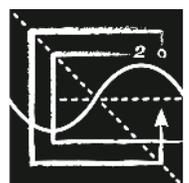


MINUTES OF THE PARTICIPATING ORGANIZATIONS LIAISON COUNCIL

March 2022



NCEES

PARTICIPATING ORGANIZATIONS LIAISON COUNCIL MEETING MARCH 11, 2022

The annual meeting of the Participating Organizations Liaison Council (POLC) was held virtually on Friday, March 11, 2022. NCEES President Brian Robertson, P.E., presided.

NCEES Representatives

Brian Robertson, P.E., President
Nina Norris, Chief Communications Officer
Sherrie Dyer, CAP-OM, Executive Assistant

Society Representatives

Dan Oerther—American Academy of Environmental Engineers and Scientists (AAEES)
Ilyse Shapiro—AAEES
Joseph Cramer, Ph.D. P.E.—American Institute of Chemical Engineers (AIChE)
Tracy Stover, Ph.D., P.E.—American Nuclear Society (ANS)
Martin Gordon, P.E.—American Society for Engineering Education (ASEE)
Adrienne Minerick—ASEE
Frank Taylor, CP, PPS—American Society for Photogrammetry and Remote Sensing (ASPRS)
Dana Porter, Ph.D., P.E.—American Society of Agricultural and Biological Engineers (ASABE)
William Henry, P.E.—American Society of Civil Engineers (ASCE)
Dennis Wessel, P.E.—American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)
David Soukup, P.E.—American Society of Mechanical Engineers (ASME)
Amos Holt, Ph.D.—ASME
Thomas Costabile—ASME
Richard Laudenat—ASME
Penny Whoolery—Council of Engineering and Scientific Specialty Boards (CESB)
Melanie Talley—CESB
Robert McMillan, P.L.S.—California Land Surveyors Association (CLSA)
Kimberly Oreno—CLSA
Nikhil Bodhankar, P.E.—Institute of Electrical and Electronics Engineers-USA (IEEE-USA)
Joseph Michels, Ph.D., P.E.—Institute of Industrial and Systems Engineers (IISE)
Gerald Wilbanks, P.E.—International Society of Automation (ISA)
Dalton Wilson—ISA
James Hollandsworth, P.E., P.S.—Michigan Society of Professional Surveyors (MSPS)
Rebecca Bowman, P.E.—National Academy of Forensic Engineers (NAFE)
Alan Kirkpatrick, P.E.—National Council of Structural Engineering Associations (NCSEA)
Rick Guerra, P.E.—National Society of Professional Engineers (NSPE)
Monika Schulz, CAE—NSPE
Mark Sargent, L.L.S.—NSPS
Tim Burch—NSPS
Carl Josephson, P.E., S.E.—Structural Engineering Institute of ASCE (SEI)
Chris Jelenewicz, P.E.—Society of Fire Protection Engineers (SFPE)
Beth Tubbs—SFPE
David Bourell, Ph.D., P.E.—The Minerals, Metals and Materials Society (TMS)

The following five societies could not attend:

ACEC—American Council of Engineering Companies
AEI—Architectural Engineering Institute of ASCE
ASPE—American Society of Plumbing Engineers

SME—Society of Mining, Metallurgy and Exploration
SNAME—Society of Naval Architects and Marine Engineers

President Robertson called the meeting to order and welcomed all attendees.

POLC member organizations submitted the following reports. All representatives received a link to the 2022 POLC Basecamp project so they could review the agenda, each society's report, and other handouts prior to the meeting. The documents are located in the "Docs and Files" section of the project.

American Council of Engineering Companies

Founded in 1906, ACEC is a national federation of 52 state and regional organizations representing more than 5,500 engineering firms and nearly 600,000 engineers, surveyors, architects, and other specialists nationwide. ACEC member firms drive the design of America's infrastructure and built environment.

Professional Licensure

ACEC provides resources and support for our state member organizations (M.O.) when they contend with challenges to professional licensure in their legislatures. These challenges have taken several different forms over the years. They range from universal licensure to requiring a 'least restrictive' regulatory approach to sunset reviews with a presumption against licensure. ACEC M.O.s have engaged with their state legislatures and strongly advocated for licensure for professional engineers due to the impact on public health and safety.

As part of its efforts to engage on challenges to engineering licensure, ACEC has joined the American Legislative Exchange Council (ALEC) in order to be a voice in the room as ALEC considers policies on licensure and other key issues. ALEC is currently engaged in updating its model policy on universal licensure, and a key goal for ACEC is to ensure that this and related policies do not impact engineering licensure.

Infrastructure Investment and Jobs Act

The hallmark achievement of ACEC advocacy last year was securing enactment of the bipartisan *Infrastructure Investment and Jobs Act*. This comprehensive infrastructure package totals \$1.2 trillion over five years and includes \$550 billion in new supplemental funding across federal transportation, water, energy, and environmental programs.

An economic analysis by the ACEC Research Institute showed that the IIJA will result in \$62 billion in A/E wages, \$75 billion added to the national GDP, 6% industry growth, and the creation of 82,000 new engineering jobs.

Implementation of the IIJA across all infrastructure sectors and modes will necessitate a close partnership between the private sector and our public agency clients. There is some question regarding the availability of a sufficient engineering workforce to meet the demands of the increased infrastructure investment. However, the solution to workforce shortages is not to loosen professional licensure requirements but instead to grow the engineering workforce.

ACEC supports programs that introduce engineering in K-12 curriculum and attract more college students to engineering programs. ACEC worked with Congress to pass the Employer Participation in Repayment Act, which allows employers to provide student loan repayment assistance for employees without it being a taxable benefit. In addition, ACEC has advocated for

H-1B visas to attract the best and brightest from around the world when there is an insufficient supply of U.S. engineering talent.

Diversity, Equity, Inclusion and Belonging

Another key element of expanding the engineering workforce is committing to diversity, equity, and inclusion (DEI) in the workplace. Driven by its strategic plan, ACEC stood up a Diversity, Equity, Inclusion & Belonging (DEI&B) Committee. The DEI&B Committee is leading ACEC's work to advocate for legislative and regulatory policies that advance DEI, develop educational programming, build partnerships with engineering societies that represent diverse communities, provide communication tools for the M.O.s and member firms, and assist in the development of materials to ensure that paths to leadership within ACEC are transparent.

Last year, ACEC was invited to participate in the Women of Color in Engineering Collaborative, a project that is funded by a National Science Foundation grant. The Collaborative – made up of engineering associations and societies – is working together to identify barriers to women of color in the engineering workforce and strategize about ways to mitigate those barriers.

Education

ACEC continues to provide business and education resources for engineering consulting firms, offering more than 100 webinars and an on-demand library of 200+ resources. In February, ACEC launched a new online 8-week course—The Essentials of Risk Management for Consulting Engineers. This course focused on the fundamental elements of risk management, from contracts to the standard of care and everything in between. In the coming year, ACEC also will develop education resources as related to IIJA and opportunities for firms.

www.acec.org/education

ACEC Coalitions provide timely and practical resources for firms in a specific discipline including MEPs, Structural Engineers, Land Development, Geoprofessionals, and Surveyors. Coalition publications are templates and guides intended to aid in the development of engineering firms. Each document has a short abstract for download that describes its content. The documents are available electronically and can be downloaded directly from the ACEC bookstore. <https://www.acec.org/coalitions/coalition-publications/>

American Institute of Chemical Engineers

FE and PE Committee Support

The NCEES Principles and Practice of Engineering (PE) Chemical Exam Development Committee continued writing, reviewing, and approving items for the PE Chemical Exam during a spring 2021 virtual meeting and a fall 2021 virtual meeting. A committee leadership transition occurred in 2021, with the vice-chair assuming the role of chair and a new vice-chair beginning the leadership succession cycle. 2021 marks the fourth year of computer-based testing for the exam.

One major activity was developing items needed for a new exam specification that took effect in 2020. This new exam specification was the culmination of a Professional Activities and Knowledge Study (PAKS) conducted from 2017 to 2019. The feedback provided by the chemical engineering community led to the new exam specification emphasizing topics deemed to be increasingly important with the consequence that new items were needed to support the increased focus on these topics.

Another major activity was improving the reference handbook provided to examinees during the exam. The handbook will typically be updated annually for suggestions made by examinees and committee members. Of note in 2021 were improvements resulting from suggestions made by the author and instructor of the AIChE Chemical PE Exam Review Course.

The committee plans to meet twice in 2022 to develop exam items and to edit the handbook for annual revisions. The committee is comprised of 33 volunteer members from a range of industries and engineering functional roles. Most committee members will participate in one exam development meeting each year.

The Fundamentals of Engineering (FE) Exam team also continued its work and the Chemical Engineering Module continued to perform well. Four virtual meetings were held in 2021 with 130 new items written, reviewed and approved for the 2022 pre-test pool. Fifty (50) new items were also written, reviewed and approved for the 2023 pre-test pool. Work in 2021 was focused on the new specification areas. The FE Exam team is returning to two in-person meetings for 2022 (1st and 3rd quarters).

In-person exams for both the FE and PE exams are continuing. There were ~1800 takers for the chemical FE exam with a passage rate of 72% for first timers and 40% for repeat takers. The chemical PE exam had 358 takers with the passing rates being 68% (first timers) and 40% (repeats). The number of takers was up from the initial pandemic year of 2020.

AIChE views service on these committees as equivalent to service to AIChE and to the profession. AIChE sends representatives to EPE meetings, to the NCEES annual meeting and to this annual POLC meeting (virtual or F2F).

Other Licensure Support Activities

AIChE opposes any implementation of a master's-or-equivalent (MOE) requirement as a prerequisite for initial PE licensure and strongly believes that a bachelor's degree in engineering from an accredited program along with demonstration of experience in the field along with passage of the FE and PE Exams adequately assures the protection of the public and continues to participate in the consortium of organizations known as *Licensing that Works* which monitors developments relating to licensing requirements.

The AIChE Licensing and Professional Development Committee actively follows developments in licensure and works to raise the awareness of chemical engineering students on the importance and benefits of licensing. A presentation to several hundred juniors and seniors has become a fixture of the annual student conference. In 2020 the presentation was made virtually but returned to a live presentation status in 2021. A similar presentation will also be presented virtually to the Wayne State AIChE student chapter (and be open to other student disciplines as well) in March of 2022.

In November of 2021 AIChE returned to an in-person annual meeting in Boston where attendees were able to wear PE ribbons identifying their PE status for the first time. Meetings and presentations had been virtual during the previous 18 months due to the pandemic.

Other AIChE Educational, Professional and Outreach Initiatives

In 2021, AIChE continued to weather the evolving circumstances related to the COVID-19 pandemic. Many of our meetings and projects continued as online offerings. AIChE staff, leaders and volunteers continued to make their contributions from their home locations. Through all of the adjustments to our programs and work processes, the leaders of AIChE are gratified by the

dedication, resilience, and partnership demonstrated by our constituents. Their individual and collective commitment to the profession — and to AIChE as a professional home base — has enabled the Institute's continued growth and transformation — permitting us to serve the evolving interests of chemical engineers everywhere.

After a year of conducting its conferences virtually, in 2021 AIChE re-entered the arena of in-person meetings — initially at some of our niche conferences and then in a big way with our November Annual Meeting in Boston. At the same time, the Institute refined its role as a provider of online content and opportunities — including virtual participation and learning options related to our Annual Meeting and the AIChE Academy.

Also in 2021

AIChE's demonstrated our commitment to the professional growth of chemical engineers as we opened the virtual doors to our Institute for Learning and Innovation on the AIChE website. The ILI builds a bridge between industry and academia, bringing a holistic approach to career development, training and practical application for chemical engineers at all stages of their careers. Among the highlights, in 2021, ILI conducted six Career Discovery workshops; launched a new data analytics internship program; developed new credentials in areas including process intensification and process safety; and planned the launch of a Sustainable Engineering Corp. AIChE took a lead role in the launch of the Future of STEM Scholars Initiative (FOSSI) for students studying STEM at Historically Black Colleges and Universities (HBCUs). FOSSI is the chemical industry's first major program to increase the participation of underrepresented minorities within the STEM professions. We are gratified to report, in its inaugural year of 2021, FOSSI provided scholarships to 151 STEM scholars. We are also happy to announce that, by the end of 2021, nearly \$15 million has been raised from supporting organizations, with a goal of funding 1,000 scholarships by 2025.

We saw our new Center for Hydrogen Safety grow to 70 member organizations, as it continues to develop training courses and other projects to support the emerging hydrogen economy. We continued to sustain the Rapid Advancement in Process Intensification Deployment (RAPID) Manufacturing Institute beyond its initial DOE funding — developing new courses, a new credentialing program and even a competition for undergraduates.

2021 also saw the growth of our Society for Biological Engineering (SBE), the deepening influence of our Center for Chemical Process Safety (CCPS), and the impact of the AIChE Foundation's Undergraduate Process Safety Learning Initiative, which is preparing the future workforce for the needs of industry.

AIChE — with the support of its stakeholders — continued to advance the chemical engineering profession along the IDEAL path marked by Inclusion, Diversity, Equity, Anti-Racism, and Learning. Without the dedication of its members, AIChE's programming for still-underrepresented engineers — including women, minority, LGBTQ+, disabled, and others — would not have grown into its current and impactful state.

As we optimistically enter into a new era — shaped by what the pandemic has taught us about our work, our shared challenges, and ourselves — the demonstrated competency and invention of our broad community gives us good reasons to be confident.

Our opportunities as a profession continue to be limitless. And, with fresh insights and renewed appreciation for our shared values and objectives, AIChE will continue to serve the needs of humankind.

American Nuclear Society

The American Nuclear Society (ANS) Professional Engineering Examination Committee (PEEC) has been and continues to be responsible for encouraging professional licensure of nuclear engineers. The committee has maintained consistent and reasonable standards for the content of the Principles and Practice of Engineering (PE) examination in Nuclear Engineering since 1973. To ensure adequate turn-over and effective leadership, the chair of the PEEC is designed as a three-year commitment. Dr. Joshua Vajda is the current chair; the vice-chair is Ms. Alexandra Siwy, who will assume the chair appointment in mid-June 2023.

Encouraging Professional Licensure

ANS actively encourages professional licensure of nuclear engineers through several avenues. In the past, the primary methods of communicating with its members on a regular basis included publishing promotional articles in the monthly magazine, *ANS News*, along with organizing periodic technical sessions at ANS national meetings. However, in recent years, new e-services such as broadcast e-mail, the *ANS Newswire*, online collaboration tools, and the launch of the ANS Webinar series have offered new approaches for the PEEC to promote licensure and increase outreach.

In May 2021, the PEEC hosted an interactive ANS webinar titled, *P.E. Licensure: Supply Power to Your Career to Help Power the World*. The webinar promoted the importance of PE licensure. It was open to a broad audience (both ANS members and the public [i.e., non-ANS members]). The webinar provided an overview of the licensing process and positively represented the peaceful applications of nuclear technology and nuclear science to the general population. Panelists from across the industry discussed the importance of professional licensure and the role nuclear professionals play to protect local communities.

To increase professional awareness among young members, the PEEC hosted an interactive panel session at the 2021 Young Professionals Congress (YPC) in Washington, DC. The YPC creates an immersive personal and professional development experience for the nuclear industry's highly motivated next-generation future leaders. Early career professionals and students engage with industry leaders, policy influencers, and advocacy experts. The PEEC session was titled, *Unleashing Your Potential with the Power of Credentials*. Panelists shared their stories about the impacts that certain credentials have had in their careers, including the Professional Engineering license.

Nuclear Engineering PE Exam Preparation Tools

The PEEC has also played a pivotal role in providing study material for industry candidates desiring to take the Principles and Practice of Engineering Exam in the nuclear engineering discipline. Over the last three years (2019 – 2022), the ANS PEEC transitioned from an in-person PE preparation workshop to an online format, known as the PE Nuclear Exam Preparation Module Program. This transition required significant effort with the development of video-based content, which captures several diverse subject areas tested on the nuclear engineering PE exam. Lecture material includes coverage for five topical areas: radiological analysis and consequences, the nuclear fuel cycle, nuclear systems and components, reactor physics, and safety analysis. The PEEC successfully created over 130 ten-minute tutorials/modules that map directly to the National Council of Examiners for Engineering and Surveying (NCEES) blueprint. The modules are instructional with an abundance of fully worked example problems to emphasize practical learning. Since the modules are available year-round and do not require travel to the ANS Annual Meeting, more exam candidates will use this resource for exam preparation.

In addition to the ANS online study modules, the NCEES offers a Nuclear Engineering PE Practice Exam for purchase. This study aid was developed in 2019 by the PEEC in collaboration with NCEES. The NCEES practice exam contains 85 exam questions. It simulates the format, style, and level of difficulty of actual exam questions and provides solutions to enhance examinee understanding for each blueprint area. Purchase of the NCEES Nuclear Engineering PE Practice Exam is provided on the NCEES website (<https://account.ncees.org/exam-prep/>).

American Nuclear Society Support

The ANS Board of Directors continues to maintain a supporting position on professional licensure and the NCEES organization: (1) ANS provides financial support for one PEEC member to travel to the ANS Student Conference each year. The PEEC representative typically hosts a lunch-and-learn session on licensure, participates in the career fair, and often acts as a judge for student research presentations; (2) ANS provides financial support for one PEEC member to attend the annual NCEES Participating Organizations Liaison Council (POLC) meeting; and (3) the PEEC organizes periodic technical sessions at ANS national meetings to promote P.E. licensure, including last year's ANS YPC meeting in Washington, DC.

Thanks

ANS thanks the NCEES for its support and interest, especially in the matter of ensuring examination quality. We appreciate the NCEES-sponsored opportunities the last several years for Group II exam committee meetings. We look forward to continuing exam development activities and to continue improving nuclear safety standards across the industry.

American Society for Engineering Education

During 2020–21, the Society initiated and operated the following task forces:

- Curriculum – to take a fresh look at the preparation of engineers and ways to fundamentally improve the access, diversity, and success of undergraduate engineering students;
- Journals – to propose policies, procedures, and mechanisms to achieve greater integration of scholarly publications with ASEE governance and operations. This resulted in the creation of the Scholarly Publications Committee to integrate oversight, leverage, and collaboration across ASEE's suite of national and division journals.
- Faculty Teaching Excellence – to identify a progressive scale of benchmarks for high- quality teaching and to develop a recognition scheme for various levels of attainment.

In 2020–2021 we launched the Developing Engineering Leaders of Tomorrow in the Academy (DELTA) Institutes with four short courses: the DELTA New Faculty Institute, Future Faculty Institute, New Department Leaders Institute, and Junior Faculty Institute. We also began offering a series of online Distinguished Lectures; the inaugural speaker was Dr. Maria Klawe, president of Harvey Mudd College. Additionally, we provided an expanded array of new short courses, workshops, and webinars of direct service to members.

We were also able to support community convenings with support from the National Science Foundation (NSF), which led to tangible community opportunities in computing, engineering, and science. For example, a 2019 workshop we hosted was translated into an NSF program solicitation for the Engineering Research Visioning Alliance.

With NSF and private foundation support, we engaged in several initiatives to enhance diversity, equity, and inclusion in engineering education. For example, we hosted workshops to increase the competitiveness of Minority-Serving Institutions for NSF grants in computing, and continued a virtual initiative to enhance the knowledge of engineering deans and their teams on

effective means of advancing women engineering faculty into leadership positions. We expanded career opportunities for recent doctoral graduates by continuing our work to place engineering and science post-docs in start-up companies and initiating a new effort that helps recent engineering doctoral graduates obtain two-year post-doc positions at US academic institutions as an employment bridge. Both of these endeavors emphasized outreach to diverse communities. We also continued our operation of the only NSF grant to explicitly support building supportive engineering education environments for members of the LGBTQ+ community.

Annual Conference

For the second year, ASEE's members, colleagues, and partners gathered virtually, with over 2,000 participants convening for our 128th Annual Conference and Exposition.

The conference offered three plenaries. One featured University of Maryland President Darryll Pines, with remarks focused on the "Grand Challenges." In another, Gary Bertoline, then-dean of the Purdue Polytechnic Institute, led a group to discuss needed changes in engineering curricula and the task force he is chairing on this effort. Our third, the "industry day" plenary, featured Jeff Abell, chief scientist for global manufacturing, global research, and development at General Motors.

Resource Central

To support the continued learning and career success of our members, in 2020–21 ASEE launched educational programming in the form of eight new virtual instructor-led workshops and courses, addressing topics such as proposal preparation, effective instruction, and leadership. In addition to the DELTA Institutes, courses included training for faculty of all levels; a Master Class on effective teaching led by Barbara Oakley, co-teacher of *Learning How to Learn*, the world's most popular MOOC; and Replacing Implicit Bias: Recognize, Reconsider, and Respond, an interactive workshop for educators, administrators, and staff focused on bias recognition and mitigation. ASEE's educational workshops and courses reached over 800 members and constituents via both public and private trainings.

Recognition for ASEE Leadership

ASEE President Sheryl Sorby received the 2020 IFEEES Duncan Fraser Global Award for Excellence in Engineering, presented at a ceremony in the fall of 2021, in recognition of her work re-envisioning engineering education around the world. Sorby was also awarded ABET's Claire L. Felbinger Award for Diversity and Inclusion, recognizing US-based educational units, individuals, associations, and firms for extraordinary success achieving diversity in the technological segments of our society.

ASEE Past President Stephanie Farrell was presented with AIChE's 2020 IDEAL Star Award for her work with LGBTQ+ Safe Zone Training in conference programming. The award recognizes AIChE members who have created successful programming to progress the IDEAL path through engaging, inclusive content with an emphasis on topics pertaining to inclusion, diversity, equity, and/or anti-racism. Farrell received the award at a ceremony in 2021.

Advances in Engineering Education

Advances in Engineering Education (AEE) is an internationally recognized, practice-based, peer-reviewed journal that fills a much-needed niche in the field of engineering education. *AEE* documents and disseminates research-informed, education-related innovations in engineering education contexts. Particularly unique to *AEE* is that authors are encouraged to submit papers

incorporating the creative use of multimedia, including animation, audio, graphics, and video. This year marked the formal transition to Holly Matusovich as the new editor-in-chief.

Journal of Engineering Education

Cultivating, disseminating, and archiving quality research in ways that reflect the diversity of experiences and perspectives within the engineering education community is at the core of ASEE. This is also the mission of ASEE's *Journal of Engineering Education (JEE)*.

JEE is widely recognized as the premier publication for scholarly research on engineering education. Under the editorship of Lisa Benson, Clemson University's College of Engineering, Computing, and Applied Sciences and the Department of Engineering and Science Education have generously supported *JEE*.

Data Analytics and Institutional Research

ASEE is the leading source of information for industry, academic, and government leaders who need to know what the potential engineering and engineering technology workforce looks like today and could be tomorrow. ASEE data:

- Help our industry partners identify new recruits for employment and areas where the graduating workforce can support new technological expansion;
- Give institutional leaders the tools to show government stakeholders progress and identify new targets of opportunity;
- Enable local, state, and federal decision makers to use sound judgment in developing the current and future engineering workforce.

Public Policy

ASEE's institutional and individual members are deeply concerned with funding for engineering, engineering technology, and engineering education research; support for engineering and engineering technology education at all points in the education pipeline; and policies that further the technological literacy of Americans.

ASEE's annual public policy colloquium of engineering deans virtually assembled approximately 150 participants for a two-day event comprising briefings on the federal landscape as it relates to STEM funding and support. With the assistance of Lewis-Burke, our government relations firm, the PPC agenda was robust, and participants scheduled virtual Hill visits with their representatives on the event's final day.

Diversity, Equity, and Inclusion

ASEE is catalyzing open and thoughtful dialogue to identify and acknowledge underserved constituencies and advocate for their enhanced participation, inclusion, and success. The Society is promoting promising practices of inclusiveness and modeling public accountability.

ASEE's Commission on Diversity, Equity, and Inclusion (CDEI) is working to: 1) increase visibility and discussion of DEI issues; 2) develop guidance to foster inclusive environments in which all engineers thrive; and 3) facilitate and encourage adaptation of strategies to promote the empowerment of all through the work of the commission, guided by the CDEI strategic framework.

The commission published regular blog posts to highlight its efforts and promoted colleagues' work through the *Scholar Spotlight Series*, guest blogs, and articles in *Prism* magazine. It issued position statements affirming commitment to policies and initiatives that promote equitable outcomes and highlighted individual actions. These additional resources supplemented the

programmatic arm of CDEI, which includes year-round professional development virtual workshops in addition to the valuable content provided at the annual conference.

Equity for Engineering Technology Graduates

At its February 2022 meeting, the ASEE Board authorized Society President Adrienne Minerick and Executive Director Norman Fortenberry to initiate a discussion with NCEES leadership on the rationale for limiting eligibility for participation in the NCEES Engineering Education Award to “All EAC/ABET-accredited programs from all engineering disciplines,” which implies an exclusion of all ETAC/ABET-accredited engineering technology programs.

The issue was raised based on ASEE’s [February 2, 2020 policy statement](#) asserting that baccalaureate graduates from ETAC/ABET-accredited engineering technology programs are fully capable of protecting the health, safety, and welfare of the public and should, therefore, be eligible, without additional requirements, to become licensed professional engineers.

NCEES CEO David Cox replied to ASEE’s query with history of the NCEES current policy. He also stated:

“[NCEES] President-Elect Duhamel has agreed to charge the incoming education committee with reviewing your request and presenting a recommendation next year. I will make sure you have the opportunity to present your thoughts to the committee once they start their work this fall.”

In addition, the NCEES Future of Licensure Task Force has recommended updating NCEES Position Statement 35, [Framework for Future Engineering Licensure](#), to include a bachelor’s degree in engineering technology among its pathways for licensure.

American Society for Photogrammetry and Remote Sensing

Established in 1934, the American Society for Photogrammetry and Remote Sensing (ASPRS) is a scientific association serving over 2,000 professional members around the world, providing its members professional development through education and networking experiences, professional certification, publications, scholarships, and other services. ASPRS advances the knowledge and improves understanding of mapping sciences to promote the responsible applications of photogrammetry, remote sensing, geographic information systems (GIS) and supporting technologies.

ASPRS Headquarter News

The ASPRS Board of Directors announced the appointment of Karen Schuckman as the Executive Director of ASPRS August 1, 2021.

Schuckman’s involvement with ASPRS began in 1990 as a member of the California State University, Fresno Student Chapter. She has since served the Society in a wide variety of elected regional and national positions and is a Past President and Fellow of ASPRS, former Director of the Photogrammetric Applications Division and Professional Practice Division, Certified Photogrammetrist, and Certified Mapping Scientist-Lidar. She has won numerous awards from ASPRS including the 2018 Outstanding Service Award.

The ASPRS office has moved. All mail, etc. should be sent to the address listed below.

ASPRS Office
8550 United Plaza BLVD
Suite 1001
Baton Rouge, LA 70809
Office: 301-493-0290, office@asprs.org

Geo Week 2022

For the first time since the 2018 conference the annual Geo Week conference was held in person February 6-8th at the Colorado Convention Center in Denver, CO. Geo Week is a combination of the AEC Next Technology Expo, ILMF (International Lidar Mapping Forum), SPAR 3D Expo, MAPPS (Management Association of Private Photogrammetric Firms) and the USIBD (US Institute of Building Documentation) Annual Symposium conferences. The conference had over 140 vendors in the exhibit hall and over 2100 attendees representing 49 states and 48 countries. The conference had over 125 speakers including keynote presentations from NASA, USGS, Microsoft, NVIDIA and others.

Next year's conference is planned for February 13-15, 2023 in Denver, CO.

ASPRS 2022 Virtual Technical Program, March 21-25, 2022

ASPRS is hosting a live webinar event consisting of oral presentations, panel discussions, and an online poster gallery. This event will be recorded and made available on-demand. Geo Week attendees will be granted full access to this program without additional registration fees.

ASPRS 22nd William T, Pecora Memorial Remote Sensing Symposium (Pecora 22)

This will be held in Denver, CO from October 23-27, 2022. It will be hosted by NASA and the USGS. The theme for the conference is "*Opening the Aperture to Innovation: Expanding Our Collective Understanding of a Changing Earth*", which embraces both the innovations and discoveries that resulted from 50 years of Landsat observations, and also current and future innovations in science and technology that contributing to our ability to improve our understanding and better manage the Earth's environment.

Certification News

Improvements in Application Process

- Over the last 12 months the ASPRS Evaluation for Evaluation for Certification Committee completed its transition to the Prometric computer-based testing platform for all exams and has improved the online application process.
- All exams, grading and test coordination is now provided through Prometric alleviating a significant workload from volunteer committee members and P&N staff.
- We have transitioned the "certificate" program from the previously hand drafted (calligraphy) approach to laser printed certificated allowing the Baton Rouge based P&N staff to print and directly ship all certificates to credentialed members.

Improvements to Applicant Experience

As soon as an individual makes application for a certification said individual can also track the progress of their individual application status by logging into their own account make and going to the "**My Certifications**" tab on their profile page where they can see when applications have been received (and from whom) as well as when their application has been sent to the Review Committee.

Improvements in Web Site Interface

All Evaluation for Certification web pages are combined into the **ASPRS Certification Guidelines** document providing applicants with a downloadable set of instructions and information about the program. The consolidation has also streamlined the process of updating said guidelines document which now is accomplished by updating/ and linking a new PDF file to the web site whenever changes are necessary. This is now be done by headquarters staff without the need for HTML modification of the web pages by a web host.

Improvements in Information Available to the Public

The “**Find Certified Professionals**” search function to allow the public to see all Certifications held by individuals, both current and expired. The search function also shows status of any individual certification that has been revoked or suspended.

The Evaluation for Certification Committee is looking for currently credentialed volunteers to retake their respective examinations to validate the cut scores on all exams. This is a requirement of our CESB recertification process

Potential examinees will be required to take the exams through the current Prometric computer-based testing program either in person at a Prometric facility or utilizing the remote-proctor web-based testing format.

CESB Program Recertification

- ASPRS is in the process of continuing with our CESB Recertification.

Documentation of cut score procedures are required to be prepared to allow for CESB rectification of all programs and are due by the end of 2022.

American Society of Agricultural and Biological Engineers

ASABE Membership Profile

ASABE currently has 6,349 members and has grown undergraduate student membership by 956 since August 31, 2021. Approximately 35% percent of nonstudent members hold PE registration in one or more states.

Venues for Licensure Discussion

ASABE EOPD-414 Winter Item Writing Workshop, February 8-9, 2021, virtually
ASABE EOPD-414 Fall Item Writing Workshop, September 21-22, 2021, virtually
ASABE EOPD-414 Fall Exam Review Workshop, November 3, 2021, virtually
ASABE EOPD-414 Writing Workshop, February 7-8, 2022, NCEES Headquarters, Greenville, SC

The 2021 ASABE Annual International Meeting was held virtually. EOPD-414 and Professional Engineers Institute held a joint meeting (virtually) July 7, 2021, ahead of the Annual International meeting. An information session, “Guide to Professional Licensure”, moderated by Professional Engineers Institute Chair, Gayle Baker, P.E., was held July 12, 2021 as a special session of the Annual International Meeting.

Examinations

The majority of students and graduates from ABET-accredited Agricultural and Biological Engineering programs sit for the Other Disciplines (OD) module of the NCEES FE examination. FE OD exams had a 65% pass rate for the July-December 2021 administrations for 455

examinees. Historically, the FE OD exam has had pass rates ranging from 77 percent to 85 percent for first-time takers. Of the 455 examinees in the July-December 2021 time period, 57 individuals self-reported to be from Biological (non-Biomedical) programs. Pass rates for first-time takers was 77%.

The Principles and Practice Exam for Agricultural and Biological Engineering was administered in October 2021. Pass rate for 33 first-time examinees was 82%; there were no repeat examinees.

ASABE EOPD-414 Engineering Licensure committee is responsible for maintaining and enhancing professionalism of the members of ASABE by providing services related to the Principles and Practice of Engineering (PE) Exam for Agricultural and Biological Engineering. Major activities for EOPD-414 this past year included the October PE Exam offering, Supplied Reference Handbook (SRH) and updated practice exam (available now at NCEES.org), and updating the Exam Specification (effective October 1, 2021) to reflect Computer Based Testing format.

The EOPD-414 committee made available the draft Supplied Reference Handbook on the ASABE website for examinees and other PEI members for proofing and critique ahead of its use in the first CBT offering in October 2021. The official SRH will be made available by NCEES. In preparation also for the CBT offering, the committee continued to build up the bank of active exam items and revised the practice exam. A new specification for the Agricultural and Biological Engineering PE Exam based on the recent professional activities and knowledge study (PAKS) study is available. The new specification will be effective for the 2022 exam administration.

Licensure Promotion and Encouragement

ASABE promotes professional licensure in a variety of ways, including helpful resources and links on the ASABE Career page on their website, <https://www.asabe.org/Careers>; active volunteer support on the ASABE Engineering Licensure Committee, Young Professionals Community, and Professional Engineers Institute; and continuing education opportunities.

The Professional Engineering Institute of ASABE (PEI), a not-for-profit professional and technical institution within ASABE, strives to foster the ideals of the professional engineer and to help the public understand the diverse and unique knowledge base of agricultural and biological engineers (120 PEI members). PEI annually recognizes a licensed engineer who has made outstanding contributions to the engineering profession, the public welfare, and/or humankind with the PEI Professional Engineer of the Year Award. Some EOPD-414 members active in PEI also are active in ASABE's Engineering Ethics committee; promotion of licensure and ethics are integral to promotion of professionalism.

Sessions are held at ASABE Annual International Meetings on topics such as “incentivizing and facilitating undergraduates to take the FE exam” and “guide to professional licensure”. PEI, the Dale Wm. Zimmerman PE Fund of the ASABE Foundation and the ASABE Board of Trustees have partnered to provide two incentives for first-time candidates – 1) reimbursing Agricultural and Biological Engineering PE Exam registration fees up to \$300; and 2) giving \$150 to takers to be used in any way they see fit. Repeat candidates can receive the \$150 incentive payment.

ASABE has initiated a mentoring program, matching individuals who plan to take the PE exam with engineers who have relatively recently passed the exam.

Continuing Education

ASABE trained more than 1,500 participants in conferences and webinars in 2021. Due to the COVID-19 pandemic, meetings continued to be held in a virtual format. ASABE continues to offer a number of free services (including subject matter review webinars) to assist examinees in preparing for the Principles and Practices Examination (PE Exam) for Agricultural and Biological Engineering and continues to provide economic incentives to first-time and repeat test takers.

Training occurs through Continuing Professional Development sessions preceding ASABE Annual International Meetings. The ASABE Engineering Ethics Committee provides CEU opportunities through technical sessions at the ASABE International Meeting, as well as student engineering ethics competitions, including video and essay competitions. The student activities are excellent opportunities for students to engage with practicing professional engineers.

PDH Engineer has changed their requirements and dropped ASABE as a participating Society.

Committee Assignments

The chair of the ASABE Professional Engineering Institute is Gayle Baker; Ajay Kumar chairs the ASABE EOPD-414 Professional Licensure committee; and Andy Hale chairs the ASABE EOPD-204 ABET accreditation committee. EOPD-414 past chair Naomi Bernstein is the ASABE representative to NCEES EPE, and Dana Porter represents ASABE on NCEES-POLC. ASABE past-president Mary Leigh Wolfe, Professor and former Head of the Department of Biological Systems Engineering at Virginia Tech, was the 2019-2020 ABET past president and is the ABET IDE Council Chair.

Standards

ASABE's Standards program continues to thrive, thanks to the dedicated efforts of committee members and the longstanding support of industry partners. The committee work is powered by close to 2,000 unique volunteer positions. The 2021 ASABE Standards CD includes 283 standards, with 33 active projects. In comparison, the 2004 Standards collection comprised 217 standards. Additionally, ASABE has nationally adopted 60 ISO Standards as American National Standards; in 2004 there were four such national adoptions. In the U.S., the right to nationally adopt ISO Standards is granted to the organization who administers the U.S. position for a specific ISO Technical Committee or Subcommittee. ASABE currently has responsibility for sixteen ISO/US Technical Advisory Groups (TAGs); in 2004, ASABE administered only two TAGs.

Publications

Recently published, the goal of the open access *Irrigation Systems Management* textbook (<https://www.asabe.org/ISM>) is for the reader to understand the complexities of irrigation systems and how they are to be managed to meet the water needs of the crop production system. It is not an irrigation engineering design book. The intended audience of the book is upper-level undergraduate students and graduate students who are pursuing degrees in agricultural or natural resource sciences.

Our peer reviewed journal *Transactions of the ASABE* has been renamed to *Journal of the ASABE* beginning with 2022. Our Editor in Chief, Garey Fox, is now providing an optional literature review service for journal authors that provides a list of key articles from our journals that are related to their topic. The most recent impact factor for *Transactions of the ASABE* increased for the seventh year in a row and now stands at 1.188. The average number of days to first decision over the past year is about 63 days.

There were two special issues of *Resource* magazine produced over the past year. The March/April issue was dedicated to “Transforming Food and Agriculture to Circular Systems.” The September/October “Discover” issue of *Resource* magazine showcases opportunities in agricultural and biological engineering. Published every third year, this issue spotlights schools and students that are leading the way and promotes agricultural and biological engineering to prospective students. It also describes up-to-date career possibilities and lists the universities and colleges that offer relevant degree programs.

K through 12 STEM Programs

ASABE reaches out to students and educators throughout the year through staff- and member-led activities. The Society produces a variety of printed and digital career-related materials that include flyers, brochures, and special issues of *Resource* magazine that focus on career options in agricultural and biological engineering and technology. ASABE members are encouraged to use these materials in local Engineers Week and other STEM-related events. In addition, we support DiscoverE and the National FFA Organization and participate in their events and programs as we are able.

Diversity Efforts in ASABE

The vigor and growth of the Society depends upon cultivating a diverse, thriving, and engaged membership, and ASABE is providing resources and support to create a society in which all feel welcome.

The Society is a charter member of the Societies Consortium on Sexual Harassment in STEMM. The consortium has become a valued resource for codes of conduct and best practices that advance equity in our programs and activities.

Board-level discussions and member input led to the creation of the IDEA (Inclusion, Diversity, Equity, and Access) committee. This committee provides a proactive educational approach toward IDEA topics, organizing in-person and virtual opportunities for continued professional development and toward creation of a shared understanding of IDEA concepts.

A grassroots effort led to the creation of BIPOC (Black, Indigenous and People of Color) in ASABE. This group is open to all and is focused on providing networking, mentoring, and professional development opportunities.

Engaging Membership

Although the COVID-19 pandemic has moved many events to an online format, ASABE has responded with virtual opportunities for networking and learning. The new ASABE Member Hour initiative had more than 550 participants in its initial series. The ASABE Board of Trustees and Membership Department have created new opportunities to engage students and have increased undergraduate memberships by more than 956 individuals. We have added two new student competitions and a major award focused on Inclusion, Diversity, Equity, and Access.

American Society of Civil Engineers

Supporting professional licensure is integral to the American Society of Civil Engineers’ (ASCE’s) mission to advance civil engineering and protect the public health, safety, and welfare. Some of ASCE’s programs to further that mission are described below.

Promoting P.E. Licensure

ASCE strongly supports professional licensure and actively encourages all civil engineers to become licensed. ASCE has numerous programs to support licensure to provide for the public's health, safety, and welfare. Some of these include:

Policy Statements – ASCE has 9 policy statements that address various aspects of licensure and help it to promote licensure. In 2021, ASCE updated 3 policies: PS 385 Licensure Requirements for Government Engineers, PS 425 Continuing Professional Development for Licensure, and PS 450 State Licensure Boards for Professional Engineers.

In 2022, ASCE is in the process of reviewing and updating PS 432 Licensure Examinations, PS 524 Advanced Credentialing within the Civil Engineering Profession, and PS 559 Licensure of Civil Engineering Faculty.

All of ASCE's policy statements can be viewed on our web site at <https://www.asce.org/advocacy/policy-statements>.

ASCE's Committee on Licensure promotes the licensure of civil engineers, collaborates with other key stakeholders, such as the Alliance for Responsible Professional Licensing, and monitors, supports, and encourages licensure activities and policies.

Published Resources –Copies of publications may be requested from professional@asce.org. They include:

- “Guidance on Licensing and Ethical Responsibilities for Civil Engineers” provides guidance on the licensing process, the importance of licensure, and technical and ethical responsibilities of licensed civil engineers. <https://www.asce.org/-/media/asce-images-and-files/career-and-growth/ethics/documents/licensing-ethics-guidance.pdf>
- “Guide to Professional Engineering Licensure for the Construction Engineer” is intended to assist the engineer working in construction in the process of pursuing licensure as a Professional Engineers. <https://www.asce.org/-/media/asce-images-and-files/communities/institutes-and-technical-groups/construction/documents/construction-engineering-pe-guide.pdf>
- ”Engineers Guide to Pre-Licensure Experience” intended to be a resource for both Engineer Interns and their employers and mentors. The guidelines note that, while not required by licensing boards, the capabilities described are important for career development. https://www.asce.org/uploadedFiles/Education_and_Careers/Licensure/Content_Pieces/Engineers%20Guide-flierFINAL.pdf

Accreditation – Through its membership in ABET, Inc., ASCE supports accreditation of engineering degree programs, a vital component of licensure requirements in many jurisdictions. ASCE is the lead society for all civil engineering, architectural engineering, construction engineering, civil engineering technology, architectural engineering technology, and construction engineering technology programs accredited through ABET. This means that ASCE develops and proposes program criteria for programs in those areas, as well as recruits and coordinates volunteer program evaluators to visit and evaluate each program on a regular schedule.

Recognition – ASCE's Walter LeFevre Award is made annually to a program at an academic institution that offers an ABET accredited civil or related undergraduate engineering program. Recipients are recognized for their actions in promoting licensure, ethics, and professionalism,

and ASCE membership is not a consideration for this award. In addition, many of ASCE's awards require the individuals who are recipients to be licensed. <https://www.asce.org/awards/>

Vision for the Future of the Civil Engineering Profession

Civil Engineering Body of Knowledge

The 3rd edition of ASCE's *Civil Engineering Body of Knowledge for the 21st Century* (CEBOK) was published in 2019. The CEBOK defines the knowledge, skills and attitudes necessary for entry into the professional practice of civil engineering. It is comprised of outcomes accomplished through formal education, experience, and self-development. The CEBOK establishes standards for education and experience that address the educational reform discussed in *The Vision for Civil Engineering in 2025* and *Achieving the Vision for Civil Engineering in 2025*. It reinforces the need for enhanced educational requirements for the professional practice of civil engineering.

The Civil Engineering Body of Knowledge has been discussed at many of the major gatherings of ASCE members since the first edition was published in 2004 and has served as a useful reference to others developing their own bodies of knowledge, such as NSPE. Many civil engineering university programs within the United States have used elements of the CEBOK to design and implement their undergraduate curricula.

ASCE's Policy Statement 465 supports the attainment of the Civil Engineering Body of Knowledge (CEBOK) as a requirement for exercising responsible charge in the practice of civil engineering.

Engineer Tomorrow

ASCE's Engineer Tomorrow initiative is focused on ensuring that today's civil engineers gain the necessary knowledge, skills, attitudes, and experience to sustain the profession in the future. For decades, ASCE has been central to examining and shaping civil engineering education. Through its forward-thinking *Civil Engineering Body of Knowledge: Preparing the Future Civil Engineer*, ASCE has defined the knowledge, skills, and attitudes that civil engineers need for exercising responsible charge in the practice of civil engineering.

Complex challenges facing 21st-century society require professional civil engineers to advance their technical excellence and leadership to continue to protect the public. Future civil engineers will need to master many new fields, such as sustainability, computer applications, advanced materials, nanotechnology, and the like.

While the knowledge, skills and attitudes needed to practice civil engineering have increased steadily, the educational standards for our profession have remained virtually the same for decades. **The current engineering education will not be sufficient to prepare civil engineers to address the civil engineering challenges of the future.**

Civil Engineering Technologist Body of Knowledge

ASCE developed the *Civil Engineering Technologist Body of Knowledge* (CET-BoK) to describe functional areas a civil engineering technologist might work in and the skills required to perform in those areas at a professional level. The CET-BoK was published in 2019 and may be downloaded for free from the ASCE Library at <https://ascelibrary.org/doi/book/10.1061/9780784415382>. In addition, ASCE is the lead society within ABET for accreditation of programs in civil engineering technology, architectural engineering technology, and construction management technology.

While there is a well-developed civil engineering body of knowledge that defines the knowledge, skills, and attitudes needed for professional civil engineering practice, there is no equivalent description of the body of knowledge that a Civil Engineering Technologist should have to be considered competent in that role. There are formal international agreements that provide information about engineering technologists, but that information was developed for accreditation – not as a foundation for a body of knowledge. In addition, the international agreements have not been found to align well with United States practice and are not sufficiently specific to inform at a body of knowledge level.

Specialty Certification for Civil Engineers and Guided Online Course and Certificate Programs

Civil Engineering Certification, Inc. (CEC), a separately incorporated and wholly owned subsidiary of ASCE, was established in August 2004 to support professional certification academies for civil engineering specialties. The American Academy of Water Resources Engineers (AAWRE), the Academy of Geo-Professionals (AGP), and the Academy of Coastal, Ocean, Port & Navigation Engineers (ACOPNE) were created and are led by CEC.

Diplomate credentials are awarded by these academies to professional engineers who demonstrate fulfillment of the specialized bodies of knowledge in their respective areas of civil engineering. Requirements include licensure as a professional engineer, a post-graduate degree, eight years' experience beyond the first P.E. license, and a commitment to professional development and ethics.

Information on the specialty certifications and their requirements can be found at <https://www.asce.org/education-and-events/explore-education/certificate-programs>.

ASCE's Sustainable Infrastructure Certificate Program provides knowledge, tools, and techniques needed to design, build, and manage sustainable projects and to take a leadership role in making our infrastructure sustainable.

All courses in the certificate program are offered online and can be accessed 24 hours a day, 7 days a week, providing flexibility to take the courses at times that are most convenient. Completion of four core courses and one elective course is required to earn the Sustainable Infrastructure Certificate. Information on the program is at <https://www.asce.org/education-and-events/explore-education/certificate-programs/sustainable-infrastructure-certificate-program>.

ASCE's Construction Engineering Certificate Program provides knowledge, skills, and techniques needed to take a leadership role in construction project management.

The program includes asynchronous online video lectures as well as synchronous online interactive sessions with an instructor. Completion of four core courses and two elective courses is required to earn 6.0 CEU's and the Construction Engineering Certificate. Information on the program is included at <https://www.asce.org/education-and-events/explore-education/certificate-programs/construction-engineering-certificate-program>.

ASCE's Geographic Information Systems for Asset Management Certificate Program is designed for practicing engineers to develop in-demand skills used to manage GIS applications for infrastructure assets. Upon completion, participants will earn 12 CEUs / 120 PDHs and are able to apply the fundamental concepts of GIS, including development of GIS applications,

implementation of GIS data within existing networks, process improvement using geospatial analysis, and proper maintenance and operation of spatial databases.

Information on the program is at <https://www.asce.org/education-and-events/explore-education/certificate-programs/geographic-information-systems-for-asset-management-certificate-program>.

ASCE's Port Engineering Certificate Program is a series of career-focused courses taught by practicing engineers and university professors providing professional engineers in-demand skills used in the field of port engineering. Upon completion, participants will earn 12 CEUs/120 PDHs and will learn the fundamental concepts of port engineering, the design, construction, and management of port facilities, types of seismic design classifications, and how to interpret geotechnical data.

Information on the program is at <https://www.asce.org/education-and-events/explore-education/certificate-programs/port-engineering-certificate-program>.

ASCE's Structural Earthquake Engineering for Buildings Certificate Program is a series of career-focused courses taught by practicing engineers and university professors and provides professional engineers in-demand skills used in the field of seismic engineering. Upon completion, participants will earn 12 CEUs / 120 PDHs and will learn the fundamental concepts of earthquake engineering, seismic analysis of buildings, and design and detailing of steel and concrete structures. Information is provided for both new and existing buildings.

Information on the program is at <https://www.asce.org/education-and-events/explore-education/certificate-programs/structural-earthquake-engineering-for-buildings-certificate-program>.

ASCE's Water Treatment Certificate Program is designed for the practicing engineer. Upon completion, participants will earn 12 CEUs / 120 PDHs and will learn how to use the technology to make drinking water from groundwater, lakes, rivers, streams, oceans, stormwater, and wastewater reuse to all the planning aspects required to lay the groundwork for a new water treatment plan.

Information on the program is at <https://www.asce.org/education-and-events/explore-education/certificate-programs/water-treatment-certificate-program>.

Other ASCE Initiatives

Communications and State Legislative Activities

ASCE state government relations staff monitors legislative and regulatory trends in the states and watches for new developments in recent efforts to erode all occupational and professional licensure. ASCE staff works with local ASCE groups and members to oppose new state legislative proposals that could weaken the contribution of P.E. licensing to the health, safety, and welfare of the public.

Additionally, ASCE is a member of the Alliance for Responsible Professional Licensing (ARPL). The Alliance promotes a balanced approach to professional licensing and aims to educate policymakers and the public on the importance of high standards, rigorous education, and extensive experience within highly complex, technical professions that are relied on to protect public safety and enhance public trust. In the past year, ARPL has pivoted advocacy efforts in

the states, developing model legislation related to universal licensure and least restrictive means, as well as right to work.

Infrastructure Advocacy

In 2021, ASCE released the 2021 Report Card for America's Infrastructure. The previous report was released in 2017. <https://www.infrastructurereportcard.org/>

The 2021 Report Card

In 2021, ASCE released an updated Report Card for America's Infrastructure, which gave the nation's infrastructure a cumulative grade of "C-." This is the first time since ASCE developed the quadrennial infrastructure Report Card that the cumulative grade was outside of the "D" range. The Report Card also identified a growing infrastructure investment gap, however in November President Biden signed the historic, \$1.2 trillion Infrastructure Investment and Jobs Act (IIJA).

The IIJA represents a historic, once-in-a-generation investment in our roads, bridges, water and wastewater networks, ports, electric grid, dams, and more. It increases funding, makes smart improvements to policy such as streamlining permitting, and creates new programs targeted at all 17 categories in the 2021 Report Card for America's Infrastructure. The bill is a significant down payment on the \$2.5 trillion infrastructure investment gap that was identified in the 2021 Report Card and will benefit American businesses and families for years to come. Furthermore, IIJA answers 43 of the recommendations included in the 2021 Report Card for America's Infrastructure.

Additionally, during the IIJA campaign, ASCE members were instrumental in advocating for the bill, with over 4,000 emails sent to Members of Congress in support of the legislation.

ASCE is now focused on ensuring IIJA funds are spent effectively and in order to track agency action, ASCE has developed an IIJA implementation portal that acts as a one-stop shop for ASCE members.

ASCE's Future World Vision

ASCE has undertaken a rigorous examination of future macrotrends that will impact the infrastructure 10, 25, and 50 years down the line. ASCE's Future World Vision is an interactive, immersive experience exploring the built environment of 2070. Identified trends for the project include alternative energy, autonomous vehicles, climate change, smart cities, high-tech advanced materials, and policy and funding. The goal of the project is to through understand the implications of these trends on the profession and help civil engineers prepare themselves, and the build environment, for what lies ahead. On February 22, 2022, ASCE released the Mega City, which examines how civil engineers can accommodate a population of 50 million, while still preserving a city's historic character, promoting accessible green space and supporting a diverse array of lifestyles. In 2019, ASCE unveiled the Floating City.

ASCE's Grand Challenge and Innovation Competition

ASCE has taken on the challenge to find ways to significantly enhance the performance and value of infrastructure projects over their life cycles by 2025 and to foster the optimization of infrastructure investments for society in its Grand Challenge initiative. Support for Grand Challenge continues to grow and now, nine years later, Grand Challenge concepts have been integrated into ASCE activities across the Society.

Details are at www.ascegrandchallenge.com.

The Final competition for the ASCE Innovation Contest will take place in the Fall of 2022, in conjunction with ASCE's convention. The mission of the 2022 ASCE Innovation Contest is to develop an innovation that addresses one (or more) of the UN Sustainability Goals as envisioned fitting into the Future World Vision Project, "Infrastructure Reimagined."

ASCE Participation with NCEES

ASCE maintains formal relationships with NCEES through several ASCE Member liaisons and ASCE Staff Contacts, listed in the Appendix.

ASCE Annual Convention

ASCE's 2021 Convention will be held October 23–26, 2022 in Anaheim, California.

<https://convention.asce.org/>

American Society of Heating, Refrigerating, and Air-Conditioning Engineers

Mission: To serve humanity by advancing the arts and sciences of heating, ventilation, air conditioning, refrigeration and their allied fields.

Vision: A healthy and sustainable built environment for all.

ASHRAE Report

ASHRAE's success is a testament to the outstanding work of our more than 51,000 members worldwide who make up our great society and strive to fulfill our mission and support our vision. Our society is led by our 2021-22 President Mick Schwedler, P.E., LEED AP whose theme for this Society Year is "*Personal Growth. Global Impact. Feed the Roots.*"

2022 ASHRAE Winter Conference & AHR Expo

- In February of this year, ASHRAE held its 2022 Winter Conference which was presented in a hybrid format with in-person attendance in Las Vegas and virtually.
- The Winter Conference had more than 2,800 registered attendees, offered 50 technical sessions, 19 ASHRAE Learning Institute courses, updates from Society leaders, tours, social events and livestreamed sessions for virtual attendees
- For the first time in 2 years, the AHR Expo offered a total of 1,573 exhibitors, with 281 international exhibitors, occupying 443,769 sq. ft. of exhibit space in the Las Vegas Convention Center and attended by more than 43,000 people

ASHRAE Global Headquarters Grand Opening

- ASHRAE hosted the grand opening celebration for its new global headquarters building in November 2021 marking the completion of a 10 month, \$20 million renovation project to attain NZE status.
- The building's grand opening came at the conclusion of highly successful building campaign that raised more than \$10.3 million in monetary and equipment contributions

ASHRAE Membership

- 199 Chapters; 15 Regions
- View the latest Society Snapshot at ashrae.org/about/society-snapshot.

Board of Directors DEI Advisory Subcommittee

- In 2020, ASHRAE established a Proactive Diversity Task Group to recommend programs and initiatives seeking to eliminate all forms of discrimination and social injustice, and proactively drive diversity through all levels within ASHRAE.
- Accomplishment of the DEI Advisory Subcommittee include:

- Expansion of the ASHRAE Discrimination and Harassment Policy.
- Crafting DEI surveys for members, staff and vendors.

ASHRAE Epidemic Task Force

- The ASHRAE Epidemic Task Forces continues to deploy ASHRAE's technical resources to address the challenges of the current pandemic and future epidemics as they relate to the effects of HVAC systems on disease transmission in healthcare facilities, the workplace, home, public and recreational environments.
- That knowledge has been featured in mainstream media like the Wall Street Journal, Boston Globe, Time magazine, NPR, major TV networks and prominent news outlets.
- ASHRAE is honored to share that the Epidemic Task Force received a Letter of Appreciation from the EPA, Indoor Environments Division Director Johnathan Edwards for their prompt response in organizing the task force and disseminating technical resources early in the pandemic.

Task Force For Building Decarbonization

- ASHRAE's Task Force for Building Decarbonization (TFDB) was formed in Spring 2021 as an initiative to address climate change through responsible decarbonization strategies for the built environment.
- The TFBD was established to develop technical resources and provide leadership and guidance in mitigating the negative carbon impact of buildings on the environment and the inhabitants of our planet.

ASHRAE Vision 2030

- Will serve as a knowledge base for defining how buildings of the future will be designed, constructed, and operated.
- Will continually drive the innovative and strategic improvements needed during the revolution of the built environment.

2019–2025 ASHRAE Strategic Plan Mid-Term Update

- The Strategic Plan was developed by the ASHRAE Planning Committee in collaboration with the Board of Directors to guide the work of the Society during the five-year period from 2019-2024.
- In Spring 2021, the Board of Directors approved a midterm update and one-year extension of the 2019-2024 Strategic Plan.

Member to Member Connection Videos

- A video series from Mick Schwedler, 2021-22 ASHRAE President is patterned after U.S. President Franklin Delano Roosevelt's fireside chats, each month Mick speaks on various topics with ASHRAE members.

Government Affairs

- ASHRAE Government Affairs program works to establish ASHRAE as a leading source of trusted expertise for policy-makers in the development of legislation and regulations affecting the public and HVAC&R industry.
- Government Affairs Update bi-weekly newsletter provides updates on government activities. Subscribe online or by emailing GovAffairs@ashrae.org.

Face-to-Face ASHRAE HVAC Design Training Is Back

- ASHRAE Learning Institute announced the release its HVAC Design and Operations training schedule. Starting March 7, 2022, this training returned to face-to-face and was held at ASHRAE's new training center at its global headquarters building.

Recent ASHRAE Publications

- 14 new and 24 revised publications and standards were approved and published in 2021 including: *ASHRAE Design Guide for Natural Ventilation*, *ASHRAE Guide for HVAC in Hazardous Spaces*, Standard 170-2021, *Ventilation of Health Care Facilities* (ANSI Approved; ASHE Co-sponsored), Guideline 36-2021, *High-performance Sequences of Operation For HVAC Systems*, Standard 188-2021, *Legionellosis: Risk Management for Building Water Systems* (ANSI Approved) and *Standard 90.1 User's Manual*, Based on ANSI/ASHRAE/IES Standard 90.1-2019
- *Lucy's Engineering Adventure* (Children's Book – more than 500 sold)
- *Duct Systems Design Guide*

ASHRAE Global Training Center

- In 2021, the ASHRAE Global Training Center, in Dubai, offered 2 courses to address the rapidly evolving needs of healthcare facilities and data centers.
 - *High Performance Healthcare Facilities Design: Complying with ANSI/ASHRAE/ASHE Standard 170-2017* (MENA)
 - *ASHRAE Healthcare Facility Design Professional (HFDP) Certification Exam*

ASHRAE Learning Institute Courses in High Demand

- Evaluating Your HVAC System's Readiness to Mitigate the Spread of SARS-CoV-2
- V in HVAC – What, Why, Where, How, and How Much
- Complying with Standard 90.1-2019 Part I & II
- Basics of Combined Heat & Power
- Introduction to BACnet

ASHRAE Partnerships and Collaborations

- The American Society for Health Care Engineering (ASHE)
- The Building Owners and Managers Association (BOMA)
- The Chartered Institution of Building Services Engineers (CIBSE)
- Brazilian Congress on Refrigeration, Air Conditioning, Ventilation, Heating and Air Treatment (CONBRAVA)
- International Facility Management Association (IFMA)
- Federation of European Heating, Ventilation and Air Conditioning Associations (REHVA)
- The Sheet Metal and Air Conditioning Contractors' National Association (SMACNA)
- United Nations Environment Programme (UNEP)

2021 ASHRAE Research Strategic Plan

- ASHRAE's 2021 Research Strategic Plan outlines 6 research initiatives for ASHRAE highlighting reduction of CO₂ emissions as priority to ASHRAE.

ASHRAE RP

- 2020-21 campaign raised more than \$2.3 million, an increase from 2019-20 campaign which raised \$2.1 million
- \$1.2 million was expedited for research on A2L refrigerants and to expediate efforts to update ASHRAE Standards

ASHRAE Announces 2021-22 Society Scholarship Recipients

- ASHRAE has announced the recipients of 33 Society scholarships, totaling \$152,000, for the 2021-22 academic year.

COP26

- In late October, ASHRAE was proud to be invited to the United Nations Climate Change Conference of the Parties (COP26) in Glasgow, Scotland. ASHRAE Secretary Ginger Scoggins spoke from a global perspective on the building industry's participation in developing solutions to address greenhouse gas emissions in existing building stock.
- ASHRAE was a signatory to the 1.5°C COP26 Communiqué — an open letter to sovereign governments demonstrating a commitment to meet the Paris Agreement's 1.5°C carbon budget and demanding governments do the same.

American Society of Mechanical Engineers

ASME Membership Profile

- ASME currently has 90,000 members, including 23,000 student members and 15,000 early career members including graduate students.
- Approximately 33% of non-student members in the United States hold P.E. registration in one or more states. An additional 14% have passed the F.E. exam.
- An analysis of membership data shows that members with a P.E. license or who had passed the F.E. exam renew their ASME membership at a higher rate (94%) than non-P.E. s and F.E.s (80%).
- The average tenure of membership for those with a P.E. license or who have passed the F.E. is 12 years longer than the average ASME member.

Conferences That Are Venues for Licensure Discussions

- International Mechanical Engineering Education Leadership Summit Virtual, March 10-11, 2022
- ASME Student Conference “EFest” Virtual March 25–26, 2022
- ASME Annual Meeting, June 18-21, 2022
- International Mechanical Engineering Congress & Exposition (IMECE), TBD

Vision 2030 Project Survey

- From the *ASME Vision 2030* project survey involving over 2,500 experienced mechanical engineers and engineering managers in practice in the U.S.:
 - **51%** of the respondents were Licensed Professional Engineers
 - **79%** did not agree that increasing the educational requirements from a bachelor's degree to a Master's or Equivalent requirement for professional engineer registration was needed. (57% did not agree and another 22% were unsure.)
 - The study brought out a perception gap relative to where entry-level mechanical engineers meet, exceed, and fall short of meeting the needs of industry practice among surveyed industry managers, young engineers in industry and university mechanical engineering department heads for *Vision 2030*.
- The following four high-level recommendations have officially become part of the ASME Engineering Education advocacy strategy:
 - Richer practice-based engineering experience for students
 - Increase student exposure to practicing engineers and their experiences
 - Increase student design/build project experiences in all four years of their degree program

- New balance of faculty research/practice skills within a program
 - Increase the employment of full-time “Professor of Practice” positions for professors with significant industry experience.
 - Increase legacy faculty expertise in professional practice
- Greater innovation and creativity
 - Increasing active, discovery-based learning, teaming, open-ended problems, and problem formulation
 - Collaboration and Innovation as a fundamental tenet of an engineering education
- Increased curricular flexibility
 - More technical electives and areas of concentration within ME undergraduate programs
 - The growing availability of professional Master’s degrees, as opposed to thesis-based, research-oriented Master’s degrees provides increased flexibility for those who elect to pursue a graduate degree.

Licensing That Works (LTW) Coalition

As reported at POLC meetings annually since 2008, ASME and several other professional societies remain unconvinced that a master’s degree or equivalent (MOE) as the minimum education requirement for a P.E. license is a remedy to any current or projected public safety concern or is in the best interests of either the public or the profession.

The ASME Board of Governors has issued a policy statement that describes the ASME position. That position has been formally endorsed by the following organizations:

- American Institute of Chemical Engineers (AIChE)
- American Society of Agricultural and Biological Engineers (ASABE)
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
- American Society of Plumbing Engineers (ASPE)
- Illuminating Engineering Society (IES)
- Institute of Industrial and Systems Engineers (IISE)
- International Society of Automation (ISA)
- Society for Mining, Metallurgy and Exploration Inc. (SME)
- Society of Naval Architects & Marine Engineers (SNAME)
- The Minerals, Metals and Materials Society (TMS)

In addition,

- ASEE Engineering Deans Council’s Executive Board endorsed the Position Statement.
- IEEE-USA and the American Council of Engineering Companies have taken similar positions against MOE.

A Coalition of these societies, called Licensing That Works (LTW), has been formed to support this position and has been active for more than 14 years.

LTW Analysis of Apparent BS Credit Decline: In contrast to a depiction of BS credit hours linearly declining through 2025, an analysis of the change in credit hours between the 1950s and 2010s on the LTW site shows that the linear extrapolation of the decline in credit hours to the year 2025 shown in one organization’s website is misleading. The LTW analysis shows that the technical content of the bachelor’s degree now is about equal to or greater than the technical content of the bachelor’s degree 60 years ago. Most of the decrease in credits is a result of the removal of physical education, ROTC, and basic math and science courses that are now taught in high schools. The extrapolation to 2025 is not supported because the average number of degree credit hours has been constant for several years.

There has been and will likely continue to be an exploding body of engineering knowledge. This has been and will continue to be addressed through curriculum changes and modernization of pedagogical technology through the efforts of the technical societies working cooperatively with EAC/ABET. The outcomes-based assessment of the content of engineering programs used to accredit engineering programs has resulted in better, more focused coursework.

NCEES Position Statement 35

ASME is pleased that three NCEES committees are reviewing NCEES Position Statement 35. ASME opposes the current content of PS-35 which outlines pathways for implementing MOE and the 2017 change that adds an overly stringent and logically flawed alternative to the formal education requirements for MOE defined previously by the Model Regulations.

Codes and Standards

In keeping with the results of the ASME Vision 2030 survey calling for richer practice-based engineering experience for students, twelve teaching modules have been developed relating to the value and use of codes and standards.

Continuing Education

ASME training complies with International Association for Continuing Education and Training (IACET) standards. Through IACET, ASME can offer CEUs that qualify under ANSI/IACET standards. There are over 200 different courses and over 120 eLearning courses.

Examinations

- The NCEES Mechanical Engineering FE exam development committee has consistently prepared exams with high psychometric measures. Historically, the FE exam has had pass rates ranging from 70%-85% for first-time takers. A total of 11,608 individuals took the exam last year.
- A total of 3,364 individuals took one of the three mechanical PE exams in the last year. The pass rates for the exams for first-time takers ranged from 67% to 71% and for repeat takers, 50% to 55%.
- We have been working with our standards and certification staff to allow more excerpts from ASME standards to be included in the reference documents for both the FE and PE exams, including the Metallurgical and Materials PE exam.
- ASME is evaluating the possibility of offering low-cost study groups for individuals preparing to take the FE and PE exams in mechanical engineering.
- A podcast featuring ASME Executive Director Tom Costabile and Managing Director, Governance Dave Soukup on licensing for mechanical engineers is available at <https://podcasts.apple.com/us/podcast/episode-27-education-experience-examination-importance/id1455242683?i=1000491239895>.
- Dave Soukup spoke on licensure using the NCEES Speaker's Kit at the ASME West Texas Section meeting in October 2021 at the November 2021 EFest.

Committee Assignments

- ASME Past President Bob Sims and Dave Soukup of the ASME staff are ASME's representatives to the Engineering Change Lab.

University Initiatives

- In alignment with its goal of empowering and growing a more diverse, equitable, and inclusive technical workforce, ASME launched Community College Engineering Pathways (CCEP), a pilot program with at least six community colleges and three Historically Black Colleges and Universities (HBCU). Research indicates that 3.4 million technical positions will be open in STEM-related fields in the U.S. in the next couple years, and ASME's CCEP

initiative is designed to create alternative pathways to rewarding technical careers for those with relevant two-year degrees, as well as other certifications.

- Awarded 152 scholarships, thanks to the generosity of many donors, including new corporate support from Ansys, Inc. Nearly half went to women and those who are underrepresented in the engineering profession.

K through 12 STEM Programs

- In collaboration with Discovery Education, ASME is the engineering content anchor for online curriculum resources aimed at K-12 students. Discovery's ED platform reaches more than 750,000 students, most in Title I schools, with engaging content that emphasizes the E in STEM. DropMEIn! invites ASME members to visit K-12 classrooms, both virtually and in person, to share their experiences as professional engineers and ignite a passion for problem-solving.
- ASME was awarded a grant from the United Engineering Foundation to assess the duplication of content engineering societies produce for grades K–8. The objective is to see if resources used to create new content that essentially duplicates existing material can be used in other ways to promote STEM in grades K–8. The Executive Directors of the major engineering societies reviewed the final grant report and agreed to continue work on this topic.
- ASME provides 12 \$7,000 scholarships to graduating high school students who were involved in the FIRST Robotics Program for their freshman year in any mechanical engineering undergraduate program. Nominations must come from an ASME Member or Student Member.

California Land Surveyors Association

The California Land Surveyors Association (CLSA) mission statement:

The California Land Surveyors Association advances the interests of the land surveying profession by advocating for the membership, promoting education, and increasing awareness of the profession's value.

CLSA 2022 Officers

President:	Warren Smith
President-elect:	Kevin Hills
Secretary:	Kevin Nehring
Treasurer:	Joe Padilla

Our Board of Directors holds four meetings per year. Between 2015 and 2019, we have held two meetings in person and two via the Zoom virtual platform annually. This made the transition to virtual Board meetings during the pandemic easier. Since February 2020, we have only held the July 2021 meeting as a hybrid in-person/virtual format. We anticipate returning to an alternating schedule with the July 2022 in-person meeting.

California has lower experience requirements (6 years) to sit for the CA State Specific PLS exam and for the Fundamentals of Surveying exam (2 years) than most other states (and Model Law). Additionally, a Bachelor's degree is not required for licensure as a PLS in California.

An interesting situation with respect to land surveying in California is that Civil Engineers licensed by the state prior to January 1, 1982, have the same privileges to conduct land survey operations as California licensed Land Surveyors. Those engineers are referred to as Pre-82

Civils. These privileges were extended to the Pre-82 Civils due to the educational requirements and typical practical experience most gained as a matter of advancement at the time. Civil Engineers licensed after 1981 only have additional practice authority to perform limited surveying activities as described in the California Professional Engineers Act §6731.1 (https://www.bpelsg.ca.gov/laws/pe_act.pdf), namely topography, construction staking, preparation of electronic or computerized data related to topography or construction staking, and making an accuracy statement regarding topography, construction staking or electronic/computerized data.

CLSA Membership (as of 3/3/2022)

Corporate PLS: 745	California Licensed Professional Land Surveyors (PLS)
Corporate CE: 11	California Pre-82 Licensed Professional Civil Engineers
Associate: 102	California Land Surveyor-In-Training
Affiliate: 78	A person who relies upon the fundamentals of land surveying in their work
Student: 21	Student in a college or university actively pursuing a surveying education
Out of State: 50	California Licensed PLS who resides in a state other than California
Life: 49	Life members are typically California PLS who have served CLSA
Sustaining: 6	Individual, company or corporation supporting CLSA

Publications

The *CLSA eNews* newsletter (<https://www.californiasurveyors.org/news.aspx>) is emailed monthly to our membership and other interested parties. The *California Surveyor* magazine (<https://www.californiasurveyors.org/CalSurv.aspx>) is published twice per year. The NCEES news release regarding the Professional Surveyor Examination PAKS Study will be published in the March, April, and May 2022 editions of the *CLSA eNews*.

Current Issues, Activities and Initiatives

CLSA has faced many of the same challenges over the last two years as the other POLC organizations. We have twenty Chapters throughout the state. Some transitioned quickly and easily to holding meetings via an online/virtual format while others struggled a bit. Attendance has been generally low in the virtual Chapter meetings with most only seeing 8 to 12 members in attendance each month, rather than the typical 20 or more for in-person meetings depending on the Chapter and topic. Some Chapters are returning to in-person meetings as regional restrictions allow.

There seems to be a general shortage of talent for both field and office positions at all levels. Most concerning is the lack of young people (18 to 30) entering the land surveying profession.

CLSA has an active Legislative Committee, and a legislative advocate who monitor new state legislation for impacts to the profession as well as providing proposals to clarify existing law.

CLSA helped NSPS successfully hold the 2021 TrigStar Competition in California in a virtual format. California student, Kendall Sutton of Liberty Ranch High School in Galt, CA was 3rd place nationally.

CLSA established a Young Surveyors Network (YSN) for California. Activities are being planned in conjunction with the Nevada YSN.

CLSA is developing a *Service to Surveying* program to help military service members transition to civilian sector land surveying employment. Our committee has identified different pathways into the civilian sector depending on experience, as well the various Military Occupational Specialties (MOS) that are directly related to land surveying. A key point we would like to emphasize is self-preparation while in the service for the FS exam. Additionally, we have identified points of contact within several of California's military bases, and CLSA members willing to present at those bases and mentor veterans through the various paths. One soldier was connected with private sector employers for interviews within days of kicking off this program, and was hired within two weeks of separation.

CLSA is currently discussing a proposed Memorandum of Understanding (MOU) to join the National Society of Professional Surveyors (NSPS) with our membership at the Chapter level. A vote on the MOU is expected to take place at the April, 2022 virtual Board of Directors meeting.

CLSA worked closely with our National Geodetic Survey (NGS) Regional Advisor to develop and submit the National Spatial Reference System (NSRS) proposal which will incorporate the existing six Lambert Conformal Conic state plane coordinate system zones, two oblique Mercator low distortion projection coordinate systems, and a single statewide oblique Mercator projection. Individual members and some Chapters are performing many GPSONBenchmarks observations. Chapter led efforts contribute specifically to their local area, as well as improve cooperation, coordination, communication and relationships between firms and local agencies. All of these efforts enhance the NSRS and provide data to improve transformation tool development. See the NGS website (<https://geodesy.noaa.gov/GPSONBM/index.shtml>) for details.

State of the Profession Survey

CLSA distributed an on-line survey to 2,121 California licensed land surveyors in June and July of 2021 to identify general land surveyor demographics, specific issues, and concerns. The interesting statistics and findings developed from the data follow:

Overall, the survey had 361 responses – not everyone answered every question, but most did. The total is statistically reasonable as a sample of the population.

- 98% of respondents had over 11 years' experience
- 75% of respondents had over 21 years' experience
- 60% private sector: 6-10 years 2%; 11-20 years 16%; 21-30 years 26%; > 30 years 56%
- 34% public agency: 6-10 years 2%; 11-20 years 35%; 21-30 years 24%; > 30 years 39%
- No respondents had fewer than 6 years of experience

- 63% of respondents are full-time employees
- 23% of respondents are full time self employed

- 80% have medical benefits
- 66% have vision insurance
- 10% have no benefits

- 93% gross income over \$80,000 per year
- 78% gross income over \$100,000 per year
- 53% gross income over \$125,000 per year
- 27% gross income over \$150,000 per year

- Only 2% of respondents expected to reduce staffing in 2021
- 51% of respondents expected to stay the same size with respect to staffing
- 47% of respondents expected to increase staffing.

What are the biggest challenges for the upcoming year?

- 69% Difficulty finding qualified staff
 - 53% Succession Planning/finding/training next generation
 - 45% Too much work
 - 34% Ability to retain qualified staff
 - 26% Scheduling challenges/changes
 - 16% Agency budget issues
 - 15% Regulatory compliance
- Only 13% say 50% or more of their survey technicians have formal land surveying education
 - Only 19% say more than half of their staff will attempt to become professional land surveyors
 - Only 36% required an LSIT for higher level positions i.e. party chief or the office equivalent

Observation: If you are not requiring an LSIT to move up, then how are you addressing Succession Planning and finding & training the next generation?

- 43% of respondents had ZERO LSITs in their office
- 69% of respondents typically deploy 2 person crews
- 21% of respondents typically deploy 1 person crews
- 70% of respondents run 1 person survey party at least some of the time. *How does training happen?*

The top four challenges listed above, and responses to other questions, indicate we are not bringing enough of the right candidates into the profession. We need to bring in those who are willing to work hard but who also have the mental capacity to understand the high-level concepts that land surveyors frequently deal with.

The survey will be repeated moving forward to identify trends and improvements.

Education

CLSA has an active Education Committee and maintains a presence on Advisory Boards for the two Universities and several of the Community Colleges providing land surveying education in California. CLSA even has a liaison to the Oregon Institute of Technology, which is about 19 miles north of California's northerly boundary. CLSA holds monthly webinars which are free to members on a variety of topics. Many CLSA members also participate in the CLSA Education Foundation (501.c3), which is a separate entity from CLSA. The CLSA Education Foundation awarded over \$50,000 in scholarships in January 2022 to students pursuing land surveying education throughout California.

Conferences

Both our 2020 and 2021 conferences were forced into an on-line format by the COVID-19 pandemic. While there were, as always, a few minor technical issues, both conferences turned out to be very successful, and provided our members and partners with top notch sessions and innovative interaction opportunities.

The 2020 Conference was initially planned as a traditional in-person joint conference between Arizona (APLS), California (CLSA) and Nevada (NALS). The event was first postponed from

March to August due to the COVID-19 outbreak in hopes of holding a face-to-face event. As the Coronavirus raged on, and related social gathering restrictions were continued, the conference committee decided to transition/pivot to a virtual conference about 5 weeks before “D-day.”

The 2021 *Western Regional Virtual Survey Conference* was a great partnership among 7 western states (Alaska (ASPLS), Arizona (APLS), California (CLSA), Montana (MARLS), Nevada (NALS), New Mexico (NMPS) and Washington (LSAW)) themed “7 States, One Virtual Conference, Magnificent Opportunities.” One of the amazing aspects of attendee interaction was the feature of proximity-based communication. In a certain portion of the conference website, you attached an avatar to your profile. As you moved the avatar around the screen close to other avatars, you would begin to hear conversations taking place. As you moved closer to another avatar or group, you could hear the full discussion and join in. There were also “rooms” for the vendors so they could discuss technical aspects of their products with the whole group in the room at a normal speaking volume.

For 2022 the Arizona Professional Land Surveyors (APLS), California Land Surveyors Association (CLSA), Nevada Association of Land Surveyors (NALS), Utah Council of Land Surveyors (UCLS), and the Western Federation of Professional Surveyors (WFPS) are partnering to host the *Western Regional Survey Conference*. The Conference, themed “Mapping the Path for the Next Generation.” will be held March 30 - April 2, 2022 at the Luxor Hotel in Las Vegas, Nevada. In addition to four concurrent tracks for licensed professionals, there will be a “technician track” specifically covering topics related to licensure and advancement. Fun events include a live auction and a bowling tournament scholarship fundraisers. Registration is still open: <http://www.plseducation.org/index.html>

For information about CLSA membership, please visit <https://www.californiasurveyors.org/>. As of today, gas prices in the State of California are averaging \$5.074 for regular unleaded and \$5.338 for premium unleaded. Today’s weather forecasts for various major California cities follow:

San Diego	62	51	Partly cloudy
Los Angeles	63	50	Partly cloudy
Palm Springs	70	52	Sunny
Fresno	60	42	Mostly cloudy
San Francisco	55	44	Mostly cloudy
Sacramento	64	39	Partly cloudy
Sonoma	61	40	Raining/Snowing
South Lake Tahoe	43	16	Raining/Snowing

Council of Engineering and Scientific Specialty Boards

CESB Status

CESB membership includes 16 member boards and two associate member organizations. These boards operate a total of 59 accredited programs.

Accreditation Activities

The primary mission of CESB is to accredit certification programs operated by organizations serving the engineering profession and allied specialties. Accreditation assures the public and employers that certification programs are administered consistent with recognized credentialing practices. Accreditation of certification programs by CESB is a separate action from membership and is available to only member boards.

CESB accredits certification programs in four categories: licensed engineers, graduate engineers, scientific specialties related to engineering, and engineering technicians. Accreditation is granted for periods of two to five years maximum. The 59 accredited certification programs, according to their categories, consist of:

- Licensed engineers 9
- Graduate engineers 1
- Engineering-related specialties 25
- Engineering technicians 24

Certification programs and the accreditation thereof are totally separate from the licensure of professional engineers. Certification of professional engineers under a program accredited by the CESB is attestation to specialty qualifications of the engineers in addition to professional licensure or registration. However, all CESB accredited certification programs for licensed engineers require professional licensure.

CESB remains the only organization offering certification program accreditation specifically tailored to the unique needs of engineering and engineering-related certification programs. Additionally, its operating philosophy—include and improve—continues to increase the quality of the certification programs of its member boards and certification in the professions.

The CESB has a policy requiring annual reporting on all accredited programs. These reports are reviewed by the Accreditations Committee and help ensure that all programs remain in compliance with CESB's accreditation guidelines during the period that accreditation applies.

Member Services

CESB updates CESB Members on organization activities and the credentialing industry through quarterly newsletters sent via email.

Due to COVID-19, the 2021 Annual Business Meeting was held virtually, but our upcoming 2022 Business Meeting will be held in person. It will be held March 14-15, 2022, at the Hilton Arlington. At the meeting, CESB will be having a Strategic Planning Meeting facilitated by SeaCrest Company.

CESB is conducting a survey to acquire more information on potential webinar topics that the membership is interested in.

Future Members

Accreditation is voluntary. Therefore, not every organization is willing to subject its certification activities to independent evaluation. However, those that do find the process improves the quality of its operations and the value of their certification program(s). Once accreditation is achieved, it provides a valuable mark of distinction that separates accredited programs from their competitors in the marketplace.

Institute of Electrical and Electronics Engineers-USA

IEEE-USA, created in 1973, advances the public good and promotes the careers and public policy interests of the over 150,000 engineering, computing and allied professionals who are U.S. members of the IEEE. IEEE-USA continued its strong support for NCEES in 2021 by providing item writers and subject matter experts for the Fundamentals of Engineering (FE) and

Principles and Practices of Engineering (PE) examination programs and volunteer leaders for related NCEES policy committees. Key events and developments of special interest to IEEE's U.S. members include the following:

NCEES Annual Meeting

IEEE-USA President Deborah M. Cooper regrets that she is unable to attend the annual meeting.

Participating Organizations Liaison Council (POLC)

One member of the IEEE-USA Licensing and Registration Committee ("LRC") continues to attend the annual POLC meetings. Nikhil U. Bodhankar, P.E., L.C., LEED AP will represent IEEE-USA at the March 2022 POLC meeting.

Examinations for Professional Engineers ("EPE") Committee

- Electrical and Computer PE Exam Committee ("ECE") Chair: Pat Donohoe, P.E.
- EPE Committee IEEE-USA Representative: Thad B. Welch, P.E., Ph.D.
- Electrical Power Exam Committee Chair: Raymond Heintel, P.E., RCDD
- Fundamentals of Engineering ("FE") Committee Chair: Anne Clark, P.E.

A two-day Zoom-based meeting was held during February 8th and 15th of 2021. These were the first real meetings of EPE in over a year. A traditional face-to-face, Friday and Saturday meeting was scheduled in February of 2022. Due to COVID concerns, this meeting was held using Zoom.

Electrical and Computer Engineering (ECE) Committee

The ECE Committee has completed the migration of all three exam modules to computer-based testing (CBT). The CBT launch of the Power module occurred on 1 December 2020 in the Linear-On-the-Fly (LOFT) format. The Computer and Electronics/Controls/Communications modules were administered in Linear Fixed Form (LFF) format on 20 October 2021. The overall number of examinees for the three ECE modules in 2021 are only slightly lower than the pre-pandemic numbers. The ECE Committee met online in January 2021 and May 2021 and met face-to-face in January 2022.

Fundamentals of Engineering ("FE") Committee

IEEE-USA continued to provide volunteers to develop items for the Electrical & Computer module of the Fundamentals of Engineering (FE) Exam. The committee met via Zoom for item writing and review sessions in April, August and November 2021 and January 2022. A further meeting is scheduled for April 2022 at the NCEES Greenville office. Anne Clark is in the second year of her two-year term as Electrical & Computer Module Chair.

Position on Educational Requirements for Licensure

IEEE-USA continues to oppose NCEES Position Statement 35, which promotes a future requirement that engineers complete additional engineering coursework beyond that of an accredited baccalaureate-degree educational program to become eligible for licensure. Our position is that ABET/EAC, with significant input from IEEE-USA, will continue to adapt its educational program accreditation criteria to meet the evolving needs for an electrical and computer engineering career path.

Education and Outreach Initiatives

The IEEE-USA Licensing and Registration Committee continues to write and publish articles informing IEEE members and other interested professionals on current issues concerning

licensure on an approximately quarterly basis in the online publication <https://insight.ieeeusa.org/category/careers/licensure-registration/>.

However, only two articles were posted in 2021:

- PE Examination Update – 16 Mar 2021
- The importance of Professional Engineer (P.E.) licensure for Electrical, Electronics and Computer Engineers - 28 Jul 2021

IEEE-USA Position Statement – The Use of the Title “ENGINEER”

On 22nd November 2019, IEEE-USA Board of directors adopted and issued the position statement on The Use of the title “Engineer”. The position statement can be found using the following link: <https://ieeusa.org/wp-content/uploads/2019/11/EngineerTitle1119.pdf>.

IEEE-USA Position Statement – Educational Requirements for Engineering Licensure

On 22nd November 2019, IEEE-USA Board of directors approved and issued the position statement on educational requirements for engineering licensure. The position statement can be found using the following link: <https://ieeusa.org/wp-content/uploads/2019/11/LicensureEducation1119.pdf>.

IEEE-USA Position Statement – Engineering Licensure

On 3rd October 2018, IEEE-USA Board of directors approved and issued the position statement on Engineering Licensure. The position statement can be found using the following link: <https://ieeusa.org/wp-content/uploads/2018/10/EngineeringLicensure1018.pdf>.

IEEE-USA Position Statement – Continued Professional Competence of IEEE’s U.S. Members

On 22nd November 2019, IEEE-USA Board of directors adopted and issued the position statement on Continued Professional Competence of IEEE’s U.S. Members. The position statement can be found using the following link: <https://ieeusa.org/wp-content/uploads/2019/11/ProfessionalCompetence1119.pdf>.

The National Electrical Safety Code® (NESC®)

IEEE denied NCEES request to allow the use of the National Electrical Safety Code as a reference material on exam, available only during the exam on computer to candidate, for no cost. The NESC is published exclusively by IEEE and updated every 5 years to keep the Code up-to-date with changes in the industry and technology. NESC sets the ground rules and guidelines for practical safeguarding of utility workers and the public during the installation, operation, and maintenance of electric supply, communication lines and associated equipment. NCEES and IEEE have an agreement to provide these through December 31, 2022. In addition, NCEES has a 5-year license for the use of 4 figures from IEEE Std-80. Those are used in the Power Reference Handbook. A book NCEES produces for examinees to use in the exam.

Next IEEE-USA L&R Committee Meeting

IEEE-USA L&R committee met in person twice each year. For the last two years the committee has been meeting virtually and at times based on the availability of members.

Institute of Industrial and Systems Engineers

The Institute of Industrial and Systems Engineers is the world’s largest professional society dedicated solely to the support of the industrial and systems engineering profession and individuals involved with improving quality and productivity. Founded in 1948, IISE is an

international, nonprofit association that provides leadership for the application, education, training, research, and development of industrial engineering. IEs figure out a better way to do things and work in a wide array of professional areas, including management, manufacturing, logistics, health systems, retail, service and ergonomics. They influence policy and implementation issues regarding topics such as sustainability, innovation and Six Sigma. And like the profession, IEs are rooted in the sciences of engineering, the analysis of systems, and the management of people.

The Institute has roughly 13,000 members comprising students, practicing professionals, academics as well as retired members. Institute members come from over 71 countries throughout the world.

New Committee Leadership

The Professional Engineering (PE) Examination development committee is chaired Joe Michels, Ph.D., P.E., C.P.L. Dr. Michels has served on the committee for 10 years and was the previous vice co-chair. He is assisted by co-vice chairs Peter Brust, PhD, P.E. and Chris Masek, P.E. Dr. Brust is in private practice as an engineering consultant in the manufacturing sector. Mr. Masek is currently employed by the United States Veterans Administration in the Omaha, Nebraska office. Dr. Brust has served on the committee for the past 7 years, while Mr. Masek has been a committee member for the past 4 years.

Our committee elected to have 2 vice co-chairs to better serve the profession, licensing committee as well as the engineering industry.

Committee Meetings

The PE examination development committee has met twice in 2021, with both meetings held virtually in November and February of 2021 due to the COVID-19 pandemic and social distancing restrictions. There were approximately 16 members attending and participating in each meeting.

Committee members made a strong, concerted effort to enhance and enrich committee membership of diverse individuals of color, gender and national origin. Although some progress was accomplished in this regard, the committee is still not as diverse ethnically as we would desire. Part of the challenge achieving this goal is that the pool of diverse Industrial and Systems Engineers fail to possess professional engineering licensure. Committee members continue to work on outreach in this area, however, we have not yet achieved our goal of a totally diverse licensing committee.

The committee continued to work diligently on the development of a computer based Professional Engineers reference manual for the Industrial/Systems PE examination. After 3 years of development, V1.0 has been published for examination candidates to review and use for the October 2020 examination. There was little feedback on the contents of the reference manual by the candidates of the October 2021 examination administration. Most comments received by the committee related to a candidate not understanding the material contained within the handbook, not the design or material composition of the handbook. As with all other licensing committees, this task is currently on-going. The committee received laudatory comments from the NCEES publications staff on the quality and caliber of the initial reference manual V1.0. The committee's intent is to continue to refine, enrich and enhance the manual in the upcoming year.

Computer Based Testing (CBT) Transition

The Industrial and Systems Engineering Professional Engineering examination was administered for the second time in the computer based format in the October 2021 examination. Approximately 127 licensing candidates signed up for the October 2021 CBT examination. The passing score for the second CBT administration of the ISE examination was 67%. This score is consistent with previous administrations of the ISE paper and pencil test administration, exclusive of the October 2019 test administration.

Examination Committee Participation in Licensing Advocacy

The ISE/PE examination committee held a worldwide webinar, hosted by IISE and attended by approximately 104 individuals in October 2021 to address the value and benefits of professional engineering licensure. The increased interest in ISE engineers becoming licensed is strong. The webinar had participants who were practicing industrial engineers and current students from throughout the United States, Canada and Asia. One of the reasons we believe that this increase in interest in licensure is the fact that many millennial age individuals are very concerned about licenses and certificates as contrasted with degrees.

NCEES reported that the number of candidates taking and successfully passing the ISE Fundamentals of Engineering (FE) examination has grown about 8% per year, for the past three (3) years. The examination committee uses this data as a “marker” for the future ISE professional engineering candidates. The committee’s expectation is that more candidates will attempt and successfully complete the PE examination.

IISE/PE hosts an online on demand review course for the PE examination. The course has had 24 participants to date since the course went live in September 2020. This course is part of the extensive training suite that IISE provides to engineers worldwide.

ISE committee members conducted and participated in a panel discussion on professional engineering licensure at the IISE second virtual annual conference held in May 2021. 5 PE’s were on a panel, attended by over 36 conference attendees.

The ISE magazine, a monthly publication of the Institute of Industrial and Systems engineers, continues addressing the benefits of becoming a licensed industrial engineer. The ISE magazine, published monthly by the society runs a column every other month on professional engineering licensure. This column is written by an examination development committee member and features professional engineers who have become licensed. These featured individuals cite the benefits to possessing a professional engineering license, the benefits that each licensee has achieved and why a non licensed candidate should strongly consider professional engineering licensure.

The IISE Board of Directors and the IE/PE development committee has reviewed and discussed the master’s-or-equivalent proposal that is in the NCEES *Model Law* and does not support this measure. IISE feels that the addition of 30 upper division/graduate credits, as a requirement for sitting for the PE exam, will not provide any greater safeguard for public safety, health, or welfare. The practical work experience gained by an engineer during the first four years of involvement in the Industrial and systems field is more necessary than additional educational hours for successful completion of the exam and to assure competent practice for the professional engineer candidate in the industrial and systems engineering field of practice.

Examination committee members are active in advocacy of professional engineering licensure. Committee members serve on NSPE national committees, Future Cities National Finals Judge,

MITRE scout engineers, DISCOVER E day participants, MATHCOUNTS volunteers as well as holding office in the Puget Sound Chapter of IISE.

Dr. Joe Michels, P.E., C.P.L. is the IISE and the IISE/PE development committee chair is working with NSPE's *Project Lead the Way (LTW)* addressing the various issues arising by some jurisdictions on increasing the number of credit hours a candidate must have attained in becoming a licensed professional engineer. IISE is one of several professional engineering societies making financial contributions to NSPE to fight increased academic credit requirements to become a licensed professional engineer.

International Society of Automation

The International Society of Automation (ISA) is the primary technical association for professionals involved with the automation, instrumentation and control fields of work. With over 20,000 members in over 80 countries of the world, ISA has five primary core interests of certification, training, standards, publishing and technical conferences. ISA was established in 1945 as the Instrument Society of America and changed the official name at its annual meeting in October of 2008.

ISA promotes and encourages professional engineer registration and license, by participating in the activities of the National Council of Examiners for Engineers and Surveyors (NCEES) and supporting the Control Systems (CS) Professional Engineer examination process. The volunteer leadership and professional staff provide funding, people, and efforts to enhance the value and need for the licensure of engineers working in process control and automation. To this end, ISA is active with the Examinations for Professional Engineers (EPE) Committee, Participating Organizations Liaison Council (POLC), state registration boards, and other professional societies. Also, ISA is a major supporter of National Engineers Week, both on a national level and at the local section level. This includes recognitions of outstanding engineers, local displays at schools, and assisting with other promotions.

One of the primary areas of interest is the maintenance and improvement of the Control Systems PE exam. The ISA Control Systems PE Exam Committee conducts an annual meeting of practicing engineers to develop new exam items and review the testing procedure and results. The content of each exam is audited for quality purposes and has shown steady improvement over the past four years. The number of engineers taking the CSE PE exam has increased each year, but did have a slight reduction in numbers during the pandemic this past year. **The control systems professional engineer exam is one of the most popular of the Group II exams offered by NCEES based on the 2021 statistics, with 224 test takers and a 67% pass rate for the first time takers.**

The most recent PAKS survey was performed in 2016 under the direction and guidance of the EPE Committee of NCEES. ISA provided the funds, personnel, and resources for the survey, which was conducted electronically in May and June of 2016. The results were used to establish a new exam specification for the test content and this specification was approved by the EPE Committee at the 2017 fall meeting in Atlanta. This specification is used to inform prospective examinees of the exam content and is now posted on the NCEES web site. **The new exam specification was incorporated into the ISA training materials and went into effect for the first time with the October 2019 exam administration.**

The **Control Systems PE Exam committee** will conduct an item writing session online in a virtual setting on March 11 – 12, 2022, in preparation for the October 2022 administration. The

October 18, 2022 administration will be the first computer based test (CBT) for the control systems professional engineer exam. The plan calls for similar meetings with new members being enlisted to update the exam and maintain the quality of the final results. **Also, the Control Systems Exam Committee continues to work toward completion and issue of the furnished reference document for the computer based testing for the control systems professional engineer exam.**

The Professional Development Committee (PDC) of ISA has developed and operates a certification effort for those in the automation field. This is the Certified Automation Professional (CAP), which has been accepted as the means to display the qualifications for someone in this area of work. The testing is available at any time during the year using computer based testing techniques. ISA develops the exams, establishes the qualifications, evaluates the applications, provides training sessions, and awards the certificates. Also, a certification is offered to practicing technicians in the automation field and it is called the Certified Control System Technician (CCST). This is a computer based test that is administered at various test centers located throughout the country.

ISA offers a broad range of continuing education courses to those in the automation and controls field. These classes are offered at the ISA headquarters in Research Triangle Park, NC, and in regional locations around the country. These training classes are complemented with a wealth of published books, reference materials and technical information exchanges. The pandemic experienced in 2020 and 2021 has made the move to online virtual training a requirement. In addition, there has been an increase in the distance learning classes offered by the society and this is expected to continue to increase in the future. The training and educational activity is conducted by a segment of ISA known as the **ISA Training Institute.**

The Control Systems PE Exam is supported with various training and educational endeavors by ISA. A Study Guide has been developed, published, and will be updated for use in preparing for the CBT exam. This study guide provides information and practice problems for those preparing for the exam. **This study guide is updated to reflect the new 2019 specification for the exam, which is still in effect for the 2022 exam. A revised Study Guide is being developed by the Exam Committee of ISA to reflect the conversion to a computer based test (CBT) in 2022.** The Publications Department of ISA has several books that are designed to provide assistance to prospective registrants. In addition, the three day Control Systems PE Exam Review Course was offered in 2021 as a live virtual instructor led (VILT) class, consisting of six sessions, four hours each.

Also, an instructor assisted online training class was developed in 2014 that consists of 20 one hour pre-recorded sessions, which may be viewed by the participant at any time convenient to their schedule. Each offering is over a twelve week period and includes five teleconference sessions with the instructor and the participants. ***This was a major step in the distance learning initiative and the course was offered two times in 2021 with good reviews and excellent participation.***

All of the training classes and courses are now being revised to reflect the changeover to CBT, and will be available this year. The **training and education** plans for 2022 essentially remain the same as 2021 with offerings of the three day face to face class two times, and the VILT six day (four hour sessions) instructor led review class. The online, instructor assisted course is being offered two times in 2022, starting in April and June. This is a

12 week course with 5 call-in sessions for problem solving and discussions among the participants.

The ISA Executive Board has reviewed and discussed the Masters or Equivalent (MOE) proposal that has now been removed from the NCEES Model Law, and does not support this type of measure. ISA feels that the current educational requirement, combined with the continuing education requirement of professional development hours each year, will provide the necessary safeguard for public safety, health, and welfare.

The practical work experience, gained by an engineer during the first four years of involvement in the control systems field, is more necessary than additional educational hours for successful completion of the exam and to assure competent practice for the professional engineer candidate in the control systems engineering field of practice. For that reason, ISA does not favor or encourage individuals to take the professional engineer exam until the four years of experience has been obtained.

Michigan Society of Professional Surveyors

Membership

As of the end of December 2021, MSPS membership was:

- Professional: 424, up from 421 last year
- Sustaining: 15, down from 21 last year
- Life: 131, up from 129 last year
- Associate/Affiliate: 85, down from 130 last year
- Student: 7, down from 31 last year
- Overall: 662, down from 732 last year

2021 Newly Professional Surveyor Licensed

- In-State 10
- Out-of-State 6
- Total New PS Licensed 16

2022 Annual Convention and Seminar Committee

- The MSPS Seminar and Convention was held in Traverse City, MI February 15-18, 2022.
- Seminar: over 160 surveyors in attendance at the one-day Tuesday seminar on Riparian Surveys and Laws.
- Annual Convention: approximately 480 attended from Wednesday, February 16 through Friday, February 18 and there was approximately 35 sessions.
- The Seminar and Convention together provided surveyors with as many as 23 continuing education credits.
- The focus of the Convention was on Riparian Surveys and Laws, Flood Plain Elevation Certificates, Insurance, and Building Compliance.
- A Diversity Session was given by members of the NSPS Diversity Committee
- There were presentations on the 2020 Dam Failure in Midland County.
- The Technician track returned to the 2022 MSPS Convention. The Annual Convention committee developed educational sessions that support the development of Associate and Affiliate members.
- The committee will analyze Tech participation levels at the 2022 Convention and by evaluating a survey that will be provided to the Survey Technicians and their employers.

TwisT

- MSPS in partnership with NCEES hosts a “Teaching With Spatial Technology” (TwisT) Program.
- The program is designed to provide grades 6-12 teachers with a meaningful and challenging lesson plans using Geographical Information Systems (GIS) and Global Positioning Systems in the classroom.
- The program is a week-long program for teachers. Unfortunately, the 2021 program had to be cancelled due to Covid.
- The program is schedule to resume in 2022 at Michigan Technological University (MTU), Houghton, MI from June 26-July1, 2022. The program is limited to 24 educators.

Trig-Star

- The National Society of Professional Surveyors (NSPS) Trig-Star Program is a national mathematics competition with a focus on trigonometry that is administered to high school students throughout the country.
- This year 12 states participated. Michigan had 13 schools participate in the program.
 - 1st place (\$1000): Javid Garcia / Tecumseh High School / Michael Bartolo PS, sponsor
 - 2nd place (\$500): Sydney Soules / Beal City High School / Jan Fokens PS, sponsor
 - 3rd place (\$250): Matthew Johnson / Clinton High School / Paul Funk PS PE, sponsor

Outreach & Communication Committee

- Michigan Career Quest South – Wednesday, April 21, 2021
 - MSPS participated in this event virtually and reached over 5,000 high school students.
- Michigan Career Quest Northwest – Wednesday, May 12, 2021
 - MSPS participated in this event virtually and reached over 3,000 middle and high school students.
- Various in-person Career Quests are scheduled for Spring 2022. The dates and times of these Career Quests will be posted on the MSPS Calendar.

Lobby Day

- Lobby Day was held virtually on March 19, 2021. Some of the surveyors who attended the believed it was better than in-person Lobby Day. It was more focus due to one-on-one discussions.
- This year’s Legislative Day is Friday, March 11, 2022, and will be virtual.

2022 Reference Frame (formerly 2022 DATUM) Committee

- The 2022 Datum Committee submitted Michigan’s Proposal to the National Geodetic Survey (NGS) on March 31, 2021.
- The proposal contains 5 Traverse Mercator (TM) zones and 13 Lambert Conformal Conic (LC) zones for a total of 18 low distortion project zones.
- NGS has delayed the approval of the new 2022 Reference Frame to 2025.

Unlicensed Activity Committee

- A good sign that the word is getting out that MSPS is pursuing unlicensed activity is that the committee did not receive any formal complaints in 2021.
- The committee had two complaints under review at the end of 2020 which were acted upon in 2021.

Chapters Task Force Committee (New in 2021)

- The new Chapter Task Force Committee worked with the bylaws committee to examine the roles and member benefits of Chapters. Actively surveying members to determine overall

involvement within MSPS at each level; Chapters, Committees, Foundation, Board, Convention, etc.

MSPS Foundation

- The MSPS Foundation is a 501.C.3.
- It was established to operate a surveying museum, to help educate the public, and to help administer scholarships. The surveying museum is closed.
- Now, the main function of the Foundation is to house and care for antique surveying equipment and to collect and distribute scholarship funds.
- In 2021 the Foundation reached its goal having a self-sustaining Scholarship Fund of \$200,000.
- The Foundation is contemplating selling the old museum building.

Legislation Committee

- The Legislation Committee is actively working on updating out of date survey legislation, Public Acts, and policies.

This report was prepared by James D. Hollandsworth, P.S., P.E. and is a summary generated from the 2021 MSPS Annual Membership Report. I would like to thank MSPS, AMR (MSPS Executive Director) and the Committees for their help in providing the information for this report.

National Academy of Forensic Engineers

The National Academy of Forensic Engineers (NAFE) was formed to identify and bring together professional engineers having qualifications and expertise as practicing forensic engineers to further their continuing education and promote high standards of professional ethics and excellence of practice. It seeks to improve the practice, elevate the standards, and advance the cause of forensic engineering. Full membership in the Academy is limited to Registered Professional Engineers who are also members of the National Society of Professional Engineers (NSPE). They must also be members in an acceptable grade of a recognized major technical engineering society. NAFE also offers Affiliate grades of membership to those who do not yet qualify for Member grade. NAFE is formally affiliated with NSPE, but is an independent organization incorporated in the State of Virginia.

The National Academy of Forensic Engineers and its members are committed to:

- Serving the public by advancing the ethical and professional practice of forensic engineering;
- Serving the jurisprudential system by certifying individuals having achieved expertise in forensic engineering;
- Serving Academy members and furthering the development of forensic engineers through education and the publication of peer-reviewed technical literature.

Among the programs and activities of NAFE include the following:

- Twice each year, NAFE members meet in different locations around the US for two full days of Forensic Engineering seminars. Fourteen hours of technical and professional continuing education credits are available, along with the opportunity to network with others in the field of forensic engineering.
- **The 2021 NAFE Winter Conference was held virtually on January 8-10, 2021.;**
- **The 2021 NAFE Summer Conference was held at the Providence Hilton, Providence, Rhode Island, July 30 - August 1, 2021;**

- **The 2022 NAFE Winter Conference was held at the Hilton El Conquistador, Tucson, Arizona, January 7-9, 2022.**
- **The 2022 NAFE Summer Conference will be held at the Hyatt Regency Toronto, Ontario, Canada, on July 22-24, 2022. Because of on-going Canadian COVID-related restrictions, the conference will have some hybrid characteristics.**
- NAFE is accredited by the Council of Engineering and Scientific Specialty Boards (CESB). NAFE's Diplomate Forensic Engineer (DFE) certification program has been accredited by the CESB. The reaccreditation application was submitted in June 2021, and 5-year reaccreditation is expected at the CESB 3/15/22 Board meeting.
- Since its establishment in 1982, NAFE has published the NAFE Journal, a compilation of peer-reviewed papers presented by NAFE members of technical as well as professional issues relating forensic engineering practice. The NAFE Journal is available online by visiting www.nafe.org.
- Most NAFE members are licensed as professional engineers in multiple jurisdictions in addition to their state of residence or employment. On occasion, some NAFE members are offered opportunities to conduct forensic investigations and testify in courts in jurisdictions in which they may not be currently licensed. Because of the unique role forensic engineers play within the nation's judicial system, NAFE advocates for enhanced comity/reciprocity flexibility for forensic engineers performing these functions.
- NAFE currently has the following Position Statement:
 - **It is the position of the National Academy of Forensic Engineers (NAFE) that (1) the practice of forensic engineering constitutes the “practice of engineering” under state laws and regulations, and that (2) professional engineers performing forensic engineering services should fully comply with state engineering licensing laws and board rules and regulations.**
- NAFE recently completed an extensive membership audit with the assistance of Mark Levin, B.A.I., Incorporated. As a result, NAFE is in the process of undertaking significant changes in the following areas:
 - a. New Member Recruitment
 - b. Intake/On boarding of New Members
 - c. Member Engagement
 - d. Retention
 - e. Marketing/Branding
 - f. Administration
 - g. Website coordination
- Over the last two years, NAFE dedicated significant resources and volunteer hours to update our website and incorporate additional remote and/or automated member services. While some of this work was driven by the membership audit and accelerated by the immediate needs during the pandemic, the process identified numerous ways we can better serve our members and the public through our online presence.
- NAFE responded to a request for nominations to two positions on the board of the National Institute of Standards and Technology related to their task force on artificial intelligence.
- The Community Association Institute (HOAs and condo boards) Task Force requested the participation of NAFE as they develop a response to the Surfside building collapse.
- NAFE worked with local engineers to address unclear legislation, legislative interpretations, and unintended consequences of Oklahoma actions regarding the definitions of “significant structures,” “responsible charge,” and “structural systems.” NAFE consistently takes an active role in advocacy.
- For more information about NAFE membership, conferences, publications or other information, please visit www.nafe.org.

National Society of Professional Engineers

While NSPE has continued to work towards its Strategic Plan goals in the past year, the organization's vision has remained the same:

A world where the public can be confident that engineering decisions affecting their lives are made by qualified and ethically accountable professionals

Throughout 2021, NSPE continued to focus on the four key areas of its Strategic Plan – champion, guide, advance, and unite. These key areas continue to provide the structure for NSPE's planning and activities, both day-to-day and long-term.

Key areas of NSPE focus are summarized below.

Champion (Protecting the PE License)

NSPE's highest priority is protecting the PE license, and threats to licensure come in many forms.

These included “consumer choice” and “right to earn a living” legislation (although we saw far fewer of these bills than in previous years), “military spouse” bills and so-called “universal licensing” policy. We continue to see attacks on licensure that treat all licenses with the same gravity. We are also seeing efforts to expand “military spouse” bills beyond highly-mobile military families to local first responders.

1. Old Threats

“Consumer choice” and “right to earn a living” legislation is still out there, but we saw a significant drop in the number of bills, and the number of states attempting to open the floodgates by allowing unlicensed and unqualified individuals to practice highly-technical professions like engineering. As has been NSPE's practice, the National staff worked closely with state societies to fight back against these dangerous policies anytime they arose.

We also saw fewer sunset provisions that included the “least restrictive” language that is so problematic. While there were a handful of sunset review bills, few were based on the premise that market competition is sufficient to protect the public.

2. New Threats

While “consumer choice” and “market competition” efforts decreased, we saw an increase in attacks against licensure that were more nuanced. It is unclear yet whether opponents of licensing have made a permanent shift to more subtle tactics, or if this was simply a short reprieve before they ratchet up their more blatant attacks.

One of the most common issues professional licensing faced last year was wrapped in an effort to improve license mobility for military families. Last year, twenty-four military spouse bills were introduced, and we've seen 8 introduced already in 2022. While the specifics vary, the premise of this legislation is to make it easier for licensed military spouses to get a reciprocal license when the family is transferred to a base in a different state. However, some jurisdictions are attempting to expand this concept to local first responders. To be clear, NSPE strongly supports the overarching goal of this legislation. As with most things, however, the devil is in the details.

Some of the bills we've seen contain language that would make license mobility harder, not easier, for military spouses. The most common barrier we've seen is a residency requirement: licensed professionals who are new to the state must establish residency before their license applications are processed. For Professional Engineers, it means a process that would take 7-10 days in most cases, could take as long as a year. It's the perfect example of an unintended consequence, and why NSPE watches these bills closely.

The other threat that's on the rise is what's commonly referred to as "universal licensing."

First, it's important to note that what's called "universal licensing" isn't. A universal licensing bill doesn't allow a Professional Engineer who's licensed in New York to practice in Arizona using a New York license. The New York engineer must still get licensed in Arizona. These bills generally require an expedited process, much like the military spouse bills, and the issues are often the same as well. Some, "universal licensing" legislation includes a residency requirement or similar barrier that would make licensing more difficult for professions like engineering that already have a mobility system in place.

While universal licensing policy is not yet common (only 8 bills were introduced last year), the rhetoric is prevalent, having been mentioned dozens of times over the past year in social media posts and official remarks by lawmakers across the country. The chatter indicates that we can expect increased legislative and executive actions in the months and years to come.

Guide (PEs in Emerging Technologies)

NSPE continues working on multiple fronts to promote and protect public safety in the development and implementation of emerging technologies. The Society works diligently to give professional engineers a leading voice in ensuring that the same attention to safety and reliability that went into the nation's built transportation infrastructure is incorporated into the implementation of emerging technologies.

As industry and government accelerate the development and deployment of autonomous vehicles, NSPE is once again standing for public safety. In [new public comments](#), NSPE called on the National Highway Traffic Safety Administration to follow recommendations in the Society's [Autonomous Vehicle Policy Guide](#), rely on the expertise of professional engineers, and implement a third-party verification process as part of the federal safety framework for automated driving systems.

Additionally, NSPE convened a Software Certification Task Force aimed at evaluating the feasibility of a new software professional certification that would provide greater protection of public health, safety, and welfare across all emerging technologies. The Task Force has ambitious goals, including development of structural requirements for the certification, conducting a market analysis to determine feasibility and demand, and identifying potential partners from both business and the regulatory community.

Advance

3. Strengthening the License

NSPE remains committed to strengthening the PE license. Professional Engineers in responsible charge of design/build projects provide a layer of protection to the public, using technical expertise to flag potential issues and offer solutions.

One of the most concrete steps we can take to strengthen the PE license is eliminating licensing exemptions. In 2019, the National Transportation Safety Board called for the elimination of PE

exemptions in the natural gas pipeline industry. In 2021, Nevada joined Virginia by ending their licensing exemption for natural gas pipeline design work. Other states are working on similar legislation, but have not found success in their efforts. Those deemed risky will be required to have a professional engineer in responsible charge. While it's not an outright elimination of the PE exemption, it is progress. And, importantly, it is progress that had industry support, which gives us a possible path forward in other states.

To facilitate the transition of affected groups of engineers moving from exemption to licensed-required, NSPE has established a working group that is preparing a practical guide for the requirements and circumstances for signing and sealing work.

4. Improving Access to Licensure

NSPE's work on licensure access has primarily centered around improving mobility. As mentioned previously, there is a concerted effort by state lawmakers to ease mobility barriers for military spouses. Though NSPE watches for unintended consequences created by poorly written legislation, we strongly support improving mobility for military spouses and other licensed professionals.

In order to guide the conversation and avoid some of those unintended consequences, the Alliance for Responsible Professional Licensing (of which NSPE is a founding organization) has published a report titled Licensed to Move, which "explores several examples of how states can responsibly accomplish flexibility and mobility."

Unite (Collaborations)

NSPE continues to participate in coalitions with organizations that share our commitment to preserving the integrity of professional licensing and certifications, and pushback against reforms that put public health, safety, and welfare at risk.

The coalitions in which NSPE is most active are the previously mentioned Alliance for Responsible Professional Licensing (ARPL), the Professional Certification Coalition (PCC), and the Building Resilience Action Coalition (BRAC). Each coalition successfully amplifies NSPE messaging around the value of professional licensing and certification. Of the more than 100 members of PCC, NSPE is among the most active, collaborating regularly with PCC leadership on policy and public relations initiatives. NSPE also continues to collaborate with state societies and affiliates to promote licensure, and to fight against potentially dangerous reforms.

Society for Mining, Metallurgy, and Exploration

The Society for Mining, Metallurgy and Exploration Inc. is a 14,000-member professional society representing the geologists, mining engineers, mineral processing engineers, metallurgists, environmental engineers, and others who work at the mineral industry and those in government, academia, equipment manufacturing, consulting, and suppliers. SME supports its membership through professional development, educational activities, careers, conferences, advocacy, and local, regional and international chapters. SME is recognized for excellence in its contribution to the members of the extractive industries.

2021 Transition in Management for the Mining Mineral Processing PE Examination

The SME Professional Engineers Exam Committee prepared problems and performed other exam development activities for the Mining and Mineral Processing Professional Engineers Examination (MMP) for licensure since 1978. On October 1, 2020, all development for the MMP Examination shifted to a committee directly managed by the National Council for Examining

Engineers and Surveyors (NCEES), and called the NCEES MMP PE Exam Committee. The shift in management follows the other engineering disciplines' examinations that were already managed by NCEES. A Memorandum of Understanding was signed on March 10, 2020 between NCEES and SME replacing the former agreement between SME that was signed October 2003. Prior to 2003, engineers from SME directly compiled and graded the MMP PE examination.

In 2021, the former SME Professional Engineers Exam Committee was reformed and renamed the SME PE Committee having non-examination development objectives to support the 2,500+ SME PE members. The SME PE Committee has 19 Professional Engineers, with Genevieve Sutton PE, Chair; and Christine Linden PE, Vice Chair. Accomplishments for 2021 for the Committee included finalization of the goals and objectives of the committee, development and use of a presentation for committee members to give to organizations promoting the value of licensure, review of 5 prior SME copyrighted PE Study Guides and practice exams for use in future editions, and 4 online quarterly meetings to discuss business. Also, the SME PE Committee reviewed updates to the SME Mining Reference Handbook used as the single reference in the MMP examination.

The NCEES MMP PE Committee operated independently having 2 bi-annual regular exam development online workshops. The NCEES Committee has a roster of 32 licensees, with all but one being an SME member. Their main activities in 2021 were to finalize preparation of the first computerized MMP examination. It was successfully administered by NCEES October 2021. The NCEES MMP PE Committee leadership is:

- Bill Balaz PE, Chair until Feb. 26, 2023
- Heather Dougherty, PE Vice Chair until Feb 26.2023
- Sonya Dawson PE, NCEES Exam Development Engineer
- Andrew Schissler PE, SME Liaison to NCEES.

The September 2021 SME PE Review Course was administered as planned with 33 attending the Denver-based meeting.

MMP Examination Results

In 2021, 65 people took the examination with a 51% pass rate. This compares to a 5-year averages of 70 taking the MMP examination per year and pass rate of 56%. Using data from the NCEES website for the January–June or July–December 2021 population, 14,807 people took the PE examination in all the disciplines with an overall pass rate of 56%.

2022 Goals and Objectives for the SME PE Committee

1. Support the SME PE Committee and the NCEES MMP PE Committee providing recruitment candidates, encourage attendance at meetings and other support areas.
2. Update the single reference electronically according to the Memorandum of Understanding between NCEES and SME.
3. Compile a draft of the 9th Edition of the SME PE Study Guide.
4. Give the presentation promoting licensure value to organizations.
5. Continued work on license advocacy issues through the POLC, participation in the License that Works Committee, and perform other associated activities that advance the value of licensure.

Society of Fire Protection Engineers

The Society of Fire Protection Engineers (SFPE) continues to thank the dedicated staff at NCEES for all its hard work in supporting the Fire Protection Principles and Practice of Engineering (PE) Exam in fire protection and the fire protection engineering profession. Over the last year, SFPE completed the following activities that promoted licensure and the profession of fire protection engineering:

PE Exam Prep Course

SFPE continues to promote the Principles and Practice of Engineering (PE) exam in fire protection. In 2021, SFPE sponsored a web-based preparation course for the fire protection exam, as they have done for many years. Approximately 133 candidates participated in this course. Additionally, the Fire Protection Exam Committee continues to support the exam. The Committee is currently working on updating the reference manual and getting new questions into the exam bank.

Educational Programs

SFPE continues to provide robust education programs that advance the practice of fire protection engineering. In 2021, SFPE delivered over 10,000 professional development hours to 3,300 individuals this past year through webinars and online seminars. Course topics included advanced fire modeling, smoke control, human behavior in fire, flammable liquids storage, fire protection systems design, and fire safety in very tall buildings. Additionally, 200 individuals joined us for our virtual European conference, and nearly 300 individuals joined us in Baltimore, MD, USA, for our annual conference

SFPE Engineering Guide to Fire Safety for Very Tall Buildings

In 2021, SFPE published the 2nd edition of its Engineering Guide to Fire Safety for Very Tall Buildings. This Guide uses performance-based fire protection engineering concepts to address the overall building design process for very tall buildings. The 2nd edition has new information related to existing structural fire protection, facades, egress modeling, building considerations, energy storage systems, and unique features related to very tall buildings (i. e., observation decks, amusement rides, fireworks, etc.). More information can be found at: <https://link.springer.com/book/10.1007/978-3-030-79014-1?noAccess=true>.

Supporting Higher Education

SFPE continues to remain active with fire protection engineering higher education programs. SFPE staff serves on the Industry Advisory Boards for University of Maryland fire protection engineering, Oklahoma State University fire protection technology and Eastern Kentucky University fire protection engineering technology programs. All three programs are accredited through ABET.

In order to help the next generation learn about fire protection engineering and hopefully pursue the field, SFPE has updated the career information web space and revising the handout material that gets used by members/universities in many regions.

SFPE Foundation

In 2021, the SFPE Foundation was awarded a Fire Prevention and Safety grant from the U.S. FEMA to create materials supporting firefighters and fire departments operating in the wildlife-urban interface. The SFPE Foundation also developed a Fire Engineering Practitioner Tools Report and funded a team to study the impacts of climate change on public water supplies and the implications for fire protection systems.

Structural Engineering Institute

With the resurgence of Covid this past year, our Licensing Committee has been continuing to meet remotely. We are all getting very adept at Zoom, Microsoft Teams, Google Meet, and various other software packages. We are planning to meet in person at the SEI Structures Congress in April, and we are more than ready for it!

Our committee has been working over the past year on the *ASCE Policy Statement 524 – Post-PE Credentialing Within the Civil Engineering Profession*. We have worked closely with ASCE Geotechnical Institute to refine the statement and to retain the language and concept of Post-PE “Credentialing” (which would include licensure) as opposed to Post-PE “Certification” which we believe to be a narrower focus. We presented our recommendations to the ASCE Committee on Licensure and received their approval. The final approval, however, will be decided by the SEI Board of Governors in March.

The Board of Directors of the Structural Engineering Certification Board (SECB) decided to cease operations as of March 31, 2022, which is the end of their current certification cycle. They stated in the letter to their membership that “the need for the interim step [of SE certification] no longer exists, and that it is now time for our profession to focus solely on SE licensing.” SECB was one of the founding member organizations of the Structural Engineering Licensure Coalition (SELC) and SECB’s decision to disband required SELC to restructure their organization and adjust their leadership transition procedures. SEI has been working closely with the other two remaining member organizations, the National Council of Structural Engineers Associations (NCSEA) and the Coalition of American Structural Engineers (CASE), to effect those changes. The final copy of the revised by-laws is out for review and vote as this summary is being written.

As mentioned above, SEI’s first in-person meeting will be held at the SEI Structures Congress on April 20-23, 2022, in Atlanta, Georgia. The Congress includes a session which will present a panel discussing the importance of professional engineer licensure to one’s career, *Classroom to the Boardroom; Transitioning to an Entry- Level Engineer*.

A Task Committee on *Reform of Structural Engineering Education 2* will be presenting its final report to the SEI Board of Governors Spring 2022 meeting which includes defining incremental goals to reform structural engineering education as it relates to *A Vision for the Future of Structural Engineering and Structural Engineers: A CASE for Change* goals which includes goal of supporting structural engineering licensure.

SEI is hosting a workshop this spring on *Future Environmental Conditions/Climate Change Impacts* on SEI’s codes and standards. The workshop will include standard developers and climate scientists deciding on information needed to address these impacts in future standards and in design practice.

Some of our members continue to work on the NCEES SE Examination Committee which is in the process of developing the last NCEES examination to go to computer-based testing (CBT)—the 16-hour Structural PE exam. Our members are working on converting the “pencil and paper” exam to an exam that can be administered completely on computer at testing sites using both multiple choice questions and alternative item types (AITs). AITs may include one or more of the following: multiple correct, point & click, drag & drop, fill in the blank.

Finally, SEI, NCSEA, and SELC continue to support the Structural Engineering Caucus that will be held at the NCEES Annual meeting. There has been some discussion within NCEES about the

need to provide an update about changes to administration of the Structural exam. Because of this need, the decision was made to have Jason Gamble (Chief Office of Examinations) provide an update at the Caucus as part of a combined session which will be held during the 10:00-11:30 time slot on Tuesday, August 23 before the NCEES Annual meeting at the Omni Resort Hotel in Carlsbad, California. SEI, NCSEA, and SELC are in the process of developing content for the remainder of the time available.

The Minerals, Metals and Materials Society

The PE Metallurgical and Materials exam development, historically performed by the TMS Professional Registration Committee, transferred to NCEES in October 2021 due to NCEES's planned transition to a computer-based exam format.

As a result of the transition, TMS finalized a new Memorandum of Understanding (MOU) with NCEES. Through the agreement the Professional Registration Committee chair became the inaugural chair of the NCEES exam development committee, TMS will act as the materials society providing ad-hoc technical expertise to NCEES as requested.

TMS also culminated all required obligations for the transition. Chief among its requirements was the completion of a Reference Handbook for exam takers to use electronically while taking the exam. This project was a result of five years of volunteer and staff effort and was completed according to all NCEES requirements.

Since the purpose for the Professional Registration Committee no longer exists, the TMS Board of Directors approved dissolution of the Professional Registration Committee to be effective March 1, 2022.

The TMS Annual Meeting, TMS2021, was held virtually due to COVID mitigation concerns.

TMS offered the seventh Metallurgical and Materials PE Exam Review Course virtually in 2021. The course will be offered again in 2022.

TMS collaborated with the Association for Iron & Steel (AIST) and The American Ceramic Society (ACerS) as partners for the Materials Science & Technology 2021 Conference, MS&T21. The conference was held in-person in Columbus, Ohio and included a virtual component for those unable to travel. Many in-person attendees remarked that it was beneficial to them to return to meet in-person.

The TMS Accreditation Committee continues as the lead ABET member society in the accreditation of university metallurgical and materials engineering programs. The committee assigned program evaluators to eight university programs in fall 2021. All visits were conducted virtually. ABET made the decision to hold the 2022 program evaluation visits in a hybrid model of both in-person and virtual. All involved agree that in-person campus visits are much preferred. Visit format will be a result of matching the institution's policy and the program evaluator preference for virtual or in-person visits.

NCEES Activity Update

NCEES has 11 standing committees, one task force, and one special committee this year. The standing committees are addressing a range of issues that include education, enforcement, and exams. One common charge—or theme—for the committees this year is a complete review of the NCEES policies, position statements, and white papers.

The Engineering Licensure Model Task Force is reviewing the current NCEES engineering licensure model and assessing whether a tiered licensure model would include more of the engineering team who have credentials other than the current NCEES designations.

The Council looked at this very closely 20 years ago through the work of the Engineering Licensure Qualifications Task Force. That task force included members of other societies who worked together to develop an in-depth report. This is the task force's second year, and we look forward to seeing the progress they are making.

Computer-Based Testing

NCEES is in the final phase of transitioning our exams to computer-based testing. The PE Civil exam, which is our largest volume PE examination, successfully transitioned to CBT in January of this year. This transition was accelerated and completed well in advance of its regularly scheduled date of April 2023 so we could increase testing opportunities for these examinees. Only the PE Structural exam remains in pencil-and-paper format, and it is on schedule to convert to CBT in 2024. Until that time, it will be administered regionally in April and October.

NCEES Exams

All exam volumes and pass rates for the 2020–21 fiscal year are included in the *Squared* publication that was posted in the POLC Basecamp project for this meeting. It is also available at ncees.org. FE and PE exam volumes look strong for the current 2021-22 fiscal year, though the PE Civil transition impact remains to be seen. As with all exams that transition to CBT, we typically see an initial drop in volume that takes some time to return to pre-CBT levels.

FS and PS exam volumes for the current 2021–22 fiscal year also look good.

Alliance for Responsible Professional Licensing

NCEES remains very active in assisting our member licensing boards with addressing threats to public protection.

We are currently monitoring approximately 150 licensure reform bills across almost 40 states. Universal licensure and right to earn a living acts are some of the most current challenges our professions are facing throughout the country. It is becoming more and more clear that the groups promoting licensure reform are almost exclusively focusing on mobility. They want to use the least restrictive means to increase the number of people who are quickly eligible to work across state lines within licensed occupations and professions.

The problem with this is these groups are disregarding the impact their proposed legislation will have on public protection. They make no distinction between occupations and professions. Engineers, surveyors, and other highly technical professions should not be grouped with occupations that do not have the same licensing standards in place. Education, exams, and experience are the foundation of safeguarding the health, safety, and welfare of the public. It only takes removing or lowering the standards of any of the 3 E's in one state to have a negative impact on mobility and to weaken public protection throughout the country.

This is why our continued work with the Alliance for Responsible Professional Licensing—or ARPL—is so important. This group brings together engineers, surveyors, architects, accountants, and landscape architects to provide a unified voice in these efforts.

Since our last meeting, ARPL has continued to bring these professions together at the state level to monitor legislation and share resources. It has also been instrumental in getting our messages out through the media in areas where it is most needed. ARPL recently coordinated, pitched, and placed an op-ed specific to West Virginia that was instrumental in having our professions carved out of a broad universal licensing bill that would have significantly impacted the mobility of our professions.

NCEES plans to continue its work with ARPL and looks forward to increasing the number of state-level resources available to our member boards and their partners.

New Business

President Robertson asked if there was any new business to consider. There was none.

Conclusion

President Robertson announced that NCEES staff would host a webinar for POLC representatives and leaders to provide an update on motions that would be coming before the Council at the 2022 annual meeting. He noted that invitations and more information would be sent in the coming months and that NCEES would be in contact about plans for the 2023 POLC meeting. He also noted that a recording of this meeting was available by emailing Sherrie Dyer.

With no further business to consider, President Robertson thanked all attendees for their participation and adjourned the meeting.