president of NSPE. Michael Quaid is no longer a member.

## Upcoming Events

**August 2-5**  
PE Software Exam  
Writing Workshop  
Philadelphia, Pennsylvania

**August 3-4**  
FE Exam Meeting  
Clemson, South Carolina

**August 22-25**  
NCEES Annual Meeting  
St. Louis, Missouri

**August 24-25**  
PE Environmental Exam Meeting  
Clemson, South Carolina

**September 14-15**  
FE Exam Standard Setting Study  
Atlanta, Georgia

**September 21-22**  
PE Mechanical Exam Meeting  
Clemson, South Carolina

SE Exam Meeting  
Clemson, South Carolina

## NCEES outreach

**September 27-29 Tau Beta Pi Convention** NCEES staff will attend the meeting in Lexington, Kentucky, to promote licensure and educate attendees on the transition of the FE and FS exams to computer-based testing.

Dale A. Jans, P.E.  
*President*  
Sioux Falls, South Dakota

L. Joseph Timms, P.E.  
*Past President*  
Bridgeport, West Virginia

Gene L. Dinkins, P.E., P.L.S.  
*President-Elect*  
Columbia, South Carolina

David H. Widmer, P.L.S.  
*Treasurer*  
Beaver Falls, Pennsylvania

Nancy L. Gavlin, P.E., S.E.  
*VP Central Zone*  
Chicago, Illinois

Howard C. Harclerode II, P.E.  
*VP Northeast Zone*  
Phoenix, Maryland

Theodore A. Sack, P.L.S.  
*VP Southern Zone*  
Sand Springs, Oklahoma

Patty Mamola, P.E.  
*VP Western Zone*  
Reno, Nevada

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

## Licensure EXCHANGE

Jerry T. Carter, Executive Director  
and Publisher

Keri B. Anderson, Manager of  
Corporate Communications

Jennifer L. Williams, Editor

Ragenia P. Thompson, Graphics and  
Print Coordinator

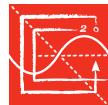
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## Future City needs volunteer mentors



The Future City Competition is calling on engineers from across the nation to serve as mentors for middle-school student teams competing in the 2012–13 competition, in which students will imagine, design, and build cities of the future. This year, they will focus on rethinking runoff and designing clean solutions to manage stormwater pollution.

The volunteer mentor's job is to support the student team as the students explore engineering-related questions by facilitating discussions, helping students refine their ideas, finding and accessing other resources, and providing feedback as the team works on their city. By tying in real-life engineering experiences, the mentor can help the students connect the academic to the real world of engineering. Ideally, a mentor is available to work with the educator and students for one to two hours each week from September to January. These meetings can be hosted in a variety of ways—in-person, via Skype, or over the phone.

The Future City Competition, which is open to sixth-, seventh, and eighth-grade students, will be held from September 2012 through February 2013. It is a program of the National Engineers Week Foundation, a consortium of professional and technical societies and major U.S. corporations.

NCEES is the society sponsor for Engineers Week 2013. As part of its support, NCEES will sponsor Best Land Surveying Practices awards at each regional competition and the national finals.

To learn more  
about the Future  
City Competition or  
to register to be a  
volunteer mentor,  
go online to  
[www.futurecity.org](http://www.futurecity.org).

*In part, from Future City release, June 2012*