



**FBPE**  
FLORIDA BOARD OF  
PROFESSIONAL ENGINEERS

# Connection

*Linking You With the Florida Board's Latest Engineering News and Information*

July 2019

## From the Executive Director: How New Law Affects Engineers, Firms

By **Zana Raybon**, FBPE Executive Director, FEMC President

A new law goes into effect Oct. 1, 2019, that makes changes – some substantial – to statutes and rules governing Professional Engineers and engineering firms in Florida.

The Legislature passed House Bill 827 during its 2019 regular session, and Gov. Ron DeSantis signed it into law on June 7, 2019. The Florida Board of Professional Engineers is working to update its rules to reflect the changes by the date the law goes into effect.

Here is an overview of upcoming changes required by the new law.



### *Engineering Technology Degrees*

Currently, only graduates with engineering sciences degrees from Board-approved programs are eligible for licensure in Florida. Under the new law, that changes via Section 471.013, F.S.

Graduates with bachelor's degrees in engineering technology from Board-approved programs also will be able to apply for a PE license in Florida once the new law goes into effect.

### *Decoupling Experience and Exam Eligibility*

Florida will join a growing number of states that have decoupled experience requirements from eligibility to take the PE exam. Those who have passed the Fundamentals of Engineering exam will be able to take the Principles & Practice of Engineering exam before completing the years of experience needed to apply for licensure.

The new law moves the experience requirements from Section 471.013, F.S., which covers examinations, to Section 471.015, F.S., regarding licensure.

With the addition of engineering technology degrees comes an update to the experience required for licensure. Applicants with bachelor's degrees in engineering sciences will still need four years of active engineering experience to apply, but those with bachelor's in engineering technology will be required to have six years of active engineering experience.

Additionally, all applicants for engineering licensure in Florida will have to be at least 18 years old.

## *Engineering Firms*

In Section 471.023, F.S., the new law replaces the existing Certificate of Authorization for engineering firms with a free registry. Engineering firms will no longer be required to apply for a Certificate of Authorization and pay a fee. Instead, firms must register their business with the Board and be qualified by a Professional Engineer licensed in Florida.

Plans call for current and active Certificates of Authorization to be rolled over into the new registry, with CA numbers becoming registration numbers. Companies seeking to offer engineering services in Florida will be issued numbers once they have successfully registered with the Board.

Rather than renewing a CA every two years, the qualifying engineer of a firm must notify the Board within 30 days of any changes to information in the firm's initial registration application.

Also, a qualifying engineer who leaves an engineering firm must notify the Board within 24 hours. If the qualifying engineer was the only qualifying agent for the business, the firm may no longer provide engineering services in Florida and must be qualified by another qualifying engineer within 60 days if it wishes to resume offering engineering services. FEMC or the Board may authorize a temporary qualifying engineer for no more than 60 days in order to proceed with incomplete contracts.

A qualifying engineer must notify the Board in writing before engaging in the practice of engineering in the licensee's name or in affiliation with a different engineering firm.

The shift from CA to registration also applies to out-of-state firms seeking to temporarily perform engineering services in Florida, as reflected in changes to Section 471.021, F.S.

## *Successor Engineers*

A change to Section 471.025, F.S., redefines the responsibilities of original engineers of record and successor engineers.

The new law requires successor engineers to assume full professional and legal responsibility of engineering documents when assuming an existing project from another engineer. The successor engineer must treat the original engineer's documents as if they were the successor engineer's original product, which includes signing and sealing those documents.

The revision also releases the original engineer from professional responsibility and civil liability for prior work assumed by a successor engineer.

## *Education Waiver*

A change to Section 471.013, F.S., removes a waiver that allowed someone with 10 years of active engineering experience who notified DBPR before July 1, 1984, of their intent to seek PE licensure, and was engaged in engineering work on July 1, 1981, to apply for licensure without meeting the education requirements. That original waiver will no longer be valid after Oct. 1, 2019.

## *Other Changes that Affect Engineering*

The new law adds language to Section 337.14, F.S., that prevents design services and construction engineering and inspection services from being performed by the same entity on projects receiving funding from the Florida Department of Transportation that are administered by a local government entity.

With a change in Section 455.271, F.S., holders of a license issued by Florida that has gone null and void will be able to go through a process to have their license and number reinstated. This allows for a retention of the history of the license and for the licensee to retain the same license number. A revision to Section 471.019, F.S., requires the Board to establish rules for a licensure reinstatement process for Professional Engineers.

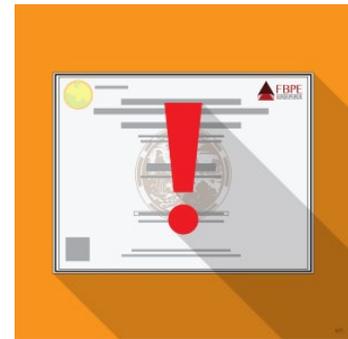
The new law expands requirements in Section 553.79, F.S. In addition to new construction, Special Inspectors of Threshold Buildings will be required to inspect repair and restoration projects in which the structural system or structural loading of a building has been modified.

All of these changes go into effect Oct. 1, 2019.

## Chair's Corner: Potential Threats to Engineering Licensure

By Ken Todd, PE and FBPE Chair (2019)

I recently had the opportunity to attend a meeting of the National Council of Examiners for Engineers and Surveyors (NCEES). NCEES is a national (now international) organization that was formed in 1920 to promote licensure across the country. All state engineering and surveying boards are members of NCEES.



During the meeting, NCEES staff discussed the increasing coordinated threats faced by state professional boards, including engineering. NCEES was formed to promote licensing of engineers with the understanding that licensing of competent individuals helps protect the public from the practice of engineering by unqualified individuals, who potentially could place the public at direct risk of harm. During the presentation, NCEES encouraged engineers to be more proactive in working to ensure licensure of engineers remains in place across the country.

To understand how and why there are increasing threats to the concept of professional licensing, we need to review a little history. The legal basis for the licensing and regulation of professions, such as the engineering profession, is grounded in the various states' power to protect public health and safety. This authority is known as police power and was confirmed as constitutionally valid by a U.S. Supreme Court decision in 1889.

Licensing of engineers was first legislated in 1907 by the state of Wyoming to protect the health and safety of the public as agricultural, industrial, and public works were becoming more complex. As the western part of the United States was being settled and developed, starting in the mid-1800s, these works/facilities were increasingly being designed by unqualified people, and many were failing due to poor or no engineering design being done. Louisiana followed Wyoming's lead shortly thereafter, and Florida started licensing engineers about a decade later, in 1916.

However, over the past decade, some special interest and other civic groups, state and federal court rulings, and even legislation at the state level have combined to reduce the ability of state boards to effectively regulate the practice of engineering. These actions would seem to indicate a different mindset from the original concept concerning the licensure of engineers that started in the early 20th century.

Let's briefly discuss what some of these threats are and what we, as engineers, can do to prevent the weakening of the licensure of engineers that helps protect the health and safety of the public.

Why has there been an attack on licenses nationwide? Well, per the U.S. Bureau of Labor Statistics, the number of occupations that require a license have increased, with U.S. workers needing licenses for jobs.

Most people would agree that unlicensed doctors are a direct risk to the public health, safety, and well-being, and I believe we can all agree the same holds true for engineers. However, because of the growth in regulation of occupations without an obvious, direct link to public safety; many special interest groups, courts, and legislatures are interpreting the concept of professional licensure as nothing more than a means of protecting a profession rather than protecting the health or safety of the public.

As presented by NCEES, some of the ideas that have recently been enacted, or at least discussed around the country are:

- sunseting the licensing duties of engineering boards;
- increased governmental oversight of the activities/decisions of engineering boards; and
- consolidating engineering boards together with other professional boards, which effectively weakens the board's ability to efficiently and effectively regulate the practice of engineering.

So, what can engineers do?

The most effective action we can take is to educate the public of the obvious fact that the licensing of engineers protects their health and safety. They also need to understand that not all professions are the same and, therefore, should not be treated the same. The licensing of some professions, especially the engineering profession, needs to be treated differently than other professions because there is a direct link between the licensing of qualified engineers and protecting the health and safety of the public.

There are numerous studies by groups outside the engineering profession that can be used to help demonstrate to civic groups how licensure of engineers helps protect the health and safety of the public. The National Transportation Safety Board's report on the 2018 gas-line explosions in Massachusetts emphasizes the importance of Professional Engineers' role in protecting the health and safety of the public. A thoughtful white paper on licensing of engineers was written by Victor O. Schinnerer & Co., Inc., an experienced underwriting manager of specialty insurance programs. The paper explains that "Licensing and regulation of design professionals (is) in the best interest of citizens."

Another thing engineers can do is to talk to your legislators. Encourage them to use good judgment when making legislation dealing with the engineering profession. Emphasize that legislation needs to consider the link between licensure of qualified engineers and the protection of the health and safety of the public. After all, that is the entire reason engineering licensing was enacted by state legislatures in the first place. If we don't do these things, given the current mindset these days, it is possible that meaningful engineering licensure that protects the health and safety of the public could go away in the not-too-distant future.

## **An Engineer's Responsibility When Engineering Issues Are Discovered After Permitting**

By Scott R. Drury, PE

Imagine that you have completed an engineering design and have submitted your signed, dated, and sealed engineering documents for permitting. During the permit review process, you address all comments identified by the permitting authority.

It is generally assumed that the engineering documents conformed to all the applicable codes. But, what if this is not the case? What if the engineer's design did not comply with something in the code, and the permitting authority did not realize it? What if a peer review had already informed you there might be an issue? What if someone later informs you about this issue? What if you are the only one who realizes there is an issue?



There is a common misconception among design professionals that once a permitting authority has reviewed and permitted a project, the design professional has been relieved of any code violation that was not identified in the permit review. It is almost as if some think the permitting authority has one chance to identify design issues on a particular project, or else they forfeit their rights forevermore to enforce that specific code on that specific project.

Many engineers, architects, contractors, and owners look at permitting authorities as a necessary evil. “We just need to get through permitting” is a phrase you may often hear. Yes, sometimes the permitting authority identifies an item that impacts the project in such a way that may require either a re-design or an additional design, which may also require additional time and money to complete the project.

Because of these unfortunate impacts, design professionals are often reluctant to meet with permitting authorities or are pressured by their clients or their own supervisors not to discuss questionable items — and sometimes anything — with the permitting authority before they submit for permitting. It is almost as if this old adage applies, “It is easier to ask for forgiveness than for permission.”

So, how does all this apply to a professional engineer in responsible charge for a project? When a professional engineer signs, dates, and seals an engineering document, it is assumed that this document conforms to all acceptable engineering standards and safeguards the life, health, property, and welfare of the public.

1. If the design does not comply with all acceptable engineering standards, such as the applicable codes or the engineering rules found in Rule 61G15, Florida Administrative Code, then the professional engineer could be deemed negligent in the practice of engineering. Per 61G15-19.001(4), F.A.C., “A professional engineer shall not be negligent in the practice of engineering. The term negligence set forth in Section 471.033(1)(g), F.S., is herein defined 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.”
2. If the design intentionally does not comply with these acceptable engineering standards, such as willfully not including a requirement simply for project convenience or because directed by a client or supervisor, then the professional engineer could be deemed to be committing misconduct in the practice of engineering. Per 61G15-19.001(6), F.A.C., “A professional engineer shall not commit misconduct in the practice of engineering. Misconduct in the practice of engineering as set forth in Section 471.033(1)(g), F.S., shall include, but not be limited to: ... (b) Being untruthful, deceptive, or misleading in any professional report, statement, or testimony whether or not under oath or omitting relevant or pertinent information from such report, statement, or testimony when the result of such omission would or reasonably could lead to fallacious conclusion on the part of the client, employer, or the general public.”

When an engineering issue is identified after permitting (whether by the engineer, a code official, or a third-party inspector), many architects, engineers, project managers, and owners will say something like, “The design was already permitted. The code official should have caught the issue back then. We should not have to pay for or fix their mistake.”

However, a professional engineer is still responsible for meeting acceptable engineering standards on their engineering documents. Therefore, it is still the responsibility of the engineer to rectify these issues or else the engineer could be deemed negligent in the practice of engineering. In other words, you should not just avoid the situation and hope it will eventually go away, because it is still an administrative legal issue that violates 61G15, F.A.C.

The engineer needs to resolve the issue, whether by correcting the design, by obtaining a formal interpretation that clarifies the requirements, or through obtaining a documented waiver or variance through legal means. There are provisions in various codes that provide a legal means for seeking waivers or variances through alternative compliance methods, provided that the alternative design complies with the intent of the code provisions and establishes equivalency to the minimum requirements of the codes.

This process typically includes the engineer providing a signed, dated, and sealed letter to the code official that identifies the alternative compliance path and how this path meets the intent and is equivalent to the prescribed codes. The code official typically responds in writing to formally approve or deny the request.

Both engineers and code officials have similar purposes: to safeguard the life, health, property, and welfare of the public. Although they have different responsibilities, they are working towards this common goal and can be viewed as being members of the same team. By working together, the project and the process can be better.

Yes, discussing these interpretation issues with a code official during the design process could impact the scope and budget of a project, and this could potentially affect whether the project moves forward or not. The counter argument is not discussing these issues with the code official and risking the same scope of issues, but with potentially greater financial impacts and possible discipline against the Professional Engineer.

People are fallible, so it is understood that everyone makes mistakes. The real measure of a person — and a company as well — is what they do in response to their mistakes. Will they simply ignore it and hope it goes away? Or, will they admit it, fix it, and learn from it?

*“The measure of a man’s real character is what he would do if he knew he would never be found out.” - Thomas B. Macaulay*

## Protecting Engineers Against Changes Made for Energy Cost Savings

By Scott R. Drury, PE

Let’s be honest, most people want to save a buck or two. While not everyone is concerned with saving energy, most people are very interested in saving on energy costs. This is the reason that some folks, like me, sometimes look around and wonder why every light in the house is on, including rooms that nobody is in. Then, there are those who keep the thermostat in



their house set to 78°F, but set the thermostat in a hotel room to 55°F because they do not have to pay the energy bill.

Commercial and institutional building owners also want to reduce energy costs. This is not simply a question of having every building certified under a “green” certification program. In fact, many owners complain that their “sustainable certified” buildings use the most energy out of all their buildings.

The energy costs routinely paid by owners (whether school districts, universities, governments, etc.) sometimes prevent them from investing in other things they would like to improve. Sometimes it just takes money to save money. And, many owners do not always have the money to make this type of investment.

For years, there have been groups to help owners reduce their energy costs. One option is using “ESCO” (energy service companies) projects, where the ESCO fronts the money to the owner for energy improvement strategies and gets paid back with interest through the energy cost savings. Another option is retro-commissioning, which is typically used to improve the efficiency of the existing equipment and systems with minimal upgrades.

With either option, the strategies typically include changes to optimize how and when systems operate and to improve occupant comfort, if possible. Sometimes, the strategies even include adding, removing, or modifying system components. However, these strategies are not always designed and implemented under the direction of a Professional Engineer. In fact, many of these implemented strategies are performed without consulting the engineer who originally designed the system and without going through a permitting process, which would establish a new engineer of record and help ensure that changes are in compliance with all applicable codes. These changes can even put the original engineer of record at potential risk, if the process is not documented well.

Let’s face it... engineers are not necessarily experts in control systems. Similarly, experts in control systems are not necessarily engineers.

System controls are sometimes used to correct some engineering design issues, yet they can also create issues if not implemented per the design. There are many cases where the implemented controls do not meet the required design criteria because it was easier to provide the same controls as a previous project.

I do not mean to imply that an engineer’s design is perfect and that system control providers are being malicious in their implementation. On the contrary, my purpose is to establish this as a team effort to achieve the best results in the end.

Engineers typically design systems to meet the required codes and relevant engineering principles, which may include various safety requirements, limitations due to existing infrastructure, and specific user requirements. System control technicians interpret engineering design, often needing to read “between the lines” in order to get enough information to make the system work properly.

The system control technician does not always know “why,” and the engineer does not always know “how.” It is a team process to make this work properly.

The most energy efficient piece of equipment is one that is off. When operating, there are certain components or functions that use more energy than others. A lot of the energy-cost-saving strategies are based on limiting the amount of time that equipment is used and trying to identify ways to reduce energy and improve system performance when the equipment is operating.

Similar to how certain designs are not applicable to every building, not every energy cost savings strategy applies to every system. For instance:

- Resetting the supply air temperature from an air handling unit can prevent sub-cooling in the spaces and temporarily improve occupant comfort. But if not done correctly, this can cause mold in the duct systems and potential health risks to occupants.
- Disabling equipment in an old building when it is not occupied can definitely save energy but can also create a condition where the system cannot maintain acceptable temperature or relative humidity ranges within the building, causing damage to equipment and potential mold and health risks to occupants.
- Since dehumidifying outside air can be very expensive, especially in Florida, reducing the amount of fresh air introduced into the building can save a lot of energy costs or help improve equipment performance. But, if not coordinated with the associated exhaust systems, the building could be negatively pressurized, resulting in infiltration (again, leading to mold and health risks to occupants) or unsafe pressurization levels in buildings for hazardous exhaust containment or where the force to open a door is above the allowed threshold.

These are just a few examples that have actually occurred in buildings by implementing energy-cost-savings strategies without consulting the design engineer or going through a permitting process. Some of these modifications occurred after a building was verified to work properly by an independent commissioning provider; others were not. Some were even made without discussing the proposed strategies with the owner or user group, but simply under a contract to do whatever it takes to save energy costs.

The reason that I bring this to your attention is that in each of these cases, the engineers of record had no knowledge of the changes that were made after the fact. When the owners started having concerns over mold growth, potential health risks, uncomfortable space conditions, or safety issues, the engineers of record were blamed for the problems.

In order to preserve their reputations, in many cases, the engineers provided free services to help investigate and resolve the issues, only later to discover that the designs were modified after the fact in efforts to save energy costs. This not only could have affected their reputations and future work with the client, but could have resulted in someone filing a complaint against their engineering license.

Therefore, it is important for engineers to keep good records of everything associated with a project, which includes correspondence and reports of how systems are performing when the project is closed. This will help protect you against any undocumented changes made to the design after the fact. It is also recommended to discuss with owners how important it is to involve a Professional Engineer in the process of implementing energy cost savings strategies.

If you have any concerns about unlicensed activity, please contact FBPE's legal department at (850) 521-0500, or go to the [Complaints page](#) under the *Legal* section on our website.

## More Than 2,100 Engineering Students Learn About Licensure

One of the missions of FBPE is to [increase public awareness](#) of professional engineering licensure. To that end, FBPE staff talks with students at colleges of engineering around Florida, as well as students at primary and secondary schools.

In Fiscal Year 2018-19, more than 2,100 engineering students at six Florida universities saw presentations



*FBPE Executive Director Zana Raybon discusses engineering licensure during a meeting of the FAMU-FSU College of Engineering's Theta Tau chapter.*

on engineering exams and licensure. FBPE staff, including Executive Director Zana Raybon, Assistant Executive Director Rebecca Sammons and Public Information Officer William Lampkin, made 14 visits to Florida universities during the school year.

They also volunteered at the American Institute of Steel Construction's regional [Steel Bridge Competition](#), held this year in Knoxville, Tenn., in conjunction with the American Society of Civil Engineers' [Southeast Student Conference](#).

In addition to the universities, staff visited a science and math school in Tallahassee to talk about engineering during a career day, and volunteered at the [state Mathcounts competition](#), which was attended by more than 300 middle school students.

FBPE Investigators Wendy Anderson and Trebor Raze and PIO Lampkin attended the [Building Officials](#)



*A member of the Florida Gulf Coast University steel bridge team works to assemble their bridge at the 2019 ASIC regional competition.*

[Association of Florida annual conference](#) near St. Augustine, where they staffed a booth handing out information regarding unlicensed engineering activity and answering questions from building officials.

If you would like FBPE to talk about professional engineering licensure to your university engineering class, please contact William Lampkin at [publicinfo@fbpe.org](mailto:publicinfo@fbpe.org) or  [\(850\) 521-0500, ext. 104](tel:(850)521-0500).

## University of Nebraska-Lincoln Wins 2019 NCEES Engineering Education Award

By NCEES

NCEES is pleased to announce that the University of Nebraska–Lincoln is the grand prize winner of the 2019 NCEES Engineering Education Award. The university received the award for a project completed by the Charles W. Durham School of Architectural Engineering and Construction. The award jury met June 4, 2019, in Clemson, S.C., to select the \$25,000 grand prize winner.



For the school's project, Jack H. Miller Center for Musical Arts, architectural engineering students collaborated with professional engineers, architects, and other professionals to design the structural, mechanical, and electrical systems for the Jack H. Miller Center for Musical Arts on the Hope College campus in Holland, Mich. The design offers superior acoustics, integrated timber or engineered wood throughout 25 percent of the building, and a rooftop amenity space that can be used year-round.

The jury praised the project for involving different engineering disciplines and a practical design solution.

The jury selected seven additional winners to receive awards of \$10,000 each:

### Additional winners

- Lipscomb University Raymond B. Jones College of Engineering  
*Sustainable Water Treatment Prototype System for a Ghanaian Orphanage, School, and Hospital Campus*
- Seattle University Department of Civil and Environmental Engineering  
*Infrastructure Improvement of a County Road*
- Seattle University Department of Civil and Environmental Engineering  
*Seismic Assessment and Retrofit of a County Pump Station*
- Smith College Picker Engineering Program  
*Development of a Culvert Evaluation Program*
- University of Cincinnati Department of Civil and Architectural Engineering and Construction Management  
*Hoyes Field Elementary – A Net-Zero Energy School*
- University of Wisconsin-Madison Department of Civil and Environmental Engineering  
*Alternative Energy Generation at School A*

- University of Wisconsin-Madison Department of Civil and Environmental Engineering  
*Design for Removal of VOCs at Drinking Water Well 18*

The NCEES Engineering Education Award recognizes engineering programs that encourage collaboration between students and professional engineers. EAC/ABET-accredited programs from all engineering disciplines were invited to submit projects that integrate professional practice and education.

A jury of NCEES members and representatives from academic institutions and engineering societies selected the winners from the 51 entries. The jury members considered the following criteria:

- Successful collaboration of faculty, students, and licensed professional engineers
- Protection of health, safety, and welfare of the public
- Multidiscipline and/or allied profession participation
- Knowledge or skills gained
- Effectiveness of display board, abstract, and project description

Profiles of the winning submissions are available online at [ncees.org/award](https://ncees.org/award).

## Special Recognition: Congratulations, Examinees

FBPE applauds all of the candidates that successfully passed engineering exams in the past quarter. We wish them much success as they move towards the next step in their engineering careers. [See the complete list online.](#)

## Legal Department: Latest Engineer Discipline

Pursuant to Rule 61G15-37.001(11), Florida Administrative Code, the Florida Engineers Management Corporation is required to post all Final Orders involving active disciplinary cases to the website until the terms of the final order are completed, or until the licensee becomes inactive, retires, relinquishes the license or permits the license to become null and void. Included in this section are the most recent cases in which final action has been taken by the Board, a brief description of the licensee's violation and discipline as well as a link to the final order. [View actions.](#)

## Mark Your Calendar

We regularly update our calendar to ensure you stay up to date with the latest FBPE and FEMC events. [Check out the calendar on our website.](#)

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