

**OPPORTUNITIES** Proficiency

*accomplishment* Expert **JOB**

Hard Work **Ability** Engineering

Principles **PUBLIC SAFETY**

Proven **PROFESSIONAL**

**ENGINEER** Qualifications

**RESPONSIBILITY** PE Exam

**LICENSE** Life *Practice*

*Engineering* Proof

profession Advancement

**EDUCATION AND**

**EXPERIENCE** Level of

**Competence** Higher Standard **Respect**

Higher Salary **Able** Credibility

# SURVEY DEMOGRAPHICS

## TOTAL PARTICIPANTS

3,525



87%



13%

## RACE

WHITE 94%

ASIAN 3%

BLACK OR AFRICAN  
AMERICAN 2%

## ETHNICITY

NOT HISPANIC  
OR LATINO 97%

## LICENSURE STATUS

PE 92%

EI OR EIT 4%

## CURRENT NSPE MEMBERS

51%

## EMPLOYMENT STATUS



84%  
FULL TIME



4%  
PART TIME



9%  
RETIRED

## AGE



19%  
36-45



23%  
46-55



26%  
56-65

# What's on the Minds of PEs?

BY DANIELLE BOYKIN

*NSPE surveyed more than 3,500 PEs, EIs, and students. Here's what they said.*

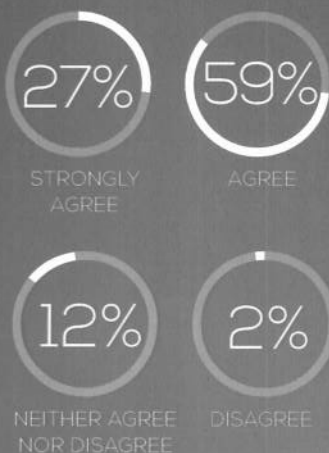
NSPE's 2015 Engineering Outlook survey recently gave more than 3,500 professional engineers, engineer interns, and students the opportunity to share their views on licensure, ethics, education, diversity, and other debate-worthy topics.

Fifty-one percent of the survey participants are NSPE members. Ninety-two percent of participants are licensed engineers and 4% are engineer interns.

I believe that in the future, engineers should be required to obtain a master's degree or additional advanced education credit hours in order to practice as licensed professional engineers.



The public perceives the engineering profession as ethical.



## WHAT DOES THE PE LICENSE MEAN TO YOU?

The NSPE 2015 Engineering Outlook survey asked participants to share their views on the value and meaning of the professional engineering license.

I HAVE DEMONSTRATED TO MY COLLEAGUES AND TO THE COMMUNITY THAT I HAVE MASTERED THE SKILLS NECESSARY TO SAFELY AND EFFECTIVELY COORDINATE AND DESIGN PROJECTS THAT IMPROVE THE WELFARE OF THE PUBLIC.

JENNIFER KLICH, P.E.  
ORANGE PARK, FLORIDA

The previous Engineering Outlook survey, conducted in 2013, revealed that members of the engineering profession had growing optimism about the job market and opportunities for advancement after years of economic recovery from a recession. Two years later, that optimism has increased. In 2013, 46% of survey participants agreed that the current job market for engineers was good, while 16% strongly agreed. This year, 54% of participants agree that the job market is good, while 23% strongly agree.

Megan Busch, an EI at the New York office of Brooker Engineering, shares in this positive attitude. "The experiences of my graduating class at Lehigh University and my company's continued hiring gives me the confidence that there is currently a good market for engineers," she says. "Engineering degrees seem to provide a fundamental skill set that is strongly desired in many different industries, not just engineering firms."

James Remsberg, P.E., also believes that the market is good, particularly for young engineers. As a member of the University of Kansas' School of

IT IS THE HIGHEST LEVEL OF COMPETENCY IN ENGINEERING. IT IS A STANDARD OF ETHICS AND MORALS. A SYMBOL OF A PROFESSION THAT IS FOUNDED ON SERVICE BEFORE SELF.

KATIE DAVIS, P.E.  
CHARLOTTE, NORTH CAROLINA

THE PE LICENSE MEANS THAT I POSSESS THE FUNDAMENTAL KNOWLEDGE AND CREDENTIALS TO PRACTICE ENGINEERING. I BELIEVE ALL ENGINEERS SHOULD BE LICENSED FOR THE SAFETY OF THE PUBLIC AND FOR THE REPUTATION OF THE ENGINEERING PROFESSION.

AARON GONZALEZ, P.E.  
WEST PALM BEACH, FLORIDA

Engineering advisory board, he has seen the rate at which graduating engineers are hired. "Very few of these students fail to secure good jobs," he says.

In addition to having favorable views of the current job market, 53% of participants agree with the statement, "I am satisfied with the opportunities for professional advancement in the engineering field." Eighteen percent strongly agree.

Busch says that her career also benefits from the support that her employer provides her to participate in professional activities outside of the office. "I have always felt very supported when I want to get more involved with local groups and societies," she says. "The critical support comes in allowing a flexible scheduling of my work day to attend meetings and events. They also highly encourage junior engineers to attend lectures and continuing education courses by sponsoring our attendance."

Jonathan Tull, P.E., also receives strong backing from his firm to participate in professional engineering activities. "My employer recognizes the inherent value associated with my involvement in NSPE

THE PE LICENSE MEANS CREDIBILITY. LICENSURE ALSO ENCOURAGES ENGINEERS TO REVISIT THE THEORIES LEARNED IN COLLEGE AND MAKE A CONNECTION TO THE APPLICATION IN THEIR FIELDS.

JAMES SPENCER, P.E.  
MIDLAND, MICHIGAN

MY PE LICENSE MEANS THE WORLD TO ME. IT IS A TESTAMENT TO THE TIME AND EFFORT I PUT INTO MY WORK AS AN ENVIRONMENTAL ENGINEER. MY LICENSE HAS GIVEN ME OPPORTUNITIES TO BROADEN MY HORIZONS AND CONTINUE MY EDUCATION IN THE FIELD.

EMILY WORTHEN, P.E.  
GRANTS, NEW MEXICO

AS A PROFESSIONAL ENGINEER, I UNDERSTAND THE IMPORTANCE AND VALUE OF DESIGNING PROJECTS THAT COMBINE TECHNICAL, FINANCIAL, AND HUMAN FACTORS. THIS RESULTS IN A FACILITY THAT IS SAFE, PROTECTS THE GENERAL PUBLIC, AND ENSURES ECONOMICAL OPERATION IN THE FUTURE. THESE SERVICES ARE DELIVERED IN AN ETHICAL MANNER THAT IGNORES PERSONAL GAIN.

TED WEIDNER, P.E.  
LAFAYETTE, INDIANA

and other professional engineering associations," he says. "I'm allowed fairly generous amounts of administrative time to act as the Nevada Society state president and to participate in STEM outreach events."

### Image of the Engineer

The growing popularity of science, technology, engineering, and math as fields of study and a career path appears to have given a boost to the image of the engineer. Fifty-six percent of survey participants agree or strongly agree that with the increased attention given to STEM education in government policy, mainstream media, and outreach efforts, the image and stature of the engineering profession is becoming more positive.

However, while many PEs believe their image is positive, the vast majority think public officials and government leaders don't have a very good understanding of the issues important to engineers. When asked if issues affecting the engineering profession are well understood by public officials and government leaders, 53% of survey participants

disagreed and 21% strongly disagreed that officials adequately understand these issues.

Remsberg shares in this disagreement about elected officials. "I believe that it is difficult to appreciate the role of the engineering profession unless one has 'walked the walk,'" he says. "Most public officials and government leaders don't really want to understand these issues from any viewpoint but the political."

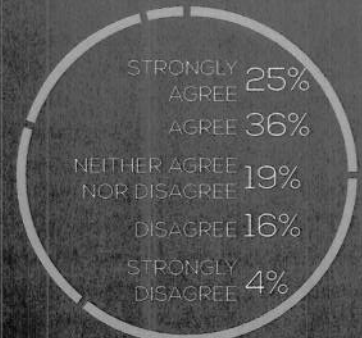
When it comes to public projects, Marcelin Joseph, E.I., believes there is a gulf between the task of engineering and the expectation of government leaders, particularly. "The primary issue is that while the goal for a project may often be the same, the expectations of the parties can be very different," says the project engineer from Hattiesburg, Mississippi. "The engineer's role will always have to be that of a facilitator between all interests."

Is there a solution to this lack of understanding by government officials and legislators? Perhaps if more professional engineers were involved in becoming political office holders, understanding would improve. Forty-eight percent of

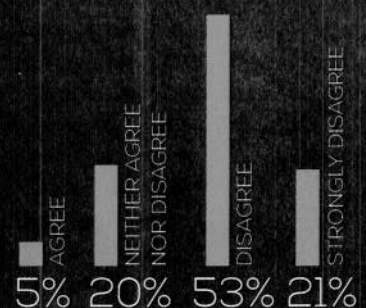
Ethics courses should be a required part of continuing education for licensure renewal.



College and university engineering programs should require all students to take the FE exam prior to graduation.



Issues affecting the engineering profession are well understood by public officials and government leaders.





## WHAT DOES THE PE LICENSE MEAN TO YOU?

IT SETS A STANDARD THAT LETS ME KNOW THE PEOPLE THAT I AM DEALING WITH ARE COMPETENT AND TRUSTWORTHY. IN MY 20 YEARS OF DEALING WITH PROFESSIONAL ENGINEERS, I CAN COUNT THE ONES THAT I DON'T TRUST TO TAKE THE JOB SERIOUSLY AND ETHICALLY ON ONE HAND. THAT IS VERY IMPORTANT TO ME.

MIKE SLEVIN, P.E.  
PUYALLUP, WASHINGTON

IT MEANS THAT I HAVE A RESPONSIBILITY TO THE PUBLIC FOR ETHICAL PERFORMANCE OF MY DUTIES. IT IS NOT ABOUT THAT I MUST ACT ETHICALLY, BUT THAT I WANT TO ACT ETHICALLY. THE PE LICENSE HAS ALWAYS MEANT TO ME THAT MY PERFORMANCE IS TO BE THE BEST THAT IT CAN BE AND THAT THERE WILL BE NO QUESTION AS TO MY HONESTY.

HAROLD SCHWARTZ, P.E.  
RED LION, PENNSYLVANIA

participants agree and 26% strongly agree that more professional engineers should run for elected office on the local, state, and national levels.

### Education and Licensure

Over the years, many groups within the engineering profession have issued statements and reports about the profession's need to adapt to rapid changes in technology and societal trends. But most PEs don't see the need to change the fundamental structure of the current licensing system, which is based on education, experience, and examination. Sixty percent of participants agree and 23% strongly agree with the current system. That's a slight shift from 2013, in which 55% of participants agreed and 36% strongly agreed with the current system.

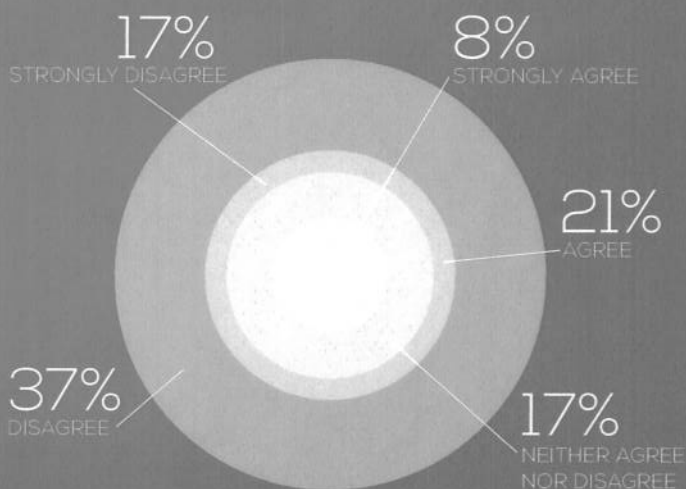
Additionally, 58% disagree or strongly disagree that a master's degree or additional advanced education should be required to earn a PE license. Seventeen percent of participants neither agree nor disagree, while 16% agree and 9% strongly agree.

Last year, the National Council of Examiners for Engineering and Surveying removed from the Model Law and Rules a requirement calling for licensure candidates to earn a master's degree or its equivalent before being awarded

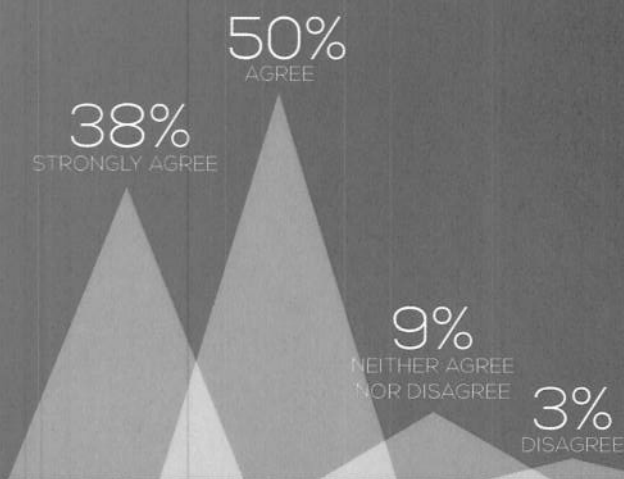
a PE license. The council continues to support improving education standards, but sought to alleviate confusion about the requirement and avoid barriers to comity licensure.

Dan Heflin, P.E., believes that an engineering bachelor's degree provides the basic tools that practicing engineers will need to pursue a successful career. Practical experience is essential to enhancing this practice, he says. "Practical entry-level experience is, in my opinion, far more valuable to the young engineer than the academic concentration of a master's degree," says the principal of the consulting engineering firm Heflin & Williams in Norfolk, Virginia. "The practical education gained through experience in real-world practice complements the academic education afforded by a bachelor of science degree."

Busch says that while she admires students who pursue master's degrees, she is concerned that an advanced-degree requirement could mean a heavier financial burden on young engineers. "The vast majority of us are not fortunate enough to graduate without large amounts of student loan debt," she says. "A master's degree requirement would make many students commit to at least another year of schooling and at least another year of potentially crippling debt."



I support states that allow licensure candidates to take the PE exam prior to accumulating four years of experience.



States should align licensing requirements to improve licensure mobility for professional engineers.

To make the path to licensure more flexible, some state licensing boards permit licensure candidates to take the PE exam earlier than in other states. In 2005, Nevada became the first state to allow candidates to take the PE exam any time after passing the FE exam, although candidates must still meet the state's experience requirement before becoming licensed. Arizona, New Mexico, Illinois, Kentucky, and South Carolina are some of the states that have followed suit. In 2014, NCEES removed from the Model Law a requirement that licensure candidates must earn four years of experience before taking the PE exam.

NSPE recommends that NCEES and state licensing boards provide flexibility for optional early taking of the PE exam by candidates who have met the educational requirements for licensure and passed the FE exam (NSPE Position Statement No. 1770).

When asked if states should allow licensure candidates to take the PE exam prior to accumulating four years of experience, 37% of participants disagreed and 17% strongly disagreed, while 20% agreed and 17% neither agreed nor disagreed.

Joseph is on the path to becoming a licensed engineer. Yet, he believes that gaining the experience prior to taking the PE exam is more beneficial to licensure

candidates. "The current system, which places engineering interns under the tutelage of more experienced licensed professionals, ensures that candidates for licensure have been fully exposed to safely applying the scientific knowledge to real-world applications," says Joseph. "This system is consistent with making sure that the safety, health, and welfare of the public is always paramount in our profession."

Tull is a part of the 29% of survey participants who think candidates should be allowed to take the PE exam before gaining four years of experience. The Nevada resident says the engineer interns that he has worked with and have passed the "early" PE exam are more focused on gaining valuable work experience with the benefit of the test out of the way. "The reality of becoming a licensed engineer tends to bring practice issues into sharp focus for them. They are more serious in ensuring that they gain the applicable experience necessary to become successful practicing professionals," he says.

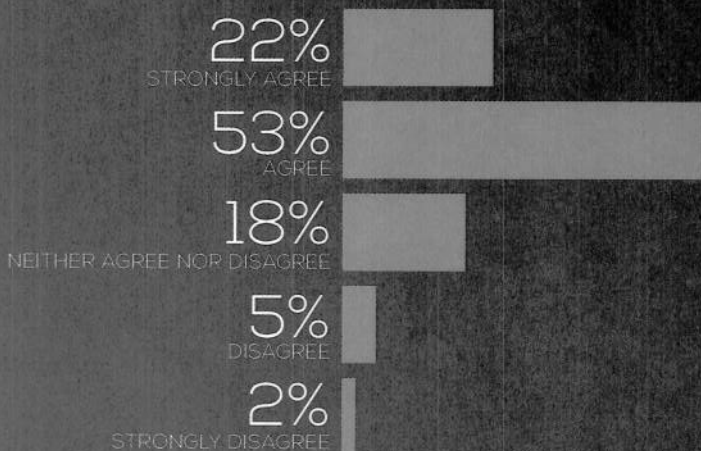
One area of strong consensus is on the need to improve licensure mobility. Fifty percent agree and 38% strongly agree that states should align licensing requirements to improve licensure mobility for PEs. Only unique circumstances should keep some states from adhering to licensing uniformity, says Heflin. "There should not be substantial

differences in educational and practice experiences that support PE [licensure] in various states," he says. "Satisfaction of one state's requirements should be adequate to qualify in other states."

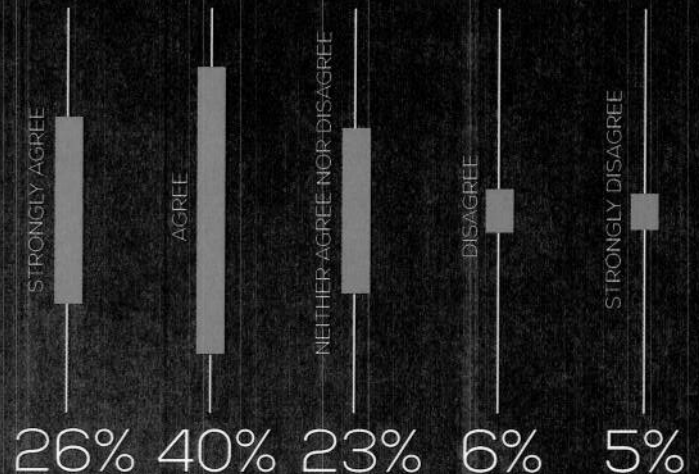
NSPE endorses enactment of uniform licensure laws in all jurisdictions. The Society also backs the NCEES Model Law definitions of the "practice of engineering" and encourages enactment of Model Law provisions.

Tull uses the NCEES Records program, which he believes helped him achieve reciprocity licensure early in his career. Yet, with an increasingly mobile workplace, more should be done to align standards, he says. "I've recently noticed that requirements, particularly for continuing education, don't seem to have a lot of consistency between jurisdictions," he says. "I don't think we'll ever be in a 'one size fits all' scenario because of a need for some regional-specific requirements for licensure. But within the realm of basic practice requirements, I hope that we can achieve some degree of national consensus." ■

**What does the PE license mean to you? Send your thoughts to [pemagazine@nspe.org](mailto:pemagazine@nspe.org).**



Professional engineers should promote sustainable design and green building solutions.



I support education and professional programs to encourage more women and underrepresented minorities to enter the engineering field.