FBPE FLORIDA BOARD OF PROFESSIONAL ENGINEERS

# Connection

Volume 2 - Issue 1

*Linking You with the Florida Board's Latest Engineering News & Information*

# Jacksonville Parking Garage Collapse - 5 Year Review

*by: William C. Bracken, P.E., S.I., CFM*

***December 6th 2007, the 6-story parking garage that was under construction across the street from the police station in downtown Jacksonville, Florida collapsed suddenly and without warning. The collapse resulted in the death of one worker and the injury of 20 more. The following review is based on the investigations conducted by and the documents obtained from the Occupational Safety and Health Administration (OSHA) and the Florida Board of Professional Engineers (FBPE).***

## What Type of Building Was It?

The structure that collapsed was a 6-story parking garage. The parking garage was being constructed utilizing cast-in-place simple reinforced concrete columns, cast-in-place reinforced and post-tensioned concrete beams, and cast-in-place post-tensioned concrete slabs. The parking garage sat atop its own foundations and was structurally independent from the 23 story high-rise it was to service.

## Who Was Involved?

According to OSHA's May 2008 report, the key participants in the project included:

- **Structural Engineer of Record:** Soheil Rouhi
- **Threshold Inspector:** Timothy Frazier
- **Formwork (Shoring) Designer:** *Patent Construction Systems*
- **Formwork (Shoring) Inspector:** Darrell Setser (In Responsible Charge)
- **Formwork (Shoring) Inspector:** Stuart Holtz (Field Inspector)
- **General Contractor:** *Choate Construction Company*
- **Formwork (Shoring) Contractor:** *Southern Pan Services Company*
- **Concrete Subcontractor:** *A. A. Pittman & Sons*

## What Caused the Collapse?

In short, the collapse did not appear to have been the result of one single mistake. Instead the collapse appears to have been the result of a collection of tragically avoidable errors committed by as many as six (6) companies, five (5) engineers and countless construction personnel. OSHA and the FBPE focused their investigations and disciplinary efforts on two major areas: construction and engineering inspection related to the formwork (shoring and reshoring), and engineering design and inspection related to the project as a whole.

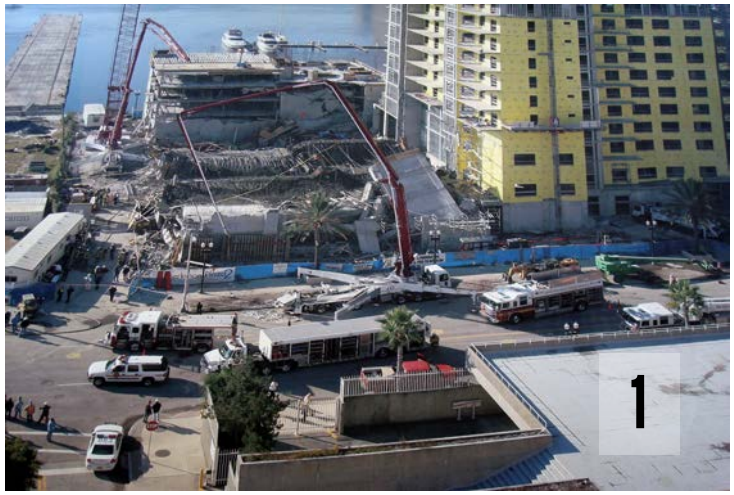
### ⇒ Formwork (Shoring and Reshoring)

The formwork plans were prepared by the formwork (shoring) designer. These plans called for the shoring and reshoring to extend all the way to the ground. However, it was learned that the shoring and reshoring below the 3rd level had been removed shortly before the

*(Continued on page 8)*

FBPE FLORIDA BOARD OF PROFESSIONAL ENGINEERS *Connection*

# WHAT'S INSIDE...





## *Connection* FEATURES



## FBPE Department NEWS

### LICENSURE



### LEGAL



## In This ISSUE



## Other News

# FROM THE EXECUTIVE DIRECTOR

## *Shifting Gears—From Renewal to CBT*

FBPE is happy to report that the 2013 renewal has concluded with over 31,500 professional engineering licenses and over 4,400 certificates of authorization renewed as of March 11, 2013. With the commencement of the honor system for continuing education, we believe that online renewal provided for a much smoother and more efficient process for license renewal. As you should now know, reporting of continuing education credits was not required in order to renew your PE license this year. Instead, the Board will be performing a random audit of CE credits beginning June 1, 2013. If you are a PE and are selected for an audit, you will need to provide proof of your CE credits taken during the 2011-2013 biennium to FBPE. There is no need to provide additional proof if your credits were reported by your CE provider during the biennium.

With renewal finished, FBPE moves its focus to the onset of computer-based testing (CBT) for the fundamentals examination. CBT will begin for the FE candidates beginning in January of 2014. Candidates will continue to register with FBPE for application approval and then select a Pearson Vue Center to take their exam after registering with the National Council of Examiners for Engineering and Surveying (NCEES). Look for our in-depth article on this subject in this newsletter.

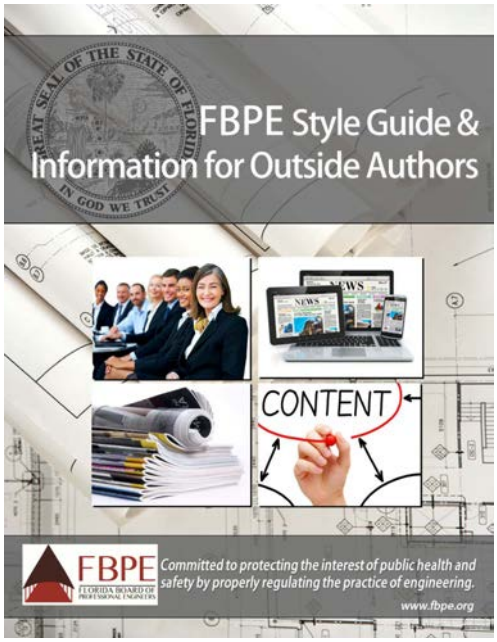
In an effort to reach out to our state universities and inform them of the changes to the fundamentals examination, FBPE representatives visited four schools - Embry Riddle, University of Central Florida, Florida International University and University of South Florida during National E-Week, February 20th through 23rd and then again for the 2013 ASCE Southeast Student Conference. Shannon McCoy, FBPE Communications, Website and Publications Coordinator, Brian Lynch, Manager of Applications and Licensure, and I were able to meet with engineering college department and program deans and other personnel in order to raise awareness of the importance of professional licensure and of the changes affecting students who wish to take the fundamentals examination in the future.

Although FBPE has not been able to physically visit every engineering college in the state, FBPE's intent is to continue its efforts to schedule personal meetings, as well as develop presentations and materials that provide information related to the changes to the fundamentals exam and its processes, as well as, materials that enforce the importance of taking the FE and moving forward to professional licensure in the State of Florida. When NCEES makes information available regarding these changes, FBPE will take the necessary steps to notify the universities and colleges affected and will post this information on our website at ***www.fbpe.org***.

FBPE will continue its outreach efforts based on the already overwhelming response from those we have talked to thus far. A representative of the Board office is more than willing to give a presentation regarding examinations, licensure or discipline at your school or organization. You may contact Shannon McCoy at (850) 521-0500, ext. 108 to obtain more information on these efforts.

FBPE is committed to promoting education, proper licensing and regulation regarding the practice of engineering in this state and realizes that it can only be achieved through a proactive relationship with prospective students, the engineering community and the public of the State of Florida. We encourage any and all to contact our office for more information or suggestions.

*Zana Raybon*
*FBPE Executive Director*




# FBPE *Connection* Article Submission

The goal of the Florida Board of Professional Engineers (FBPE) in publishing its quarterly ***Connection*** newsletter is to report on FBPE, FEMC and Board staff's actions and activities. In addition, the FBPE is now accepting articles from recognized professional organizations and academic institutions wishing to disseminate industry related information. To obtain a copy of the FBPE's ***Style Guide and Information for Outside Authors*** or to submit an article for consideration please visit FBPE's website at ***www.fbpe.org*** or email ***smccoy@fbpe.org***.

NOTEWORTHY NEWS

# E-Week Ends with FBPE Board Member Receiving Two Awards

FBPE is pleased to acknowledge that ***Michelle Rambo-Roddenberry, Ph.D., P.E.*** was recently recognized for her outstanding contributions to the engineering profession and her vital role as an educator. On Friday, February 22, 2013, the ASCE Tallahassee Branch and FES Big Bend Chapter held its annual banquet concluding the celebration of National Engineers Week. The banquet was an opportunity to have local engineering societies socialize, conduct a silent auction and an awards ceremony.

Dr. Roddenberry was presented with two significant awards during the evening's event. She received the Florida Engineering Society (FES) *Outstanding Service to the Profession* award from the FES Big Bend Chapter for 2013. This award is given each year to an individual who has, by virtue of his or her service, had a significant positive impact on the engineering profession and established a consistent record of service. The individual must possess a well-rounded record of achievement in education, employment, professional and public service activities.

Florida Engineering Society
Big Bend Chapter

She was also presented with the 2013 *ASCE Civil Engineer of the Year* award from the ASCE Tallahassee Branch. This award is presented annually to a member of ASCE that has been employed for a minimum of 5 years and possesses an EI or PE certification. Additional qualifications considered for receipt of this award include:

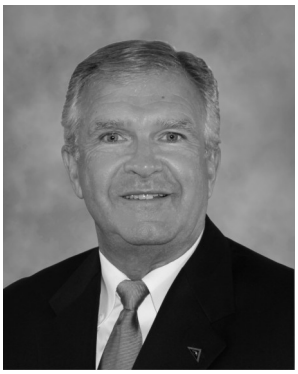
- *Personal character, integrity, and public image above reproach;*
- *Achievements and distinction in a technical field and mode of practice (government, education, industry, and private practice);*
- *An established reputation for service to ASCE and the engineering profession;*
- *An established reputation for civic, community, and public activities and responsibilities;*
- *Significant contribution toward improving the professional aspects of civil engineering education;*
- *Professional guidance of qualified young people who seek civil engineering as a career; and professional development of young civil engineers in the formative stages of their careers; or*
- *Other evidence of merit, which, in the judgment of the Awards Committee, shall advance the Society's professional objectives*.

Dr. Roddenberry received this award in recognition of her role as a leader in the field of civil engineering as both a researcher and an educator. She is a respected mentor to students and has been instrumental in increasing the ASCE-FES Student Chapter attendance at professional meetings. She has also helped establish and maintain the FAMU-FSU College of Engineering status as a "link" for the Order of the Engineer Ring ceremony and was a vital part of putting together the 2012 ASCE Southeast Student Conference. The chapter was honored to present Dr. Roddenberry with this award not only for her leadership in ASCE, and with engineering students, but also for her superior technical background.

FBPE congratulates Dr. Roddenberry on these awards and being acknowledged by her peers as an integral part of the engineering and university community. We are proud to have such an honored individual seated on our Board and appreciate all of her efforts in promoting the practice of engineering in the state.

# New Member Appointed to the Florida Engineers Management Corporation (FEMC) Board

FBPE would like to welcome our newest addition to the FEMC Board, ***Donald L. Goddeau, P.E.*** Mr. Goddeau was appointed in late January 2013, replacing former member and Chair, Roger L. Jeffery, P.E.



Mr. Goddeau is a licensed professional engineer in the State of Florida with a career in engineering that spans over 40 years. A civil engineering graduate of Villanova University and veteran of the U.S. Air Force, he has worked primarily in the fields of waterfront engineering and engineering management. He achieved the position of President and Director of Gee & Jenson EAP and then Senior VP of CH2M HILL. During his career, Mr. Goddeau has been very active in engineering associations including holding the office of President of the Florida Engineering Society (FES) and serving as the FES liaison to the Florida Board of Professional Engineers assisting Board members with writing the original Responsibility Rules. He is a fellow member of both the FES and the National Society of Professional Engineers (NSPE) where he has served as chair of both the FES Professional Concerns and NSPE Licensure and Qualifications for Practice Committees. Most recently he has served as Treasurer and then Chair of the Board of Trustees of the Florida Engineering Foundation. This is Mr. Goddeau's first term serving on the FEMC Board.

# Former FBPE Chair Recognized for Years of Service

In the January 2013 issue of FBPE's *Connection*, we featured an update regarding some of our new board appointments as well as some departures. One of those individuals mentioned was ***John C. Burke, P.E.*** On February 13, 2013, Mr. Burke was honored for his years of dedicated service with the Board having served two consecutive terms as Chair of the Board 2008-2012.

Mr. Burke is a licensed electrical professional engineer with Hazen and Sawyer's office in Jacksonville, Florida. He possesses over 43 years of experience in planning, design and project management of power, control and instrumentation systems associated with water and wastewater facilities. His capabilities range from concept through final design, and extend to construction management and power systems analysis. Upon replacement, Mr. Burke will continue to work as a licensed engineer for Hazen and Sawyer.

FBPE acknowledges that Mr. Burke's accomplishments far outweigh his years of service to our organization and we are proud to have such a dedicated and respected member of the engineering community as part of our family.

# FBPE Presented with MCCi Excellence Award

On Tuesday, April 2, 2013, Donny Barstow, President of MCCi, presented FBPE with their *Excellence Award* after having demonstrated how our use of a MCCi solution simplified business processes and increased efficiency while providing substantial cost savings. FBPE's submission on how it incorporated the Laserfiche® application into its business workflows and processes stood out above the rest due to our adept leadership in implementing a solution that improved their internal record retention and retrieval system while proving to save the organization both time and money.

Out of MCCi's 400 + clients, only three clients are recognized annually. All entries are judged by MCCi staff members and during the judging process, the focus is on specific results such as decreased environmental impact, time savings, cost savings, improved transparency, and process automation. In addition to this award, FBPE was selected as one of 28 domestic and international Laserfiche® users representing multiple industries such as: commercial, education, financial services, government, healthcare and justice systems for its Laserfiche 2012 RunSmarter® Award. Considering their client base is 21,000+, this was a significant acknowledgment of FBPE's recent successes. We give special thanks to ***Amanda Day-Janacek*** and ***Katherine Anderson,*** who are primarily responsible for the implementation of this application here at FBPE. We are proud of their accomplishments and their commitment to enhancing the way we do business.

MCCi ExperienceExcellence

*MCCi is a subsidiary of Municipal Code Corporation (MCC), which has been serving local governments for over 50 years. For more information about MCCi visit their website at [www.mccinnovations.com](http://www.mccinnovations.com).*

# Chairman's Corner

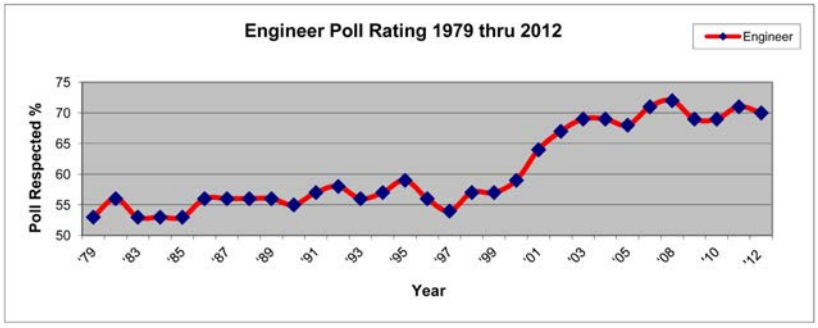
## Engineers—The Public's Perspective

*Warren G. Hahn, P.E.*
*FBPE Chair*

***How does the general public perceive engineers?*** A review of various 2012 polls listing the most respected professions from high to low, put engineers 6th out of 25 in one poll and 6th out of 30 in another.

It seems that nurses, doctors, dentists and teachers top the polls above engineers. However, 20 to 25 professions are perceived lower in respect compared to engineers. Being in the top 20% to 30% should make us feel pretty good!

This hasn't always been so. Below is a graph outlining the perception of engineers by the public in polls taken from 1979 through 2012. As you can see, from 1979 through about the year 2000, engineers were rocking along at between 54% to 59%. Then from 2000 through 2004 the public's perception of engineers grew to just below 70% and since then, until now, has varied between 68% to 72%.




Keep in mind though, that nurses, doctors, school teachers and pharmacists were ranked above this from 76% to 90%, with nurses topping out at 90%. The lowest percentage of respect, for an unnamed profession, was as low as 2%!

Why then, did the public's perception of engineers rise from 55% to 70% during the 4 to 5 year period from 2000 to 2004?

One likely reason is the requirement of engineers to participate in a continuing education program which, in most states, aside from the technical aspects of a given engineer's specialty, also includes ethics and laws and rules. It was in the year 2000 that continuing education was mandated in many states and, as such, it is reflected in the polls showing a greater respect for engineers.

How do we rise to the level of respect for doctors and nurses, in the high 80's and low 90's? Generally when you select a doctor you put your trust in that doctor with your health and life. Similarly, when in the hospital, you put the trust of your treatment or recovery in the hospital into the nurse's hands.

So how does the public put their trust into the hands of engineers?

As Professional Engineers (PEs) our mission is to provide for the health, safety and welfare of the general public in the engineering and design of products, buildings, roads, and other public and private services. Our health, safety and welfare responsibilities then, are similar to those of doctors and nurses. Just not individual to individual.

> ***"The public's perception of the record of engineering efforts today, will dictate the public's respect of our profession tomorrow."***

A doctor or nurse is a known individual. Engineers are a group. Engineers are, in effect, evaluated by the public based upon the results of our engineering and design. When our designs fail, respect lessens in the eyes of the public. Unfortunately, our many successes are most often taken for granted.

So, the more we can make the public aware of the successes of Professional Engineers, the more respect the engineer will gain.

We do this by continuing to provide for the health, safety and welfare of the public, adhering to increased continuing education to keep ourselves technically current, remain fastidious in correcting and minimizing errors and omissions and finally, using the term "Professional Engineer" and being proud of the initials P.E. after our name.

Effectively, as the reliability, safety and efficiency of our products, buildings, roads, public facilities, etc. improve, so does the trust in engineers by the public. The public's perception of the record of our engineering efforts today, will dictate the public's respect of our profession tomorrow.

---

***Warren G. Hahn, P.E.*** *is a registered engineer with Hahn Engineering, Inc. located in Tampa, Florida. He has over 50 years experience in engineering contracting and construction. Mr. Hahn's experience includes extensive involvement in heating, ventilating and air conditioning (HVAC) systems. He provides engineering, design, analysis, construction supervision and inspection of mechanical, plumbing, fire sprinkler, security, network, lighting and electrical systems. Mr. Hahn also serves as an expert witness with forensic experience related to mechanical and electrical engineering.*

*Mr. Hahn is currently serving his first term as Chair of the Florida Board of Professional Engineers.*


# Engineering Ethics & You...

## *Or Better Yet, Your Engineering License*

*by: Edwin A. Bayo, Esq.*

***Article Reprinted Courtesy of the FES-January 2013 Journal***

***The topic of ethics in engineering has been covered in almost every conceivable manner. Most engineers have taken ethics to satisfy a curriculum course requirement or as continuing education for licensure renewal. These courses often cover such items as ethical codes for engineers or ethical case studies. Rather than focusing on the traditional topics, this article is intended to provide guidance on how ethical engineering, or the lack thereof, can have serious implications on your ability to practice.***

As former counsel to the Florida Board of Professional Engineers, I have seen countless cases involving ethical issues. Most regulatory boards, however, do not use the term "ethics" in the list of violations which may subject an engineer to disciplinary action. Nevertheless, many such violations have an "ethical" underpinning. In Florida, for example, the term "misconduct" is defined to include conduct that can be categorized as ethically improper or deficient. An engineer's license can be disciplined under the rubric of "misconduct" for acts such as performing an engineering assignment when not qualified by training or experience in the practice area involved; revealing facts, data or information obtained in a professional capacity without the consent of the client or employer; expressing an opinion publicly on an engineering subject without being informed as to the facts and being competent to form a sound opinion; soliciting or accepting gratuities without a client's knowledge; failing to preserve a client's confidence; failing to disclose a conflict of interest; and the list goes on.

Another commonly used term to describe improper conduct with ethical implications is "negligence." That may surprise some of you who think of the term in its traditional sense. Negligence can be defined as a failure to exercise the care that a reasonably prudent person would exercise in like circumstances. In regards to the practice of engineering, Florida (as do many other states) defines negligence as the failure by a professional engineer to utilize due care in performing in an engineering capacity or failing to have due regard for acceptable standards of engineering principles.

If an engineer is charged with either negligence or misconduct, he or she can be arguably said to have violated one or more of the fundamental principles of several well-known engineering ethical codes. According to the American Society of Civil Engineers' (ASCE) fundamental principles, engineers must uphold and advance the integrity, honor and dignity of the engineering profession by: (a) using their knowledge and skill for the enhancement of human welfare and the environment; (b) being honest and impartial and serving with fidelity the public, their employers and clients; (c) striving to increase the competence and prestige of the engineering profession and (d) supporting the professional and technical societies of their disciplines. Thus, you can see how the concepts begin to merge.

Take, for example, a scenario where you, as a professional engineer, agree to take on a project at a rock-bottom price. Given the state of the economy, many engineers find themselves agreeing to projects at half what they would normally charge. Nevertheless, signing on for a project at a reduced rate does not reduce your obligation to your client (or to the public). Your standard of practice must remain the same whether you charge one dollar or one million dollars for your services. If you were to cut corners on a project simply because you weren't paid much, an "ethical" complaint wouldn't be filed against your license. However, your license could be disciplined for negligence or incompetence. What began, in theory, as ethically deficient conduct has now become conduct worthy of disciplinary action against your professional license.

Another violation with ethical implications is signing and sealing plans or specifications that were not prepared by the engineer or by someone under his or her responsible charge ("plan stamping"). In addition to the professional implications of signing and sealing plans that you have not prepared or sufficiently reviewed, this violation carries with it other ethical concerns. The law allows you to authenticate documents through your engineering seal, much like a notary. By sealing a set of plans or specifications, you are effectively stating that they are true and correct. When one considers that the lives, safety, health and welfare of the general public are dependent upon engineering

*(Continued on page 16)*

*(Continued from page 1)*

concrete on the 6th floor was placed. Within its May 2008 report, OSHA states "*There are conflicting reports about why Southern* [Pan Services Company] *removed the reshores under the 3rd level despite the fact that the Patent drawing showed the reshores extending down to the 1st level."* Nonetheless, the shoring was removed and construction continued.

FBPE's records state that the shoring and reshoring field inspector (***Stuart Holtz***) depended principally on information provided verbally by the contractor and in fact never reviewed the reshoring drawings until after the collapse. FBPE's records also state that the threshold inspector (Timothy Frazier) failed to determine that a professional engineer who specializes in shoring design had inspected the shoring and reshoring for conformance with the plans.

***"These employers are experienced in this type of construction and know all too well that disaster can occur when engineering drawings are not adhered to, or are modified, as occurred in this tragic collapse, without the approval of a Professional Engineer."***
Mr. James Borders, OSHA Area Director

### ⇒ Engineering Design and Inspection

The structural design drawings were signed and sealed by the engineer of record (***Soheil Rouhi***). OSHA reported that, while the construction of the parking garage included many minor and major issues, "*the difficulties were compounded by the fact that the SER* [structural engineer of record] *was not forthcoming in resolving the questions, and had a nonchalant and dispassionate attitude towards the structure he designed."* OSHA also stated that the "*SER denied this during an interview with OSHA."* In addition, it was learned that reinforcing steel had been left out and/or misplaced during the construction.

OSHA reported the following related to the design of the structure:

- *From the flexural aspect, the beam design was deficient under code prescribed load and phi factors.*
- *The shear stirrups were significantly under-designed for the factored dead and live loads and did not meet the code requirements.*
- *Of the eight columns, all except H4 were determined to be deficient as per the prescribed codes, based upon the 5,000 psi concrete, the strength specified by the SER.*
- *The column C4 was considered the most critical. For load case No.1, C4 was barely able to support the dead loads even when the phi factor was not considered. This is the most serious design flaw in the structure.*

FBPE's records state that the engineer of record (***Soheil Rouhi***) issued drawings that were materially deficient with respect to the design of the beams, the design of the columns, and the design of the beam-to-column connections. FBPE's records also state that the threshold inspector (***Timothy Frazier***) failed to adequately inspect the construction of the load bearing structural elements.

## *Who Has Been Held Responsible?*

According to OSHA's news release dated June 3, 2008:

Recognizing that OSHA only has jurisdiction over the construction industry and not the design professionals, OSHA initially cited the general contractor (***Choate Construction Company***) along with one (1) subcontractor (***Southern Pan Services Company)*** for

*(Continued on page 9)*

*(Continued from page 8)*

safety violations related to the collapse. OSHA also cited one (1) subcontractor (***A. A. Pittman & Sons Concrete Co.***) for violations related to record keeping. In this news release OSHA quotes its area director James Borders as saying "*These employers are experienced in this type of construction and know all too well that disaster can occur when engineering drawings are not adhered to, or are modified, as occurred in this tragic collapse, without the approval of a professional engineer."*

The OSHA report can be viewed in greater detail at: ***http://www.oshrc.gov/foia/Rpt_SouthernPanServCo.pdf***.

According to FBPE's records:

Recognizing that the FBPE has jurisdiction only over licensed engineers and not the construction industry or unlicensed individuals, the FBPE cited a total of four (4) different engineers within three (3) different organizations.

***Soheil Rouhi - Structural Engineer of Record***

- License was permanently retired prior to revocation.
- He is not eligible for engineering licensure in the State of Florida.
- Fine & Costs of $3,621.00

***Darrell Setser - Formwork (Shoring) Inspector*** *(Engineer in Responsible Charge)*

- License was reprimanded and placed on probation for one (1) year. He agreed not to provide these services in the future.
- Required to complete concrete inspection and ethics classes.
- Fine & Costs of $4,003.75

***Timothy Frazier - Threshold Inspector*** *(Engineer in Responsible Charge)*

- License was reprimanded and suspended for three (3) years.
- Special Inspector certification was revoked and he is not eligible for recertification in the State of Florida.
- Required to complete ethics classes.
- Fine & Costs of $3,621.00

***Stuart Holtz - Formwork (Shoring) Inspector*** *(Field Inspector)*

- License was reprimanded and placed on probation for one (1) year.
- Required to complete concrete inspection and ethics classes.
- Fine & Costs of $8,712.00

## *For More Information*

If you would like to review FBPE records in greater detail they can be found at ***www.fbpe.org/legal/disciplinary-actions***.

In light of Florida's recent rule changes, it is highly recommended that those licensees whose practice includes threshold inspections familiarize themselves with all of the statutory (F.S. 471) and administrative code (F.A.C. 61G15) requirements for threshold inspections.

For the most current provisions included in **Chapter 471**, **Florida Statutes** and the **F.A.C. Rules 61G15-18** through **61G15-37** as they relate to the practice of engineering in the State of Florida, go to *Legal* section of FBPE's website at ***www.fbpe.org***.

---

*This article was written by FBPE Board Vice Chair, **William C. Bracken, P.E., S.I., CFM**. Mr. Bracken is the President and Principal Engineer for Bracken Engineering located in Tampa, Florida. He is a licensed Special Inspector and Professional Engineer in the State of Florida, as well as a licensed P.E. in 24 other states. Mr. Bracken's experience includes working as an engineer and a subject matter expert on structural, building envelope, general civil, floodplain and forensic engineering projects. He also serves as a Structures Specialist to Florida's Urban Search and Rescue program.*

*Mr. Bracken is currently serving his first term as Vice Chair on the Florida Board of Professional Engineers.*

# Engineering Certifications of Sinkhole Work

*by: William C. Bracken, P.E., S.I., CFM*

**The following scenario and subsequent question/answer format is offered as a supplement to the article titled:** *Construction Certifications vs. Successor Engineer* **published in the October 8, 2012 edition of FBPE's** *Connection*.

## *Relevant Facts*

An engineering firm was retained by an insurance company to perform an investigation in compliance with F.S. 627.7072. This statute requires that a professional engineer and a professional geologist perform tests so as to determine "the presence or absence of sinkhole loss or other cause of damage." This statute then goes on to require that the professional engineer "make recommendations regarding necessary building stabilization and foundation repair."

The geotechnical engineer in conjunction with the geologist determined that there were sinkhole conditions. Together with a structural engineer, they then determined that there was a sinkhole loss. Further, the geotechnical engineer determined that the ground required remediation, and the structural engineer determined that the structure required remediation.

***F.S. 627.7072 Testing standards for sinkholes***. *The professional engineer and professional geologist shall perform such tests as sufficient, in their professional opinion, to determine the presence or absence of sinkhole loss or other cause of damage within reasonable professional probability and for the professional engineer to make recommendations regarding necessary building stabilization and foundation repair.*



*(Continued on page 11)*

*(Continued from page 10)*

Therefore, in compliance with the statute, the geotechnical engineer developed a grouting program that involved both a deep and shallow approach. However, given the variability of the soils, the planned program was anticipated to require field modification and adjustment based on as-encountered conditions.

Likewise, the structural engineer developed a structural remediation plan in compliance with the statute. Unlike the geotechnical plan which dealt with below-grade conditions, the structural program was able to identify and address all of the conditions affecting that plan.

***Question:*** *If a contractor uses the structural engineer's plan to pull a permit, with the knowledge of the engineer, does that engineer become the EOR? And, would it be acceptable for another engineer to monitor the work so as to provide a final construction certification?*

***Answer:*** The first question's answer is **YES**. In this case the structural engineer would be the engineer of record provided that engineer was in responsible charge for the preparation, signing, dating, sealing and issuing of plan. **F.A.C. 61G15-30.002(1) States:** ***Engineer of Record.*** *A Florida professional engineer who is in responsible charge for the preparation, signing, dating, sealing and issuing of any engineering document(s) for any engineering service or creative work.*

The answer to the second question is also **YES**. In this case the second engineer would be allowed to monitor the work so as to provide a final construction certification therein becoming the prime professional. **F.A.C. 61G15-30.002(2) States:** ***Prime Professional.*** *A Florida professional engineer or a duly qualified engineering corporation or partnership, who is engaged by the client to provide any planning, design, coordination, arrangement and permitting for the project and for construction observations in connection with any engineering project, service or creative work.*

**FBC 107.4 States:** ***Amended Construction Documents.*** *Work shall be installed in accordance with the approved construction documents, and any changes made during construction that are not in compliance with the approved construction documents shall be resubmitted for approval as an amended set of construction documents.*

**F.A.C. 61G15-30.002(9) States:** ***Record Documents.*** *Documents that are a compiled representation of the constructed project. If the engineer is relying on information provided by others not under the direct supervision and control of the engineer, then the engineer shall not be required to sign, date and seal these Documents. If relying on information by others, at a minimum, the following shall be included on the Documents: (a) Statement that the documents are a compiled representation of the constructed project. (b) Listing of the sources and basis of information used in the preparation of the Documents. (c) Statement that the Documents are believed to be correct to the best of the engineer's knowledge, and that the accuracy of the information cannot be guaranteed.*

**Note:** A prime professional cannot make any changes or allow any deviations from the EOR's permitted plan. All requests for changes and any deviations require authorization by the EOR. In addition, if the prime professional is relying on information by others while compiling his/her record documents then specific information must also be included.

***Question:*** *If a contractor uses the geotechnical engineer's report to pull a permit, with the knowledge of the engineer, does that engineer become the EOR? And, would it be acceptable for another engineer to monitor the work so as to provide a final construction certification?*

***Answer:*** **YES** to the first question. In this case the geotechnical engineer would be the engineer of record provided that engineer was in responsible charge for the preparation, signing, dating, sealing and issuing of the report. The basis for this would be the same as it was for the structural engineer.

The answer to the second question is also **YES** with a qualification. The relevant facts indicated that the geotechnical engineer's grouting plan was anticipated to require field modification and adjustment based on as-encountered conditions given the variability of the soils. Therefore, the qualification is that in this case the EOR would be required to participate in and direct the implementation of his/her plan throughout the construction process. A second engineer would be allowed to monitor the work so as to provide a final construction certification therein becoming the prime professional if desired by the client. The need for the EOR to remain involved with the project derives from the prohibition against prime professionals (who were not the EOR) from making any changes or allowing any deviations from the permitted plan.

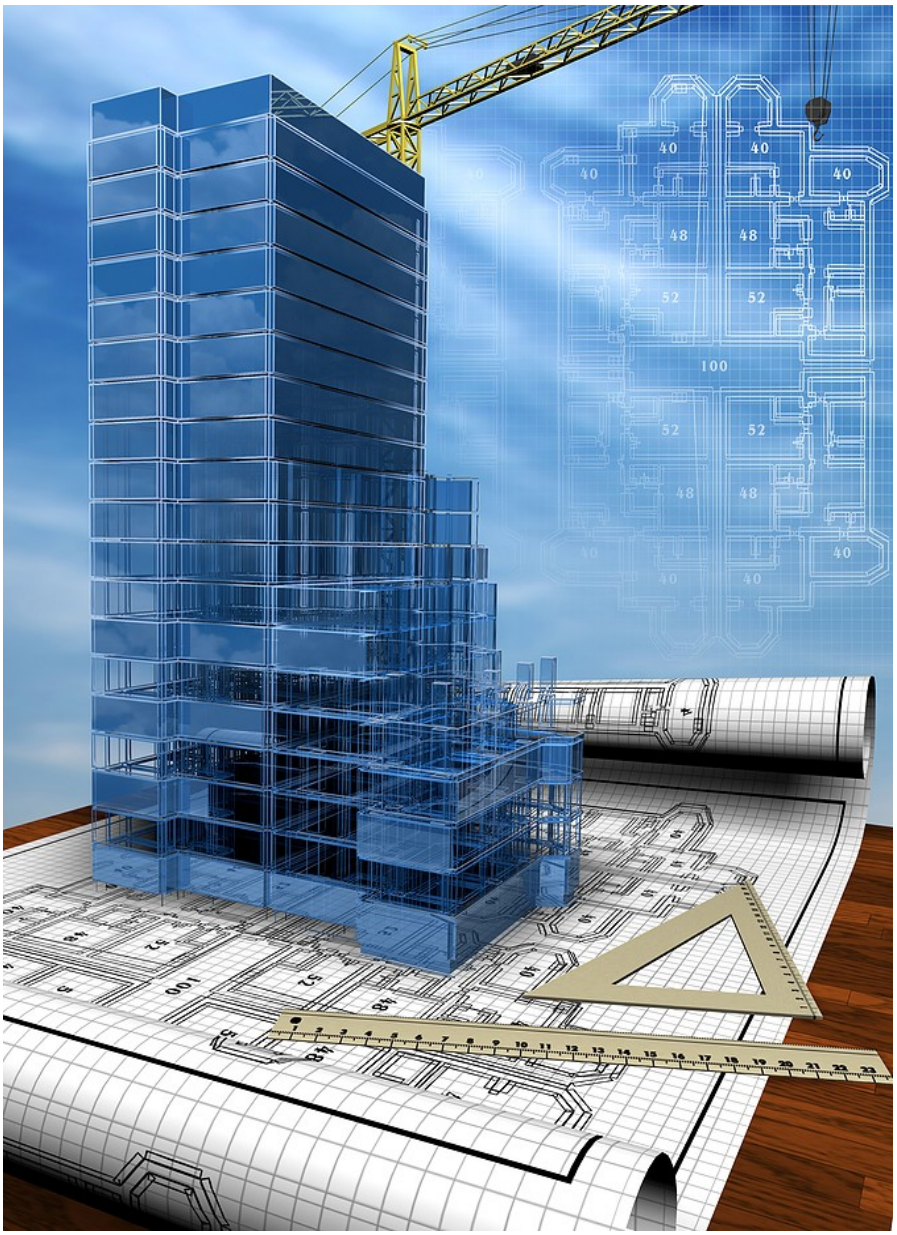
**Alternatively**, if the desire of the client is to have only one engineer involved in the construction of the project then **the answer to the second question would be, NO**. By merely using the first engineer's report for permitting and having a second engineer take over for construction then in this case the second engineer would be required to become a successor engineer, prepare his/her own recommendations or plans and then have those documents submitted for permit. As a successor engineer, the second engineer could then become the EOR so as to allow field modifications and direct adjustments based on as-encountered conditions. The second engineer could also serve as the prime professional and issue the construction certification upon completion.

**F.A.C. 61G15-27.001(1)** states: *A successor professional engineer seeking to reuse already sealed contract documents under the successor professional engineer's seal must be able to document and produce upon request evidence that he has in fact recreated all the work done by the original professional engineer.* It then continues with: *A successor professional engineer must use his own title block, seal and signature and must remove the title block, seal and signature of the original professional engineer before reusing any sealed contract documents.*

For more information or to review the referenced standards, **F.S. 471** and **F.A.C. 61G15**, select *Statutes and Rules* under the *Legal* section of our website at ***www.fbpe.org***.

*This article was submitted by FBPE Board Vice Chair* ***William C. Bracken, P.E., S.I., CFM****. Mr. Bracken is the President and Principal Engineer for Bracken Engineering located in Tampa, Florida. He is a licensed Special Inspector and Professional Engineer in the State of Florida. Mr. Bracken is currently serving his first term as Vice Chair of the Florida Board of Professional Engineers.*

# The Pressing Need for Structural Licensing in Florida



*Submitted by:*
*The Florida Structural Engineers Association*

The Florida Structural Engineers Association (FSEA) is proposing legislation to establish SE licensure in Florida. The goal in establishing separate licensure is to "raise the bar" so as to better protect the public and improve the quality of structural engineering work throughout Florida. The following article was adapted from the "White-Paper on Separate Licensing of Structural Engineers in Florida" prepared by the Florida Structural Engineers Association's (FSEA) Licensing Committee and was submitted to the FBPE by the FSEA.

## *Background*

Prior to the year 2000, the criteria for the design of buildings and structures in Florida were largely established by local ordinances and laws, and referred to generally accepted national codes that often contained very few pages dedicated to structural design. The current (2010) Florida Building Code includes over 230 pages related to structural strength, reliability and durability, with more than 4,000 pages in reference standards for loads and material design.

Each new generation of engineering methods and analysis techniques brings with it corresponding increases in complexity and sophistication. Prior to the 1960s, structural codes generally specified a safety factor selected by the judgment of the code writers. However, with more detailed understanding of how structures react to real conditions, structural codes are now based on probabilistic analysis. While this leads to more efficient use of materials and reduced construction costs, it requires a higher level of understanding, knowledge, training and experience to implement properly.

Recognizing this, the National Council of Examiners for Engineering and Surveying (NCEES) has eliminated its separate 8-hour Structural I and II examinations in favor of a single, more comprehensive 16-hour examination. The areas tested are quite extensive, going far beyond what is typically encountered by those who only occasionally practice structural engineering. Nevertheless, passing this 16-hour Structural exam is not currently required to get a Professional Engineer (PE) license and practice structural engineering in the State of Florida.

Florida licenses individuals as PEs upon successful completion of an 8-hour examination in the Principles and Practice in a field of engineering of the examinee's choosing. For structural engineers, this currently would be the civil engineering exam with a

*(Continued on page 13)*

(Continued from page 12)

structural emphasis in the four-hour afternoon portion of the exam. Upon licensure, the engineer may practice in any area of engineering in which he or she has sufficient training and experience - as determined by the licensee. This leads to a 'reactive' environment that subjects the licensee to discipline after an event has occurred that brings his or her competence into question. For engineers practicing in the field of structures, that triggering event can lead to injury or death.

Not all structural engineering errors end in a catastrophic failure; many result simply in complaints to the Florida Board of Professional Engineers (FBPE). While all licensed PEs in Florida are subject to complaints and/or disciplinary action by the Board, the FBPE estimates that 40% to 50% of the complaints they investigate in any given year are related to structural engineering, structural design, or structural inspections. The next largest category was investigations related to unlicensed activity (30%).

The alternative to the 'reactive' disciplinary system currently in place is a 'proactive' environment that better prevents unqualified individuals from practicing structural engineering in the first place.

## *Structural Licensing*

Discipline-specific licensing of structural engineers goes back almost 100 years in the United States. The State of Illinois was the first to enact such a measure in 1915. In November 2000, the three major national structural engineering organizations - the Council of American Structural Engineers (CASE), the National Council of Structural Engineers Associations (NCSEA), and the Structural Engineering Institute (SEI) of the American Society of Civil Engineers (ASCE) - held a National Summit on Separate Licensing of Structural Engineers. The attendees concluded that the field of structural engineering is changing rapidly, and that the structures designed by SEs are important and often critical. Therefore, those practicing structural engineering should have appropriate credentials, stay current in the field, and demonstrate sound judgment that comes only with experience. As a result, all three of these organizations have now endorsed structural licensing.

Currently, ten states and one territory have some form of SE licensing in place: California, Guam, Hawaii, Idaho, Illinois, Nebraska, Nevada, New Mexico, Oregon, Utah, and Washington. The requirements vary between states as to the amount and type of experience required beyond normal PE licensing, the examinations that must be passed to obtain licensure, and the type of licensure. At least seven other states outside of Florida are also working on SE licensing initiatives.

The type of structures required to be designed by SEs also vary from state to state ranging from "all" structures to those based upon design criteria factors such as height, area, occupancy category, span (for bridges) and number of occupants.

(Continued on page 14)

**Harbour Cay Condominium**
**Cocoa Beach, Florida**

The Harbour Cay Condominium, a five-story flat-plate reinforced concrete building under construction, collapsed shortly after 3:00 pm on March 27, 1981, killing 11 workers and injuring another 23. The collapse occurred during placement of the roof slab. The most probable cause of collapse was a combination of design and construction errors: the design did not even consider the possibility of punching shear failure.

**Turner Agri-Civic Center**
**Arcadia, Florida**

Built in 2002 and certified by the Architect of Record that it was designed for 140 mph winds, the Turner Agri-Civic Center was used as a hurricane shelter for the Hurricane Charley event of August 13, 2004. Approximately 1,400 people were housed in the facility as the storm approached. One FEMA report indicated that clips holding the roof panels to the steel supports failed resulting in portions of the roof blowing off before partially collapsing the end wall of this pre-engineered metal building.

**Berkman Plaza II Parking Garage**
**Jacksonville, Florida**

Jacksonville-based A.A. Pittman & Sons Concrete Co. had been pouring the top level of a six-story, post-tensioned concrete garage for about four hours when it collapsed at about 6 a.m. on December 6, 2007. Jacksonville Fire and Rescue Department responders found 60% of the structure collapsed, resulting in the death of one construction worker and injuries to 23 others. The Occupational Safety and Health Administration (OSHA) concluded that while the collapse was due to errors made by those on the design, construction, and inspection teams, the structural design had numerous deficiencies including one column that "was barely able to support the dead loads (of the structure)."

*(Continued from page 13)*

Reasons why FSEA believes that SE licensing for structural engineers should be pursued in Florida include:

1. Protecting the safety, health, and welfare of the public – an engineer's highest obligation. The practice of structural engineering has become extremely complex, and only those fully qualified by appropriate education, experience, examination and licensure should be authorized to design structures. The new 16 -hour SE exam is a more comprehensive tool for fully testing that ability, especially when it comes to complex and essential structures.

2. Reducing the number of unqualified engineers who design structures that require complicated analysis. We will never be able to stop the unscrupulous - those who knowingly and willingly practice outside their area of expertise. What we can do is help ensure that those licensed to practice structural engineering have the knowledge and understanding to translate academic theory into practice.

3. Improving the structural design of more complex, sophisticated structures. More often than ever before, SEs are being asked to span extreme distances, provide difficult load transfers, and appear to defy the laws of physics.

4. Improving structural performance under extreme load conditions. Not only are buildings and bridges to remain standing after being subjected to the extremes from hurricanes, earthquakes, and severe storms, often they are required to remain serviceable. Many must protect against disproportionate or progressive collapse and blast effects.

## *Making the Change in Florida*

FSEA is proposing that Chapter 471 of the Florida Statutes be amended to recognize the discipline of structural engineering and provide for a corresponding license. An engineer would apply for the SE license only after being licensed as a PE, and after taking and passing the NCEES 16-hour structural examination.

Only structures over a certain threshold would require a licensed SE to design them. Structures under that threshold could still be designed by a licensed PE or architect as currently permitted by law.

So as not to adversely affect PEs currently designing structures, there would be a 12-to 18- month transition period during which any Florida licensed PE who attests that he or she is competent to design structures may apply to the FBPE to obtain the SE license without taking the 16-hour Structural exam. After that transition period, licensing would follow the requirements of the law as administered by the FBPE.

## *Conclusion*

FSEA has prepared legislation and plans to submit it to the State legislature in 2014. It would introduce appropriate amendments to FS 471 to establish licensing of SEs. It is the mission not only of structural engineers, but of all engineers to hold paramount the safety, health and welfare of the public in the State of Florida.

## *Author & Acknowledgements*

FSEA
FLORIDA STRUCTURAL ENGINEERS ASSOCIATION

***Scott D. Martin, P.E.*** is a senior associate at Walter P Moore in Tampa, FL and current President of the Florida Structural Engineers Association (FSEA). For more information regarding SE licensure in Florida, visit ***www.flsea.com/se-licensure/*** or contact FSEA at ***fseadirector@flsea.com***.

## *Image Credits—Used with Permission*

- "Partial collapse of Turner Agri-Civic Center" Image from FEMA 488: Hurricane Charley in Florida - Mitigation Assessment Team Report (FL DCA)
- "Collapse of Berkman Plaza Parking Garage" Image by Tom Grogan, P.E.

---

# Wind Mitigation Inspections
## THE FBPE'S DETERMINATION

*by: William C. Bracken, P.E., S.I., CFM*

**Recently the Florida Board of Professional Engineers (FBPE) was asked to provide a clarification regarding the question: *"Does the performance of Citizens Insurance's Wind Mitigation inspections constitute the practice of engineering?"* This article contains the pertinent excerpts from its response and offers them here as guidance to those whose practice includes the performance of wind mitigation inspections or similar types of inspections.**

In response to the request for clarification, the FBPE reviewed Citizens Insurance's ***Uniform Mitigation Verification Inspection Form*** **(OIR-B1-1802 Rev. 01/12)**. Its review was conducted with respect to the statutory authority of the entities authorized to perform these inspections and what type of service is required to complete and issue the form. Based on its review the FBPE offered the following.

### *Inspecting Entities' Authority*

The Board's review noted that the following entities were listed as authorized to perform the inspection and then complete and issue the form: Licensed Home Inspectors, Certified Building Code Inspectors, Licensed General Contractors, Licensed Building Contractors, Licensed Residential Contractors, Licensed Professional Engineers, Registered Architects and "*any other individual or entity recognized by the insurer as possessing the necessary qualifications to properly complete a uniform mitigation verification form*."

**Therefore, it was the opinion of the FBPE that among the list of entities authorized by Citizens Insurance to complete and issue the *Uniform Mitigation Verification Inspection Form* none are permitted by sole virtue of their respective licenses (with the exception of a properly licensed professional engineer) to practice engineering in the State of Florida.**

### *Services Required*

The Board's review noted that Citizens Insurance defines the scope and objective of this form as: "*These forms are used to document the existence of roof, wall and opening-protection mitigation features.*" This review also noted that while the ***Uniform Mitigation Verification Inspection Form*** does appear to require the authorized entity to have an advanced knowledge of building construction, the form does not appear to require the authorized entity to possess engineering education, training, and experience in the application of special knowledge of the mathematical, physical, and engineering sciences.

**Therefore, it was the opinion of the FBPE that the *Uniform Mitigation Verification Inspection Form* does not appear to require the authorized entity to provide any services unique to the practice of engineering. As such, it is the opinion of the FBPE that the type of service required to complete and issue the *Uniform Mitigation Verification Inspection Form* does not in and of itself appear to constitute the practice of engineering.**

### *Providing Engineering*

The challenge to licensed engineers is when they are acting in an "engineering capacity" and are required to produce a deliverable to be filed for public record. When an engineer serving as an engineer or in an engineering capacity produces a

*(Continued on page 17)*

(Continued from page 7)

judgments, decisions and practices incorporated into structures, machines, products, processes and devices, "plan stamping" takes on a far more sinister tone. As with the first example, this ethical issue became a licensure issue.

The bottom line is that engineers have a fiduciary duty not only to their clients but also to the public at large. An engineer's work may have an effect on the health, safety, and welfare of the general public. On occasion, balancing the interests of the client and the public can be tricky. An engineer's testimony or report can be untruthful, deceptive, or misleading intentionally, or by omitting relevant and pertinent information. If that happens in the context of a permitting decision, public repercussions are possible. The golden rule is to conduct all your affairs with integrity and honor, and to approve and seal only those documents that conform to acceptable engineering standards and safeguard the life, health, property and welfare of the public.

## *Author & Acknowledgements*

***Edwin A. Bayo, Esq.*** has worked in various capacities for the Florida Office of the Attorney General including Tax Litigation, Administrative Law, Cabinet Affairs and Inspector General. His primary area of practice while in government involved providing advice and representation to regulatory boards under the umbrella of the Department of Health and the Department of Business and Professional Regulation. His current practice at Grossman, Furlow & Bayo includes the representation of professional licensees, regulated entities and interested parties before regulatory agencies, Florida Courts and the Division of Administrative Hearings. He is a frequent speaker before local, state, and national professional organizations on licensure and regulatory issues and has published several articles on these topics.

FOUNDED 1916 Florida Engineering Society

For more information about the Florida Engineering Society (FES) and how to become a member visit their website at *www.fleng.org*.

***The Florida Engineering Society (FES) has been the statewide society of Professional Engineers since 1916 from all disciplines, that promotes the ethical and competent practice of engineering, advocates licensure, and enhances the image of its members. FES serves over 3,500 members.***

## SAVE THE DATE!

**FES/FICE 97th Annual Summer Conference & Expo**

July 31 - August 2, 2013
Palm Beach, Florida

More details on this event can be found on page 28 of this newsletter or at *FES Annual Conference*.

# ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS 2013 Report Card for America's Infrastructure

On March 18, 2013, The American Society of Civil Engineers (ASCE) released its Report Card for America's Infrastructure. Produced every four years, this release follows last October's submission of the individual state report cards. In the January 2013 issue of FBPE's *Connection*, we included information on Florida's 2012 Report Card and our current grades based on the different individual infrastructures. You can now view the national report card as well as each individual state's report from their website at *www.infrastructurereportcard.org/*. In addition to the detailed card you can also access news, charts/figures, photos and videos.


ASCE's goal is to protect the health, safety, and welfare of the public, and as such, they are equally committed to improving the nation's public infrastructure. To achieve that goal, the Report Card depicts the condition and performance of the nation's infrastructure in the familiar form of a school report card—assigning letter grades that are based on physical condition and needed fiscal investments for improvement. An Advisory Council of ASCE members assigns the grades according to the following eight criteria in each of the 16 categories: capacity, condition, funding, future need, operation and maintenance, public safety, resilience and innovation. The 16 grades are averaged to create a grade point average (GPA) for U.S. infrastructure overall. Each category uses the same criteria for grading, which accounts for the positive improvement and negative decline of the category grades and overall GPA.

The Grading Scale is as follows:

**A - EXCEPTIONAL: FIT FOR THE FUTURE**
**B - GOOD: ADEQUATE FOR NOW**
**C - MEDIOCRE: REQUIRES ATTENTION**
**D - POOR: AT RISK**
**F - FAILING/CRITICAL: UNFIT FOR PURPOSE**

ASCE reports that America's Infrastructure GPA is currently a **D+**. To view all of the categories and their detailed information that comprise the overall grade please refer to their website. Florida's overall grade was a **C–** and its full report can be viewed or downloaded by going to *www.infrastructurereportcard.org/a/#p/state-facts/florida* or selecting the image below.

*(Continued from page 15)*

deliverable to be filed for public record, as in the case of the ***Uniform Mitigation Verification Inspection Form***, then that engineer will be required to sign, date and seal the form in accordance with **F.A.C. 61G15-23.002**.

> ***61G15-23.002 Seal, Signature and Date Shall Be Affixed.***
>
> *(1) A professional engineer shall sign by hand the licensee's handwritten signature (facsimiles are not acceptable) and affix the licensee's seal:*
> *(a) To all final drawings, specifications, plans, reports, or documents prepared or issued by the licensee and being filed for public record; and*
> *(b) To all final documents provided to the owner or the owner's representative;*

Then, by signing, dating and sealing the form all of the applicable practice requirements found within **Florida Statutes 471** and **Florida Administrative Code 61G15** come into play and must be satisfied.

**Therefore, it was the opinion of the FBPE that when an engineer serving as an engineer or in an engineering capacity produces a deliverable to be filed for public record, as in the case of the *Uniform Mitigation Verification Inspection Form,* then that engineer will be required to sign, date and seal the form in accordance with F.A.C. 61G15-23.002. Further, it is the opinion of the FBPE that the same engineer will also be required to comply with any other applicable engineering practice requirements found in Florida Statutes 471 and Florida Administrative Code 61G15.**

So in summary, while performing the inspection does not in and of itself constitute the practice of engineering, because the engineer is acting in the capacity of an engineer and is required to produce a deliverable to be filed for public record, that engineer is required to comply with all of the applicable practice requirements found within **Florida Statutes 471** and **Florida Administrative Code 61G15**.

Please refer to our website at ***www.fbpe.org*** for access to all of the statutes and rules that apply to the practice of engineering.

---

*This article was submitted by FBPE Board Vice Chair **William C. Bracken, P.E., S.I.,CFM**.*

*Mr. Bracken is the President and Principal Engineer for Bracken Engineering located in Tampa, Florida. He is a licensed Special Inspector and Professional Engineer in the State of Florida. Mr. Bracken is currently serving his first term as Vice Chair of the Florida Board of Professional Engineers.*

# Mark Your Calendar!

## April 2013

| | |
|---|---|
| 4-6 | NCEES Southern Zone Meeting |
| 10 | FEMC Board Meeting |
| 10-11 | FBPE Board Meeting |
| 12-13 | NCEES PE & FE Exams |

## May 2013

| | |
|---|---|
| 3 | FEMC Board Ops Conference Call |
| 14 | Application Review & PCP Meeting |
| 19-23 | BOAF 61st Annual Conference & Trade Expo |
| 23 | FEMC Conference Call |
| 24 | Ratification Conference Call |
| 27 | FBPE Office Closed-Memorial Day |

## June 2013

| | |
|---|---|
| 7 | FEMC Board Ops Conference Call |
| 12 | FEMC Board Meeting |
| 12-13 | FBPE Board Meeting |

## July 2013

| | |
|---|---|
| 4 | FBPE Office Closed - Independence Day |
| 16 | Application Review & PCP Meeting |
| 17 | Rules Committee Meeting |
| 19 | FEMC Board Ops Conference Call |
| 31 | FES/FICE 97th Annual Conference & Expo |

*Board meetings and other scheduled activities can also be found on our calendar located on the Home page of www.fbpe.org.*

NEWS

Licensure Department

# FE Computer Based Testing
# Is Just Around the Corner!!

Several dynamic changes in the licensing examination administration are occurring as this edition of FBPE's *Connection* is finalized and brought to press. The principles and practice exam administration remains unchanged while, beginning January 2014, the fundamentals of engineering exam will undergo major changes.

Beginning in 2014, the fundamentals examination will move to Computer Based Testing (CBT) and be offered through NCEES four (4) times per calendar year, in two month cycles or "windows." This opens up more opportunities to schedule the exam at a time and location more convenient to the examinee. This also allows for quicker grade notification and reapplication for further attempts. The four (4) exam windows will consist of two (2) month periods spaced throughout the year with one (1) month off between each. The exam windows are: January and February; April and May; July and August; October and November. Any FE exam applications received after **May 17, 2013**, will be reviewed and approved by FBPE for the CBT examination process beginning in January 2014.

Application to the Florida Board of Professional Engineers (FBPE) is still **REQUIRED** for approval to sit for initial attempts and for any additional attempts of the fundamentals exam before registering with the NCEES. Whereas some states will allow for direct registration with NCEES to sit for the FE exam, Florida will maintain its requirement until further notice. The Florida Board application fee for the fundamental exam remains unchanged at $30. However, the exam administration fee paid directly to the NCEES will increase to $250 for the CBT fundamentals exam and for each subsequent attempt of the exam. The increase for the CBT exam fee covers the hourly rate that Pearson VUE charges for each seat at a test center as well as the NCEES costs for exam development, scoring and candidate processing. Applications for the FE exam will now be accepted year round, and the ability to register for an exam will depend on completing the application with all the required information and being approved by the Florida Board. Once approved by the Florida Board, a candidate can choose a date and location within the approved exam window at a testing center that has available seats. An applicant will have the opportunity under the new CBT format to potentially sit for an exam a maximum of three (3) times in a one-year period from the date of the first on-line attempt.

PEARSON VUE AUTHORIZED TEST CENTER

The exam administration locations will consist of NCEES approved Pearson VUE testing centers. There are many centers located in Florida and around the country. To access a map of Pearson VUE's professional centers go to NCEES' website at ***http://cbt.ncees.org/where-will-i-take-my-exam/***. Once the application is approved, the candidate may register for any available day with the most convenient Pearson VUE testing center location within the testing window. The candidate may choose a location in Florida or an approved Pearson VUE testing center location outside of Florida. The exam taker is not restricted to a location or state and may schedule an exam during the approved window that best suits their needs. Please note that Pearson VUE testing centers administer other types of examinations besides the FE exam. Scheduling an exam within a window will depend on available seats at the chosen location on the date desired. Remember an exam time cannot be scheduled at any Pearson VUE location without having the FBPE application approved and the NCEES registration completed and paid.

The CBT version of the FE exam will change from an eight (8) hour exam to a six (6) hour exam and will



*(Continued on page 19)*

*(Continued from page 18)*

initially be multiple-choice. The computer-based FE exam will be offered as seven discipline-specific, stand-alone exams. Examinees will no longer take a common exam component as they currently do in the morning portion of the FE exam. Each of the new FE exams will contain the core engineering content relevant to that engineering discipline plus appropriate discipline-specific content. The FE exam will continue to be closed book, and reference material for the exam will be supplied electronically. Examinees will be allowed to bring and use NCEES-approved calculators to the CBT exams. As mentioned, reference materials will be provided electronically, and sample exams for the computer-based FE will be available for purchase after the October 2013 exam administration.


Also mentioned earlier, the turnaround time for test grades will be faster. Grades will be released every Friday during the exam window. Once the grades are released, the candidate will receive a grade notice directly from NCEES or can choose to contact the Board office. If the candidate obtained a failing grade, he or she can immediately submit a re-exam application to FBPE and, upon approval, re-register with NCEES to schedule an exam in the next exam window. Applicants can test one time per exam window and may attempt the exam three (3) times within one (1) year. The year is based on the date the applicant sits for the first attempt at the computer based exam. Florida Statutes allow three (3) failures on the exam before being required to take 12 college credit hours for further exam approvals.

FBPE is working to develop presentations and other materials that will provide more detailed information regarding all of the changes mentioned in this article for our website as well as the state's engineering universities and schools. A representative of the Board office is more than willing to give a presentation regarding examinations, licensure or discipline at your school or organization. You may contact Shannon McCoy at (850) 521-0500, ext. 108 to obtain more information on these efforts.

In the meantime, we will continue to provide the most up-to-date news regarding the FE CBT implementation as the information becomes available from NCEES, and we encourage going to our website at ***www.fbpe.org*** for the latest news.

FBPE
FLORIDA BOARD OF PROFESSIONAL ENGINEERS

***Click on the facebook icon to go directly to our page!***

LIKE us on facebook

# Continuing Education Provider Renewal

Current Continuing Education Providers with provider licenses will expire on **May 31, 2013**. You may renew your license online at ***www.myfloridalicense.com*** or can use the renewal forms located on our website at ***www.fbpe.org***.

If you choose to renew your license online, you will need to create an account or access an existing account. Once you have logged into your account you will find license and renewal information, fees and their breakouts, and have the ability to update your personal data, apply for additional licenses and renew. The renewal of your CE provider status does not renew the individual courses you offer. You **MUST** notify the Board that you have renewed to ensure that the courses are updated with your renewal. To do this you can contact Nancy Wilkins, Continuing Education Licensure Analyst, at (850) 521-0500, ext. 113, or at ***nwilkins@fbpe.org***.

Note that your license number is not the provider number assigned to you upon approval. Your license number is displayed on your renewal notice sent by DBPR. If you cannot locate your license number you can retrieve your license number by selecting "*Verify a License*" through ***www.myfloridalicense.com*** or contact our office at (850) 521-0500, ext. 113 for "Continuing Education."

## *Rule on Continuing Education Providers and Reporting*

Regardless of the recent rule change to **61G15-22.008, Record Keeping, F.A.C.**, wherein engineer licensees are responsible for maintaining sufficient records demonstrating completion of qualifying professional development hours for at least two licensure cycles (four (4) years), all CE providers are still required to provide completion certificates to course participants.

Rule **61G15-22.012, Florida Administrative Code**, states, in part:

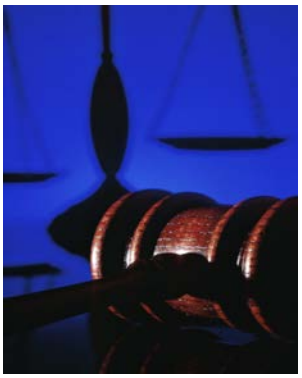
> **61G15-22.012 Obligations of Continuing Education Providers.**
> To maintain status as a continuing education provider, the provider must:
>
> (3) Furnish each participant with an individual certificate of attendance. An attendance record shall be maintained by the provider for four (4) years and shall be available for inspection by the Board and the Florida Engineers Management Corporation.

As a provider, you should be aware that you are obligated to provide certificates of completion to all course attendees and you are also required to maintain accurate records for four (4) years. Failure to comply with this rule may result in a loss of your provider license and the ability to provide continuing education courses to Florida engineers.

If you have any questions regarding the CE provider renewal process, please feel free to contact Brian Lynch, Manager of Licensure and Applications at ***blynch@fbpe.org*** or Nancy Wilkins, at ***nwilkins@fbpe.org*** or by calling FBPE's office at (850) 521-0500.

It is our intent to work with Continuing Education Providers to resolve any and all issues. This is only achieved through active communication. We thank you in advance for your cooperation!

# My Experiences Related to Violating the Section 838.016(1) Florida Statutes, Unlawful Compensation



On February 29, 2012, a Final Order was issued regarding Case No. 2011034724, for Mohammed Partovi, License No. 41143. The licensee was charged with being adjudicated guilty of a crime which directly relates to the practice of engineering or the ability to practice engineering and engaging in misconduct in the practice of engineering by being convicted of a crime directly relating to the practice of plans examination and building inspection. The order approved by the Board accepting the Settlement Stipulation imposed an appearance before the Board, a reprimand, suspension of license for two years followed by another appearance to the Board to lift the suspension. The Board reserved the right to impose additional terms and probation at that time. The licensee must also successfully complete the Advanced Professionalism and Ethics course and study guide. It was determined that the violations included 455.227(1)( c) F.S., 471.033 (1)(d) F.S., 61G15-19.001(6)(h) F.A.C. and 61G15-19.001(7)(b) F.A.C. In addition to the penalties imposed the licensee was required to submit an article regarding his experience in an effort to deter others from making the same decisions. Mr. Partovi has submitted the following letter to fulfill that requirement.

*The purpose of this article is to prevent anyone from falling into a trap and making the biggest mistake of their life. The article will show that making just one mistake could easily have devastating consequences in your life as well as your families' life and how it could easily ruin a lifetime of achievement and more over night.*

*I'll start by quoting the Florida Statutes in regards to "unlawful compensation" which states:*

> **838.016 Unlawful compensation or reward for official behavior. -**
> *(1)It is unlawful for any person to give, offer, or promise to any public servant, or, if a public servant, to request, solicit, accept, or agree to accept, any pecuniary or other benefit not authorized by law, for the past, present, or future performance, nonperformance, or violation of any act or omission which the person believes to have been, or the public servant represents as having been, either within the official discretion of the public servant, in violation of a public duty, or in performance of a public duty.*

*The above Statute is not just for Professional Engineers, it also applies to any public servant including but not limited to: Police officers, Law enforcement personnel, Local, State as well as Federal Government employee, starting from the top ranked President all the way down to inspectors and government employees.*

*I will briefly introduce the timeline sequences and some of the consequences of breaking the law will do even if it's for the first time offenders. The fact is that consequence of our action not only affects us, but it also adversely impacts the life of our families' and our loved ones as well.*

*If you violate the above Florida Statutes or any other similar statutes, you may be subject to the following real life events:*

1. *You will be arrested (if you break the law, sooner or later you will be arrested), once arrested your worst nightmare will come into reality.*
2. *You will lose your job and you will be all over the news, your life and all your dreams will stop immediately.*

*(Continued on page 21)*

*(Continued from page 20)*

3. *If you are lucky, you will be able to bail out of jail in less than a day, if not get ready to stay among the worst criminals and in the filthiest place beyond your imagination. TV shows as well as the movies does not do justice as why you don't want to be in a place like that.*
4. *By this time not only are you living your worst nightmare, your family and loved ones are also starting their own nightmare and they are fully affected due to your action i.e. facing their coworkers, friends and families, etc. as direct consequences of your actions.*
5. *Your next step will be to start looking for a defense attorney (it could easily cost you in excess of $100,000+).*
6. *Now not only have you lost your job you also have new bills to pay; like paying your defense lawyer, the court reporter for any depositions and any other expenses related to your trial will be pilling up faster than you can imagine, that is in addition to your typical monthly bills that you have to pay, all because of one mistake.*
7. *You may lose your home, your life savings as well as your kid's college funds just to pay for your trial expenses.*
8. *Every few weeks you and your defense attorney have to appear in court to provide updates to the judge about the status of your trial.*
9. *In addition to your ongoing trial, you will receive a letter from The Department of Business and Professional Regulation (DBPR) with new charges on your professional licenses.*
10. *Once you receive your letter from DBPR in reference to your professional license, you will need to hire a lawyer specialized in that field (new bills to be added to your ongoing expenses).*
11. *Your life as well as your families' life will be upside down by this time, all your dreams will be gone, your life will be so stressful beyond your imagination, you will not be able to sleep, you cannot think straight, you won't be able to function at all and you will lose most of your friends as well.*
12. *The pretrial could easily last a few years during which your life is on hold as well as you have no freedom, no job and basically no life which all adds to your ongoing stresses, and makes it extremely stressful beyond your imagination to continue living as it is, that leaves you with no choice but to accept a plea offer to put an end to your nightmare which it may include incarceration as well as probation time.*
13. *Once you have accepted the plea offer or fulfilled the requirements of your plea agreements and lived through your worst nightmare, you now have to deal with your professional license issue;*

    > **Section 471.033(1) (d), Florida Statutes**, provides that disciplinary action may be taken against a Professional Engineer for: "*being convicted or found guilty of, or entering a plea of nolo contendere to, regardless of adjudication, a crime in any jurisdiction which directly relates to the practice of engineering or the ability to practice engineering".*
    >
    > Likewise, **Section 455.227(1) (c), Florida Statutes**, provides that disciplinary action can be taken against a Professional Engineer for: *"being convicted or found guilty of, or entering a plea of nolo contendere to, regardless of adjudication, a crime in any jurisdiction which relates to the practice of, or the ability to practice, a licensee's profession".*

    *Consequences of just one mistake may include any of the following in regards to your professional license: appearing before the Board as well as a fine, completion of study guide, taking Professionalism and Ethics courses, suspension of license or probation.*
14. *At this point you have had your life turned upside down and your life on hold for well over four (4) years (that is the time you will never gain back and it's lost forever); furthermore all of your achievements including your pension have been lost forever by now.*

*If you were lucky to survive your worst nightmare, your next step will be to try to put your life back together again (which will not be easy) and try to start fresh by working harder and longer than ever before knowing that you are in a major disadvantage to start with, all because of one mistake in your life that could have been avoided.*

*I pray and hope that this article will prevent anyone from making the biggest mistake of their life and will be a reminder to all professionals the consequence of unlawful compensation as well as any other similar violations of the Statute.*

*- Mohammed Partovi, P.E.*

# What is a Net-Zero Water Building?

*Submitted by: Alan Sirkin, P.E., Alumni of the UM CAE*
*Department Chair of the Industry Advisory Board*

*In an effort to continue FBPE's focus on its collegiate outreach, we are publishing the following article with the permission of the University of Miami College of Engineering—Civil and Environmental Engineering Department. We acknowledge that all of our engineering colleges and universities are making great strides in research and development and welcome the opportunity to highlight significant projects and efforts that are directly related to the engineering profession.*

Professor James Englehardt, Ph.D., P.E. is the principal investigator of a demonstration project to see if students living in an on-campus university apartment will be able to function using solely recycled wastewater without additional replenishment.

This four-year $2.5 million project at The University of Miami's College of Engineering's Civil & Environmental Engineering Department is funded by the National Science Foundation, EPA, the University of Miami and others. It is hoped that if this project proves successful, home treatment of wastewater could soon become a reality.

Miami-Dade County has experienced an explosion in development over the past 50 years. During this period, the County's wastewater infrastructure has been significantly expanded to keep up with this growth in demand. Since then, the effects of time and the high water table in Miami-Dade are causing an increasing number of pipeline breaks with millions of gallons of untreated raw sewage flowing into our inland and coastal waters. Recently, the U.S. Government and the Florida Department of Environmental Protection have filed a lawsuit alleging that the County is in violation of the Clean Water Act and has failed to maintain the sewage system adequately. They assert that these massive breaks are posing a danger to the health and safety of the public. To comply with the lawsuit, the County estimates that it will take 15 years to properly fix the system at a cost that may exceed $12 billion according to a 2012 Miami Herald article. Pipes, pumps and sewage treatment plants will need to be rebuilt and upgraded.

The regional Virginia Key Treatment Plant that was built in 1953 alone could cost $555 million or more to upgrade and elevate to meet current flood criteria at this ocean-side facility. Another $408 million would be needed to replace or repair 7,500 miles of transmission pipes that collect wastewater that is then sent to regional plants for treatment. Additionally, there are 1,035 pump stations scattered around the County that are currently deficient.

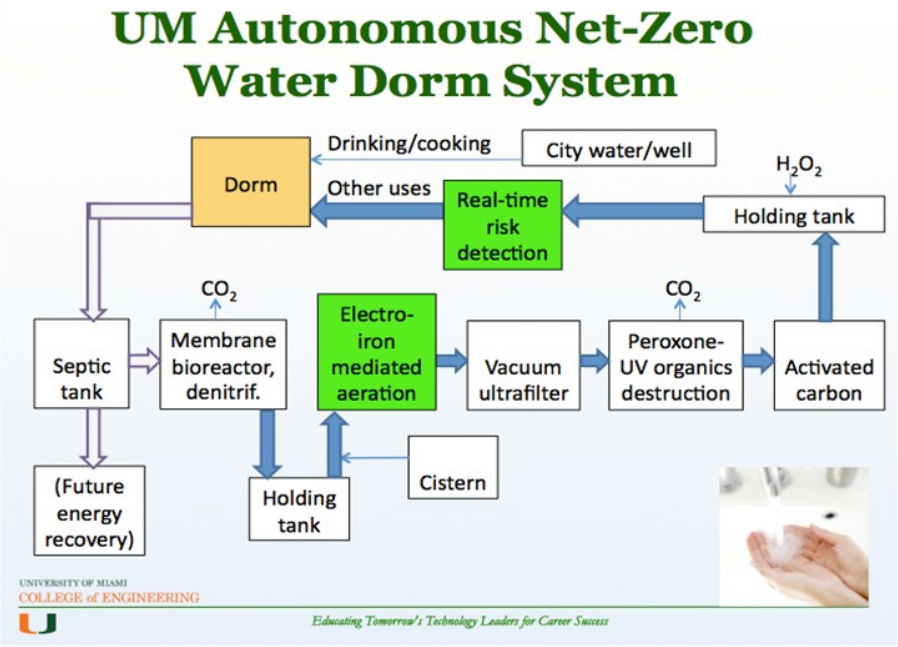

*The Net Zero Team, left to right: Raul Velarde, Sabina Rakhimbekova, Eric Antmann, Kanita Chonecadeedumraug, Lucien Gassie, Prof. James Engelhardt, P.E, Tingting Wu, Postdoctoral Associate,Guanghui Wang, Tianjiao Guo, Ph.D. student*

Professor Jim Englehardt has an alternative solution! Years ago, after extensive practical experience working with water treatment companies, he asked himself, "Why do we treat wastewater like we do?" Why is this water used only once and then discarded? Why is this discharge allowed to pollute the environment? He knew that raw sewage is actually 99.9% fresh water and that this resource was being used only one time before being released to our oceans, streams or pumped underground. He also understood that such polluted wastewater could easily be processed on site and then reused. This is what he now plans to prove.

*Continued on page 23)*

*(Continued from page 22)*

His objective is to use a process that produces nearly drinkable treated wastewater. This on site treatment would help reduce the need for the construction of costly and high energy usage desalination plants. The high cost of water conveyance through the miles of pipes using pumps would also be reduced. He believes that his proposed recycling program would save on the amount of overall electrical power used and greatly reduce the toxic effluent presently being released into our waters. Using his process, ocean outfall of the treated sewage would be diminished. Eventually, the EPA may no longer allow any disposal via ocean outfalls.



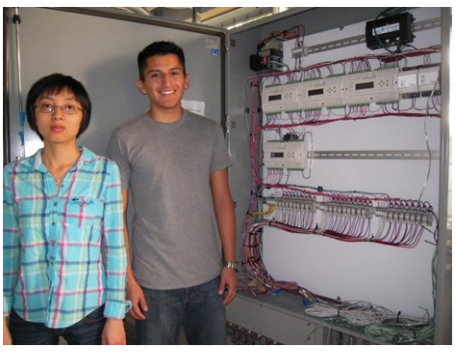

Professor Englehardt's demonstration project expects to confirm that a home based treatment process can be done at a competitive price compared to current collection and treatment practices. His Net-Zero Water treatment system first utilizes a typical underground septic tank to collect the wastewater from the apartment in order to allow the solids to settle out. But instead of then using a drain field to release the fluid untreated to the groundwater, the effluent is captured for processing onsite. The process for a home would require a treatment package slightly larger than a standard air conditioning compressor unit and utilizes several small tanks. Electric controls would be located inside the house. Please refer to the chart for details about the process.

What are the advantages of recycling? The Net-Zero Water system would lower the total overall electrical energy usage. Clean fresh water used would be reduced by 90%. Industrial and medical chemical pollutants would not impact the treated drinking water supply.

Englehardt estimates that the 15-year water and sewer upgrade plan now being proposed for Miami-Dade County would cost each housing structure $20,000 on average by the owners' paying higher water and sewer fees. Currently a new Net-Zero Water system would cost approximately $50,000 per household; however, after acceptance and approvals and with design improvements that are now under development, the cost is expected to meet existing sewer system projections while assuring many economic and environmental advantages.

In a few weeks, Professor Englehardt and his students should be able to safely drink recycled treated wastewater from this apartment. At that point, they will be ready to turn the knowledge gained over to private industrial companies so the recycle units could be built and marketed. Through production efficiencies, the Net-Zero Water system could be purchased at a reasonable price by the public.

Below are several photos of the demonstration project on the UM campus. These tanks and controls used are for industrial scale usage. For home use, these items would be 90% smaller.



*Tingting Wu & Raul Velarde at the Control Panel*

*Oversized Storage Tanks for research purposes*

*Guanghui Wang with underground collection tanks*

*(Continued on page 30)*

# STEM PREPARATION FOR THE 21st Century Workforce

*by: Jonathan F. K. Earle, Ph.D., P.E.*

***Over the past 30 years, concern has been expressed by those who employ engineers and other workers in the USA, with training and skills in technological fields, over the huge deficiency which existed in the employment market for persons with those skills. The momentum in the graduation of engineers, created by the demand for personnel with engineering and other technological skills, in response to the challenge of the "race to the moon" issued by President Kennedy in the 1960s, resulted in the peak USA graduation of some 78,000 engineers with baccalaureate degrees in 1985. Following that date, the country went into a slump in the graduation of engineers, the total number of engineering graduates falling to a low of 62,500 in the early 1990s. It was not until about 2008 that the 1985 number was exceeded, when just over 69,000 engineers graduated from US engineering schools.***

To address the deficiency in numbers, employers in the USA pursued the required engineering and technological skills wherever they could, using various techniques, including H1B Visas, enticing foreign graduates to remain in the USA, and outsourcing jobs overseas. These factors had further negative influence on the professional engineering industry in the USA, as some students avoided engineering programs.

However, while engineering schools expanded their activities with the engineering industry, the K-12 school system, governmental, and other agencies, in seeking improvement of engineering graduation rates, parallel research, investigations and explorations were being conducted in the K-16 educational system by various entities. Much of what was discovered during these investigations has been converted to active programs designed to improve and strengthen the preparatory foundation of mathematics and science in the K-12 system, through better understanding of pedagogic concepts, and their incorporation in classroom instruction and learning.

> ***"Successful completion of programs in STEM disciplines demand a solid foundation in mathematical and scientific preparation".***

As professional engineers we are aware of the general observation that "a building is only as good as its foundation." With that in mind we seek to ensure that, in our designs the appropriate foundation is provided for the proposed structure, its intended use, and the forces of nature. In pursuit of advanced studies related to science, technology, engineering, and mathematics (STEM), the analogy of the structural foundation also applies. Successful completion of programs in STEM disciplines demand a solid foundation in mathematical and scientific preparation.

In an effort to address the demand for a 21st century-equipped workforce several corporations, foundations, educational institutions, organizations and a wide range of groups have made commitments to the solution of this problem. These commitments take different forms, from research and teacher training in hands-on curriculum delivery, to construction of engineering and technology laboratory instructional modules. These activities are designed to demonstrate to students the connection of math and science with our lives and daily activities.

Reviewing some of the studies indicates that this foundation-development activity starts at the pre-kindergarten to kindergarten levels, where number recognition, geometric shapes, and problem solving are among activities which could be introduced.

Activities appropriate for the elementary grades would include introduction to problem solving and measurements, building on the earlier work.

Upper level K-12 students complain about the boredom of studying math. In working with these students, middle and higher grades are challenged with projects including robotics

*(Continued on page 25)*

(Continued from page 24)

design and operation, bridge-building and testing, water bottle rocketry, and design and operation of mechanical systems such as pumps. Efforts are made to vary the engineering discipline and principles being introduced at each lab session. The important thing is that whatever activities are used in these demonstrations, there should be a great deal of fun, while the students are learning their basic math and science applications.

At the college level, an increase in graduation rates is being observed. One contributor to this is the increased mentoring being provided for students by academic institutions and other groups. This is one area in which our professional engineers can assist in the building and improvement of the profession. The members of your discipline Student Chapter at the nearest post-secondary institution will be delighted to have you on board as a mentor or advisor.

Data indicates that the attention being given to this challenging subject of STEM preparation to produce the workforce of the 21st century is having an effect. However, let us not relax, there is still a long way to go.

## *Author & Acknowledgements*

***Jonathan F.K. Earle, Ph.D., P.E.***, is Emeritus Associate Dean & Faculty, at the University of Florida College of Engineering, a licensed professional engineer in the State of Florida and also a former FBPE Board member.

Dr. Earle has had extensive design, management, and leadership experience, both in the engineering industry and in academia. His professional interests are in the areas of Engineering Education and Administration, Environmental Pollution Control, and Water Resources Management. He has consulted internationally on a variety of engineering projects for the United States Agency for International Development (USAID) and currently serves as Vice–Chair of the Accreditation Council, of the Greater Caribbean Regional Engineering Accreditation System (GCREAS). His teaching and research interests have been in the areas of engineering education, water resources management, bio-processing for waste management and bio-fuels production.

As an educator, Dr. Earle has focused on development of student potential in a diverse student body, and the establishment of a diverse engineering workforce. He has been instrumental in the design and implementation of programs which target students at the K–12, post-secondary, and graduate levels. These include Engineering GatorTRAX, Gator Engineering Outreach Program, STEPUP, Engineering Freshman Transition Program (EFTP), Transfer Student Transition Program (TSTP), special programs for incoming African American and Hispanic/Latino students respectively, and the Multicultural Roundtable for graduate students at UF. These have contributed to improvement in the preparation, performance, and graduation rates of participating students. At the national level, Dr. Earle has been a proposal reviewer for the National Science Foundation (NSF), and is currently serving a second consecutive 4-year term as a member of the Executive Council of Tau Beta Pi, the Engineering Honor Society, founded in 1885, where he leads the MindSET program, a National K-12 Math & Science Initiative.

Dr. Earle has been a recognized advisor, mentor and role model for students and faculty, not only in the College of Engineering, but throughout and beyond the boundaries of the University of Florida.

# Information Accuracy... Depends on You

With the 2013 renewal having come to a close it is evident that FBPE needs to remind licensees the importance of keeping your vital information accurate on your licensure record.

It is the responsibility of the licensee or certificate holder to notify the Board of any change of vital information previously submitted, such as a name or address change, change of employer, or change of PE in responsible charge for a firm.

This information should be provided **within 30 days** of when the change occurs to ensure proper delivery of licensure correspondence and uninterrupted Board service. We also encourage licensees to provide the most current email address as we routinely provide special notices, information and the quarterly newsletter electronically.

To submit your changes you can simply complete the interactive form located at the bottom of the *Other Forms* page located under the *Licensure* section at ***http://fbpe.org/licensure/other-forms*** or email the new information to ***board@fbpe.org***.

For those individuals requesting to change their name and obtain a new copy of your license, **YOU MUST SUBMIT** new photo identification and a copy of a marriage certificate or divorce decree along with the appropriate order form and the $25.00 fee. The order form can be downloaded from our website under *"Order Form for Duplicate Licenses and Certificates"* at ***http://fbpe.org/licensure/other-forms***.

Additional forms can be located on this page such as requests to change license status, verification of licensure and delinquent renewal forms. If you have any questions feel free to contact the Board's office at (850) 521-0500.

# OCTOBER 2013 Exam Application Deadline

Just a reminder that applications for the October 2013 FE and PE exams are due to FBPE no later than **May 17, 2013**. Please note that this will be the last time the FE exam will be offered as a paper test.

Beginning in January 2014, the FE exam will be offered as a computer based test only. For more detailed information about the new process for the fundamentals examination please refer to our article in this newsletter on page 18, *Licensure Department News*.

# Outreach

## COLLEGIATE

In the last year, FBPE has made considerable progress in getting involved with Florida's engineering colleges and universities. Interaction that was previously limited to assistance with applicants for the FE exam, now includes attendance and participation at career fairs and expositions; promoting and highlighting significant achievements and events in our publications and website; and working with faculty and students to assist in a smoother transition to the FE CBT exam process. Members of FBPE participated in several meetings and events held during and after National E-week in an effort to increase our visibility, demonstrate our support of engineering schools and their efforts in encouraging STEM with K-12 students, and promoting attainment of professional licensure here in Florida. Zana Raybon, FBPE Executive Director, Brian Lynch, Manager of Applications and Licensure, and Shannon McCoy, Communications, Website and Publications Coordinator, visited Embry Riddle, UCF, FIU and USF and were involved with the 2013 *ASCE Southeast Student Conference*. Additional visits to UWF, UF, UNF and others are in the process of being scheduled. It is FBPE's intent to continue fostering these relationships and provide any assistance regarding engineer licensure.

In this section we have highlighted some of our recent event participation but encourage going to the *Your FBPE* section of the website for more details and pictures of these activities. Please note that if you are interested in highlighting a significant school achievement or project, would like to schedule a meeting regarding the FE CBT implementation or notify us of an upcoming event please contact Shannon McCoy at ***smccoy@fbpe.org***.

---

FLORIDA A&M UNIVERSITY - FLORIDA STATE UNIVERSITY
COLLEGE OF ENGINEERING

# Spring 2013 Engineering Day


The Florida Agricultural and Mechanical University (FAMU) and Florida State University (FSU) College of Engineering hosted its 3rd *Engineering Day* on Tuesday, January 29, 2013, on campus in Tallahassee, Florida. Engineering Day is a career exposition for students to meet employers and search for full-time, co-op and internship opportunities in the engineering field with companies, non-profit and government agencies.

This event draws many companies offering engineering and industry related services within the areas of Aerospace/Defense, Energy, Transportation, Utilities, Construction, land planning, urban redevelopment, computer hardware and software, electronics and water resources. FBPE attended this event for the second time continuing its efforts to educate graduates and undergraduates on the Fundamentals of Engineering (FE) Exam application process and its requirements. The FE exam is typically the first step in the process to obtaining a Professional Engineer license and will be available in 2014 in computer based testing (CBT) format only.

***To view more pictures from this event go to our website at www.fbpe.org. The Fall Engineering Day is tentatively scheduled for September 24, 2013, and more information will be available for this event soon. To view information related to the spring event and read about how to become a vendor or sponsor to their website at www.career.fsu.edu/expos/engineering/.***

# FIU 2013 Engineering Expo

FBPE attended FIU CEC's *12th Annual Engineering Expo*, on Friday, February 22, 2013 in Miami, Florida. Some 1,700 area students attended this year's Expo, sponsored by Miami-based AAR Landing Gear Services. Students from all over South Florida flocked to The Engineering Center of FIU's College of Engineering and Computing (CEC) for demonstrations and hands-on displays of STEM (Science, Technology, Engineering and Math) concepts and principles. The engineering expo is an exciting and dynamic educational experience to engage and expose FIU CEC's local schools and colleges to the wonders of science and engineering.

The event provides interactive contact to science and engineering for local public K-12 school students as to encourage them to consider a career in the engineering and science professions, where minorities are under-represented. The expo enhances the professional and inter-personal development skills of participants. It also provides an opportunity for students and faculty of the college to work together as a cohesive team to benefit the community. To view a short video about this year's event go to their website at ***http://www.cec.fiu.edu/2013/02/engineering-expo-2013/***.

This year's guest speaker was Pastor Lopez, Vice President and General Manager of AAR Landing Gear Services, a division of AAR Corporation. Other speakers include FIU President Mark B. Rosenberg and College of Engineering & Computing Dean Amir Mirmiran.

Activities throughout the day consisted of: a LEGOS competition; paper plane building competition; candy structures contest; remote control cars; NASA Nano-Satellite Rocket Team; water rockets and an Aviation Flight Simulator.

If you are interested in attending, sponsoring or volunteering at the ***FIU CEC Engineering Expo 2014***, please contact Stephanie Strange at ***sstra001@fiu.edu***.

To view all the pictures for FBPE's attendance at this event, please go to ***www.fbpe.org*** and select *Events and Conferences* under *Your FBPE*.

FIU Engineering and Computing
FLORIDA INTERNATIONAL UNIVERSITY

*Florida International University's College of Engineering and Computing is South Florida's leading engineering education resource. The College offers a complete range of fully accredited engineering baccalaureate, master's and doctoral degree programs in biomedical, civil and environmental, electrical and computer, and mechanical and materials engineering; construction management; and computing and information sciences. With close to $20M of external funding, research is an integral part of the College's mission and its success. The College is committed to diversity, and is the largest producer of Hispanic engineers, and one of the top producers of African-American engineers and females with doctoral degrees in engineering.*

*The College resides at the Engineering Center (EC), a 250,000-sqft. building on 38 acres situated less than two miles from the University Park Campus, and at the Computing and Information Sciences (ECS) building located at the University Park Campus. The two facilities house world class research centers, teaching laboratories, faculty offices, study areas, computing facilities, and research laboratories. For more information on FIU CEC go to their website at* ***www.cec.fiu.edu/.***

USF UNIVERSITY OF SOUTH FLORIDA

# Engineering Expo

*At the close of National E-week USF's College of Engineering celebrated yet another successful Engineering Expo and members of FBPE's staff were there to participate and witness first-hand what a significant impact this event is having on young students and their local community. February 22-23,2013, marked the 41st year of the two-day open house event that seeks to educate K-12 students on the importance of science, technology, engineering and math (STEM) within their lives and to encourage more students to pursue careers in these fields. This event showcases the College of Engineering, its academic departments, research labs across campus, student associations and exhibits from local engineering firms.*

Engineering expo 2013

*Engineering Expo 2013 T-Shirt Designed by Competition Winner Bradley L'Herrou*

Hosting almost 20,000 visitors to the college's campus this year, the engineering expo student organizations and companies interact with over 30 different schools and student groups including Boy and Girl scout troops, both locally and within the state. The expo has grown from 9,000 students in the past few years and has proven to not only be an excellent educational opportunity, but also a meaningful way for companies and organizations to give back to students. Through demonstrations of the latest innovations in engineering and technologies, USF's different student organizations and state engineering companies provide hands-on activities that enforce the importance of STEM while increasing their visibility in the USF and Tampa Bay communities. Attendees learn numerous engineering practice and principles, and participate in demonstrations involving robotics, electricity, physics, geology and chemistry, just to name a few. In addition to the exhibits, students have a chance to observe a laser light show, magic show and electric car race. All of these activities allow students and guests to understand the importance of how science, technology, engineering and math are used in their everyday lives. For more information about last year's expo such as types of exhibits, participant lists, or picture galleries, visit USF's website at ***http://expo.eng.usf.edu/*** or go to their facebook page at ***https://www.facebook.com/usfengineeringexpo***.

An event of this magnitude is no small undertaking! Months of planning, preparation and commitment from many especially the expo staff, is required. Coordinating sponsors, schedules and space for the 75+ activities for the period of two days, food and refreshments, parking, etc. is quite a challenge not to mention costly. ***Without the dedication of the staff and sponsors*** this event would not be possible. Participating as an exhibitor is free; however sponsorship is a key benefactor in the success for this type of event. There are many levels of sponsorship in which one can help to broaden the horizon of Florida's next generation of future engineers. If you or your company would be interested in supporting or attending this annual expo send an email to ***eng-expo@eng.usf.edu***.

FBPE would like to acknowledge USF's College of Engineering, the 2013 Expo Staff, and the many student organizations for their hard work and commitment to promoting math, science and technology especially as it relates to the practice of engineering. We look forward to supporting and attending next year.

To view pictures from our attendance at this year's event go to *Your FBPE* on our website and select *Events and Conferences* or at ***www.fbpe.org***.

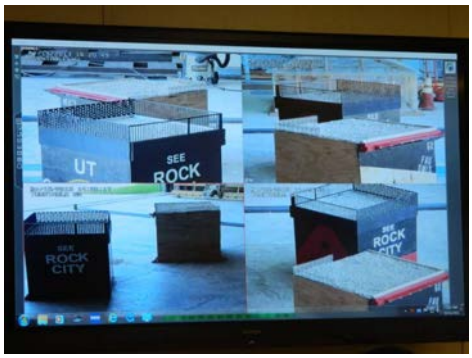
*EXPO 2013 Staff (from top left to bottom right) Michael R. Guinn, Anthony Massaro, Jason Jagosh, Gabriel Perez , Hayley Rohrer, Alexander Palmer, Jason Salm, Christine Bringes, Paulette Skowronek, Cheryl McCane, Christine Dumas, Chelsea Moyer*

USF UNIVERSITY OF SOUTH FLORIDA | College of Engineering


The *2013 Student Southeast Conference* was held in Miami, Florida March 14-16, 2013 and was co-hosted by the ASCE Student Chapters of Florida International University (FIU) and the University of Miami. Over 950 conference participants came to compete from Alabama, Georgia, Tennessee and Puerto Rico in this year's event themed, "*A Bridge to the Future*." Brian Lynch, Manager of Applications and Licensure, Shannon McCoy, Communications, Website and Publications Coordinator and Board Member Nola Garcia participated in this year's event as judges and representatives of the Florida Board of Professional Engineers.

*Board Member Nola Garcia and Sam Gonzalez Steel Bridge Competition Judges*

This annual affair is a tremendous opportunity for students to come together and participate in various, civil engineering-related competitions in many disciplines including: geotechnical, environmental, structural, surveying, transportation, and hydraulics. Unlike most conferences this event is comprised of 15 different competitions, including building a concrete canoe, a functional steel bridge display, a balsa tower, and new to this year's competition, the "Wall of Wind Mitigation Challenge." This competition was designed to familiarize students with the basics of wind hazard mitigation by making use of the hurricane simulator (known as the 12-Fan Wall of Wind) that was developed by the International Hurricane Research Center at Florida International University. The objective in this challenge was for students to design a way to reduce the impact of wind scour on a building's roof. Other competitions include concrete testing, geotechnical and environmental, engineering, hydraulics, a visual display competition and many more. With these activities, students are able to apply knowledge learned in the classroom towards real-world applications.




*Wind Engineering Competition Viewing Room*

Preparations for these competitions take a dedicated team months of planning and hundreds of hours of building and conclude with a couple of days of rigorous competition. Day one included registration, a steel bridge display, captain's meeting and career networking at the University of Miami. Day two, the longest of the conference with simultaneous competitions in steel bridge, canoe display/swamp testing, canoe presentation, professional paper, environmental, geotechnical, balsa, wind, hydraulics, concrete cylinder Part1 and plan reading occurred at both the FIU- Modesto Modique Campus (MMC) and the FIU- Engineering Center (EC)**.** Day three ended with the concrete canoe race, bocce ball challenge, surveying, visual display, concrete cylinder part2, t-shirt and a mystery competition. Tropical Park in Miami proved to be the perfect place for the day's events, while Jungle Island was the final destination for the conference's banquet and award ceremony.

FBPE applauds all of the students and schools who participated in making this year's event such a success and gives special congratulations to the **University of Puerto Rico – Mayaguez** who went home the Overall Winner of the conference followed by the **University of Florida** and **University of Central Florida**. Results from all of the competitions can be found at ***www.ascesoutheastconference2013.com/***.

*University of Puerto Rico—Mayaguez Visual Display*

We would also like to congratulate all the volunteers as well as, Dania Castillo, 2013 FIU ASCE Student Chapter Conference Chair and Zachary Seed, 2013 UM ASCE Student Chapter Conference Chair on a job well done and thank them for coordinating our participation and involvement at the business meeting and conference. Members of FBPE took advantage of time during this meeting to share information about the upcoming computer-based change to the FE exam with the ASCE student chapter representatives and faculty advisors from each of the attending schools. As with all of our recent outreach efforts, the information presented was very well received and found to be informative and appreciated. We will follow-up with all attendees once we have finalized our reference materials regarding the FE exam and continue to maintain education and promoting licensure as a top priority**.**

More photos from the event can be found on FBPE's website at ***www.fbpe.org*** or on the 2013 Student Southeast Conference page on ***www.facebook.com/ASCESoutheastStudentConference2013***.

*(Continued from page 23)*

For more information about the Net Zero Project see the project's web site, ***www6.miami.edu/netzerowaterdorm/***.

For more information about the University of Miami's College of Engineering Civil and Environmental Department, go to ***www.cae.miami.edu/***.

## *Author and Acknowledgements*

***Alan Sirkin, P.E., G.C.***, is a licensed professional engineer and general contractor in the State of Florida, and manages Sirkin Enterprises located in Miami, Florida.

Mr. Sirkin has expertise in civil engineering design, planning, permitting, environmental design, construction and construction management. With over 30 years of experience, he also serves as a construction and real estate arbitrator with the American Arbitration Association and is certified by the Supreme Court of Florida as a court appointed mediator. He is the Chair of the University of Miami College of Engineering Industry Advisory Board for Civil, Architectural and Environmental Engineering. He is a life member and Fellow of the American Society of Civil Engineering.

***Dr. James Englehardt,*** is a Professor for the Civil, Architectural, and Environmental Engineering Department at the University of Miami College of Engineering. He has led research and development of physicochemical water treatment processes, water chemistry, and predictive Bayesian risk assessment at UM, Manville Corp., and Western Filter Co., Denver, for 31 years. His group develops and applies advanced oxidation and mineral-mediated treatment processes, and predictive Bayesian risk assessment methods. His work with U.S. EPA has received national awards in the area of risk analysis and dose-response assessment. He will direct physicochemical process development and work closely with researchers and investigators to originate machine learning methods for real-time drinking water risk monitoring. With the UM Architecture group of Plater-Zyberk, he leads development of a UM Green Residential College.

## *About University of Miami CoE*

The University of Miami (UM) - College of Engineering (CoE). is located on the UM Coral Gables, Fl. campus, a 230-acre suburban tract, just minutes from downtown Miami. The college is housed in the McArthur Engineering building, a 120,000-square-foot complex with state-of-the-art laboratories and facilities, which is comprised of five departments that offer BS, MS, PhD and executive education programs in Biomedical Engineering; Civil, Architectural and Environmental Engineering; Electrical and Computer Engineering; Mechanical and Aerospace Engineering; and Industrial Engineering. Accredited by the Southern Association of Colleges and Schools (SACS), UM has 12 academic units. Founded in 1947, the College of Engineering is recognized for the quality and diversity of its faculty, students and curricula and noted for educating tomorrow's technology leaders for career success.


FBPE will be attending the FES/FICE 97th *Annual Summer Conference and Exposition*, July 31 - August 2, 2013, in Palm Beach, Florida. Each year FES/FICE's conference offers its members a number of educational sessions regarding industry related topics and exhibits, a Florida Laws and Rules seminar, member meetings and receptions and a guest Key Note Speaker.

This year's theme is "*Engineering Our Own Path: From Abacus to Apps.*" Registration for this event will be accepted at the FES office until July 12, 2013. You can register online and obtain hotel information at ***www.fleng.org***. A proposed schedule for the conference events is available on the event registration page or you can **CLICK HERE**. The program brochure and complete agenda are being developed and will be available very soon.

If you have any questions regarding this year's conference, contact Trevor Maddox, FES Senior Meeting Planner at (850) 224-7121.

***The Florida Engineering Society (FES) has been the statewide society of Professional Engineers since 1916, from all disciplines that promotes the ethical and competent practice of engineering, advocates licensure, and enhances the image of its members. FES serves over 3,500 members.***

FOUNDED 1916 Florida Engineering Society

fice florida Institute of Consulting Engineers
American Council of Engineering Companies of Florida
Professional Engineers in Private Practice of Florida

For more information about FES and how to become a member visit their website at ***www.fleng.org***.

# Latest News from NCEES

*advancing licensure for engineers and surveyors*

*This page contains a brief overview of recent news releases by NCEES concerning items that may be of interest to our engineering community. These updates published here are intended to be only a brief description so we encourage you to visit www.ncees.org for full releases and their latest and most up-to-date information.*

## Exam Changes for April 2013

On March, 6, 2013, NCEES re-announced the following regarding the exam changes for the **April 12 and 13, 2013** exam administration. You can find out more details by clicking on the links in the bullets below or by going directly to their website at ***www.ncees.org.***

> The ***Principles and Practice of Surveying (PS) exam will have new specifications*** and will now be a closed-book exam. Examinees will be provided with ***surveying reference material (PDF)*** on exam day. No other references will be allowed for PS examinees. A ***new edition of the NCEES PS Sample Questions and Solutions is available***.

> The ***Principles and Practice of Engineering (PE) Software Engineering exam will be offered for the first time.***

> The ***PE Industrial exam will have new specifications*** and move to a spring administration. October 2012 was the last time this exam was offered in the fall administration.

> The ***PE Civil exam*** will have revised design standards for the Construction, Civil Structural, and Transportation modules. The design standards for these civil engineering areas have been updated for 2013.

## NCEES Publishes 2012 Engineering Award Book, Opens 2013 Competition


In the October 2012 issue of FBPE's *Connection*, we highlighted the 2012 NCEES *Engineering Winner for Connecting Professional Practice and Education* winner, Florida Atlantic University (FAU) Department of Civil, Environmental and Geomatics Engineering. The department received the $25,000 prize for it submission of the Dania Beach Nanofiltration Plant Expansion project. 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 project was praised for incorporating so many aspects of civil engineering and renewable energy, noting the student contributions from concept through construction and obtaining LEED Gold certification.

***This is only the fourth award to be given by NCEES; the first award was presented to the FAMU-FSU Department of Civil and Environmental Engineering in 2009 for a collection of projects with a featured Everglades Restoration Project. FBPE is especially proud to have had two Florida engineering schools earn this esteemed honor in a short span of four years.***

NCEES introduced this award to recognize college engineering programs for engaging their students in collaborative projects with licensed professional engineers. The NCEES *Engineering Award for Connecting Professional Practice and Education* was established to promote understanding of the value of licensure and to encourage partnerships between the engineering profession and education.

NCEES has published a book that features six engineering programs recognized for excellence in connecting professional practice and education. Each winning project is described and also includes interviews with some of the participants from the winning project from FAU. You can view the publication or request hard copies on NCEES' website at ***www.ncees.org***.

## 2013 Call for NCEES Award Submissions

NCEES is currently taking project submissions for award consideration for 2013 until **May 6, 2013**. EAC/ABET-accredited programs from all engineering disciplines are invited to submit projects that integrate professional practice and education. Projects must be in progress or completed by March 15, 2013. They do not have to offer academic credit to student participants. For entry instructions and qualifications for consideration go to their website at ***www.ncees.org*** where you can download the entry form.

FBPE
FLORIDA BOARD OF PROFESSIONAL ENGINEERS

**2639 N. Monroe Street**
**Suite B-112**
**Tallahassee, Florida 32303**
**(850) 521-0500**

FBPE is committed to protecting the interest of public health and safety by properly regulating the practice of engineering.

**www.fbpe.org**

# 2012-2013

## Florida Board of Professional Engineers

***Warren G. Hahn, P.E.***
Chair
(Mechanical)

***William C. Bracken, P.E., S.I., CFM***
Vice Chair
(Discipline Other Than Civil)

***Christian S. Bauer, Ph.D., P.E.***
(Industrial)

***John C. Burke, P.E.***
(Electrical)

***Anthony J. Fiorillo, P.E., CGC, LEED AP***
(Civil)

***Michelle D. Rambo-Roddenberry, Ph.D., P.E.***
(Education)

***Kenneth S. Todd, Jr., P.E.***
(Civil)

***Richard C. Wohlfarth, P.E.***
(Civil)

***Nola Garcia***
(Public)

***VACANT***
(Structural)

***VACANT***
(Public)

***Zana Raybon***
Executive Director

# 2012-2013

## Florida Engineers Management Corporation

***Kimberlee DeBosier, P.E.***
Chair

***Jeff Arey, P.E.***
Vice Chair

***Ernest A. Cox, III, P.E.***

***Donald L. Goddeau, P.E.***

***Shannon LaRocque, P.E.***

***Robert H. Hosay, Esq.***

***Bert L. Combs, Esq.***

***Zana Raybon***
FEMC President

***John J. Rimes, III, Esq.***
FEMC Vice President

***Margaret L. Marvel***
FEMC Treasurer/Secretary